Designed Landscapes of Georgian Industrialists
1700 – 1830

Volume 1 of 2

Submitted by Dianne Elizabeth Long to the University of Exeter as a thesis for the degree of Doctor of Philosophy in History in November 2019

I certify that all the material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

Dianne E Long

Abstract

Designed Landscapes of Georgian Industrialists 1700 - 1830

Study of Georgian designed landscapes has almost exclusively concentrated on a relatively few, probably atypical, estates of the elite with little analysis of smaller estates, gardens in more urban areas or of sites contiguous with an industrial operation. This study contributes to redressing this omission and enhancing understanding of designed landscapes of the period by considering those sites contiguous and integrated with the industrial and proposes that they constitute a distinct design aesthetic.

Industrial need determined the location of the landscapes. Their built environment and complex water systems were designed for operational requirements but were integrated into the ornamental resulting in the ultimate expression of the utile dulce. Contemporaries' attitudes to the industrial and its role alongside agriculture and landscape in the national project of improvement is substantiated by the confidence industrialists asserted in displaying the industrial centre stage. The elite too included the industrial in the experience of their designed landscapes, a theme not previously explored. Whilst the focus of the research was the industrialists' pleasure grounds, kitchen garden and park, the extent of industry and associated community and agricultural infrastructure in a number of cases has pointed to the typology of an industrial estate akin to traditional, but progressive, elite estates.

Designed for industrial benefit, the landscapes were primarily for the private enjoyment of family and friends, but often also allowed visitors. They provided a polite context in which to marvel at man's ingenuity and endeavour, with additional implied patriotism and social benevolence. The extent to which the industrial was integral to the experience of the landscape was largely a factor of industrial sector, with metallurgical exhibiting the most complex compared with textiles and pottery. Study of other industrial sectors and geographical regions would further elucidate the typology that itself suggests the need for a broader appreciation in the study of garden history of the dual pleasure and profit motives that underpinned the concept of improvement.

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6.6 OS Six-inch Map, Glamorgan XII, surveyed 1868 to 1875, published 1885 (detail).

6.7 Detail of *Plan of Lands in Turton in the Parish of Bolton Le Moors and County of Lancaster Belonging to John Ashworth,* 1833, ABZ/36/2, Miscellaneous Papers. Bolton Archives & Local Studies Service. Reproduced with permission of Bolton Council. Photo © Author 2017.

6.8 Reservoir above the glasshouses (centre left) at Cyfarthfa used to supply the boiler and for irrigation. Photo © Author 2019.

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3.7 *A Plan of the Park and Part of the Demesne Lands at Alderwasley the Seat of Fran*^{s} *Hurt Esq*^{r} *with some Alterations by W*^{m} *Emes,* 1784, D2535/M/19/1, Derbyshire Record Office. Reproduced with the permission of Derbyshire Record Office. Photo © Author 2013. If this had been published before August 1989 it would be out of copyright but there is no record of whether or not this has been published. The copyright holder would be the author's descendant (William Emes or the Hurt family, should Emes have not retained the copyright).

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Note

All quotations use original spelling and punctuation.

Abbreviations

CADW	Welsh Historic Environment Service
HE	Historic England
EH	English Heritage

Introduction

Landscape and garden design reflect the culture of a particular time, place, and people, illuminating how they saw their place in society, their relationship with nature, their attitude to the past and to the future. Until more recently the study of designed landscapes has largely been from an art or architectural historical approach, but the recognition that other social and economic factors were equally influential has resulted in a more complex and nuanced picture, particularly when looking at the development of a landscape over time. However, analyses have still predominantly focussed on the estates of elite landowners with an over-emphasis on a small number of well-known and well-documented sites that usually involved a designer and were arguably showpieces, public art on a grand scale, that conferred legitimacy to the owners' social and political prestige and yet Williamson has noted that there were an estimated 4,000 landed estates around 1783, the date of Capability Brown's death.[1] Far less work has been done on smaller estates whether of gentry or new rich merchants or nabobs, and no study has been done on the landscapes developed by Georgian industrial entrepreneurs who often built their homes alongside their industrial activity, thus creating a complex, multi-faceted integrated designed landscape combining the ornamental with the utilitarian and productive, and whose landscapes, though distinct, might also be more representative of smaller landowners. Such landscapes have not been considered before as a group; it is thus hoped that this study will not only highlight a design aesthetic not previously explored but also enrich understanding of the designed landscapes of the period. Sarah Spooner in her regional study has similarly highlighted that the focus on a relatively few sites which were atypical, means that garden historians have tended to obscure the variety and complexity of designed landscapes in the eighteenth century and to simplify the developmental chronology.[2] With similar recognition, Williamson has urged that archaeology should produce a typology of estates to recognise

[1] Williamson notes that there were an estimated 4000 landed estates around 1783, the date of Capability Brown's death. Tom Williamson, *Polite Landscapes : Gardens and Society in Eighteenth-century England*, (Stroud: Alan Sutton, 1995), p. 82.
[2] Sarah Spooner, *Regions and Designed Landscapes in Georgian England*, (Abingdon, Oxfordshire: Routledge, 2016), p. 17.

their diversity and allow for meaningful analysis.[3] This research might contribute to such a typology.

The landscapes in this study epitomize the evolving characteristics of the designed landscape during the Georgian period from the formal geometric garden more associated with the previous century through the 'natural' and Picturesque to a return to some formality particularly in the immediate vicinity of the house, as well as gardens that seemed to fit into no neat pigeon hole, but be a unique expression of the owner. They demonstrate, contrary to some commentators, that the Brownian aesthetic did not sweep all before it, turning all reasonable sized designed landscapes into a homogenous landscape park by the late 1780s. Industrialists' landscapes, not being high status, high acreage, and mostly only developed during the period, are perhaps a more representative reflection of what the majority of owners were developing for themselves than were the gardens of the elite. The emphasis on improvement and shaping the landscape for both pleasure and utility was taken a step further by many industrialists who integrated the industrial with the ornamental thus embodying the ultimate utile dulce. For, they not only maximised the productivity of their estates through industrial development, agricultural and horticultural improvement, but also integrated the industrial and non-industrial elements by extending technology, architecture and recycling into their gardens that, in turn, celebrated their ingenuity as well as providing pleasurable and polite retreats in an overt manifestation of prosperity. Indeed, it could be argued that as the industrialists included the industrial in the experience of their house, garden or on the approach and often all three, they were challenging the illusion that a gentleman did not sully himself with labour and concerns of profit, but on the contrary were signalling that such endeavour was something of which to be proud and worthy of a gentleman.

Often descriptions of the landscapes of the elite landowners are wholly focused on the pleasure grounds, the garden buildings and their social use, yet as estates they were productive as well as pleasurable, and profit often included

[3] Tom Williamson, 'Archaeological Perspectives on Landed Estates: Research Agendas', in *Estate Landscapes: Design, Improvement and Power in the Post-Medieval Landscape,* ed. by Jonathan Finch and Kate Giles (Woodbridge: Boydell & Brewer, 2007, April 2003), pp. 1-18 (p. 2).

the industrial, particularly mineral extraction. Many of the elite and gentry were involved with, and their wealth came from, industrial and commercial activity, especially mineral extraction, they were also promoters and subscribers (investors) in turnpikes and canal expansion, and their ornamental landscapes sometimes interacted with their industrial concerns, though mostly not in the immediate vicinity of the house. Stone has noted that a significant minority of elite landowners played as important a role in industrial change after 1770 as they had in agricultural improvement after 1700 although the peak of their entrepreneurial activity was before about 1820.[4] Wilson noted that, 'in the eighteenth century the division between town and country, industrial and agrarian pursuits was difficult to draw and that manufacturers and merchants who knew nothing of the land were rare.'[5] The Curwen family in Cumbria were not untypical with mines and ironworks in addition to their well-known model estate developed by John Christian Curwen, whose income in 1782 from mining was double that of agriculture and was partly used to improve the estate.[6] Whilst economic historians may have explored the industrial activities of the elite and gentry, landscape and particularly garden historians have not done so, although Spooner has highlighted that to contemporaries the designed landscape was not confined to the garden and park but extended beyond with an aesthetic treatment not reserved for the garden alone, there being no clear dividing line between the purely ornamental and the purely practical, 'instead the two were constantly blurred and intermingled'.[7] Well managed, estates provided substantial incomes for their owners, a matter of personal pride but also something that was in their dynastic and national interest. This was no less true for industrialist landowners. They not only created gardens and estates consistent with their status and aspirations, but also ones in which they maximized the capabilities of the site for its pleasurable and productive potential.

[4] Lawrence Stone and Jeanne C. Fawtier Stone, *An Open Elite? England 1540-1880*, (Oxford: Clarendon, 1984), pp. 285-286.
[5] R. G. Wilson, 'The Denisons and the Milneses: Eighteenth Century Merchant Landowners', in *Land and Industry.The Landed Estate and the Industrial Revolution. A Symposium.,* ed. by J. T. Ward and R. G. Wilson (Newton Abbot: David & Charles, 1971), pp. 145-172 (p. 152).
[6] J. T. Ward, 'Landowners and Mining', in *Land and Industry. The Landed Estate and the Industrial Revolution. A Symposium,* ed. by J. T. Ward and R. G. Wilson (Newton Abbot: David & Charles, 1971), pp. 63-116 (p. 94).
[7] Spooner, *Regions and Designed Landscapes in Georgian England*, p. 2.

The late seventeenth to early decades of the nineteenth century was a period of substantial change in the design of gardens, how they were used and experienced. Different styles existed and evolved side by side. This study explores to what extent industrialist landowners expressed contemporary trends in their designed landscapes. The majority of the sites were developed in the latter half of the eighteenth century concurrent with the blossoming of the English landscape garden, an art form that constituted an amalgam of influences, philosophical, cultural, economic, political and practical, which had been evolving since the seventeenth century. Whilst such influences, particularly the philosophical and cultural, are well documented as governing the development of the estates of elite landowners, the extent to which they were reflected in smaller landscapes has attracted far less attention. It is also difficult to be definitive about the influence of industrialists' often extensive social and business networks, and the extent of their absorption into the gentry, on the development of their estates, but there can be little doubt that these contributed to the personal aesthetic that each individual, and their family, brought to their landscape. Most industrialists certainly extended their inventiveness into their garden making, exhibiting not only a pragmatic approach to the current trends in design, but also evolving an aesthetic which relied on the industrial being at the core of the landscape thus bringing it into the pictorial composition and experience of the landscape, and pointing to a specific design aesthetic. They exhibited a confident pride in the industrial, few industrialists hid the source of their wealth from view. This may seem strange today with attitudes clouded by nineteenth- and twentieth-century sensibilities, but it should be borne in mind that for contemporaries it was not the view of industry as a source of wealth and modernity that might be concealed, but industry in the contemporary sense of labour, particularly manual, the appearance of effort and the unsightly paraphernalia associated with the getting of wealth that was less attractive, and this was why some might have wished to obscure the view of industry from the purely ornamental and pleasure areas of the landscape.

Flamboyant architectural follies and extensive tree planting are often cited as evidence of the estate as an expression of both personal and patriotic pride, but less mentioned by modern commentators though not by contemporaries were

improvement schemes, sometimes incorporating the capitalisation of the industrial resources of an estate. Mackworth at the Gnoll, according to Byng, had, '6 coal pits in his park, at full work whence 50 tons of coal are daily carried to his copper works, and several others that have been overflow'd, but are now draining by fire engines.'[8] This was stated as fact and continued directly into description of the Mosshouse Wood cascade; this was approbation by default by Byng who was disparaging if something did not meet with his approval; it is also indicative of the attitude of contemporaries to the industrial: it was treated as something to admire alongside agricultural improvement, as here only a few sentences later Byng noted, 'The country around him was barren, - now they are mowing 3 loads of hay from each acre! His mountains are planted with trees, and his vallies are cover'd by beeves [cows].'[9]

Whilst the research explored industrialists' garden making in the contemporary context of what was being done by the elite, whether they were conservative or innovative, whether they were creating landscapes for social status or private enjoyment, the specific objective was to discover whether there was a distinct design aesthetic that was unique to industrialists, whether this was more marked in some industries than others and the extent to which their incorporation of the industrial was innovative. In so doing, it has revealed that there was far more use of the industrial in elite and gentry landscapes than garden history has recognized to date, that a distinct industrial aesthetic with greater integration was more marked in some industries than others, specifically with ironmasters' landscapes than with textiles or pottery, that the production of fashionable consumer goods was more likely to be associated with a landscape that attracted visitors and exhibited contemporary aesthetics. It has pointed to the typology of a designed industrial estate akin to the traditional patriarchal agricultural landed estate where improvement embraced the industrial together with the agricultural, horticultural, architectural and social. Further, the research has highlighted that the industrial did not have the connotations it later acquired, but, on the contrary, this was a period when the industrial was not something to

[8] John Byng Viscount Torrington, *The Torrington Diaries, containing the Tours through England and Wales of the Hon. John Byng, later fifth Viscount Torrington, between the years 1781 and 1794. Edited, with an introduction, by C. Bruyn Andrews, etc. [With plates, including a portrait.]*, (London: Eyre & Spottiswoode, 1934). vol. 1. p. 298.
[9] Byng, *The Torrington Diaries*, vol. 1, p. 298.

be hidden, as it would become in the nineteenth century, but a source of fascination and pride. Indeed, this study demonstrates that the industrial could be a deliberate feature within, or in association with, a garden context, enhancing the overall, often sublime, experience, and becoming or contributing to the dulce. Science and technology together with the fruits of empire were increasingly being exploited; industry and industriousness were the cause for admiration, and the combination of the beautiful, pleasurable, practical and ingenious, were being exploited in many different ways. The research has shown that contemporaries used the same terminology and tone to describe gardens, country seats, estates, industry and the natural environment, all of which might arouse sentiments of awe and admiration mixed with national pride. Pigeon-holing and a distinct language had not yet emerged, they were all viewed from the same perspective with industry as yet untainted by the Victorian attitude to the factory and Cobbett's proselytising of the despoliation of the countryside.

By bringing together a range of sites for analysis, revealing new information, comparing them to each other and to the elite canon, it is hoped that this research will contribute to the knowledge and appreciation of the diversity of the designed landscapes of the period, and particularly their use, whether productive or ornamental. It considers how design was expressed in the built environment, water and planting, how the landscapes were used and experienced, whether solely as private domain for the owners and their families or also used by employees or tourists, possibly as a marketing tool. It is recognised that this research has only touched the surface and that there is much more to explore, including other industrial sectors and regions and the extent of the industrial as a feature in the designed landscape.

Historiography

The discussion of garden design through this period is coloured by the fact that the majority of contemporary texts, evidence, and modern commentary focuses on the landscapes of elite landowners so that the experience of smaller estates and town gardens is almost invisible. There has been no study of industrialists' landscapes as a group and the sites rarely feature in the work of garden historians. The only substantial monograph was on Matthew Boulton's garden

at Soho, Birmingham, by Sheena Mason, Val Loggie and Phillada Ballard, in *A Lost Landscape : Matthew Boulton's Gardens at Soho.*[10] Val Loggie's doctoral thesis, *Soho Depicted: Prints, Drawings And Watercolours of Matthew Boulton, His Manufactory And Estate, 1760-1809*, drew on examples of how Boulton used the Soho landscape to manipulate the image of his brand.[11] This work drew on the extensive Boulton and Watt collection including the paintings by John Phillp, which provided source material unlike any other industrialist's landscape. The only other comparable archival material is in the Wedgwood collection for Etruria which has been used in this research and also in a recent article by Thea Randal to trace the development of the house and garden at Etruria.[12] *The Historic Gardens of England* series by Timothy Mowl et al. included some detail on sites in the counties covered, for example Enoch Wood's Fountain Place, Burslem, Edward Foley's Prestwood Hall, both in Staffordshire, John Billingsley's Ashwick Grove and James Fussell IV's The Chantry in Somerset.[13]

Michael Symes in *The Picturesque and the Later Georgian Garden* included a chapter on the impact of the new industry of the eighteenth century on perceptions of the Picturesque, how some, notably Coalbrookdale, became established on the Picturesque tourist trail, and in this context gave some detail from already published material of gardens like Boulton's Soho, Champion's Warmley, the Gregs at Quarry Bank, and Wedgwood's Etruria. Like Jacques in *Georgian Gardens: the Reign of Nature*, Symes discussed the industry of Coalbrookdale and the iron bridge as a tourist attraction, but made no comment on the Darby landscapes or the walks set out by Richard Reynolds.[14] In an

[10] Phillada Ballard, Val Loggie, and Shena Mason, *A Lost Landscape: Matthew Boulton's Gardens at Soho,* (Chichester, West Sussex, England: Phillimore, 2009).
[11] Loggie, Valerie Ann, 'Soho Depicted: Prints, Drawings and Watercolours of Matthew Boulton, His Manufactory and Estate, 1760-1809' (University of Birmingham, 2011).
[12] Thea Randall, 'Fit for a Gentleman: The Creation of Etruria Hall', in *Wedgwood International Seminar - Proceedings of the Sixty-First Annual International Seminar,* ed. by Anne Forschler-Tarrasch (Barlaston, England: Wedgwood Internal Seminar, 2016), pp. 59-68.
[13] Tim Mowl and Dianne Barre, *Staffordshire*. *The Historic Gardens of England,* (Bristol: Redcliffe, 2009), p. 188 and 197. Tim Mowl and Marion Mako, *Somerset*, *The Historic Gardens of England,* (Bristol: Redcliffe, 2010), pp. 156-157.
[14] Michael Symes, *The Picturesque and the later Georgian Garden*, (Bristol: Redcliffe, 2012). David Jacques, *Georgian Gardens: The Reign of Nature*, (London: Batsford, 1983).

article on town gardens in *Garden History,* Jane Harding and Anthea Taigel referred to John Lombe's silk mill in Derby; David Lambert in various publications discussed brass manufacturers landscapes at Arno's Court and Warmley in Bristol.[15] John Pendlebury and Fiona Green in work for the English Heritage Register Review recognised that the development of parks and gardens in the distinct context of coal fields of the Rivers Tyne and Wear responded to the environment often using and disguising former industrial workings, transforming the 'impolite' into the 'polite'.[16] This raises the question as to whether the industrial was seen by contemporaries as 'impolite' or merely other, and indeed is the concept of a 'polite' landscape a modern construct not one that contemporaries made? This study to some extent addresses this question. Some biographies of industrialists (e.g. Boulton, Wedgwood, Greg, Horrocks, and Wilkinson) included mention of their gardening and wider interests. One or two articles in *Garden History* and the publications of county gardens' trusts have mentioned individual sites, like that by Hunt and Everson of the gunpowder mills at Basinghill, Cumbria, usually seeing the particular site as an oddity and certainly with no context of other sites using the industrial.[17] Factory gardens of a century or more later were examined in a PhD thesis by Helena Chance who took a sociological approach to the design of the landscapes of Cadbury at Bourneville and the National Cash Register Company in Ohio, USA, in the late nineteenth and first part of the twentieth centuries.[18]

Whilst there is no substantial body of commentary specific to the industrialists' landscapes, contemporary works and modern scholarship on the elite landscapes is relevant to informing this analysis, especially to establishing the

[15] Jane Harding and Anthea Taigel, 'An Air of Detachment: Town Gardens in the Eighteenth and Nineteenth Centuries', *Garden History,* 24 (1996). David Lambert, 'The Prospect of Trade: The Merchant Gardeners of Bristol in the Second Half of the Eighteenth Century', 2002, *Bourgeois and Aristocratic Cultural Encounters in Garden Art, 1550-1850*, Dumbarton Oaks Colloquium on the History of Landscape Architecture, Dumbarton Oaks, Harvard University, 23. Stewart Harding and David Lambert, *Parks and Gardens of Avon*, (Bristol: Avon Gardens Trust, 1994).
[16] John Pendlebury and Fiona Green, 'Impolite landscapes? The influence of local economic and cultural factors in garden history: a case study of Tyne and Wear', *Landscape Research*, Vol. 23, No. 1, (1998).
[17] Abby Hunt and Paul Everson, 'Sublime Horror: Industry and Designed Landscape in Miss Wakefield's Garden at Basingill, Cumbria', *Garden History,* 32:1 (2004).
[18] Helena Chance, 'The Factory in a Garden: Corporate Recreational Landscapes in England and the United States, 1880-1939', (Oxford University, 2011).

context of the sites, whether they were in the vanguard of design as their owners were in their businesses or more conservative. Contemporary works, both literary and practical, that influenced landscape design are discussed in Chapter 1, 'Context of Landscape Design'. Other works, particularly travel journals, both published and unpublished, and the agricultural reviews that gave descriptions of both designed landscapes and industry, though often fairly scant on detail, are referenced in the text.[19] Modern garden history scholarship has tended to recite the same iconic sites, people and influences, inclining to a literary, philosophical, architectural or art-historical approach, often with emphasis on the garden buildings. Such approaches characterise the works of Christopher Hussey, Mavis Batey, David Lambert, Timothy Mowl, Tim Richardson, Michael Symes and others, whilst John Dixon Hunt in *Greater Perfections: The Practice of Garden Theory* set out what he termed a 'theoretical contemplation' of landscape architecture or garden/place making discussing the garden and its meaning.[20] Many of the concepts Dixon discussed and the themes explored by these scholars will be touched on later, like that of the three natures, Man's relation to Nature and the Divine or the role of art and nature, which were the themes of the literary and philosophical

[19] For example, John Serle, *A Plan of Mr Pope's Garden (1745)*, (New York: Garland 1982). *A Short Account of the Principal Seats and Gardens in and about Richmond and Kew*; descriptions of Stowe include those by Gilbert West published in 1732, *Stowe, The Gardens of the Right Honourable Richard Lord Viscount Cobham*; Samuel Richardson's Appendix to the third edition of Daniel Defoe's *A Tour thro' the Whole Island of Great Britain* (1742) the first garden guidebook, Benton Seeley's *A Description of the Gardens of Lord Viscount Cobham at Stow in Buckinghamshire* (1744), and published anonymously, but attributed to William Gilpin, *Dialogue upon the gardens of the Right Honourable the Lord Viscount Cobham, at Stow in Buckinghamshire* (1748), Robert Dodsley's *Description of The Leasowes* (1765*)*, the garden of his friend William Shenstone's; later the anonymous description of *A Tour to Ermenonville,* the landscape developed by René-Louis Girardin, Vicomte d'Ermenonville (1735-1808) and the site of Rousseau's island tomb.
For descriptions in travel journals see for example, Celia Fiennes, *Through England on a Side-saddle;* John Byng, later Viscount Torrington, *The Torrington Diaries (1781- 94)*; R. R. Angerstein, *R. R. Angerstein's Illustrated Travel Diary, 1753-1755 : Industry in England and Wales from a Swedish Perspective*, (London: Science Museum, 2001). Jabez Maud Fisher and Kenneth Morgan, *An American Quaker in the British Isles : the Travel Journals of Jabez Maud Fisher, 1775-1779*, (London: Published for the British Academy by Oxford University Press, 1992).
[20] Christopher Hussey, *English Gardens and Landscapes, 1700-1750. [With plates.]*, (London: Country Life, 1967); Tim Richardson, *The Arcadian Friends : Inventing the English Landscape Garden*, (London: Bantam, 2008). Tim Mowl, *Gentlemen and Players: Gardeners of the English Landscape,* (Stroud: Sutton, 2000); Michael Symes and Sandy Haynes, *Enville, Hagley, The Leasowes: Three Great Eighteenth-century Gardens,* (Bristol: Redcliffe, 2010); John Dixon Hunt,*Greater Perfections: the Practice of Garden Theory,* (London: Thames & Hudson, 2000).

debates of the eighteenth century, often attempting to define the principles of taste. Mark Laird's *Flowering of the English Landscape Garden* was ground-breaking in its analysis of planting, putting pay to the assumption that the English landscape garden had been devoid of flowering plants and the surviving records for industrialists' sites affirms his conclusions.[21] Research by Sarah Rutherford into late Georgian planting has looked at the species and planting styles adopted later in the period including those used by Humphry Repton.[22] A socio-economic approach is far less common, but Williamson, in *Polite Landscapes*, pragmatically recognized such factors as being probably of greater importance to the majority of owners than the literary and philosophical, with husbandry, forestry, sport and leisure pursuits, all contributing to the design, management and attitude to the development of a landscape park from the 1740s onwards. He asserted that productive activity was 'the very essence of its [a park's] structure', that its economic function and social role as a symbol of gentility overlapped, so, for example, the breeding and display of prize livestock in a pastoral landscape was consistent with the aesthetic whereas laborious arable farming was not and therefore was often remote from the view.[23] Over recent years, Roderick Floud has been looking at the economics of gardens, both capital and operational, his examples are largely elite sites, but this is understandable because it is for those that substantial records still exist.[24] Other than Blanche Henrey's extensive bibliographical review, probably the fullest critique of contemporary thought, was by David Jacques in *Georgian Gardens: The Reign of Nature*, which traced the twists and turns of the literary debate through the century with examples from both professional and owner designers.[25]

[21] Mark Laird, *The Flowering of theLandscape Garden: English Pleasure Grounds, 1720-1800,* (Philadelphia: University of Pennsylvania Press, 1999).
[22] Dr Sarah Rutherford, 'Hardy Plants and Plantings for Repton and Late Georgian Gardens (1780-1820)', in *Research Report Series,* (Historic England, 2018).
[23] Williamson, *Polite Landscapes,* pp. 119-123.
[24] Roderick Floud, *An Economic History of the English Garden*, (London: Penguin, 2019). Also, in lectures at Gresham College.
[25] Blanche Henrey, *British Botanical and Horticultural Literature : Comprising a History and Bibliography of Botanical and Horticultural Books Printed in England, Scotland, and Ireland from the Earliest Times until 1800*, (London: Oxford University Press, 1975). Jacques, *Georgian Gardens*. John Dixon Hunt and Peter Willis in *The Genius of the Place* presented a compendium of contemporary literature comprising the literary and philosophical influences for the English landscape garden.

Designers with substantial client lists like Charles Bridgeman and London and Wise early in the century, and those who had a major impact on the development of the eighteenth-century landscape garden, like the painter-cum-interior designer, William Kent, or the pre-eminent landscape gardener, Lancelot 'Capability' Brown, left no published record of the principles they followed other than their mark on the landscape. Monographs like those on Charles Bridgeman, William Kent, Sanderson Miller, Lancelot Brown, Uvedale Price and Humphrey Repton, have explored their role in the development and evolution of the English landscape garden and vary in terms of the emphasis on biographical or detailed critical analysis of their work.[26] The tri-centenary of the birth of Brown in 2016 prompted substantial work on his landscapes, identification of potentially new sites and more in-depth analysis of his techniques and impact, most significant those by John Phibbs and Steffie Shields, the former charting a critical assessment of Brown's design techniques in the context of contemporary landscape management. Brown and Williamson examined Brown and his contracting business alongside his associates and contemporaries.[27] Much less attention has been accorded the works of the main designer-practitioners who committed their principles and techniques to paper, like de Caus, d'Argenville (translated by John James), Stephen Switzer, and Batty Langley, all early in the century. Whereas the writings and design of Humphrey Repton and the owner designer-practitioners Uvedale Price and Richard Payne Knight feature more prominently because of their central role in

[26] Peter Willis, *Charles Bridgeman and the English Landscape Garden*, Reprinted with supplementary plates and a catalogue of additional documents, drawings and attributions. New edn (Newcastle upon Tyne: Elysium, 2002). Tim Mowl, *William Kent : architect, designer, opportunist*, (London: Jonathan Cape, 2006). Jennifer Meir, *Sanderson Miller and his Landscapes*, (Chichester: Phillimore, 2006). Edward Solomon Hyams, *Capability Brown and Humphry Repton*, (London: Dent, 1971). Dorothy Stroud, *Capability Brown*, New edn (London: Faber, 1975). Jane Brown, *The Omnipotent Magician: Lancelot 'Capability' Brown, 1716-1783,* (London: Chatto & Windus, 2011). Stephen Daniels, *Humphry Repton : Landscape Gardening and the Geography of Georgian England*, (New Haven, Conn. ; London: Yale University Press, 1999); C. Watkins and Ben Cowell, *Uvedale Price (1747-1829) : Decoding the Picturesque*, (Woodbridge: The Boydell Press, 2012).

[27] Willis, *Charles Bridgeman and the English Landscape Garden*. Tim Mowl, *William Kent.* John Phibbs, *Place-making : the art of Capability Brown,* (Swindon: Historic England, 2017). John Phibbs, *Capability Brown : Designing the English Landscape,* (New York: Rizzoli, 2016). Steffie Shields, *Moving Heaven and Earth*, (London: Unicorn, 2016). David Brown and Tom Williamson, *Lancelot Brown and the Capability Men, Landscape Revolution in Eighteenth-century England*, (London: Reaktion Books Ltd, 2016).

the debate on the Picturesque in the decades around the turn of the nineteenth century and for the very reason that they committed their ideas to paper.[28] Repton was the subject of significant work in 2018 to mark the bi-centenary of his death, which prompted the publication of the texts of many of his Red Books or reports for clients, allowing for reappraisal of his theory, proposals and how much were actually implemented. Repton was practising during the period when many of the landscapes in this study were developed, and therefore his comments are indicative of some contemporary attitudes particularly with regard to the unifying of the ornamental and productive. He was engaged by several industrialists, two of whom are included in this study (Galton and Gott) and even in those two commissions it can be seen how often his theory had to be tempered by what was practical and how he made a virtue out of necessity, even to the extent of having industry in the main view from the terrace of Armley House (Gott).

Methodology and Definitions

Over 700 individual industrialists across a range of industries have been recorded on a database, but many have not yet been identified with a specific

[28] Isaac de Caus, *Wilton garden; new and rare inventions of waterworks*, (New York: Garland, 1982); Antoine Joseph De\Zallier D'Argenville and John of Greenwich James, *The theory and practice of gardening: wherein is fully handled all that relates to fine gardens, commonly called pleasure-gardens ... Done from the French original [of Antoine Joseph De\0301zallier d'Argenville] ... by John James, etc*, (London: printed by Geo. James, and sold by Maurice Atkins, 1712); Stephen Switzer, *The Nobleman, Gentleman, and Gardener's Recreation; or, an introduction to gardening, planting, agriculture, etc*, (London: B. Barker, 1715); Stephen Switzer, *Proposals for printing, by subscription, a general system of agriculture and gardening; in three volumes ... viz., Delectissimis ruris introductio. Ichnographia rustica, pars prima, & altera*, ([1718?]); Stephen Switzer, *An Universal System of Water and Water-Works, philosophical and practical, etc*, (London: Thomas Cox, 1734); Batty Langley, *New Principles of Gardening, or the laying out and planting Parterres ... With ... directions for raising fruit-trees, etc*, (London, New York: Garland Publishing, Inc., 1982); J. C. Loudon and Humphry Repton, *A treatise on forming, improving, and managing Country Residences ... With an appendix; containing an enquiry into Mr. Repton's mode of shewing effects by slides and sketches, etc*, (London, 1806); Richard Payne Knight, *The Landscape, a Didactic Poem, in Three Books. Addressed to Uvedale Price, Esq. by R. P. Knight. L.P.*, (London: printed by W. Bulmer and Co.; and sold by G. Nicol, 1794); Richard Payne Knight, *An analytical inquiry into the principles of taste.*, Second edition. edn (London, 1805); Sir Uvedale Price, *An Essay on the Picturesque*, (London: J. Robson, 1794); Sir Uvedale Price and others, *A Dialogue on the distinct characters of the Picturesque and the Beautiful. In answer to the objections of Mr. Knight (in the second edition of The Landscape). Prefaced by an introductory Essay on Beauty; with remarks on the ideas of Sir Joshua Reynolds and Mr. Burke, upon that subject*, (Hereford, 1801).

house and garden and many did not have a home contiguous with their industrial activity. The original intention was to record the selected sample of landscapes systematically with a view to some quantitative analysis, however the data on the sites and their owners varied considerably, no sites yielding the same type or extent of information as another. Selection of individual sites for study was therefore largely based on the success of the industrialists concerned and their consequent investment in property, but it was also reliant on the availability of sufficient archive material or extant remains. Although the criteria for site selection was primarily where estate and industrial activity were contiguous, some account has been taken of estates of industrialists more remote from their business activity, where they had more than one property, or where industry and estate could not physically coexist. Contiguity of industrial activity and garden or home estate was determined as being where the two had a physical landscape relationship whether wholly, or in part, sharing a space or existing alongside each other.

The timescale of 1700 to 1830 is long, with the majority of sites developed in the last seventy years, but was chosen to encompass early examples of integrated industrial sites, recognise that some had a long design history, help to draw out a chronology and identify any changing attitudes to industry. The study looked only at sites in England and Wales, many no longer extant or only in part, and most that do are no longer in private ownership but functioning as hotels, public parks, museums etc. A wider spread of industrial sectors was originally intended and would have provided further comparison, particularly chemicals, brewing and paper, but it was decided to concentrate on three broad areas: metallurgical (iron, brass, copper, tin etc., including consumer goods i.e. the toy makers and others who transformed metal into small, often luxury items), textiles (cotton, wool, silk) and pottery. Even within this limitation there are manufacturing sectors not represented, like carpets (Kidderminster) and hosiery (Nottingham). The geographical spread was also limited largely to the concentrations of the industrial sectors, thus to the West Midlands (Staffordshire, Shropshire, Worcestershire), South Wales and the North West (Cheshire, Cumbria, Derbyshire, Lancashire, West Yorkshire,). This has meant that for each industrial sector there were several examples and the potential for

considering regional variation. A few examples of features in landscapes from other industrial sectors and those belonging to the elite have been included.

Both the terms industrialist and entrepreneur are used nowadays somewhat loosely to refer to those running medium to large businesses in both manufacturing and service sectors; they are also often used to encompass merchants and those involved in commerce. In this study, the terms industrialist or industrial entrepreneur are defined as those whose primary focus was the turning of raw materials into desirable and useful commodities or a product that could be used to produce such goods. The definition therefore excludes merchants and purely extractive industries, although there might have been mining or quarrying associated with the core industrial activity. The term industrialist is used in this study but it must be borne in mind that it or entrepreneur might only occasionally have been used in the eighteenth century, specific craft titles like ironmaster, potter or cotton master were more common. Also, the term manufacturer was rarely used because at the time it referred to those working with their hands and therefore the individuals employed in the enterprise not the owner; it has therefore largely been avoided here, especially bearing in mind that most of the individuals had wider industrial interests.

The history of designed landscapes can be approached from many different perspectives - architecture, art, literature, philosophy, design, horticulture, archaeology, and increasingly economic and social history. This study does not come from one perspective but draws on the multi-disciplinary approach to garden history. Research therefore included a wide range of primary and secondary sources: maps, plans, surveys, pictorial, estate accounts, diaries, commonplace books, travel journals/accounts, letters, newspapers etc. Both public archives and private have been consulted. It must be noted that plans and contemporary paintings can belie the reality, because plans were not always fully implemented, and paintings, especially those made for the owners might have been idealised versions of reality. However, knowledge of the creator, the circumstances of the drawing up of the plan or painting and comparison with other sources and images, as well as familiarity with the topography, can help to determine the veracity of such sources. For industrialists' landscapes there are few design plans, so surveys are likely to

represent the reality at the given date, particularly so as in many cases they include the industrial operations. All sites examined in detail have been physically 'walked' wherever possible and where they still exist. Elite sites on the English garden tourist route, like Stowe, Claremont, Nuneham Courtney, and the owner-designed gardens at Hagley, The Leasowes, and Painshill, all of which were influential, were also visited, although their current manifestation may differ from the original design and thus how they were experienced in the eighteenth century.[29] Some landscapes had a particular importance to or influence on some industrialists, so, for example, Richard Reynolds was very fond of Hawkstone Park, the creation of Robert and Roland Hill on a small complex of cliff-like hills rising sharply from the Shropshire countryside. This was visited and the extent of the walks, variety of incidents, and views, the precipitous character of some of the paths cut into the rock, brought a deeper understanding of his approach to the walks at Coalbrookdale than did a mere reading of contemporary and modern texts on the site.

The objective was to identify whether there was a distinct industrial aesthetic, whether this was unique to industrialists, different from that used by the elite and whether it was more marked in some industrial sectors than others. The analysis explored the notion that contemporary experience did not distinguish between horticultural, agricultural, landscape and industrial improvement and that therefore together industrialists' landscapes represented what could be termed the industrial estate, akin to the landed estate but with the additional

[29] Examples of sites on the English garden tourist route were Stowe, Lord Cobham's landscape in Buckinghamshire, a palimpsest of the development of garden design in the first half of the eighteenth century, with the more formal layout by Bridgeman, then William Kent's Elysian Fields and later Lancelot Brown's Grecian Valley, all heavily laden with political and classical allusion. Painshill, Charles Hamilton's owner-designed landscape in Surrey; the Hoare's Stourhead in Wiltshire; Lord Carlisle's Castle Howard; John and William Aislabie's Studley Royal in Yorkshire. Hagley, Enville and The Leasowes were closely interlinked, their owners advising each other, together with the significant influence of their wider family (e.g. Cobham at Stowe), political (William Pitt and other gardening Whigs) and literary circles (including Pope and Thompson) and with the gentleman architect Sanderson Miller. Hagley was the creation of George Lyttleton (1709-73) and Enville, by Harry Grey, 4th Earl of Stamford. The Leasowes was the poet William Shenstone's small estate where he created a circuit walk round and through his farm, with viewpoints each with inscriptions, his more impecunious circumstances meant that his structures were less robust than those of his noble neighbours, but it was one of the most influential gardens of the time, on the garden tourist route and mentioned by some of the industrialists in this study.

integration of the industrial, and that this created the ultimate improved estate comprising the utile dulce. In this the industrial became its own artistic expression, arguably for those who could not, or chose not to, afford elite garden trappings.

Structure of Thesis

The thesis is structured in two parts, the first provides the frame of reference, the context of design and landscape aesthetics during the Georgian period, the background of the industrialists and the varied actual and potential influences that might have shaped the design of their landscapes considering both the underlying cultural environment and the specific personal influences. Part two considers the physical realization examining the sites in detail under four broad headings of the designed estate, built environment, water, and horticulture and agriculture. The key question examined throughout is the extent to which there was interaction between the industrial and the ornamental, how this contributed to the impact of the landscapes, and how the landscapes were used and experienced. No attempt has been made to describe or include every site against each topic but uses examples that are either typical or unusual. Reference is made too to elite landscapes with similar characteristics.

Part 1 The Context

Chapter 1 Context of Garden Design in the Georgian Period

Industrialists were no less steeped in the cultural context of their time than were elite landowners and the prevailing zeitgeist contributed, albeit to a large extent subconsciously, to the design of their landscapes. The theory and influences now ascribed to garden design of the period, may not therefore have been so consciously employed by contemporaries, but the underlying currents of religion, the classics, contemporary discourse about the role of nature versus art, patriotism and its links with ideas of liberty and democracy, identity, and taste were acted upon as if innate. These went hand in hand with the prevailing interest in improvement, particularly relevant to industrialists. An assessment of industrialists' landscapes cannot be achieved without reference to such context, this chapter therefore summarizes contemporary landscape aesthetics and the culture in which these landscapes were being developed.

Chapter 2 Industrialists and Sites

This chapter considers the background of the industrialists, their family, education, social and business networks, potential cultural influences, the location of the industries and sites. Critical to understanding the development of the landscapes is an understanding of the people and their milieu. The industrialists came from a range of backgrounds, yeoman farmers, artisans, machine makers, trade, or families already involved in some way in the particular industrial activity, notable in the case of ironmasters and potters. Their families were of sufficient standing that they had an education when probably less than half the population did so.[30] They often had a scientific or technological inclination; some were inventors and certainly innovators. They had vision, huge determination, often a scientific approach, could see the potential of others' ideas, understood and were protective of their intellectual property, and were largely good managers. The most successful were usually people of multifarious interests, but it was their entrepreneurial ability, the organisation of manufacturing and labour that was key to the considerable business empires they developed. These industrialists rarely acted alone, but mustered financial backing, partners and a team of subordinates, as well as a wide network within their industrial sector, familial and social, but also often outside. In many cases there was close interaction with elite and gentry landowners, as lessors of the land on which the industrial activity was pursued, as investors, as partners, as joint promoters of infrastructure projects like canals and turnpikes; they also mixed socially and some intermarried. Some were politically active.

The industrialists, mostly, did not have inherited estates, personal wealth, nor the cultural capital, enjoyed by the creators of the elite landscapes, yet some were members of influential networks who exchanged ideas on natural philosophy, science and technology, on philosophy, art and society, and through entrepreneurial ability they developed considerable business empires and, often, large estates. The development of a fashionable house and garden, possibly with the help of a well-known designer, was often an outward expression of the industrialist's changing social status, but most had a genuine

[30] Jeremy Black, *Eighteenth-century Britain, 1688-1783*, (Basingstoke: Palgrave, 2001), p. 96.

interest in their estate, in agricultural improvement, and in horticulture. This study therefore indicates the aesthetic sensibilities of a group of people often not associated with taste and refinement, who did not come from significant landed wealth but who had a major impact on the industrial economic growth of the country and who probably contributed more in terms of GDP than did the landed wealth.

Given that the majority of the sites studied were contiguous with the industrial activity, an important feature of the research was the extent of the interaction between the two; the use of water, architecture and waste materials being the most distinctive duality of use. Unlike the landscapes of elite landowners, many of the industrialists' estates were developed on virgin territory, which included the improvement of heath and marsh land. Inevitably they were located where access to resources (raw materials, water and fuel) and transport links were most beneficial to their industry, which was often remote from towns. This usually necessitated the establishment of housing and facilities for the workforce leading to new communities, which, whilst not the focus of the research, were considered with respect to their setting and incorporation into an industrial estate landscape.

Details on each individual and site are not given in the text but a people gazetteer is given at Appendix 2 and a site gazetteer and bibliography at Appendix 3.

Part 2 The Physical Realization

Chapter 3 The Designed Estate

This chapter seeks to describe and assess the overall design of the landscapes, their setting, whether designers were involved, aspects of the design like approaches and boundaries and how the natural landscape is appropriated to the design.

Chapter 4 The Built Environment

In the eighteenth century the house was the fulcrum around which the garden and park were developed together with ancillary domestic structures like stables and farm as well as garden buildings. In industrialists' landscapes the structures

associated with the industrial activity also played a part as did associated community infrastructure. The role of architecture and the placing of buildings in the landscape impacted on the perception and experience of the landscape.

Chapter 5 Water

A pre-eminent feature of the eighteenth-century landscape garden was water, and in industrialists' landscapes was essentially an industrial necessity transformed into an aesthetic centrepiece. In some cases, the dual role of water, whether natural or artificial was designed in from the outset.

Chapter 6 Agriculture and Horticulture

Agriculture and horticulture were key aspects of the working estates, this chapter does not seek to look in depth at wider estate management where there was significant landholding, but on the home estate comprising largely the garden and park, by considering how planting contributed to the design, enjoyment and productivity. Industrialists, like their gentry contemporaries, were personally involved in their landscapes, particularly in tree planting and fruit growing. This more ephemeral aspect of the landscapes is that which yielded least significant interaction with the industrial but is perhaps more telling of the industrialists' engagement with gardening and the ornamental.

Part 1

Chapter 1
The Context of Landscape Design in the Georgian Period

The Georgian period witnessed considerable developments in landscape design, in the range of philosophical and artistic influences and the ways in which landscapes were experienced by their owners and others. Change was not however widespread or abrupt, for example the formal landscapes of major landowners as depicted in Kipp and Knyff's *Britannia Illustrata* (1720), whether fully implemented or not, were not suddenly jettisoned.[1] Views of estates, both elite and of industrialists, show that formal elements often withstood the improver's hand, in many cases features were retained to the beginning of the nineteenth century and in some to the present day.[2] Styles often overlapped and merged one into another - militaristic, forest, poetical, Arcadian, elegiac, political, ferme ornée, Chinese and Picturesque.[3] Industrialists were no different than others in adopting different styles and features that reflected their personality, status and response to the setting of the site; it is therefore helpful to summarize the context in which they developed their landscapes.

Following the Restoration of Charles II in 1660, it was French and Dutch design that influenced fashionable gardens in England. Both were formal, regular, symmetrical and employed significant enclosure, where Nature was highly controlled by Art. Such design was an expression of power, order and control, the greater the expressions of that control the more the gardens demonstrated the wealth, status and power of the owner and were therefore largely the preserve of grand, aristocratic estates. However, even earlier in the seventeenth century there had been some suggestions from influential voices

[1] Leonard Knyff, *Britannia Illustrata or views of several of the Queen's Palaces as also of the principal Seats of the Nobility and Gentry of Great Britain, curiously engraven on 80 copper plates. (L. Knyff delin. I. Kip sculp)*, (Londres: Joseph Smith (1720), 1740).
[2] John Harris, *The Artist and the Country House : a History of Country House and Garden View Painting in Britain, 1540-1870*, (London: Philip Wilson for Sotheby Parke Bernet, 1979).
[3] A ferme ornée was a garden integrated with a working farm so that the operation of the farm contributed to the ornamental effect and itself had ornamental planting and possibly buildings. The foremost examples were Woburn Farm in Surrey developed by Philip Southcote, and William Shenstone's The Leasowes in Worcestershire.

that the contorted excesses of such gardens was abhorrent and that more natural forms were preferable in a garden setting. Arguably the first to promote irregularity and a more naturalistic style was Sir Henry Wotton (1568-1639), writing mainly about Italian gardens in *The Elements of Architecture* (1624).[4] Francis Bacon (1561-1626) in his essay *Of Gardens* (1625) dismissed, 'knots … with diverse-coloured earths' as toys and John Evelyn (1620-1706) abhorred, 'those painted and formal projections of our Cockney Gardens and plots, which appeare like Gardens of past board and March pane, and smell more of paynt then of flowers and verdure.'[5] Later, Sir William Temple (1628-99) in *Upon the Gardens of Epicurus* (1685) had described the asymmetry characteristic of Chinese gardens and their imitating of nature, but had noted that it was difficult to achieve.[6] In the popular *Systema Horti-culturae: or the Art of Gardening* (1682), John Worlidge had suggested taking advantage of a natural river or stream.[7] London and Wise's translation of *The Retir'd Gard'ner* (1706, revised 1717) advocated winding (irregular) paths in groves to give variety.[8] Although his designs were contrived and still contained in an essentially formal structure, Batty Langley similarly encouraged that paths in groves and wildernesses should meander and be planted to imitate nature, not in straight rows.[9]

Thus the serpentine in garden design that was such a major feature later in the eighteenth century in meandering walks, drives and naturalistic watercourses rather than straight canals and formal pools, had a genesis long before Hogarth's 'Line of Beauty' appeared on the frontispiece to his engraved works

4 Henry Wotton, Sir, 1568-1639., *The elements of architecture, collected by Henry Wotton Knight, from the best authors and examples*, (London Printed by John Bill, MDCXXIV, 1624).
5 See *'Of Gardens'* 1625, Francis Bacon, *Bacon's Essays and Colours of good and evil with notes and glossarial index by W. Aldis Wright*, (London: Macmillan and Co., 1881), p. 407. Comments by Evelyn in a letter to Sir Thomas Browne, cited in Mark Laird, *The Formal Garden : Traditions of Art and Nature*, (London: Thames and Hudson, 1992), p. 9. Note however that Evelyn in *Elysium Britannicum or the Royal Gardens*, which was first published only in 2001, does discuss how to lay out parterres with box and sand, pp. 123-125.
6 Sir William Temple, *Upon the Gardens of Epicurus, with Other Eighteenth Century Garden Essays: Introduction by A. F. Sieveking. [With illustrations.]*, (1908).
7 John Worlidge, *Systema horti-culturae, or, The Art of Gardening*, (New York: Garland Pub., 1982), pp. 47-48.
8 François Gentil and Louis Liger, *The Retir'd Gard'ner*, (New York: Garland Pub., 1982), pp. 744-745.
9 Langley, *New Principles*, X-XI.

in 1745, and later explained in *The Analysis of Beauty*.[10] Bridgeman's Serpentine in Hyde Park was started in 1730, Kent had executed the rill at Rousham in the 1730s and Brown had sketched a serpentine lake at Packington in 1750 and designed the 'river' at Croome, also in the 1750s.[11]

As the eighteenth century progressed the regular, symmetrical and axial garden layouts with their highly manicured topiary where Nature was governed by Art that was abhorred by Addison and gloriously satirized by Pope in his Guardian essay of 1713, became associated with France and a regime that was seen as autocratic and tyrannical.[12] In sharp contrast were Italian gardens with their links to the villas and gardens of classical Rome, their variety and juxtaposition of the regular with the irregular, which increasingly appealed more to the English imagination. The controlled, formal ornamented space that required an intellectual appreciation gave way to an experiential landscape that elicited emotional engagement with variety, surprise and the elemental forces of nature of an apparently boundless landscape. Nuttgens has argued that attitudes to nature in England were characteristically different from that on the continent, having the formalism exhibited in France, Italy and Holland alongside the more lyrical and sensuous tradition of Shakespeare and Spencer.[13]

De-formalization went hand in hand with opening up to nature beyond the garden wall, thus D'Argenville sought to arrange the termination of walks and *claire voies* to view 'pretty landskips', as did Batty Langley, who recommended a painted screen if there were not a sufficiently picturesque view.[14] Switzer advised that where possible there should be no enclosing walls, 'but where-ever Liberty will allow, would throw my Garden open to all View, to the unbounded Felicities of distant Prospect, and the expansive Volumes of Nature herself.'[15]

[10] William Hogarth, *The Analysis of Beauty, 1753. (Reproduced, original size.)*, (Menston: Scolar Press, 1971).
[11] Willis, *Charles Bridgeman*, p. 96; Stroud, *Capability Brown,* p. 56.
[12] John Dixon Hunt and Peter Willis, *The Genius of the Place : the English Landscape Garden 1620-1820*, (Cambridge, Mass. ; London: MIT Press, 1988), pp. 143 and 204-208.
[13] Patrick Nuttgens, *The landscape of ideas*, (London: Faber and Faber, 1972), p. 70.
[14] A *claire voie* [clear view] was an openwork grille, gate or fence in a wall or hedge usually at the end of a walk. D'Argenville, *Theory and Practice,* p. 19 and 77. Langley, *New Principles,* XII.
[15] Switzer, *Ichnographia rustica,* XXXV-XXXVI.

He made the hedges to groves only two feet high and raised the canopy stripping off the lower branches so that one saw through and out, a feature also achieved later in the landscape park by deer and cattle grazing.[16]

D'Argenville also gave what might be the first description of something akin to the ha-ha, and Batty Langley considered it amongst the elements comprising a beautiful rural garden, recommending that they, 'should be made in every part of a Garden from whence good Views may be had.'[17] The technique was used by Bridgeman at Stowe and Vanbrugh at Claremont, although Horace Walpole had bestowed on William Kent the accolade that he, 'leaped the fence and saw that all nature was a garden.'[18] As well as giving a visual unity, the ha-ha or sunk fence was practical, it contained animals from straying not only onto the finer lawns near the house but also onto roads; and it had a further advantage of allowing animals and passing traffic to animate a view. As Nature and the natural became important aesthetic and cultural values, controlling Nature by making it conform to mathematical and artistic forms became anathema, the new skill, or art, was to make gardens and parks appear natural, disguising the control.[19]

Long before Alexander Pope's dictum, 'Consult the *Genius* of the *Place* in all', Sir William Temple had advocated as far as horticulture was concerned that the soil should dictate and plants be suited to the ground rather than man impose, both were acknowledging their debt to Lucan.[20] In 1757 Sir William Chambers

[16] Groves, also wildernesses, derived from bosquets or boscages, were designed areas of trees enclosed with hedges often to either side of walks, sometimes with clearings and 'cabinets', small inset spaces with seats, sometimes with an under-storey (closed) and sometimes not (open).
[17] Langley, *New Principles,* XII.
[18] Timothy Mowl, *Gentlemen Gardeners, the Men who created the English Landscape Garden*, (Stroud: The History Press, 2010), p. 106. Horace Walpole, *The History of the Modern Taste in Gardening*, (New York: Ursus Press, 1995), p. 43.
[19] For a discussion of this see Ann Bermingham, *Landscape and Ideology : the English Rustic Tradition, 1740-1860*, (University of California Press, 1989), p. 10.
[20] Alexander Pope, *Epistle to Lord Burlington* (1731) in Alexander Pope, *The Works of Alexander Pope, Esq; ...* (London: printed for A. Millar, W. Law, and R. Cater, 1789), pp. 280-281. Sir William Temple, 'Upon the Gardens of Epicurus', *The Works of Sir William Temple, Bart. ... To which is prefixed the Life and Character of Sir William Temple. Written by a particular Friend [i.e. Lady Giffard, sister of Sir William Temple]*, New edn (London: J. Brotherton, 1770), p. 221. 'Servare modum, finemque tenere, Naturamque sequi,' [observe moderation, hold to principle, and follow Nature]. (Lucan, ii. 381).

explored the effect of landscape as acting on the mind, emotions and imagination in *Of the Art of Laying Out Gardens among the Chinese*.[21] A theme that Addison had discussed in his *Spectator* articles on the pleasures of the imagination discussing the operation of the mind or intellect and the concept of beauty and taste.[22] William Hogarth's *Analysis of Beauty,* published in 1753, had sought to define the rules of taste, followed by Edmund Burke's *Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful* in 1756. David Hume's *Of the Standard of Taste* (1757) built on both Addison and Hutcheson (*An Inquiry into the Original of our Ideas of Beauty and Virtue*, 1725) asserting that taste came from knowledge and experience, which led to an objective and unprejudiced appreciation, the discussion was continued by Alexander Gerrard's *An Essay on Taste* (1759).

Taste was that elusive concept to a modern audience that permeated eighteenth- and nineteenth-century culture; it embodied an amalgam of knowledge and experience applied in an objective manner. Taste was about the capacity, that was both intellectual and cultural, to appreciate and respond emotionally, it was pre-eminently the preserve of the amateur not the professional or creator.[23]

The landowning classes were culturally and educationally steeped in the Classics, and understanding such culture was essential for the refined gentleman of taste. This was reinforced by contemporary philosophical and poetical writings and enhanced by their personal or 'borrowed' experience of European travel and contact with the physical remains of classical buildings, associated mythology, and the art of the Italian Renaissance. The exposure of wealthy young men, and their tutors ('bear-leaders' including Adam Smith, Thomas Hobbes, Joseph Addison, John Locke, and Joseph Spence) during the grand tour strengthened by the romanticized depictions of painters like Claude and Poussin of the vestiges of an arcadian classical landscape, fuelled a desire

[21] William Sir Chambers, *Designs of Chinese Buildings, Furniture, Dresses, Machines, and Utensils. Engraved by the best hands, from the originals drawn in China ... To which is annexed, a Description of their temples, houses, gardens, &c*, (London: pl. XXI. Published for the Author, 1757).
[22] Joseph Addison, *The Spectator*, Nos 411-414 (1712).
[23] For a discussion on taste see John Brewer, *The Pleasures of the Imagination : English Culture in the Eighteenth Century*, (London: HarperCollins, 1997), pp. 83-92.

once home to create similar settings for their newly built neo-classical mansions, which underlined their taste and status as a gentleman by evoking the Golden Age.[24]

Christopher Hussey argued that landscapes like Stowe, 'constituted an act of faith in the fundamental excellence of humanity and the perfectibility of Nature.'[25] He further argued that gardens in the first half of the eighteenth century that were designed to represent nature, an 'idealized nature', could be described as 'poetic gardens' evoking the gardens described by Virgil and Ovid, and essentially influenced by literature rather than a visual aesthetic.[26] This analysis seems to ignore the visual influences attributed to gardens like Stourhead and Painshill, and of the painter's eye that both Vanbrugh and Kent brought to the landscapes with which they were involved, including Castle Howard, Blenheim, Rousham and Stowe. For those who did not have the benefit of the grand tour, the admired 'landskips' of Claude Lorrain, Poussin and the more savage Salvator Rosa, and others, provided a second-hand experience. Literature and paintings were capable of interpretation in an English landscape setting and prompted the desire to create an ideal landscape of harmony and proportion. This synthesis of the visual and verbal was legitimised by Horace Walpole, who promoted landscape gardening alongside poetry and painting as the triumvirate of sister arts.[27] It was the painter turned landscape designer, William Kent, who pioneered the composition of a series of idealised 'landskips' with lawn, water, foliage and architecture, light and shade, beckoning from one to another. Like Vanbrugh and William Shenstone (at The Leasowes), he created a series of stage sets in which the actors were the owners and visitors, inhabiting an ideal, illusionary, landscape, often taking an emblematic journey, with abundant iconography particularly referencing the classics, which was easily readable by contemporary visitors, although less so today.[28] Capability Brown and his contemporaries progressed from a series of set pieces to an open, smooth and naturalistic landscape encompassing all that

[24] Adrian Tinniswood, *The Polite Tourist, A History of Country House Visiting,* (London: National Trust, 1998), p. 67.
[25] Hussey, *English Gardens*, pp. 100-101.
[26] Hussey, *English Gardens*, p. 14.
[27] Walpole, *History of Modern Taste in Gardening.*
[28] See the discussion on the sister arts and emblem books in http://www.en.utexas.edu/Classes/Moore/04.htm Accessed 9/1/2012.

the eye could see, and by implication bringing it into the 'ownership', with planting often drawing the eye rather than buildings. His compositions were of grass, water in the middle distance, trees and sky, largely disposing of classical allusion and artifice.

Later in the century, the painterly approach was different. William Gilpin considered that Nature (God) was the great painter and developing Burke's exploration of the Sublime and Beautiful, he associated roughness with picturesque and smoothness with beauty; things in Nature were rough, whereas those of Man were smooth, so something manmade (unless rough like ruins and therefore acted upon by Nature) was not conducive to a picturesque view.[29] Although in many respects agreeing with Gilpin, Uvedale Price interposed the picturesque as a third element to Burke's sublime and beautiful, but he was also seeking to apply the principles of painting - composition, colour harmony, effects of light and shade and unity of character - to landscape design.[30] He accused improvers like Brown of insipidity by making everything smooth. Price's friend, Payne Knight championed Nature having a freer rein with controlled wildness allowed up to the terrace, and, unlike Gilpin, he accepted useful buildings and ruins as well as arable into the view.[31] He prompted the vituperative debate on the Picturesque, by attacking a detail in one of Repton's unpublished Red Books (Tatton Park).

The iconic elite gardens, in their many manifestations, would not have existed without the buildings that commanded them. Palladio's *Quattro Libri di Architettura* began to have an influence in England in the early 1600s, but it was Lord Burlington in the 1720s and his encouragement of Castell's *The Villas of the Ancients Illustrated*, who was the spur to the extensive refashioning of the country houses in the eighteenth century in a uniquely British classicism.[32] This refinement required a complementary landscape rather than the formalism that had prevailed hitherto. The placing and use of the country house was also

[29] William Gilpin, *Observations relative chiefly to Picturesque Beauty, made in ... 1776, on several parts of Great Britain; particularly the High-lands of Scotland*, (London: R. Blamire, 1789).
[30] Price, *An Essay on the Picturesque*.
[31] Knight, *The Landscape.*
[32] Robert Castell, *The Villas of the Ancients Illustrated*, (New York: Garland Pub., 1982).

changing; it was increasingly moving to higher ground and becoming a social space with the entertaining rooms moving from the first floor to the ground and in time windows opened out into the garden.[33] Views from the principal rooms were no longer down onto the immaculate parterres of flat lawn, intricate patterns in turf (à l'anglaise) or low-hedged designs containing different coloured earths and minerals (broderie), but stretched to the middle distance and beyond, the window framing the view like a 'landskip'. Social activity spread outside into the gardens, and further afield into the landscape, as wild nature became less threatening and something to be experienced. The banqueting house close to and mostly in site of the house gave way to buildings some distance away, summer houses, fishing pavilions, hermitages, cold baths, belvederes, paths for walking and routes for carriage drives. The attraction of life in the country grew as it became more sociable and was more easily accessible as transport improved.

One has to be extremely circumspect from the standpoint of the secular twenty-first century not to overlook the importance and pervasiveness of religion in the everyday lives and thought of people during the eighteenth century whatever their religious affiliation. Religious symbolism would have been readily understood whether vested in the meaning of such things as flowers or even features like a straight path representing the virtuous conduct of a Christian, but it was also in the political consciousness. The legacy of the Civil Wars and the Glorious Revolution was not fully relegated to history until after the Jacobite defeat at Culloden in 1746. The long-standing antagonism with France was associated with its autocratic regime and Roman Catholicism, the former a factor in the support for the French Revolution in its early days, including some of the industrialists.[34] The Protestant work ethic was probably more pronounced amongst non-conformists who placed value on hard work, thrift, and efficiency – excellent attributes for businessmen – particularly as they were excluded from public life and universities, and this study has a high percentage of non-

[33] Mark Girouard, *Life in the English Country House: a Social and Architectural History*, (New Haven, Conn ; London: Yale University Press, 1978), p. 218. Windows at Versailles opened on to a broad terrace that looked down upon the controlled domain of the autocratic ruler extending as far as the eye could see.

[34] The many restrictions on Catholics were only partially removed with the Catholic Relief Act in 1778 and only fully in the Act of 1829. (Gordon Riots, 1780, against the Catholic Relief Act, 1778).

conformists, including Quakers (e.g. the early generations of the Darby, Reynolds, Lloyds, Strutt, Galton, Champion, Hanbury, Ashworth and Horrocks families).[35] A number of the industrialists gave money for the building of a church or chapel, like Richard Crawshay, who, 'liberally built an elegant octagon chapel, and endowed it at his own expense, which was opened for divine service on Sunday, September 1st, 1803.'[36] Even those who otherwise did not exhibit strong religious sympathies, like Boulton and Wilkinson, recognised the importance of religion in the life of their community and that as leaders in those communities they had a role to play, both building or contributing to the building of a church or chapel. In the garden a church tower or spire was a common design device recognised in contemporary culture and not requiring explanation, it was an allusion to the divine, the Garden of Eden and man's fall from grace, in spite of David Garrick's satirical comment in *The Clandestine Marriage* (first performance 20th February 1766),

> One must always have a church, or an obelisk, or a something to terminate the prospect, you know. That's a rule of taste, my lord.[37]

Milton's *Paradise Lost* (1667) would have been known to the industrialists, was referred to by many of them, and was in many of their libraries; it was amongst the books of Abraham Darby III sold at auction 12 May 1789.[38] The connection between the garden and a quest for Paradise was potent with gardeners in pursuit of re-creating a *ver perpetuum* [perpetual spring] and fruitful autumn.[39] Newton (*Principia* (1685)) had separated science from theology, such that

[35] Raistrick has discussed the role of Quakers in industry and science. Arthur Raistrick, *Quakers in science and industry : being an account of the Quaker contributions to science and industry during the 17th and 18th centuries*, (York: Sessions Book Trust, 1993). The rules governing their religious life were equally applied to their business behavior thus instituting good business practice which together with the close familial networks helped create a strong supportive business network. See also, Peter Jones, *Industrial enlightenment : science, technology and culture in Birmingham and the West Midlands, 1760-1820*, (Manchester: Manchester University Press, 2008).
[36] John Campbell, *A Political Survey of Britain being a Series of Reflections on the Situation, Lands, Inhabitants, Revenues, Colonies, and Commerce of this Island*, Vol. II, (London, 1774), p. 460.
[37] Cited in Brown, *The Omnipotent Magician*, p. 206.
[38] Abraham Darby III Books sold at auction 12 May 1789, from the Diary of Deborah Darby 1789-90, LAB/Deb/2 2nd Volume, Labouchere, Ironbridge Gorge Museum Trust.
[39] John Prest, *The Garden of Eden, The Botanic Garden and the Re-creation of Paradise*, (Yale University Press, New Haven and London, 1981), p. 67.

Nature came to be seen as benevolent and an expression of God's goodness to creation and to Man.[40] Shaftesbury reaffirmed the time-honoured Christian analogy of God as the supreme artist (and creator of the garden of Eden) identifying 'Nature' with 'Beauty' and 'Beauty' with 'Moral Good'; his view of harmony in nature and between man and the natural world was a restatement of the classical, Arcadian understanding of the world.[41] Thus the various classical and the Christian ideologies merged and Nature was no longer feared but celebrated. Mr Ashton, a visitor from Manchester to Enoch Wood's manufactory and garden, expressed this in some verses, one for an 'Inscription for a seat which may have a full view of Wolstanton Church. Or for a stand upon the top of the Hermitage, which overlooks the valley.'

> Tis not in churches made with human hands,
> That God exclusive 'tends to prayers or praise,
> Read Nature's Bible! Mark her spread commands,
> Then in her temple, Gratitude high raise.
> The sight of blooming Nature lifts the eye
> To Him who will'd it all, with fiat Nod!-
> To Him then raise (who governs all on high,)
> Your gratefull praise. The Christian's, Nature's God.[42]

Retirement and solitude were recurring themes of the experience of the garden and of nature, referencing biblical retreats into the wilderness, for example by Shaftesbury and later Rousseau; an element of solitude, however temporary, was usually a requirement of the regenerative quality of communing with nature (and with God).[43] This quality in a garden might attract the highest of tributes, as did Soho from Erasmus Darwin, 'Wandering thro' these secluded walks and on the banks of the several fine lakes and waterfall which adorn them we may here enjoy the sweets of solitude and retirement.'[44] The existence of hermitages

[40] Allan Ruff, *Arcadian Visions : Pastoral Influences on Poetry, Painting and the Design of Landscape*, (Oxford: Windgather, 2015), p. 70.
[41] Ruff, *Arcadian Visions : Pastoral Influences on Poetry, Painting and the Design of Landscape*, p. 72.
[42] Mr Ashton's Poem written after seeing the Manufactory as noted in Enoch Wood's Memoir, PM1/1/86-1, Enoch Wood Papers, The Potteries Museum & Art Gallery
[43] Girouard, *Life in the English Country House,* p. 215.
[44] Ballard, Loggie and Mason, *A Lost Landscape,* p. 42.

like those at Soho and Fountain Place also suggests a desire to have a locus within a garden for solitary pursuits like reading and writing. Grottoes too might serve a similar role as suggested by the words written over the entrance to Sarah Darby's grotto, 'Here quietly meditate upon the past, the present and the future; what thou owes thy Supreme Creator, and what is due to thy Companions through this Vale of tears!'[45] Castlehead, Wilkinson's private retreat remote from his main business activities, provided the 'wren's nest' where Joseph Priestley wrote several of his works.[46]

The concept of three Natures as demonstrated in classical gardens like Pliny's Tuscum, was promoted by Bacon (*Of Gardens,* 1625) with the ordered/ornamental in the foreground, the cultivated/agricultural in the middle and the 'wild' (even if contrived for sport, forestry etc.) beyond.[47] In the eighteenth century this principle was coalescing such that both first Nature (the wild, natural world) and second Nature (that which man had impacted for his survival as in settlements and agriculture) were being brought into the multi-sensory experience of the designed landscape of the third Nature.[48] This way of thinking was reaffirmed by William Gilpin later in the eighteenth century as components of a Picturesque scene, except that he required pastoral agriculture, not arable, which he considered ill-suited to a painting, because the painter did not want Art to be apparent.[49]

The wilderness as a design feature is most associated with the very extensive landscapes developed in the late seventeenth and early eighteenth centuries, although it continued. It was a controlled wildness outside or separate from the garden, and symbolic of the respective distinct places of the garden (of Eden) and the (biblical) wilderness. Yet there was a tension: for it was in the garden of

[45] Poem written by Sarah Darby and placed over the entrance to her Grotto, c. 1750, Lab/Sar/2/3, Labouchère, Ironbridge Gorge Museum Trust
[46] Priestley letters cited in Diana Clarke, 'Joseph Priestley and the Wilkinsons', *Broseley Local History Society Journal*, No. 34, 2012, p. 19.
[47] Francis Bacon, *Essays with annotations by Richard Whately*, (1856), pp. 406-407.
[48] The concept of three Natures where first nature was the wild, natural world; the second was nature that man had impacted for his survival as in settlements and agriculture; and the third was where man had imposed through design, by creating a garden. See Hunt, *Greater Perfections*, pp. 48-73.
[49] William Gilpin, *Observations on the River Wye ... New introduction by Sutherland Lyall. (Republished.)*, Third edition. edn (London, 1792), p. 44.

Eden that man fell from grace, and it was not there in 'the luxuriant foliage of a garden, leading an easy life among the fruit, that wisdom and virtue were to be found', but in the wilderness, the scene of trial and expurgation, of refuge and contemplation, through which Man found a return to God's favour.[50] Moses, the Exodus, Elijah, Christ all went into the wilderness. So, whilst the garden was a place for contemplation and retreat from the [corruption of] the world [society] there was a contradiction in its role in the road to redemption. Yet how often has the challenge of creating a garden been couched in the language of the pioneer? This was certainly the case for a number of the industrialists, whose gardens were described by contemporaries as having been fashioned from a wilderness, a barren heath or desert, as did James Watt in his memoir of Matthew Boulton describing, 'his turning a barren heath into a delightful garden,' thus, man was taming nature and creating his own productive Paradise.[51]

Improvement

The foregoing has outlined the themes commonly recounted as influencing the designed landscape developments of the Georgian period. Far less common is discussion of the designed landscape in the context of contemporary understanding of the ideology of improvement. In fact it could be argued that improvement was the predeterminant of the development of the English landscape garden rather than any one or combination of those philosophical and aesthetic influences already discussed, which were in some respects an integral element of improvement rather than being complementary. In garden history improvement is sometimes conflated with the concept of taste and, whilst it is likely that the gentleman of taste also undertook improvements, they were not the same. Taste was the aesthetic corollary of the scientific aspect of improvement: judgment based on knowledge and experience filtered by reason and the emotions (senses). References to improvements used in garden history discussions, for example in quotations from Jane Austin, are couched almost as quaint terminology for the modifications to the landscape that manifested taste, such references are often taken at face value and ignore what Austin herself, her characters and eighteenth-century landowners would have understood by

[50] Prest, *The Garden of Eden,* p. 24.
[51] H. W. Dickinson, *Matthew Boulton*, ([s.l.]: [s.n.], 1936), p. 208.

the term improvement. To them improvement conveyed, as Sarah Tarlow has argued, a positive moral value with the aesthetic and economic being indistinguishable; improvement was, 'strategic, active and was seen as a moral and ethical obligation.'[52] The betterment of mankind and his condition was, 'to be realised through the accumulation of numerous acts of Improvement, enacted upon land, manufacture, communication, society, the self and every other sphere of human endeavour.'[53]

Daniels has noted that the idea of 'improvement' was central to landed culture such that by the end of the century the term referred to a range of activities, not only the, 'moral and aesthetic dimensions or implications of estate design and management' but also, 'a broad range of conduct, from reading to statecraft.'[54] This assessment fails to recognise that the ideology of improvement was from the outset an all-encompassing philosophy of man's engagement with the world. Improvement had its roots in the seventeenth century in the belief that with piety, wisdom and endeavour, man, as an individual, in society and in the state, could improve the human condition both spiritually and materially. The goal was the potential for a return to, or recapturing of, the Garden of Eden before the fall. The origins of improvement were about the moral benefits of enhancing the productivity of the earth and were inspired by the utopian writings of Francis Bacon, expanded by Comenius (1592-1670) and by Samuel Hartlib's (c.1600-1662) circle whose interests ranged across a wide spectrum including agriculture and horticulture, chemistry, minerology, finance, medicine.[55] Thus it might encompass restoring fruitfulness to the earth, the discovery of medicines

[52] Sarah Tarlow, *The Archaeology of Improvement in Britain, 1750-1850*, Cambridge: Cambridge University Press, 2007), p. 67 and 19.
[53] Sarah Tarlow, *The Archaeology of Improvement*, p. 20.
[54] Stephen Daniels, *Fields of Vision : Landscape Imagery and National Identity in England and the United States*, (Polity Press, 1992), pp. 81-82.
[55] This was coterminous with the formation of the 'invisible college' of natural philosophers and physicians who went on to found the Royal Society (1660), which was initially referred to as 'The Royal Society of London for Improving Natural Knowledge'. https://royalsociety.org/about-us/history/ - timeline Accessed 16/4/2020. One of Francis Bacon's arguments was that scientific explanation or appreciation was a form of Christian divine service. Bacon's utopian vision of a society organized for scientific research and virtuous living based on revealed religion is set out in *Nova Atlantis* with the *House of Solomom* the research institution. , https://plato.stanford.edu/entries/francis-bacon/ Accessed 19/4/2020. Oxford History of Science Museum, https://www.mhs.ox.ac.uk/gatt/catalog.php?num=53 Accessed 15/4/2020.

to heal the sick, and provision of work for the poor to alleviate their lot.[56] Interestingly too, Comenius, a contemporary of George Fox (1624-1691), advocated a universal language which would facilitate a common means of communication enabling an understanding of the essence of things and in turn lead to universal harmony; this has a parallel with Quaker advice to learn languages and emphasis on responsibility to the community, on peace and leaving the world a better place.[57] The enlightenment's stimulation of and the growing belief in science and the application of scientific principles contributed to the ideology of improvement that entailed the accumulation of knowledge based on observation and experiment with the application of reason and engagement of the senses.

This belief in improvement as an agent of change was encapsulated by Adam Smith in *Wealth of Nations:* change in one area would instigate further change elsewhere, so, for example, modification in land use would have an impact on the labourer, the farmer and the landowner and the community more widely.[58] 'By improving the human environment, human society would be affected positively, and this improved humanity would then act back on the environment, carrying out further improvements, either indefinitely, or until the utopian point of an ideal society had been reached.'[59] It was recognised, for example in the work of Defoe, and later Gilpin, that they were looking to the potential aesthetic, productive, commercial, intellectual and moral life of the nation rather than its present reality.[60]

Virgil's *Georgics* played into the ideology of improvement with its assertion that in contrast to politics and power, it was the landscape that gave the country its

[56] https://www.mhs.ox.ac.uk/gatt/page_index.php?section=garden Accessed 15/4/2020.
[57] For Comenius https://www.mhs.ox.ac.uk/gatt/catalog.php?num=39 and https://www.mhs.ox.ac.uk/gatt/catalog.php?num=40 Accessed 15/4/2020. Raistrick, *Quakers in Science and Industry*, p. 33.
[58] Sarah Tarlow, *The Archaeology of Improvement in Britain, 1750-1850*, Cambridge: Cambridge University Press, 2007), p. 23.
[59] Ibid.
[60] Stephen Kohl, 'Spatial practices of eighteenth-century domestic travellers' in *English Topographies in Literature and Culture: Space, Place ad Identity*, ed. Ina Habermann and Daniela Keller, Spatial practices: and interdisciplinary series in cultural history, geography and literature; 23, (Leiden and Boston: Brill Rodopi, 2016), p. 201.

strength and character, reinforcing notions of patriotism and the desire to increase the amount of productive land.[61] Further, the ideal of the *Georgics* encompassed cultivation of plants (horticulture) alongside farming and stockbreeding (agriculture).[62] The pastoral idyll went hand-in-hand with significant socio-economic factors affecting the practical management of estates. These included the tendency towards consolidation of single large estates away from holdings of disparate blocks of land, the prosperity of large landowners and local gentry at the expense of the small freeholder, increasingly significant agricultural improvements and foresight in establishing plantations, together with increasing national economic prosperity.

Brown and Williamson have suggested that the expression of taste in major works of construction and landscaping might, 'be thought to fulfil a public good, in terms of the ideas promulgated by men like Adam Smith' insofar as construction provided work and thus income for a number of people who would then spend on provisions and not waste, compared with a one-off event where excess would mean waste.[63] That notion of the benevolent landowner has more to do with the moral responsibilities of landownership, one of the core aspects of improvement rather than with taste. This concept has been ably explored by Stephen Bending with respect to Elizabeth Montagu's perception and justification for the improvement of her estate at Sandleford as a moral responsibility,

> There is great distress amongst the poor in this neighbourhood for want of employment. My improvements here for some years gave support to many, & if I could afford it I wd lay out a large sum every year in planting & adorning all around Sandleford, not merely for the pleasure of ye eye, but to give bread to the industrious who want means to obtain it.'[64]

[61] Ruff, *Arcadian Visions*, p. 12.
[62] Ruff, *Arcadian Visions*, p. 62.
[63] Brown and Williamson, *Lancelot Brown and the Capability Men*, p. 23.
[64] Stephen Bending, 'Negotiating Men: Elizabeth Montagu, 'Capability' Brown, and the Construction of Pastoral', in *Women and the Land 1500-1900*, ed. Amanda L. Capern, Briony McDonagh and Jennifer Aston, People, Markets, Goods: Economies and Societies in History, XV, (Woodbridge: Boydell Press 2019), pp. 176-200, p. 196, citing Montague to Elizabeth [Charlton] Montagu, Sandleford, August 1788, Huntington Library, California, Montagu Papers, MO 2974.

Montagu was actively involved in improvement including the industrial because her wealth came from the mining on her husband's Denton estate in Northumberland, which she managed after his death.[65] This moral responsibility to provide work for the poor will be seen in relation to the industrialists studied here and is a factor in contemporary attitudes to industry. Indeed the very words 'industry' and 'industrious' in the contemporary context were perceived as morally good and were applied to work, labour and endeavour, not specifically to a manufacturing enterprise. This is exemplified by Henry Hoare the younger ('the Magnificent'), the Tory banker who further developed Stourhead, insisting that 'his temples and 'Exotick Pines' were a demonstration of the virtues of striving, industry, and application.'[66] This echoes the Lockean principle that the fruits of labour in one sphere, in Hoare's case commerce, could bring benefits to another, his estate. The examples of Hoare and Montague demonstrate that contemporaries might consider their endeavours or actions in one area to be a justification for their realisation of an aesthetic sensibility in improving and adorning their houses and ornamenting nature in their landscape parks. Creativity and the engagement of the imagination, themselves valid enlightenment aspects of improvement, might sometimes seem insufficient from a moral or ethical perspective, and thus required justification.

It can therefore be seen that ornamental landscapes and productive landscapes should not be considered as distinct entities unrelated to each other or indeed to the wider context, for, as Jonathan Finch has noted in relation to the development of the Castle Howard landscape, 'the ornamental and the productive landscapes maintained a dialogue with each other, and both had to respond to the same economic, social, familial and political contexts. They were also conceived together within the over-arching ethos or ideology of the responsibilities attendant on landownership, and therefore embedded within the contemporary attitudes to democracy, justice and social welfare, as well as business and profit.'[67]

[65] Briony McDonagh, *Elite Women and the Agricultural Landscape 1700-1830*, Studies in Historical Geography, (London: Routledge, 2018), pp. 90-91.
[66] Nigel Everett, *The Tory View of Landscape*, The Paul Mellon Centre for Studies in British Art, (London and New Haven: Yale University Press, 1994), p. 50.
[67] Jonathan Finch, ''Pallas, Flora and Ceres: Landscape Priorities and Improvement on the Castle Howard Estate, 1699-1880'', in *Estate Landscapes : Design, Improvement*

Even from a purely aesthetic perspective agricultural land could be improved to be more beautiful than the artful garden as suggested by Jemima, Marchioness Grey in a letter of 5th July 1748, when recounting her impressions of Stowe, she indicated that an aesthetic value could be placed on nature when she commented on the fields outside the garden that are bare and rough which, with

> a little Help (and not Disguise) might have smooth'd it into a level green Lawn with a few Clumps or single Trees scattered over it, and made it by far the most beautiful Object there. What a strange Want of Judgment does it seem not to have hit upon this! But my Lord is too great a Friend to Art to trust Nature in her best Dress, knowing how much the first would lose in the Comparison and her simple Beauties get the better of all his Vain Pomp.[68]

Enclosure has been a divisive subject, a target of those critics who railed against an extreme version of improvement regarded by Adam Smith as 'the desire to be seen' as characterised by the great Whig mansions and gardens like Stowe, typically remote from what might be seen as their economic base, whether agricultural, commercial or political.[69] Yet the impact of enclosures during the period has sometimes been over-emphasized, Williamson has argued that possibly little more than a fifth of England was affected by enclosure between 1750 and 1840, and that the parliamentary enclosures of the later eighteenth and early nineteenth centuries was the tail end of a long process.[70] Much of the country already had an enclosed character, particularly in the vicinity of country houses. In many of the plates in *Britannia Illustrata* there are enclosed fields beyond the boundaries of the garden, often with farming activity in progress, and in the distance more open country.[71] Bermingham has contended that the size and appearance of the landscape

and Power in the Post-medieval Landscape, ed. by Jonathan Finch and Katherine Giles (Woodbridge: Boydell & Brewer, 2007), pp. 19-38 (p. 35).

[68] Letterbook of Jemima, Marchioness Grey, L30/9a/1, ff. 164-75, Bedfordshire Record Office, cited in G. B. Clarke, *Descriptions of Lord Cobham's Gardens at Stowe 1700-1750,* Buckinghamshire Record Society, No. 26, 1990, (Dorchester: The Dorset Press, 1990), p. 184.

[69] Nigel Everett, *The Tory View of Landscape*, The Paul Mellon Centre for Studies in British Art, (London and New Haven: Yale University Press, 1994), p. 38.

[70] Williamson, *Polite Landscapes,* pp. 9-11.

[71] Kipp and Knyff, *Britannia Illustrata.*

garden, ‘related directly to the rescaling and redesigning of the real landscape through enclosure’ so that the garden looked increasingly natural like the pre-enclosed landscape as the real landscape appeared more like a garden.[72] She has not taken account of the extent of enclosure that had already occurred or the regional variation and might have been relying on J. C. Loudon who described in 1838, ‘The Irregular, Natural, or English Style’, that, as the countryside in England generally became enclosed thus bearing, ‘a closer resemblance to country seats laid out in the geometrical style,’ so the laying out of pleasure grounds imitated the ‘irregularity of nature.’[73] Further, Bermingham argued that, ‘the landscape garden’s aesthetic effect depended on a completely non-functional, non-productive use of land.’ This might have been the case with a handful of elite sites within the gardened area, but even there, whilst the land was not producing wheat, it was used for grazing, for hay, for timber, and thus was integral to the productivity of the estate. Further, the estate and the wider countryside, first nature, was managed for the twin benefits of food and sport: warrens for rabbits, coverts for game birds. Fox hunting, requiring open country and coverts, was gaining popularity over stag hunting, which traditionally used straight rides for corralling the deer. Improved land could thus provide for leisure. Indeed, many contemporary paintings of houses, gardens and landscape depict far more than a modern superficial reading might communicate, for they include agricultural, garden, sporting and other leisure activity, and nearly always productive or useful animals.[74] Such portrayal to contemporaries conveyed the owners’ understanding of and engagement with improvement.

Another theme of improvement much heralded in contemporary literature was land reclamation whether through the drainage of mosses or bringing of heathland into cultivation. The profitability of many such schemes is questionable with costs far exceeding the return from increased production or rents, but it was the perception and perhaps the idea of the potential of

[72] Bermingham, *Landscape and Ideology*, p. 13.
[73] J. C. Loudon, *The Suburban Gardener and Villa Companion, comprising the choice of a villa residence, or of a situation on which to form one, the arrangement and furnishing of the house, and the laying out ... of the garden and grounds*, (London, 1838), p. 162. Cited in Spooner, *Regions and Designed Landscapes in Georgian England*, p. 28.
[74] See Harris, *The Artist and the Country House.*

improvement that was at least as important to contemporaries as the economic return.[75] This taming of 'wild' nature with productive intent was paralleled with what was happening in the aesthetic sphere, both were cultivated and contributed to the cultured attributes of landowners. As will be seen later the transformation of non-productive land was something in which many industrialists engaged.

Pertinent of course to this study were the improvements that could be achieved in the exploitation of the resources in inherent the land and water, whether that was in the power of water or the mineral wealth that could be turned into power or converted through skill and ingenuity into new products. Improvement was a long-term endeavour, not a quick-fix, and therefore those who embarked on it were exhibiting a commitment to the land, to the country. This patriotic investment in a better future was embraced by industrialists.

Given that there are a number of Quaker, and other non-conformist, industrialists in this study, it is noteworthy that improvement ideology was in many respects consistent with Quaker philosophy, particularly the importance placed on stewardship of the earth, caring for it to ensure that the next generation inherited a world at least as good as that which the previous generation had received. The tenets of simplicity, the pursuit of knowledge with the attendant pleasure to be derived in learning, the mutual obligations of community and the determination to create lasting change through steady work and commitment were all in tune with the core of improvement ideology. It is the fact that the beliefs were a way of life, not applicable only to the religious and spiritual, which informed how they developed and managed their industries and estates and which contributed in many cases to their success.

Adam Smith considered that 'merchants' were 'generally the best of all improvers' because they were accustomed to employ their money in profitable

[75] Tarlow notes that, 'it is easy to find numerous examples of landowners who spent vastly more money on enclosing, draining, fertilising and clearing their land than they were ever able to recover in increased rents.' Tarlow, *The Archaeology of Improvement,* p. 35 and p. 52.

projects.[76] It is therefore perhaps not surprising that the majority of industrialists included in this research were improvers to varying extent. Smith also believed that, 'a small proprietor who knows every part of his little territory, who views it all with the affection which property, especially small property, naturally inspires, and who upon that account takes pleasure not only in cultivating but in adorning it, is generally of all improvers the most industrious, the most intelligent, and the most successful.'[77] Part 2 will explore the different ways in which industrialists responded to the contemporary context, to the ideology of improvement and all that entailed in the development, design and use of their landscapes. It will consider the extent to which they engaged with contemporary culture, were interested in natural philosophy, and how this influenced the management of their estates.

[76] Adam Smith, *Wealth of Nations*, vol. I, Book III, Chapter IV, 'How the Commerce of the Towns contributed to the Improvement of the Country'. https://www.econlib.org/library/Smith/smWN.html?chapter_num=24 - book-reader Accessed 19/4/2020.
[77] Adam Smith, *Wealth of Nations*, ibid.

Chapter 2
The Industrialists, Sites and Influences

Prior to looking in detail at the landscapes it is useful to have some background on the industrialists, their sites and what might have influenced them in the development of their estates. This chapter therefore considers the background, personal, industrial and cultural, of the entrepreneurs, drawing out those aspects which might have impacted on their place-making. It discusses the point in their careers when they embarked on creating their designed landscape, whether there were factors that may have predisposed them to a particular approach, for example religion, or their scientific, cultural, political engagement. It summarizes the landscapes in terms of their size, location, period of development and longevity. The data is analyzed by the three main industrial sectors covered in the study: iron, pottery and textiles to assess whether there were identifiable differences.

The scope of this study was governed by three parameters: timeframe, geography and industrial sector. The landscapes were developed and the industrialists active during the Georgian period taken as 1714-1830, with the majority during the latter half of the eighteenth century and early decades of the nineteenth. Most industrialists were born after 1720, although because of the nature of the landscapes and industry, some sites have an earlier design history. The sites were those of industrialists living and principally operating in England and Wales, though some may have had business interests in Scotland and Ireland. This geographical limit was primarily logistic, many of the industries had distinct geographical areas of operation mostly determined by the supply of raw materials and critically access to water both as a source of power, often for the manufacturing process and for transport. Entrepreneurs operating in three broad industrial sectors were covered in the study: iron (covering iron, brass, copper, tin, zinc and toys), pottery and textiles (covering cotton, silk, linen and some wool with allied industry). Many of the entrepreneurs had associated business interests, especially in mining, which may also have impacted on their estates. Some reference is made to other sectors and to elite landscapes whose owners were engaged in industrial activity, these give an indication of the wider context of the interaction between the industrial and the designed

landscape and that the integration of the industrial was more common than has hitherto been recognized.

In many cases the entrepreneur established their industrial operation on a site with a pre-existing, albeit very modest, industrial activity like a corn or slitting mill, in others on virgin territory where there was neither pre-existing similar nor associated industrial activity. In all cases, the source of power (water and coal) was the prime determinant of location, with raw input materials coming second, as it was with the expansion of the industries concerned. For example, copper from Cornwall and Anglesey was shipped to South Wales, china and ball clay were transported from Cornwall, Devon and Dorset to Staffordshire and to other potteries close to coal mining areas. The advent of canals and turnpikes as the period progressed meant improved access to markets. Where industrial activity and the personal estate were contiguous, the industrial was the reason for the location, even if the initial industrial activity on the site was not that which developed on a large scale.

These industrialists were by background, inclination and motivation driven to be innovative, resourceful and pragmatic. There is no evidence that they were boorish and uncultured as some might have intimated, on the contrary, one could argue that the majority epitomized the man of taste with respect to the improvement of their estates (both home and industrial) as they sought to maximise productivity, utility and profitability, alongside aesthetic considerations. Nearly all sought to establish a landed estate for their heirs, although it was not necessarily that of the founder, and there is no firm evidence suggesting this was primarily for social status, although land ownership conveyed an element of social power, but rather for the security that land endowed, that was not inherent in business.[1] In many cases they founded an industrial and/or landed dynasty, which may or may not have continued, and possibly extended, the founder's estate.

[1] For example, the following founders and their sons all accumulated either a single landed estate, or property portfolio: Ainsworth, Arkwright, Ashworth, Crawshay, Marshall, Spode, Wedgwood, and Wood.

Thirty-four sites formed the base of the research with considerable variation on the amounts of data available on each, twenty-six were contiguous with the industry and eight not, but may have had a designed link to the industrial. Further sites, some in the same ownership, have also been considered and other sites are mentioned in the text, some with little data, in an industry other than iron, pottery or textiles, or which may not have been researched in any depth at this stage. Of the thirty-four sites nineteen were associated with iron, four with pottery and eleven with textiles. In some cases there was more than one site associated with a particular individual, a number buying an estate later in life (Crawshays) or having a property in town and one close to the industry (Jedediah Strutt), but for this study in most cases only one site has been the focus and that being the one to which the industrialist concerned gave most attention or that which is contiguous with the industrial activity. Other than John Lombe (Derby Silk Mill) and probably John Wedgwood (The Big House), only sites by ironmasters were begun before 1730.

Contiguous Sites		
Site	Industry	Industrialist
Arno's Court, near Bristol	Iron	William Reeve
The Big House, Stoke-on-Trent	Pottery	Tom and John Wedgwood
Blaenavon House/Ty Mawr, Blaenavon	Iron	Samuel Hopkins
Castlehead, Grange-over-Sands (Bradley Manor, Brymbo Hall, The Court, The Lawns, Wilson House)	Iron	John Wilkinson
Clasemont, Swansea	Iron	Robert Morris, Sir John Morris
Cyfarthfa Castle, Merthyr Tydfil (Gwaelodygarth House)	Iron	William Crawshay II

Dale House and Rosehill House, Coalbrookdale	Iron	Abraham Darby I and II, Richard Ford and Richard Reynolds
Derby Silk Mill Island	Textiles	John Lombe
Digbeth (and 18 Park Street, The Square), Birmingham	Iron	Sampson Lloyd
Duddeston, Birmingham	Iron	Samuel Galton I and II
Etruria, Stoke-on-Trent	Pottery	Josiah Wedgwood
Fountain Place, Stoke-on-Trent	Pottery	Enoch Wood
The Gnoll, Neath	Iron	Sir Humphrey Mackworth, Herbert Mackworth, Sir Herbert Mackworth, Sir Robert Humphrey Mackworth, Lady Molly Mackworth
Ketley Bank/The Bank and Ketley Hall, Shropshire	Iron	Richard Reynolds, William Reynolds, Joseph Reynolds
Llwyncelyn	Iron	Richard Crawshay
Mellor Lodge, Derbyshire	Textiles	Samuel Oldknow
Moss Bank, near Bolton (Lightbounds House, Smithills Hall and Halliwell Hall)	Textiles (Bleaching and spinning)	Peter Ainsworth, John Horrocks Ainsworth
The Oaks, near Bolton	Textiles	Henry Ashworth
Pontypool, Monmouthshire	Iron	Major John Hanbury, Capel Hanbury, Capel Hanbury Leigh
Quarry Bank, Styal, Cheshire	Textiles	Samuel Greg
Rock House, Cromford	Textiles	Sir Richard Arkwright

Sabbath Walks, Coalbrookdale	Iron	Richard Reynolds
Soho, Birmingham	Iron (toys and foundry)	Matthew Boulton
Sunniside House, Coalbrookdale	Iron	Abraham Darby II and III
Warmley House, near Bristol	Iron (brass and zinc)	William Champion
Willersley Castle, Cromford	Textiles	Richard Arkwright

Non-contiguous Sites		
Site	Industry	Industrialist
Armley House, Leeds	Textiles	Benjamin Gott
Farm, Birmingham	Iron	Sampson and Samuel Lloyd
Great Barr Hall, near Birmingham	Iron	Samuel Galton
Lark Hill House, Preston	Textiles	Samuel Horrocks
The Mount, Stoke-on-Trent	Pottery	Josiah Spode II
New Grange, Headingley House, Leeds	Textiles	John Marshall
Penwortham Hall/Lodge, Preston	Textiles	John Horrocks
Warley, Birmingham	Iron	Samuel Galton

See Appendix 2 for a list of industrialists and their associated sites, and Appendix 3 for a gazetteer of the sites, including all those mentioned in the text.

2.1 Family background

None of the entrepreneurs came from labouring parentage, but from fathers who were often craftsmen or yeomen, and thus had a level of status and independence; even Arkwright, often referred to as coming from humble origins,

was the son of a tailor.[2] In one or two cases the family could be regarded as gentry at the beginning of this period (e.g. Hanbury, Mackworth), but with significant industrial involvement from which their wealth derived.[3] Most of the entrepreneurs in the iron and pottery sectors came from a family involved in the same industry or with a close family connection.[4] With textiles, whilst not involved in spinning or weaving, they were often engaged in something which impinged on an aspect of the business, for example as a merchant, draper, or machine maker.[5] For many this exposure from an early age to the technical and business aspects of their industry was a sound foundation for their future success.

2.2 Education

Elite schools and university with their emphasis on the classics, a looking to the past providing the education suitable for a gentleman and an entré to society and politics, were not a feature of the first generation of entrepreneurs, but some went to grammar schools or the highly respected dissenting academies (Bristol, Manchester, Northampton, Daventry, Warrington and elsewhere) which in addition to classics taught mathematics and mechanics. Thus, Samuel Galton

[2] R. S. Fitton, *The Arkwrights: Spinners of Fortune,* (Manchester: Manchester University Press, 1989), p. 4.
[3] Richard, Hanbury Tenison, *The Hanburys of Monmouthshire* (National Library of Wales, 1995). https://biography.wales/article/s-MACK-HUM-1657 Accessed 23/4/2020.
[4] For example, John Wilkinson's father Isaac (1728-1808) was an ironmaster at the Backbarrow works in Cumbria, moved to Wilson House having an experimental furnace there, he later took the lease on the Bersham furnace and was involved in the founding of the Merthyr Tydfil ironworks in South Wales in the 1760s; he patented the box iron and iron bellows before they were used elsewhere. Frank Dawson, Frank, *John Wilkinson : King of the Ironmasters*. Edited by David Lake (Stroud: History, 2012), pp. 9-33. Francis Homfray (1726-1798), an ironmaster in Staffordshire and Worcestershire, supported his sons, Jeremiah and Samuel, who developed the Penydarren ironworks in Merthyr Tydfil, and later at Ebbw Vale and Tredegar. https://biography.wales/article/s-HOMF-RAY-1726?query=francis+homfray&field=content Accessed 28/3/2020. Josiah Wedgwood's father was a potter, as were other family members like cousins, John and Thomas of The Big House. Barbara and Hendsleigh Wedgwood, *The Wedgwood Circle 1730-1897,* (Londond: Cassell, 1980), pp. 7-10.
[5] For example, Benjamin Gott (1762-1840) was apprenticed to Wormald and Fontaine, wool merchants. H. Heaton, 'Benjamin Gott and the Industrial Revolution in Yorkshire', *The Economic History Review*, 3, 1, (January 1931), pp. 45-66, p. 46. The father of John Marshal was a successful linen merchant and draper. W. G. Rimmer, *Marshalls of Leeds Flax-spinners 1788-1886*, (Cambridge: Cambridge University Press, 1960), pp. 13-23.

went to Warrington, John Wilkinson to Kendal and William Wilkinson to Nantwich, Matthew Boulton to the Rev. John Hausted's academy in Birmingham and Benjamin Gott to Bingley Grammar School.[6] None of the entrepreneurs had a university education, nor did they go on the grand tour, although a very few were sent abroad, usually in part on behalf of their father's or family business (Champion).[7] However, many of these entrepreneurs recognised the importance of the appropriate education for a gentleman destined to join the landed elite and sent their sons to 'public' school and Oxbridge. It is notable, that despite their sons being brought up to be gentlemen many were, like their fathers, either apprenticed within the family firm or sent to other industrialists for technical or business experience or both, for example James Watt sent his son to William Wilkinson at Bersham.[8]

For many, undertaking a seven-year apprenticeship meant that the majority of these entrepreneurs were technically proficient, and one could argue that this also predisposed them to scientific method, to invention and to seeking new and better ways of doing things. The majority of these industrialists were innovators, improving on an existing machine or process, which may have included scaling up and organization that achieved mass production; and some were inventors with those who patented their inventions achieving wealth through licencing and potentially inhibiting competition (e.g. Boulton and Watt, Arkwright). However, their networks and cultural engagement, as will be seen later, were also influential in creating true men of the Enlightenment.

2.3 Marriage

Marriage within the family, social or business circle or even into the landed gentry often impacted on social, business and financial advancement. As often also with the landed elite, marriage was sometimes a point at which there was

6 Jenny Uglow, *The Lunar Men, the Friends who made the Future*, London, Faber and Faber, 2003., p. 352. Frank Dawson, *John Wilkinson : King of the Ironmasters*. Edited by David Lake (Stroud: History, 2012), pp. 19 and 33. http://www.leodis.net/discovery/discovery.asp?page=2003219_348858059&topic=200335_73055447&subsection=2003724_663265408&subsubsection=2003911_593959988 H. W. Dickinson, *Matthew Boulton,* (Cambridge University Press, 1936), p. 26Heaton, 'Benjamin Gott and the Industrial Revolution in Yorkshire', p. 46.

7 Henry Thomas Ellacombe, *The History of the Parish of Bitton in the County of Gloucester*. (Exeter: Privately printed, 1881), p. 228.

8 Dickinson, *Matthew Boulton,* p. 166.

the establishment or improvement of a family home, and sometimes when there was more investment in the business. Humphrey Mackworth's (1657-1727) marriage to Mary Evans the heiress of Gnoll in 1686 brought substantial mining interests, such that he was soon smelting copper and lead.[9] William Champion's wife was co-heir to the Ashley estate, her father died in 1755, in 1761 the inventory of the Warmley brassworks was significantly more than in 1754 which suggests a large injection of capital.[10] Richard Arkwright's (1732-92) second marriage in 1761 to Margaret Biggins of Pennington, Leigh, led to his introduction to Highs and Kay and his development of the water-frame.[11] Josiah Wedgwood (1730-95) married a cousin, Sarah, in January 1764, two years later he embarked on the building of the works and hall at Etruria, and Shaw indicates that the purchase of the Ridgehouse Estate was due to inheritance from his wife's only brother.[12]

2.4 Wider industrial involvement

There are some sites that spanned several generations making design attribution and exact timing of developments difficult to determine. In other cases, although the individual can be identified, the age of the entrepreneur or stage in life at which they began the garden development may be more elusive, although it would appear that the majority of industrialists embarked on improvements in their 30s or 40s. As with elite landowners, some life events often triggered access to funds, for example on inheritance or marriage, but for industrialists, other circumstances also influenced the date of development: moving to a virgin site to begin the industrial operation (e.g. Boulton, Wedgwood, Oldknow, Hopkins and Hill); expansion of the industrial activity (e.g.

[9] Dictionary of Welsh Biography, https://biography.wales/article/s-MACK-HUM-1657 Accessed 28/3/2020.
[10] Marriage Settlement – William Champion and Ann Bridges, 1 April 1741, 4964/28, Deeds relating to the Ashley estate, Bristol Archives. Comparison between the description recorded by R. R. Angerstein in 1754 and the Warmley company inventory of 1761. Angerstein, *Illustrated Travel Diary*, p. 137. An Acct of Warmley Co, 25 March 1761, D421/B1, Badminton Muniments, Gloucestershire Records Office.
[11] Richard Guest, *A Compedious History of the Cotton-Manufacture with a Disproval of the Claim of Sir Richard Arkwright to the Invention of its Ingenious Machinery,* (Manchester: Joseph Pratt, 1823), p. 21.
[12] Lorna Weatherill, *The Pottery Trade and North Staffordshire, 1660-1760*, (Manchester: Manchester University Press, 1971), p. 54. Citing Simeon Shaw, *History of the Staffordshire Potteries and the rise and progress of the manufacture of pottery and porcelain; with ... notices of eminent potters*, (1829), p. 188.

Cyfarthfa); consolidation or significant profitability of the business (e.g. Ainsworth, Ashworth, Oldknow on receipt of mortgage from Arkwright). In some cases, the entrepreneur who established the business lived more modestly on the industrial premises or nearby without associated acreage, like Josiah Spode senior, but it was his heir who developed the landed estate, even if the investment in land had originally been made by the father (e.g. Crawshay, Arkwright, Spode, Strutt). The initial laying out, or redevelopment, of a garden was usually contemporaneous with the building of a new house, remodelling or extension. In a number of instances, there was direct inheritance of both business and property on the death of the father, even if at that stage the business was fairly small or in a related activity (e.g. Ainsworth, Galton). Inheritance was sometimes the spur to invest in both the business and a new home, such inheritance might have been from a parent or other relative. Peter Ainsworth (1713 or 1714 – 1780) was already a master bleacher and married with three or four children, when in 1743 he inherited a large legacy from his uncle and proceeded to lease and move to Lightbounds House a short distance from the works and his erstwhile house adjoining the barn at Halliwell Moss.[13] Forty-three years later he built Moss Bank House slightly closer to the works in a parkland setting for his son Richard (1762-1833).[14] Joseph Bailey (1783-1858) inherited a share in the Cyfarthfa works from his uncle Richard Crawshay on his death in 1809; he sold his shares to William Crawshay and with his brother Crawshay (1789-1872) invested in the Nantyglo and later also the Beaufort iron works and built Nantyglo House.[15]

Potters frequently owned land and other property, the income giving some security from the vagaries of trade and possibly providing money for manufacture; but, conversely, there is no evidence that manufacturing profits

[13] His uncle was the lexicographer Robert Ainsworth of Stepney. W. D. Billington and M. S. Howe, *Smithills Hall*, (Halliwell Local History Society, 2010), pp. 97-98. http://www.denspages.co.uk/roots/p_ainsworth.htm Accessed 11/10/2019.
[14] The Diary of Captain Dewhurst notes rent paid by Peter Ainsworth for Moss Bank and Lightbounds for a half year in 1785. W. D. Billington ed., *Captain Dewhurst & his Diary*, (Lancashire: Self-Published, 1989). http://landedfamilies.blogspot.co.uk/2013/08/65-ainsworth-of-smithills-hall-and-moss.html Accessed 11/10/2019.
[15] Margaret Stewart Taylor, *The Crawshays of Cyfarthfa Castle. A Family History, Etc. [with Plates, Including Portraits.]*, (London: Robert Hale, 1967), p. 26. https://www.gracesguide.co.uk/Joseph_Bailey, Accessed 31/3/2020; https://www.gracesguide.co.uk/Crawshay_Bailey, Accessed 31/3/2020.

were reinvested in land.[16] Reinvestment of profits in the business was common at this time in most industries. Arkwright originally bought land around Cromford in 1776 only to part with it to release capital for further mill building.[17] Ironmasters often acquired leases on land for the mineral rights.

Self and public interest motivated entrepreneurs' involvement in promoting the development of canals and turnpikes. This brought them into close contact with other elite subscribers similarly keen to improve transport links, as well to accrue investment returns. Sometimes they lobbied for the routing of a canal or branch to favour their industrial activity. As subscribers in the earlier canals they also in time derived income on their investment. Ironmasters, particularly, were active or investors in mining, but so too were others (e.g. Wedgwood in Cornish copper). Entrepreneurs were also often members of the General Chamber of Manufactures, which itself created a network, particularly for those who became involved in the wider interests of industry and thus, by necessity, they became involved in politics. Several became MPs (e.g. John and Samuel Horrocks, John Marshall, Samuel Homfray), though not necessarily because they were deeply engaged in politics. Samuel Horrocks, cotton spinner and MP for Preston 1804-1826, was known as the 'silent member for Preston'.[18] Some became High Sheriff (Sir Richard Arkwright, Samuel Oldknow, John Marshall, Samuel Homfray), not something they may have relished financially, given that they had to meet the costs, but certainly a role that recognised them in the local society. Others were more modest in their aspirations, taking on local roles only, alderman and mayor, although this sometimes preceded them becoming an MP. Few were elevated to a knighthood (like Sir Richard Arkwright and Sir John Morris), although some of their descendants were accorded more honours, but in most of these cases they were no longer directly involved in the business and ennoblement was for public office.

[16] Weatherill, *The Pottery Trade in North Staffordshire*, p. 55.
[17] E. L. Jones, *Industrial Capital and Landed Investment: the Arkwrights in Herefordshire, 1809-43* (London: Edward Arnold Ltd), p. 51. R. S. Fitton and A. P. Wadsworth, *The Strutts and the Arkwrights 1758-1830 : a study of the early factory system*, ([S.l.] : Manchester University Press, 1958 (1973)), p. 77.
[18] Cited in Margaret Burscough, *The Horrockses: Cotton Kings of Preston* (Lancaster: Carnegie Publishing, 2004), p. 57.

2.5 Religion

There has been much debate on the prevalence of Quakers and other Non-Conformists in business and science, as to whether the guiding tenets of their religion and the restrictions that the Test Acts (1673) placed on them, predisposed them to industry, or whether conversely, their attitude to business inclined them to non-conformism.[19] It has been argued too that they constituted the better educated section of the middle classes.[20] It is notable that over one third of the entrepreneurs were non-conformists, the majority being Quakers and their belief in equality, truth and particularly fair dealing stood them in good stead in business. Gardening was specifically identified as an activity consistent with their religion.[21] 'Choose such recreations as are pure and healthy […] Be on guard lest the love of pleasure take hold upon you.' (Quaker General Advices II) Jeremy Black has pointed out that just as gentlemen were interconnected through family and society, so, 'Religious minorities cohered not only in order to practice their faith, but also for protection, employment, commercial links, credit and the maintenance of their identity. Endogamy also served to preserve their strength and, as a consequence, intermarriage led to criticism.'[22] All the ironmasters except for Boulton, Crawshays, Mackworth and Wilkinson were Quakers, although Wilkinson's upbringing had been non-conformist. It is telling that non-conformism tended to Unitarianism, which, in addition to a belief in the unity of God in contrast to the trinity of the established church, believes that reason, rational thought, science and philosophy coexist with faith in God, and that man can exercise free will, and is capable of both good and evil. All beliefs that sat well with men of science, invention and liberal thought. Industrialists' extended circle included Unitarians like Erasmus Darwin and Joseph Priestly, 'the organizer of modern Unitarianism.'[23] For some of the

[19] See Raistrick, *Quakers in Science and Industry* and Paul H. Emden, *Quakers in Commerce, A Record of Business Achievement* (London: Sampson Low, Marston & Co Ltd, 1939).
[20] T. S. Ashton, *The Industrial Revolution 1760-1830,* (OUP: London, 1966), p. 19.
[21] Dr John Fothergill whose brother, Samuel, was a Quaker minister and friend of Abraham Darby II, "At an expense seldom undertaken by an individual" kept a magnificent private botanical garden at Upton, near Stratford, London, now West Ham Park. He and David Barclay bought extensive grounds at Ackworth in Yorkshire for £7000 on which a Quaker school was inaugurated in 1779, a year before his death. There the boys were encouraged to become gardeners. Emden, *Quakers in Commerce and Industry*, pp. 48 and 120.
[22] Black, *Eighteenth-Century Britain*, p. 142.
[23] https://www.unitarian.org.uk/pages/history Accessed 27/10/2018.

entrepreneurs who were nominally of the established church, it does not appear to have been a significant feature of their life. For others, religion was an important part of their life, like Enoch Wood being a church warden, donating land and money for building the church, similarly for Samuel Hopkins and Thomas Hill at Blaenavon.[24]

2.6 The Sites

Some of the industrialists, or their heirs, owned more than one site either concurrently or sequentially, in most cases one site, the one contiguous with the industry has been included. In those cases where there were adjacent houses like Dale House and Rose House at Coalbrookdale, and Lightbounds and Moss Bank near Bolton, these have been counted as one site. The location of the estates was determined by the location of the industries, which in turn was determined by the availability of a ready source of power (water and coal) and access to raw materials. With Abraham Darby I's development of coke to smelt iron rather than charcoal, the concentration of iron smelting moved from earlier centres that relied on good sources of wood like the Weald of Kent and the Forest of Dean to where there was an abundance of iron and coal, particularly Shropshire, Staffordshire, and South Wales, although there were also works in Cumbria and Bristol, and South Yorkshire and Northumberland, but it was not feasible to include these latter two areas in this study. In the study there were five ironmaster's sites in Shropshire, four in Staffordshire (inclusive of allied manufactures like the Birmingham toy trade), ten in South Wales, two in Bristol, and one in Cumbria.

The location of Stoke-on-Trent on the Staffordshire coal fields and with clay suitable for earthenware secured its pre-eminence in the pottery industry; ball and china clay could be imported from Cornwall and Devon for the production of porcelain, creamware and bone china. All of the four potters' estates were in the Stoke-on-Trent area, the well-known Worcester, Derby and Chelsea works, and lesser works elsewhere, not having been included in the research because they did not have a contiguous designed landscape, although there is a plan of the

[24] Frank Falkner, *The Wood Family of Burslem, A Brief Biography of those of its Members who were Sculptors Modellers and Potters,* (Chapman & Hall, London, 1912), p. 95. Peter Wakelin, *Blaenavon Ironworks and World Heritage Landscape*, Cadw, Welsh Government, 2011, p.11

Worcester works with a walled garden and a further small garden associated with the landlord's house.[25] There were, however, many more potters in the Stoke-on-Trent area, many noted as having gardens, but with little further detail.[26]

Industrial scale textile manufacture relied initially on good sources of waterpower to drive the machinery and for processing the cloth, also in the vicinity of existing weavers and machine makers. With the mechanization of weaving, use of steam engines, and in the case of bleaching, innovations that streamlined the processing, then, again, manufacture concentrated near sources of fuel and with good access to both imported raw materials and export of finished goods. Thus, Lancashire and its bordering counties of Derbyshire, Cheshire and Yorkshire, with their rivers for both power and navigation to docks at Liverpool, Manchester and Preston, provided the necessary constituents for the rise of the cotton industries, although there was some more specialist manufacture elsewhere, like stockings in Nottingham. Mechanisation in the spinning and weaving of wool in the West Riding of Yorkshire followed later, supplanting earlier dominant domestic system areas like Devon and Norfolk. Four sites were in Lancashire, four in Derbyshire, two in Yorkshire and one in Cheshire.

The location of nearly all the sites in naturally undulating and more picturesque areas of the country was solely determined by the location of the industry. This to a significant effect influenced the style of the designed landscapes.

Whilst the premise of the research was that the sites would be contiguous with the industrial activity, a few sites have been included that do not strictly meet this criteria, for example Lark Hill and Penwortham Lodge/Hall, although they are close to the industrial activity and were a later development by the industrialists concerned. Castlehead was not adjacent to one of Wilkinson's

[25] 'The Porcelain Works at Worcester', an engraving published in the *Gentleman's Magazine*, August 1752.
[26] Simeon Shaw, *History of the Staffordshire Potteries and the Rise and Progress of the Manufacture of Pottery and Porcelain; With ... Notices of Eminent Potters*. 1829, chapter 2.

major ironworks but was by a small scale, probably experimental, facility and the garden demonstrates the Elysium he wanted to create.

The majority of the landscapes were relatively modest in scale, ranging from a few acres to a few hundred acres, only exceptionally did a landholding exceed 1000 acres which was usually amassed over several generations as was the case with the Hanburys at Pontypool and often included land for its mineral resources and not necessarily as a single block, for example Capel Hanbury Leigh owned land at Blaenavon in the immediate vicinity of the ironworks and bordering to the south west the grounds of Ty Mawr, Samuel Hopkins house.[27]

2.7 Site Acquisition and Ownership

For those entrepreneurs who amassed significant wealth, much was often reinvested in their business activities, but part was used to acquire at least a suitable house and, in many cases to develop pleasure grounds, kitchen garden and possibly a farm. Such acquisition conveyed status, which, if involving a significant amount of land, potentially moved them, or their heirs, into the landed elite, which in turn would have enhanced their local and national prestige. But was this the motivation or a consequence of their success? The examination of the industrialists' development of designed landscapes comprising pleasure grounds and often also parks, one of the symbols of a gentleman, will seek to reveal whether the transition to a landed estate was driven by the natural progression of wealth and position, or motivated by a desire to further and secure their industrial, social, sometimes political ambitions, and dynastic considerations. Landownership conveyed social status, and perpetuated the myth that whilst, 'members of the capitalist class worked for their own self-interest […] the landowner's wealth was in the nation and he

[27] Plan of Blaenavon, Nantyglo Liberty, Man/A/2/0288 (D1147.13 (VA 174)), Gwent Archives. See discussion on estate size, income and cost in G. E. Mingay, *English landed society in the eighteenth century*, (London: Routledge, Toronto: and K. Paul, University of Toronto Press, 1963), p. 26. For example, the capital cost of a comfortable residence and an estate worth a thousand pounds a year meant an outlay of £30,000 in the middle of the eighteenth century; to become a great landlord with a large house and 10,000 acres would require well over £100,000. To maintain a great house and a London season in 1790 required a minimum income of £5,000 to £6,000, but to do so comfortably at least £10,000.

therefore worked for the national good.'[28] Industrialists who also became landowners might therefore be seen to have a foot in each camp.

The majority of the industrialists were not unlike their gentry or nabob neighbours in seeking to consolidate if not extend their land holding, with enclosure particularly facilitating land exchanges. In many cases this was for industrial benefit particularly where there were mineral resources that might help to secure their own sources of fuel, water sources, or because it provided productive agricultural land which could provide food for workers and animals. Reynolds did this in Coalbrookdale, as did the Hanburys at Pontypool and the Strutts at Belper.[29] Enoch Wood's Fountain Place was only about four acres, but he bought other land including coal mines. In other cases, it was to secure a viable productive estate and possibly also space for building houses for their heirs (Ainsworth at Lightbounds House and Moss Bank, Crawshays with Gwaelodygarth), or partners (Wedgwood for Bentley). Often early in their career, houses and associated estate, if any, were leased, and sometimes later purchased as was the case with Matthew Boulton at Soho, Peter Ainsworth with Lightbounds and Samuel Greg at Quarry Bank.[30] However, this does not necessarily appear to have affected the extent to which they may have developed the estate while they were leasing. Samuel Galton junior leased Great Barr Hall from 1788 for twenty-one years and it became one of the venues for the meetings of the Lunar Society.[31] He made improvements to the grounds including a new flower garden and fountain falling into a square pool

[28] Williamson, *Polite Landscapes*, p. 113.
[29] Arthur Raistrick, *Dynasty of Ironfounders, The Darbys of Coalbrookdale* (Newton Abbot: David and Charles, 1970), pp. 88-89; Hanbury Tenison, Richard, *The Hanburys of Monmouthshire* (National Library of Wales, 1995), e.g. pp. 123 and 138; The Derwent Valley Mills Partnership, *Nomination of the Derwent Valley Mills for inscription on the World Heritage List,* Derbyshire *County Council,* 2000, p. 104.
[30] Soho lease taken 1761 for £1000, Jenny Uglow, *The Lunar Men, the Friends who made the Future*, (London, Faber and Faber, 2003), p. 66; W. D. Billington ed., *Captain Dewhurst & His Diary* (Lancashire: Self-Published, 1989) notes receipts of rent from Peter Ainsworth for example on 29th November 1785, £21 12s 3d; Billington, W. D. and M. S. Howe, *Smithills Hall* (Halliwell Local History Society, 2010), p. 100; land for Quarry Bank leased from Lord Stamford in 1783, David Sekers, *A Lady of Cotton : Hannah Greg, Mistress of Quarry Bank Mill* (Stroud: The History Press, 2013), p. 87.
[31] http://blackcountryhistory.org/collections/getrecord/WAHER_MBL1816/ Accessed 29/3/2020.

with goldfish which fed into a further pool.[32] In 1792 he bought the Warley estate for dynastic reasons with the intention of building a new house for his son.

Outright purchase of a completely virgin site on which to build both industrial activity and own residence was not common. Thus Wedgwood, Oldknow, and the Merthyr ironmasters were unusual, although the personal space, including the house may not have been built immediately and may have been replaced at a later date, as was the case at both Cyfarthfa and neighbouring Penydarren. The Lancashire and Yorkshire textile manufacturers tended to move further away from the industrial activity as their wealth and status increased; in addition to the growth of the towns, this was perhaps indicative of the local social conventions in these established towns that considered manufacturers less favourably than merchants and so a move away from the area of manufacture to a more fashionable area demonstrated their rise in local society.

Houses and estates were bought both for industrial benefit and for dynastic. Peter Ainsworth (1713-80) leased Lightbounds above the works, his son, also Peter (1737-1807), built Moss Bank House (1786-90) between Lightbounds and the works for his son Richard (1762-1833); he later bought both. Richard Ainsworth bought the Smithills estate adjacent to Moss Bank in 1801 probably because it included a large area of moorland from which the water for the bleachworks derived and in 1814 he bought Halliwell Hall.[33] John Marshall, in 1805, rented New Grange on the better part of Leeds away from his mill, which conveyed local status, later renting further land, but he bought the Hallsteads estate on Ullswater in the Lake District for £11,800 to which he moved, as well as buying estates for his children and in 1819 gave up New Grange buying Headingly House and adding a new wing.[34] Richard Arkwright's Rock House and associated land was originally leased from 1771 for twenty one years, the Manor of Cromford was then conveyed on 5th April 1776 for £20,000

[32] Samuel Galton, Letter to daughter, Adele in Geneva, Monday 19 August 1818 from Dudson, 1818, MS 3101/C/?D/1/1/1, Galton Papers, Library of Birmingham.
[33] http://landedfamilies.blogspot.co.uk/2013/08/65-ainsworth-of-smithills-hall-and-moss.html Accessed 28/8/2019.
[34] W. G. Rimmer, *Marshalls of Leeds Flax-spinners 1788-1886*, ([S.l.]: CUP, 1960), p. 102.

consideration via Arkwright to Peter Nightingale who leased it back to Arkwright; this was probably because at the time Arkwright required the funds to build the second mill at Cromford (1776-7).[35]

Details of costs are few and often are intertwined with those of the business. One of the few itemised accounts was that drawn up by Wedgwood at the end of every year for the totals to date of how much had been spent on the whole estate including manufactory; his first estimate in February 1768 of expenditure totalled £9,863 excluding gardens, purchase, Canal, joiners shop, Ash house, plants, Farm house.[36] And by 1787 the amount for the whole estate was £22,005 13s. 9 3/4d.[37] In 1800, the buildings and contents of the manufactory and Wood's house were valued for insurance purposes at £3,500.[38] The construction of the gardens and park at Cyfarthfa in 1824-25 are reputed to have cost the same as the castle, £30,000, which is not surprising given the amount of industrial infrastructure involved.[39]

2.8 Wealth and Dynastic considerations

The majority of the entrepreneurs in this study founded either an industrial dynasty, or a landed dynasty, some of which existed in some form at least into the twentieth century. For example, a Wedgewood (Alan) was still on the Board of Wedgewood and Sons Ltd in 1988, the Hanbury family still manage the Pontypool estate, although the house and park are no longer part of the estate.[40] In many cases later generations moved into other, often commercial rather than industrial, business activities, and it was often there that significant wealth was accumulated. This is consistent with the point made by Rubinstein that the non-landed wealthy in Britain, 'have disproportionately earned their

[35] David Hool, Doreen Buxton and Barry Joyce, *Rock House, Cromford*, 2009, pp. 3-4.
[36] First Cost of Buildings at Etruria, 1768, 28632-4, Wedgwood - Etruria, Wedgwood Museum.
[37] Wedgwood, An Account of Building and Improvements on Etruria Estates since the purchase at Xmas 1787, 28642-43, Wedgwood, Wedgwood Museum.
[38] http://www.thepotteries.org/walks/burslem/p.htm Accessed 22/9/2019.
[39] A. N. Davies, 'Cyfarthfa Conservation Area, Character Appraisal', (Merthyr Tydfil County Borough Council, 2009), p. 9.
[40] Sharon Gater and David Vincent, *The Factory in a Garden Wedgewood from Etruria to Barlaston - the Transitional Years*, (Keele, Staffs: Keele Life Histories Centre, University of Keele, 1988), p. 73.

fortunes in commerce and finance.'[41] There were some fortunes in excess of £0.5 million made in cotton manufacture and engineering, as did Arkwright and Crawshay, but they were not common and they did not amass land to rival the great landowners. The wealth left on death by the industrialists in this study varied considerably from a few tens of thousands in personalty to several hundred thousand. Only Champion and Oldknow left nothing. Champion had become bankrupt in 1768, a disgrace for a Quaker, and Oldknow becoming insolvent in 1800 had been provided with financial support by Richard Arkwright II that had allowed him to continue in business, but the whole reverted to Arkwright on Oldknow's death in 1828.[42] Wilkinson's vast industrial empire and property totalling 1600 acres was dissipated after his death in mismanagement and legal disputes. Possibly the wealthiest who died prior to 1830, were Josiah Wedgwood (about £500,000), Richard Crawshay and Sir Richard Arkwright who, 'left manufactories the income of which is greater than that of most German principalities […] His real and personal property is estimated at little short of half a million.'[43] Arkwright's son, who was wealthy in his own right, sold most of his interests in cotton mills after his father's death other than those in Matlock and Cromford, probably retaining those more because of their intrinsic relationship with the Willersley estate than because of their profitability; he remained at Willersley as did the senior Arkwright branch into the twentieth century.[44] Arkwright II, regarded when he died in 1843 as the richest commoner, had bought five large estates (Sutton Scarsdale, Derbyshire, of 5,500 acres; Mark Hall, Essex; Normanton Turville, Leicestershire; Hampton Court, Herefordshire of 6221 acres and Dunstall in Staffordshire) which were

[41] W. D. Rubinstein, *Men of Property, the Very Wealthy in Britain since the Industrial Revolution,* (London: Croome Helm, 1981), p. 61.
[42] The value in September 1800 of Samuel Oldknow's estate was estimated at £83,794 10s 8d, and the amount of his debts £97,400 18s 5d. Arkwright II advanced £40,000, in addition to the £32,000 he had previously lent, at five per cent interest in order for debts to be paid and the business to be restarted; he was to receive half the profits. Oldknow was to live rent free at Mellor and could not draw more than £400 or one tenth of the clear gain for his annual expenses, the remainder of his share of the profits was to be put into the capital account. George Unwin, *Samuel Oldknow and the Arkwrights*, 2nd ed. edn ([S.l.]: Manchester University Press, 1969), p. 201.
[43] *Gentleman's Magazine,* LXII Part II (August 1792), pp. 770-771.
[44] Arkwright II had large holdings in funds and at the time of his negotiations on the purchase of the Hampton Court estate a comment suggests he was receiving 5%, whereas the purchase would only return 21/2%. Investment in the funds required no management and was easily realizable, and while they yielded less than industry, they earned more than land. Jones, *Industrial Capital and Landed Investment*, p. 56.

inherited by his sons.[45] William Crawshay II when he died in 1867 left £2 million, by far the wealthiest of industrialists in this study, although account must be taken of the fact that he died in the mid-nineteenth century whereas Wedgwood and Arkwright I had died in the 1790s.

Josiah Wedgwood junior purchased Maer Hall estate in 1802, comprising 3000 acres with a lake stretching westwards from the house. He 're-edified and converted it into an elegant modern mansion, and embellished the grounds with plantations, and other spirited improvements. The boggy land has been drained, and the whole of the common called Maer-heath divided and enclosed, and is now in progress of cultivation.'[46] He was replicating what his father had done at Etruria, similarly Matthew Robinson Boulton bought Great Tew estate in Oxfordshire. The Lloyds, Galtons, Crawshays, and Marshalls all bought estates, this may have been later in life by the founder, by their heirs or for their heirs.

Whilst the entrepreneur may have founded a dynasty, their heir may not have continued residing at the original estate, particularly if that estate became more engulfed in industrial development with its consequent pollution through the nineteenth century. However, a number did remain close to their industrial activity undermining the commonplace that industrialists moved away from the source of their wealth. (e.g. Crawshay, Hanbury, Arkwright, Wedgwood, Ashworth, Ainsworth).

The founding entrepreneurs were often distinguished by their technical expertise, business acumen, wider interest in science, technology and natural philosophy and had a strong ethos for their workers and community whether driven by commercial interest or philanthropic. This care, and fair dealing, did not necessarily flow through to the second or third generations. For example, Thomas Hill II enjoyed an extravagant lifestyle at Blaenavon, quite unlike the behaviour of his father and cousin, Samuel Hopkins, who had retained a moral

[45] Jones, *Industrial Capital and Landed Investment*, p. 54. The Hampton Court estate of 6221 acres was bought for £226,535 in 1809.
[46] William Pitt, *A Topographical History of Staffordshire including its Agriculture, Mines and Manufactures : Memoirs of Eminent Natives; Statistical Tables; and every species of information connected with the local history of the country*, (Newcastle-Upon-Lyme: J. Smith, 1817), pp. 332-333.

and religious leadership and the respect of the people.[47] Inevitably the sons were not always as driven or entrepreneurial as the founders which might cause tension, like Marshall senior tending to send directives, mainly in letters, to his son managing the business, not unlike William Crawshay senior directing the merchanting side of the business in London yet still sending instructions to his son William who was running the ironworks. Family and business got mixed. Marshall's sons all moved to country houses in the Lake District by the time they were forty and the third generation were largely not interested in the business which had in any case declined.[48] In contrast, William Crawshay II was as driven as his father and grandfather; Crawshays remained at Cyfarthfa until the early twentieth century.

The initial house and land ownership, if any, was often modest, the first- and second-generation industrialists expanded when resources allowed. For those that moved further into the country or into a more salubrious area, either because the family had outgrown their previous home or because of the encroaching pollution, one might argue that they sought a property that befitted their gentlemanly status, like Gott and Armley, or Galton with Warley. It is notable too that these industrialists appear to have lived comfortably, but not lavishly, Abraham Darby II lived comfortably on £1000 a year, and some were even described as living frugally.[49]

2.9 Role of Women

There are no examples in this study of women entrepreneurs like Eleanor Coade manufacturing artificial stone, although three Darby women took over the running of the Coalbrookdale works in the late 1790s to early 1800s following the deaths of Abraham III (in 1789) and Samuel (in 1796). Other women also managed industrial businesses after the death of a spouse, like Abigail Gawthern of Nottingham who managed a lead works, or Hannah Lees

[47] http://www.visitblaenavon.co.uk/en/Publications/Blaenavon-Story/The-Blaenavon-Ironmasters.pdf Accessed 10/10/2019.
[48] Rimmer, *Marshalls of Leeds*, p. 185.
[49] E. Thomas, *Coalbrookdale and the Darby Family,* (Ironbridge: The Ironbridge Gorge Museum, 1994).

running an ironworks.[50] However, wives sometimes took over routine management when their husbands were away as did Robert Morris' wife of the works at Langefelach.[51] It is likely that some industrialists' wives managed the estates in their husbands' absence and therefore it is not unreasonable to assume that they also took a role in the design and development of the grounds in which after all they were more likely to spend more time. Wedgwood made it clear that he consulted his wife, Sally, on how he was to lay out his estate, including on the garden.[52] Where industrialists' women appear, they seem to be strong, well-educated, highly capable and often involved in the business. Hannah Greg who was a well-educated and cultivated woman, noted, 'Nature has perhaps, made the sexes mentally equal, but fortune and man, seem to have established an oppression which degrades woman from her natural situation.'[53] That their voice is not heard should not denigrate their contribution to the landscape.

As gendered studies have gained prevalence, so there has been increasing interest in the role of women in the making and maintaining of gardens and Briony McDonagh's recent work has begun to reveal that women, albeit elite, took an active role as landowners and improvers than has perhaps been recognised hitherto.[54] However, as in other areas, the evidence is scant because the importance of recording and preservation of their activity had little contemporary traction, and particularly so with the women in the lives of the industrialists for whom documentary remains are often negligible. Bending argues that the place of women in gardens is 'characterised as domestic, as private rather than public, as devotional rather than political', above all they are associated with 'the small-scale and easily moralized endeavor of the flower

[50] Amanda Vickery, *The Gentleman's Daughter : Women's Lives in Georgian England*, (New Haven, Conn. ; London: Yale University Press, 1999), p. 271. Citing Henstock, 'Diary of Abigail Gawthern', pp. 93, 94 and 98.
[51] Ed. Louise Miskell, *Robert Morris and the First Swansea Copper Works, c. 1727-1730*, (South Wales Record Society, 2010), p. 26.
[52] Josiah Wedgwood, Letter to Thomas Bentley 15 September, 1766, E25-18127, Wedgwood - Etruria, Wedgwood Museum.
[53] Hannah Greg, A Collection of maxims, observations &c., 1799, Quarry Bank, National Trust.
[54] McDonagh's study on parliamentary enclosure awards estimates that 10.3 percent of land in England was owned by women, although there was wide regional variation. Briony McDonagh, *Elite Women and the Agricultural Landscape 1700-1830*, Studies in Historical Geography, (London: Routledge, 2018), p. 26.

garden'.[55] This association of women with the flower garden, overlooking the fascination of men in flowers and ornamentals, can mask women's wider involvement for, whilst women landowners were rare, women as garden makers in the eighteenth century were not unusual including amongst the elite, like the Duchess of Beaufort at Badminton and Jemima Yorke, Marchioness Grey at Wrest Park. Indeed, Bending's examples testify to this too and he cites Arthur Young referring to Snettisham Hall, the seat of Nicholas Styleman, where it was Mrs Styleman who was responsible for the design and who 'formed some exceeding pretty plantations; particularly those upon the stream, which she call *New-bridge* and *Catherine's Island.'*[56] At least one of the sites in this study was reputed to have been designed by a woman, Farm by Mrs Knowles. Lucy Galton (née Barclay) who, 'had an exquisite taste for landscape gardening,' used the garden as a teaching tool for her daughter Mary Anne, reading aloud 'White's "Selborne," and all Gilpin's Works on the Picturesque.'[57] Boulton involved his wife and after her death his daughter Anne in the detail of his garden. Examples of the contribution or involvement of women in these gardens will be seen in later chapters. The record may be tantalisingly slight, but that is not a reason to dismiss the role of women in landscape development.

Bending in *Green Retreats*, argues that when women gardened they 'entered a conversation' that 'turned perhaps most frequently on the subject of retirement.', but unlike men for whom retirement drew on classical examples, for women these were deemed of little relevance, so the sense of retirement for men and women might be quite different.[58] This is hardly surprising given that women could not take part in the public political life. His discussion is based on the garden experience of aristocratic women (except one) who for different reasons, enforced or by choice enjoy the retirement of their garden, and he is comparing their experience with the very elite circle of male garden makers. Bending further argues that Nature was viewed as female and that there was a dual view

[55] Stephen Bending, *Green Retreats : Women, Gardens and Eighteenth-century Culture*, (Cambridge: Cambridge University Press, 2013), p. 14.
[56] Bending, *Green Retreats*, p. 14. Citing Arthur Young, *Six Week Tour*, pp.40-41.
[57] Mary Anne Schimmelpenninck, *Life of Mary Anne Schimmelpenninck ... Edited by her relation Christiana C. Hankin. vol. 1. Autobiography.-vol. 2. Biographical Sketch and Letters*, Second edn (London: Longman, Brown, Green, Longmans and Roberts, 1858), pp. 268-269.
[58] Bending, *Green Retreats*, p. 7.

of women, as sexual, available to submit to male desire (permissive or submissive), versus the domestic and virtuous, 'the combination of casual male erotics, limited female learning, double standards of propriety, and gendering of power relations is, I would suggest, central to women's experience of the garden in the eighteenth century.'[59] Bohls takes a similar stance submitting that, 'women's relation to landscape aesthetics was fundamentally compromised […] by the discursive logic of the language of landscape appreciation.'[60] She contends that the active aesthetic subject was male (a propertied, classically educated gentleman), whilst the passive object might be feminine as in the case of the Goddess Nature in Pope's poem. Both Bending's and Bohl's conclusions, whilst valid, cannot be applied as a general rule for elite, gentry or middle-class women and must be seen in the context of contemporary language, discourse of landscape aesthetics and the paucity of the documentary record. It is worth noting that some of the industrialists' women were not only very much engaged in the design of their estates but also in discourse of landscape aesthetics, as witnessed by the education and culture of women like Hannah Greg, Lucy Galton, and Sarah (Sally) Wedgwood.

2.10 Networks

None of the sites, nor industrialists were selected because of any connections between them, yet it is significant how interlinked many of the industrialists were: familiarly, socially and business. The web of connections between industrialists' families is extensive and particularly so amongst ironmasters, Quakers and those that came into the orbit of Lunar Society members. Some detail is given in the Gazetteer of individual industrialists' links, but it is useful here to give an indication of the extent of their connectedness. Although there is no direct correlation with the design of their gardens, they and in many instances their wives were exposed to each other's landscapes and as fellow garden makers they were therefore likely to have exchanged ideas and experiences. Where any direct influences on garden making are known, they are noted later where appropriate.

[59] Bending, *Green Retreats*, p. 32.
[60] Elizabeth A. Bohls, *Women Travel Writers and the Language of Aesthetics, 1716-1818*, (Cambridge: Cambridge University Press, 1995), p. 67.

Raistrick has discussed the role of Quakers in science and industry, one of the key factors was their marrying within their own faith, and there are complex familial relationships even amongst the industrialists studied or touched upon in this research. Ironmasters Charles and Sampson Lloyd I married sisters of Sir Ambrose Crowley, the great Northumberland ironmaster. Sampson Lloyd II's wife was the sister of William Champion and the daughters of this marriage married David Barclay and Osgood Hanbury. Abraham Darby II's sister married Richard Ford and his daughter Hannah married Richard Reynolds, all men at one time ran the Coalbrookdale works and lived in Rose and/or Dale Houses. Richard Reynolds daughter Hannah Mary married William Rathbone IV of the Liverpool merchanting family, the first to import American cotton into England. The Coalbrookdale company supplied Sampson Lloyd with iron and the two families often visited each other.[61] William Champion's father had worked with Abraham Darby I and took over the Bristol brassworks when Darby moved to Coalbrookdale; his uncle was Thomas Goldney III who was closely involved with the Coalbrookdale works with both Richard Ford and Abraham Darby II. Goldney created a garden at Clifton, Bristol, with elaborate grotto and a tower housing a steam engine to pump water to the fountain and the water running through the grotto; it has been suggested that this might have been inspired by the tower at Coalbrookdale.[62] Peter Collinson, the Quaker botanist who introduced many new species into England through his association with John Bartram in Philladelphia, visited the Darbys at Sunniside.[63] Samuel Galton Junior married Lucy Barclay and their son Samuel Tertius married Violetta Darwin, daughter of Erasmus Darwin; there were later marriages into the Strutt family which had links with both the Need family, hosiers of Nottingham, and the Walker family, ironmasters of Rotherham.[64] Erasmus Darwin's son Robert

[61] Lady Labouchere, Note by Lady Labouchere on the link between the Lloyds and the Darbys, 31 August 1982, LAB/Misc/33/5/5, Labouchère, Ironbridge Gorge Museum Trust Library. She mentions that Edmund Burke also stayed at Sunnyside on several occasions.

[62] Rachel Labouchere, *Abiah Darby, 1716-1793, of Coalbrookdale, Wife of Abraham Darby II*, (York: Sessions, 1988), p. 276.

[63] Labouchere, *Abiah Darby*, p. 313. List of visitors to Sunniside.

[64] Joshua Walker of Clifton House near Rotherham married Susannah Need, their daughter Susannah married Jedediah, son of George Benson Strutt and grandson of Jedediah Strutt. Samuel Need was a successful hosier of Nottingham who had recognised the potential of Strutt's Derby Rib Machine of 1759, investing in the machine; he and Strutt were the partners with Arkwright in building the first mill at Cromford (1771), then those at Belper (1778) and Milford (1779). Mrs Howard Galton

married Josiah Wedgwood's daughter Susannah and they were the parents of Charles Darwin. There was less inter-marriage amongst the South Wales ironmaster families than among the Quaker ironmasters, but there was some. Capel Hanbury Leigh of Pontypool married Molly Mackworth widow of Sir Robert Humphrey Mackworth of The Gnoll. William Crawshay II married Elizabeth Homfray daughter of Francis Homfray II and niece of Samuel Homfray of Treforrest who had married the daughter of Sir Charles Morgan, 1st Baronet of Tredegar. Thomas Hill and his brother-in-law Thomas Hopkins established the ironworks at Blaenavon where Hopkins' son, Samuel, built Ty Mawr and Hill built Park House, the latter also owned Wollaston Hall, Stourbridge, from 1809 to 1826 throughout which time it was tenanted by John Addenbrooke Addenbrooke, né Homfray, a relation of Samuel, Jeremiah and Thomas Homfray who set up Penydarren furnaces.[65]

Wilkinson and Richard Reynolds were well acquainted and respected each other, Wilkinson's daughter Mary married a great friend of Reynolds, Theophilus Holbrooke (though possibly against her father's will), who later became tutor to Reynolds' daughter's (Hannah Mary Rathbone) children.[66] Reynolds was close friends with Samuel Galton and also knew Wedgwood, having a dolls' dinner service made by Wedgwood for his daughter Hannah Mary.[67]

Neither textile nor pottery industrialists in this study appear to have had the extent of familial connections as existed in the iron and related families, but there were some strong relationships. Richard Ainsworth promised his friend John Horrocks £20,000 security to set up his business in Preston. Horrocks was godfather to Ainsworth's son John Horrocks Ainsworth who also visited Samuel Horrocks at Lark Hill. Although Oldknow never married, Robert Owen recounted later in life that when he was manager for Peter Drinkwater (cotton spinner) Samuel Oldknow had approached Drinkwater with a view to courting his

with Douglas Fox's love, typescript of The Families of Douglas and Marianne Fox of Derby, N.D., MS 3101/B/23/5 Galton, Library of Birmingham. Fitton and Wadsworth, *The Strutts and Arkwrights*, p. 199.

65 Wollaston Hall from 1626 had been owned by the Foleys, a long-established Worcestershire iron family.

66 Hannah Mary Rathbone, *Reynolds-Rathbone Diaries and Letters, 1753-1839. Edited by Mrs. Eustace Greg. [With plates, including portraits.]*, (Edinburgh: Printed for private circulation, 1905), pp. 21, footnote 21.

67 Rathbone, Reynolds-Rathbone Diaries and Letters, p. 2.

daughter, although Owen suggested this might have been in order to support his business financially because of the difficult economic circumstances of 1792.[68] Oldknow was successively rescued financially by Arkwright II such that at his death the whole of his enterprise reverted to Arkwright. Oldknow and William Strutt were close friends.[69]

None of the potters in this study were closely related by marriage but they often supported each other in trading ware and socialised. Enoch Wood had a twenty-year partnership with James Caldwell of Linley Wood, who was a large shareholder in the Trent and Mersey Canal, a friend and executor of Josiah Wedgwood's will and himself a keen improver.[70] Thomas Bentley, Wedgwood's close friend and business partner, was related through his second wife to the Caldwells. Wood socialised with Josiah Spode II, noting in his notebook on November 23rd 1810, 'Dined at the Mount with a party at Mr. Spode's, the most splendid and sumptuous entertainment I ever have beheld – no intoxication.'[71] John Wedgwood (Josiah I's son) was a partner in the London and Middlesex Bank (also later known as Davison, Noel, Templer, Middleton & Wedgwood) established in 1792 at Stratford Place, Oxford Street, London, along with George Templer who was the fourth son of James Templer I of Stover, Devon.[72] This suggests that there might have been a connection between Josiah Wedgwood and James Templer who was not only a major partner in the contracting firm that developed the Plymouth, Portsmouth and Chatham docks, taking granite from above his Stover estate, but also china clay was (and still is)

[68] Unwin, *Samuel Oldknow and the Arkwrights*, p. 153.
[69] Letters from William Strutt to Oldknow (in 1788 and 1791) were signed 'Your affectt. friend'. Unwin, *Samuel Oldknow and the Arkwrights*, p. 240.
[70] Will of Josiah Wedgwood of Etruria, Staffordshire, 2 July 1795, PROB 11/1264/14, The National Archives. Caldwell was also executor for Josiah Wedgwood II. Letter from Josiah Wedgwood (II) to James Caldwell, 19 December 1810, WM 1565, Keele University Library. Also, at http://www.jjhc.info/caldwellnotes1820.htm Accessed 22/10/2019.
[71] Frank Falkner, *The Wood Family of Burslem, A Brief Biography of those of its Members who were Sculptors Modellers and Potters*, (Chapman & Hall, 1912), p. 76.
[72] John Orbell, Alison Turton, and L. S. Pressnell, *British Banking, A Guide to the Historical Records of British Banking* (Abingdon, Oxon ; New York: Routledge, 2017), p. 185. http://www.templerfamily.co.uk/html/george_templer_of_jungpore.html Accessed 22/10/2019.

quarried on the estate which he developed with a collection of rather eclectic garden buildings including a pagoda.[73]

The Lunar Society was a nexus for a number of the industrialists and a wider circle who were interested in natural philosophy and who developed gardens including Boulton, Watt, Galton, Wedgwood, Withering, Baskerville and Darwin. Dr Joseph Priestley, one of the Lunar men, connected a number of these industrialists, some of whom, in addition to his brothers-in-law (John and William Wilkinson) subscribed to support him in his scientific and theological studies – Wedgwood, Strutt, Reynolds, Galton senior and junior – Wedgwood also supplied him 'with everything that I wanted made of pottery, such as retorts, tubes, &c.'[74] Priestley was received in Liverpool by Thomas Bentley, later partner of Wedgwood, knew Smeaton and described Samuel and Lucy Galton, 'Seldom, if ever, have I known two persons of such cultivated minds, pleasing manners, and liberal disposition, as he and Mrs Galton. The latter had the greatest attachment imaginable to my wife.'[75] Priestley's wife Mary was the sister of John Wilkinson who provided a house for them in Birmingham, and after the riots, 'Without any solicitation, he immediately sent me five hundred pounds, and afterwards transferred to me ten thousand pounds, which he deposited in the French funds, and until that be productive, he allows me two hundred pounds per annum.'[76] Priestly visited Cyfarthfa with Wilkinson who was good friends with Richard Crawshay.[77] Crawshay commissioned Richard Wilson (of Birmingham) to paint portraits of himself, John Wilkinson and William Reynolds to hang alongside each other, and he wrote to John Wilkinson on 11 Jan 1792, 'I know of no Friendship in the World I so much long for as Mr More

[73] Stuart Drabble, 'Stover Park - an update', *The Devon Gardens Trust Journal,* (2016), pp. 1-5. In 1791 Wedgwood, probably Josiah II, signed a contract with William Pike of Chudleigh for the supply of 1200 tons of china clay, this was two years after Pike had contracted with James Templer II to take 700 tons of clay a year from his land. Pers com. Stuart Drabble.
[74] Joseph Priestley, *Memoirs of Dr Joseph Priestley, to the Year 1795, Written by Himself; With a Continuation to the Time of His decease, by His Son, Joseph Priestley*, (London: Reprinted from the American Edition, by the several Unitarian Societies in England: and sold by Joseph Johnson, St Paul's Churchyard, 1809), p. 83. https://archive.org/details/memoirsofdrjos00prie Accessed 22/10/2019.
[75] Priestley, *Memoirs,* pp. 49 and 84..
[76] Priestley, *Memoirs,* pp. 83 and 110.
[77] Richard Crawshay, Letter Book of Richard Crawshay, 1788-1797, D2.162, Crawshay Brothers (Cyfarthfa) Ltd, Gwent Archives.

will tell you if am gone before you arrive here [London]'.[78] Samuel More, Secretary of the [Royal] Society for the Encouragement of Arts, Manufactures and Commerce, was a further link between industrialists as he travelled around the country.

These industrialists were often involved in the increasing number of scientific and literary societies, through which they might meet like-minded individuals and be exposed to current, often cutting-edge, developments and ideas. Benjamin Gott was a founder member of the Leeds Philosophical and Literary Society and John Marshall an early president. Derby Philosophical Society was founded by Erasmus Darwin in 1784, and members included Jedediah and William Strutt, Wedgwood, William Duesbury of Derby china, Sir Brooke Boothby, Charles Hurt and Reverend D'Ewes Coke.[79] A number too were members of the various London clubs like the Chapter Coffee House (included Boulton, Wedgwood, Keir, Watt.), or Dr Benjamin Franklin's Club of Thirteen (Wedgwood, Bentley, Daniel Solander who was the botanist who went with Sir Joseph Banks on Cooks first voyage) as well as the Royal Society. Such exposure might potentially have been a factor in how they developed and used their landscapes.

2.11 Wider cultural engagement

The portraits of Richard Crawshay, Wilkinson and Reynolds have already been mentioned, other industrialists also had their portraits painted by well-known artists. Joseph Wright of Derby (1734-1797) painted both Arkwright senior (c.1783-85) and junior, Erasmus Darwin, Samuel Crompton, Jedediah Strutt (1726-1797) c.1790; and Samuel Olknow (1756-1828) c. 1790-92.[80] George Stubbs (1724-1806), better known for his portraits of horses including

[78] D2.162, Crawshay Brothers (Cyfarthfa) Ltd, Gwent Archives.
[79] Following the death of Sir Richard Arkwright, his son gave his father's chaise to Erasmus Darwin who accepted, 'with pleasure both as a favour from him and as a memorial of one whose genius I looked up to with admiration,' and retained Sir Richard's arms on the chaise. Personal letter from Erasmus Darwin to Mr William Strutt junior, 7 October 1792, D5991/3/1 Arkwright family of Rock House and Willersley castle, Cromford, Derbyshire Record Office.
[80] Wright also painted portraits of John Whitehurst (1713-1788) c.1782-83, Francis Hurt (1722-1783) c. 1780-83 and Mary Hurt (1720-1802) c. 1780-83; and the 'Reverend D'Ewes Coke (1747-1811), a keen botanist, his wife Hannah, and her cousin Daniel Parker Coke' (1745-1825) c. 1792 looking at plans in their garden at Brookhill.

‘Whistlejacket’ (c. 1762) for a great patron the 2nd Marquess of Rockingham of Wentworth Woodhouse, stayed at Etruria to paint the Wedgwood family in their garden, in the resulting group portrait (1780) the horses are rather better executed than the humans. Carl Frederik von Breda did portraits of Boulton (1792), James Watt (1792), and Mary Priestley (1793). Benjamin Gott commissioned Sir Thomas Lawrence to paint portraits of him and his wife (1827).

The contents of industrialists’ libraries give an indication of the extent to which they might have been engaged with contemporary landscape aesthetics and with the specifics of horticulture and silviculture. The works of Pope, Addison, Shaftesbury and Milton are often present, particularly the former two, thus for example, amongst the 360 books in Oldknow’s library were, ‘Pope’s Works (6 volumes), Pope’s Homer (9 volumes), Addison’s Works (4 volumes), Beauties of England and Wales (9 volumes), Goldsmith’s History of England (4 volumes)’.[81] A Sale Catalogue from Penwortham Lodge gives details of books including Loudon’s *Encyclopaedia of Gardening,* Papworth’s *Ornamental Gardening,* Pontey’s *Rural Improver,* Pope’s *Works 10 Vols.,* Addison’s *Works*, Thompson’s *Works,* and numerous books on botany.[82] Boulton’s library included the classics, Hogarth’s *Analysis of Beauty*, Chamber’s *A Dissertation on Oriental Gardening,* Whately’s *Observations on Modern Gardening* and Mason’s *The English Garden, a Poem.*[83] Mary Anne Schimmelpenninck’s reading gave an indication of the extent of the Galton’s library, ‘Shaftesbury's ‘Characteristics’, Voltaire's Works, Moliere's Plays, ‘Gil Blas’, Bolingbroke and Swift, ‘mingled their evil influences with the large and varied mass of scientific, historic, and classical reading’, White's ‘Selborne’ and all Gilpin's Works on the Picturesque and ‘All Addison's charming papers on Imagination, and his illustrative critique on Milton, furnished the basis of most interesting

[81] Auction of Oldknow’s house and contents December 1828, advertised in 'Extensive Sale of the valuable household furniture, plate, glass, china [...] library books, and other effects of the late Samuel Oldknow, of Mellor, in the County of Derby, Esquire, deceased, to be held on 8th December 1828 and the four following days.', *Stockport Advertiser [and Guardian],* (21 November 1928), p. 2.
[82] Catalogue of the Sale of Wines, Books, Furniture, &c. &c. at Penwortham Lodge, Near Preston, Monday 3rd of August 1829, and nine following days. DDPR 97/2, Lancashire Evening Post Collection, Lancashire Archives, Preston.
[83] Shena Mason, *The hardware man's daughter : Matthew Boulton and his 'dear girl'*, (Chichester: Phillimore, 2005), p. 30.

conversation.'[84] Milton's *Paradise Lost* (1667) would have been known to the industrialists, was referred to by many of them, and was in many of their libraries; it was amongst the books of Abraham Darby III sold at auction 12 May 1789, together with Withering's *Botany*, the works of Shenstone, Pope, Thompson, Addison, *Letters on the Beauties of Hagley, Enville and The Leasowes*, and books on gardening, science, travel, geography and the classics.[85]

Industrialists who never travelled outside their local area, like Enoch Wood, were rare. The more business interests they had, the more likely they were to travel extensively, including abroad, the more they met other businessmen, landed gentry and members of the nobility, especially those who were active in promoting canals and turnpikes to exploit the potential of their estates. So, for example, Wedgwood with Lord Gower, Duke of Bridgwater, the Ansons at Shugborough and others, William Crawshay with the 2nd Marquess of Bute. This also exposed them to wider experience, including contemporary landscape aesthetics and the estates of others. Some visited gardens in addition to those they may have encountered through business or social meetings. Boulton visited a number of the fashionable gardens in Surrey in July 1772 including Epsom, Cobham, Claremont and Painshill, and sketched a 'Dorick Temple' and its pedestal with Bacchanalian ornaments writing five pages of notes.[86] It is likely that he visited George Lyttelton's Hagley and, as he knew Shenstone and a subsequent owner, he would have known The Leasowes. William Shenstone advised John Baskerville when he created his garden at Easy Hill, Birmingham in the 1750s and Boulton was a close friend of Baskerville. He may also have seen Sir Samuel Hellier's Woodehouse estate at Womborne, which took inspiration from The Leasowes and had a notable range of garden buildings on a hillside setting, where visitors were encouraged in the 1760s and 1770s.[87] Wedgwood was very well connected and visited many of the estates of his fellow campaigners and investors for the Grand Trunk Canal (Trent and Mersey) of which he was treasurer. These were people who were developing their estates with the help of the cream of architecture and landscape gardening

[84] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck,* pp. 218 and 269.
[85] LAB/Deb/2 2nd Volume, Labouchere, Ironbridge Gorge Museum Trust Library.
[86] Ballard, Loggie and Mason, *A Lost Garden,* p. 6.
[87] Ibid. pp. 6 and 9.

like Capability Brown at Trentham, James ‘Athenian’ Stuart and Thomas Wright at Shugborough, and William Emes. On 7 August 1765, he wrote to John Wedgwood that, ‘the Duke of Marlborough, Lord Gower, Lord Spencer and others at my works’, and he often visited the Duke of Bridgwater at Worsley, with and without James Brindley, as well as Lord Gower at Trentham.[88] In 1776 he wrote to Bentley about visiting Nuneham [Courtney], the flower garden developed by William Mason.[89] Richard Reynolds wrote to his friend John Maccapen in 1767 and 1768 that he had visited Greenwich Park, Kensington Gardens, Hagley, The Leasowes, Bushy Park, Hampton Court, and West Wycombe; he was also known to be very fond of Hawkstone.[90] John Lombe went to Italy (Liverno) to learn how they developed fine silk, so it is possible that he might have seen the island gardens in Lake Maggiore. William Champion too went abroad as part of his education, possibly to find out more about the latest developments in iron and brass making in Northern Europe, and spent time in the Netherlands where he might have visited gardens, like that of David van Moolon [Mollen] at Zejebelen [Zijdebalen] which impressed his relation Thomas Goldney II in 1725 and which had a grotto.[91] Matthew Boulton visited France and the Netherlands. John Wilkinson spent time in Paris in relation with Perrier’s water supply for the city for which he was producing the pipes many of which were made at Wilson House in Cumbria. A number of gardens influenced by the English landscape garden style were being developed in and around Paris at the time. Thus, there was both overt interest in gardens and landscape that included garden visiting, and an exposure to developments undertaken by family, friends and business associates.

[88] Meteyard, Eliza, *Life and Works of Josiah Wedgwood: From His Private Correspondence and Family Papers*, 2 vols. (1865), vol. 1 p. 383.
[89] Letter from Josiah Wedgwood to Thomas Bentley, 20th June 1776, Letter Book Vol. X, Letter XXXIX, p. 94, Wedgwood, Wedgwood Museum.
[90] Richard Reynolds of Bristol Ironmaster and Hannah Mary Rathbone, *Letters of Richard Reynolds. With a Memoir of his Life by ... H. M. Rathbone*, (London, 1852), Letters to John Maccapen 23rd Seventh Month 1767 and 20th First Month 1768. p. 87.
[91] Peter the Great had visited the manufactory in 1717, but it was destroyed in the nineteenth century when the van Moolen family could no longer maintain it. Jake V. Th. Knoppers, Tsar Peter I and Utrecht’, (McGill University), p. 19. Marion Mako, *The University of Bristol Historic Gardens*, 2nd edn (Bristol: University of Bristol, 2011), p. 16.

Those industrialists who travelled abroad must have acquired some proficiency in languages and the second generation of those industrialists involved in overseas trade were encouraged to learn languages. In 1786 Wedgwood urges his son John to keep a diary or commonplace book to note down observations in French both to practise the language he was learning but also, 'every traveller of taste & observation should minute down, though in ever so short a way, what he sees or hears worthy of observation.'[92] Wedgwood also engaged a Signor Antonio Montucci for about a year and a half during which time he 'instructed my daughters in the Italian language', indicating that Wedgwood wanted his daughters also to have a cultured education, but he may have been unusual although Wilkinson's daughter travelled in France with his brother William.[93] There is no clear evidence of any direct influence of other European gardening traditions on industrialists' garden making, but it would have reinforced their appreciation of the development of the English landscape garden.

Industrialists' concerns were not exclusively scientific or technological, they had wider cultural interests, in the arts, music, theatre and paintings. Samuel Oldknow had a piano delivered to Heaton towards the end of 1786, one of the first to be heard in the area, Wedgwood also had one delivered to Etruria and organized a music party while they were staying at Matlock.[94] Boulton and his daughter were keen on music and he supported the Birmingham Music Festival to raise funds for the general hospital. Champion, unusually for a Quaker, was one of forty nine shareholders to the Theatre Royal in Bristol that opened in 1766 to which his relation Richard Champion the potter was vehemently opposed because it offered amusement to the working classes.[95] Decorating their homes included the acquisition of paintings, Wedgwood bought two pictures from de Loutherbourg, also admired Joseph Wright of Derby and

[92] Josiah Wedgwood, Letter to Son John, Etruria 26 December, 1786, E26-19093, Wedgwood - Etruria, Wedgwood Museum.
[93] Josiah Wedgwood, Letter to Lord Dundonald (copy), London, 26 March, 1791, L-17725-96, Wedgwood, Wedgwood Museum.
[94] Unwin, *Oldknow and the Arkwrights,* p. 236. Letter from Josiah Wedgwood to son 19 October 1775, E25-18541, Wedgwood - Etruria, Wedgwood Museum. The last two decades of the eighteenth century witnessed considerable improvements in the piano by Erard, Zumpé, Stoddart, Broadwood and others.
[95] John Latimer of Bristol, *The Annals of Bristol in the Eighteenth Century*, (Frome: Printed for the author, 1893), p. 364.

bought his ‘Corinthian Maid’ as well as a portrait of the artist; Benjamin Gott established a fine art collection at Armley.[96] Wood, was an antiquarian and amassed an internationally renowned collection of pottery, some of which he gave to the King of Saxony and was accepted by the Royal Museum at Dresden.[97]

There are few glimpses of early garden experiences like that of Enoch Wood recalling his childhood home

> a Comfortable residence with a small good Garden in which were plenty of Goosberry & Current Trees, Flower Garden &c &c &c I well remember my Father was highly delighted with attending to his Bees, at one time he had Thirteen large Hives, but as the Salt Glaze, & Brick Kiln Smokes increasd, an end was put to his pleasing & Productive amusement which he had recourse to as a deviation from his industrious & ingenious employment. [98]

A picture possibly typical of many, Wood spent his youth with Jacky and Tommy, the sons of Long John Wedgwood and those of Thomas Wedgwood of Over House

> there being a large Orchard well stockd with All kinds of Fruit trees which the Country produced at that time, & Barns & Hay Lofts & Hay making, Corn cutting, Horses, Dogs, Pigeons, Rabits, Turkeys, Geese & Ducks Large Pools of Water, Fishing Ponds, & every thing amusing for youth. They were not allowd to bring any other Boys to the House, or Gardens, the gardens were then kept in neat & good order, He T Wedgwood at that time was lookd up to as the Richest Gentleman in this Parish, altho the Long Wedgwoods were by some, known to have the most Cash, but

[96] De Loutherbourg, Letter to Josiah Wedgwood, 11 March 1785, GB 133 Eng MS 1110, Wedgwood Correspondence, John Rylands Library, University of Manchester. Josiah Wedgwood, Letter to Mr Wright 29 April 1784, GB 133 Eng MS 1109, John Rylands Library, University of Manchester.
[97] Falkner, *The Wood Family of Burslem*, p. 90.
[98] Enoch Wood Memoir, 1836, PM1/1-42, Enoch Wood Papers, The Potteries Museum & Art Gallery.

> they made no appearance except that of Building the Big House which astonishd everyone.' [99]

Later, Wood began working for Josiah Wedgwood at the Bell Works the year before the Etruria Manufactory was built.[100] He would thus have known Wedgwood's garden which John Wesley noted on a visit in about 1760, 'I met a young man by the name of J. Wedgwood, who had planted a flower garden adjacent to his pottery.'[101]

Conclusion

The backgrounds of the industrialists, their parentage, education and apprenticeship, whilst rarely from the landed gentry were mostly sufficient to give them a grounding in the classics, together with an apprenticeship in a craft or business skill. Marriage or an inheritance sometimes helped them to either establish or expand their industrial activity which sometimes coincided with the development of a contiguous home and garden. Their wider cultural reference as evidenced by their education, reading and other pursuits, suggests many were mindful of contemporary landscape aesthetics which would have predisposed them to apply the principles of taste to the design of their landscapes. This was perhaps more obvious with those who were producing fashionable consumer goods like Boulton and Wedgwood, and whose landscapes might have been tourist attractions. However, caution is necessary in this conclusion because of the considerable variation in the extent of archival evidence, lack of which should not infer less involvement with landscape aesthetics on the part of some industrialists. The interest shared by the majority of the industrialists in natural philosophy and an experimental approach inclined them to improvement and to engage in horticulture and agriculture, yet although they were attracted by the new, as will be seen later, they do not seem to have indulged in excessive garden fashions either in structures or buying exotics. Quakerism's encouragement of gardening as a suitable occupation is borne out by the high proportion of Quakers in the study.

[99] PM1/1-42, Enoch Wood Papers, The Potteries Museum & Art Gallery.
[100] PM1/1-42, Enoch Wood Papers, The Potteries Museum & Art Gallery.
[101] Alison Kelly, *The Story of Wedgwood*, Revised edn (London: Faber and Faber, 1975), p. 13; Kelly, *The Story of Wedgwood*.

There are indications that women might have played a larger role in the development of the landscapes than the extant record might suggest, particularly given their presence at home while the industrialists were away on business and the responsibilities many of the men appear to have entrusted to their wives, including on business matters. The evidence suggests that a number of the women enjoyed an education and exposure to contemporary thought, including natural philosophy and landscape aesthetics, reputedly uncommon amongst their sex.

The considerable inter-connectedness of many of the industrialists' families, together with their social and business networks which often overlapped, facilitated an exchange of ideas and experience of each other's garden making. A number were also exposed through business or through garden visiting to the landscapes of the elite. The evidence points to cultured individuals engaged with the arts, contemporary thought as well as local and national politics.

PART 2

Chapter 3
The Designed Estate

The landscapes in this study epitomize the evolving characteristics of the designed landscape during the Georgian period from the formality of the geometric garden more associated with the previous century through the naturalistic and returning to the reintroduction of formality particularly in the immediate vicinity of the house by the start of the Victorian period. To some extent they demonstrate that the Brownian aesthetic did not sweep all reasonable sized gardens into a homogenous landscape park by the late 1780s. The landscapes ranged from the very small, especially in the very early period of industrial activity where the owner lived within the works and the garden may to all intents and purposes have been a small courtyard, for which there is little or no data, to those akin to a significant gentry landowner. Few, if any, equate to very large aristocratic estates with outlying designed ornamental elements, but they do exhibit characteristics in common with the landed estate particularly with regard to employee housing and community facilities. This chapter examines how the industrialists adopted prevalent ideas of landscape and design in their estates.

It has already been noted that the location of the majority of these landscapes was determined by the requirements of the industrial activity, thus the industrialists did not in many cases have free choice on the setting of house or garden, and this to some extent influenced the style of the garden. The Lloyds slitting mill at Digbeth, Birmingham, was probably typical of many industrialists starting out, where the works and house were adjacent with only a small area of garden, in this case with water associated with the works on three sides (Figures 3.1 and 3.2). Some works might even have been in the same building or adjoined and had no garden as appears to be the case with Josiah Spode I and probably John Horrocks' first premises in Turks Head Yard, Preston. A confined space in an urban environment restricted what could be achieved and in many cases would thus have been far less than the space enjoyed by Samuel Galton at his suburban villa at Hagley Row, Five Ways (Birmingham)

while his father lived by the works in Steelhouse Lane: 'we had a large shrubbery garden, a poultry-yard, pens for our pets, stables and coach-house, altogether occupying perhaps two acres.'[1] The majority of industrialists, starting out, therefore lived close if not adjacent to the industry, and in many cases where they built home and works on a virgin site their new house had a commanding view of the works or part of it or faced towards it even if it was screened or obscured naturally (e.g. Cromford by Scarthin Nick) or by planting. They were making an unequivocal statement about the relationship between their industry and their home. They were proud of their 'industry' and thus their contribution to the patriotic endeavour just as the landed elite were of their agricultural 'industry'. So for example Etruria, Cyfarthfa, Warmley, Dale and Rose Houses, Mellor, Quarry Bank, Penydarren, the Gnoll and Pontypool all had a direct visual connection between owner's house and the industrial; Willersley, Soho, Fountain Place, The Oaks and Moss Bank were clearly adjacent but with some element of visual barrier; some who moved further distant still retained a visual or associative connection with the industrial like Castlehead, Armley, and Warley. In a few cases, like that of the Horrocks in Preston, whose business had grown from one to six cotton mills between 1791 and 1799, there was no room to build in the immediate vicinity of the works, but both brothers developed a house and gardens relatively close, Samuel the closest at Lark Hill House and John at Penwortham Lodge (Hall) across the river.[2]

By the early decades of the nineteenth century many prosperous industrialists or their sons were moving their homes away from the immediate vicinity of their works, particularly those that were in more urban environments that had seen dramatic growth and consequent pollution like Birmingham, the Potteries, Swansea, Manchester and Liverpool. Of course, also, their social standing and family had increased such that they required more room. Simeon Shaw writing about the Potteries in the 1820s described how potters' 'elegant mansions' were sited adjacent to their manufactory, some, like that of John Wood at Brownhills which were 'placed in a well-arranged paddock and gardens, from

[1] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 13.
[2] Margaret Burscough, *The Horrockses: Cotton Kings of Preston*, (Lancaster: Carnegie Publishing, 2004), pp. 12-16.

which there are beautiful prospects.' although by the time Shaw was writing Wood had received a legacy from a Wedgwood cousin, demolished the works and concentrated on landscaping his gardens.[3] However, this was perhaps a rose-tinted view because others described the rapid development of the area resulting in, 'a suffocating smoke, vomited forth incessantly from innumerable fires.'[4] The Potteries in 1823 were described in a letter published in the *Monthly Magazine*,

> The contrasts of meanness and magnificence which meets the view are equally striking; the humble hut of the artisan stands in immediate contact with the palace of his employer, and splendid mansions rear their heads amid the sulphureous fumes and vapours of the reeking pot-works. Everything, in short, announces that appearances are here quite a secondary consideration when opposed to utility, and that genius of industry alone presides: taste and elegance in the buildings are therefore but little cherished at present.[5]

It is therefore not surprising that Josiah Spode II built the Mount in Penkhull about half a mile from the manufactory (c. 1803-4) originally with grounds of seventeen acres that was increased to 120 acres as more land was acquired.[6] Cotton and other textile manufacturers too, like Gott and the Marshalls in Leeds moved to more salubrious gentry areas a few miles from the industrial growth, but they may still have kept their industry in view or have had an associative link.

Copper pollution was especially pernicious, with the first known court case in 1770 for the smoke from William Roe's Macclesfield Copper Company causing a public nuisance and in 1796 Lady Mackworth objected to signing a lease in case smoke from the copper works at Neath damaged her property despite much of her wealth deriving from the works, she married Capel Hanbury Leigh

[3] Shaw, *History of the Staffordshire Potteries*. http://www.thepotteries.org/shaw/002_tun.htm Accessed 22/10/2019. Pers. com. Miranda Goodby, Curator, The Potteries Museum and Art Gallery.
[4] James Broughton, *Staffordshire Miscellanies*, (London: James Brook Pulham, 1831), p. 291.
[5] Broughton, *Staffordshire Miscellanies*, p. 290.
[6] Whiter, *Spode*, p. 36.

of Pontypool the following year.[7] In Swansea those who had originally lived close to their works like Morris at Clasemont moved to the west away from the prevailing winds that drove the copperworks pollution onto their former estates. Ironworks were less obnoxious, but still resulted in considerable smoke, yet at Cyfarthfa, though close to the ironworks, the topography of the hills meant that the castle and its grounds seem to have been largely unaffected.[8] Gott's Bean Ing mill had increasingly attracted the awe of visitors but the smoke drifted over the town and in 1824 Gott was taken to court, although the case was dismissed.[9]

As more landowners adopted the naturalistic form of the landscape garden and park, so too did industrialists, imposing their personality onto their landscapes. Some are known to have been passionate about their gardens, like Boulton, Galton and Wedgwood, whilst the attitude of others remains hidden for want of evidence. But, like the elite, the landscapes vary quite considerably.

The productive, industrial, agricultural and horticultural may have been the primary drivers for the design of the landscapes, but they were used for personal enjoyment, leisure and sporting pursuits, for community celebration, business entertaining, marketing and some featured on the tourist trail. It will be seen later that some of these industrialists were actively engaged in their gardens, as in the case of Galton retiring to his 'botanic garden' after work, and many were keen fruit growers.[10] Although detailed evidence of how they used their landscapes is slight, their design, the existence of features and what is known of elite landscape use can all help to elucidate how these landscapes were experienced.

3.1 Setting

The majority of these landscapes were sited in at least undulating country, often in naturally picturesque countryside with those in South Wales described as mountainous. Some were therefore less suitable for a conventional Brownian

[7] Edmund Newell, 'Atmospheric Pollution and the British Copper Industry, 1690-1920', *Technology and Culture,* 38 (1997), p. 663.
[8] Pers. Com. Ian Helston, Cyfarthfa Park Ranger, 5/2019.
[9] http://www.thoresby.org.uk/content/people/gott.php Accessed 22/10/2019.
[10] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 215.

treatment, the sites pre-disposed to embracing in whole or part elements of the Sublime or the Picturesque aesthetic. This was particularly the case at Willersley Castle, Castlehead and Coalbrookdale. Many estates were developed on virgin territory, often described as desert, or barren heathlands, and devoid of trees, thus presenting a blank canvas ripe for transformation into something productive and beautiful, very much in the spirit of improvement. This applied for example to Mellor, Cyfarthfa, Etruria, Soho and Castlehead. Although broadly undeveloped these sites often had a small industrial activity like a mill (slitting mill in the case of Pontypool and Soho, paper mill at Cromford) or possibly a small farmhouse like Etruria. A pre-existing industrial activity in itself did not determine the choice of site, but the reasons for its existence would have been indicative of its suitability together with other commercial considerations. Thus, Wedgwood's purchase of the 350-acre Ridge House Estate with its farmhouse capitalised on a site which had a ready source of clay and coal, proximity to the turnpike road between Hanley and Newcastle under Lyme and the proposed Trent and Mersey Canal was to run through the site. Cyfarthfa and its neighbours, Penydarren and Dowlais, were surrounded by extensive mineral resources and sources of water.

If one considers the house as the fulcrum on which the designed landscape pivots, irrespective of the location of the house within the landscape, then the setting of the house is key to the landscape, the views from the house and the views towards the house. One might also categorize the landscapes into those that were enclosed and inward looking and those that were exposed and outward looking. The former typically being where the house was on the floor of a valley close to a river whilst the latter placed the house in an elevated position often above the industrial activity. Pontypool and Mellor were situated almost on a level with the works, and although extensive the prospect from the house and gardens was largely contained. Sites where the house was on a hill took advantage of the wider landscape with open and closed views, like those at Willersley, Soho, Fountain Place, the Gnoll and Cyfarthfa. Apart from the early formal layouts at Pontypool and the Gnoll, it is evident that industrialists were working the design with the topography not seeking to impose something that was at odds with the genius locii.

In a number of cases the sphere of influence and thus actual or implied ownership by the industrialist extended far beyond the boundaries of the ornamental landscape encompassing not only the industrial activity but also local village and farms, thus creating an industrial estate comparable with that of an elite landowner. The estate was therefore the wider setting in terms of experiencing the garden and the house. Encountering employee housing and village facilities like a hotel (Cromford), particularly where that had a stylistic consistency with the industrialist's house, before entering the owner's personal demesne conveyed to the visitor the extent of influence, implying a command of land and the people it supported, consistent with the paternalism of a landed estate (Figure 3.3 and 3.4). A number of ornamental landscaping schemes are thought to have been executed at a time when other work was slack either through economic downturn or seasonal variation, for example, where power relied on the flow of water such as ironworks during the summer, or even when extra labour was required to bring in the harvest. This study has not sought to examine this, but it would be interesting to research further the extent of the interchangeable workforce. There is evidence in the Etruria accounts of payments to the same individuals for hours in the works, the house and the landscape, and at Mellor in 1798, a slack time for manufacture, mill hands worked intermittently in levelling land at the back of Mellor Lodge, also in the orchard a piece of land was sloped and planted with potatoes, and 'fresh-made land at the back of the factory was sown with clover and hay seed'.[11] Potentially therefore the manufacturers of the product were used to render something ornamental or useful, but conversely the ornamental and useful was exploited to enable their productivity which gave them a living. The estate resources were considered as a whole, whether labour, land or produce, but mostly the industrial productive need took precedence, as shown by a letter from Perkins to Mrs Piozzi of 1791,

> it gives me much pain to say that it's out of our power to accommodate Mr Piozzi with the loan of a Horse or two, at this season of Brewing we are much distressed for Horses, [we] lost four by Illness etc. & at present

[11] Ledger D, E62-33418, Wedgwood, Wedgwood Museum. Other Wedgwood accounts. H. Hulme, 'High Farming at Mellor' in Unwin, *Oldknow and the Arkwrights*, p. 208.

> we are two short of those useful Animals to do our Work, our Man at this time waits for the proper fairs to buy us six or eight Horses to carry on our work. But as soon as the Brewing Season is over we shall be enabled to spare one or two.[12]

Another indicator that home, industry, agriculture and community were considered as a whole was the lack in some cases of separate bookkeeping, the Marshalls of Leeds being an example.[13] Of course, the industrialist and his family were the prime beneficiaries of this combined endeavour, but for those early industrialists who developed an industrial estate, it could be argued that the estate mentality of all elements working to the benefit of the whole produced the integration of the useful and the beautiful.

3.2 Designers

Walpole advocated that the owner, 'if he has any taste' 'must be the best designer of his own improvements.'[14] Understanding of, if not proficiency in, architecture and landscape were accomplishments expected of a gentleman, thus developing one's own estate in aesthetic and productive terms was not only a means of self-expression and good management, but also demonstrated one of the key British values - taste. However, it is often impossible to unravel the relative contributions of the owner, their family, friends and designer even in the case of well-documented elite sites. Many of the great gardens of the period were designed and developed in whole or in part by their owners, with or without the assistance of an amateur, and in many cases where professional designers were involved the extent of their originality or the initiative of the client is difficult to ascertain. Thus, the influential gardens of the early English landscape style of the 1740s and 1750s were to large extent the creation of their owners expressing their own ideals, whether that was the political iconography of Cobham at Stowe, the realization of Claude landscape paintings at Stourhead or the classical allusion at The Leasowes. Elite landowners did employ designers, William Kent and Brown in the case of Stowe for instance, or

[12] Business Letters to H. & H. L. Thrale, 13 April 1791, Perkins to Mrs Piozzi 1771-91, ENG MS 600, Thrale Piozzi Manuscripts, John Rylands Library, University of Manchester.
[13] W. G., Rimmer, *Marshalls of Leeds Flax-Spinners 1788-1886* (CUP, 1960), p. 149.
[14] Walpole, *The History of the Modern Taste in Gardening.*

the assistance of talented gentlemen amateurs like Sanderson Miller and William Pitt (the elder), but where did the owner's and designer's role converge? As far as is known only six of all the industrialists studied engaged a professional designer and, apart from Thomas Greening the younger's involvement at the Gnoll in the 1740s, mostly later in the period.[15] William Emes was engaged at Etruria and probably also Willersley Castle, Repton at Armley and Warley.[16] In his introduction to the Red Book for Moseley Hall (1792) prepared for John Taylor (button maker and enameller), Humphry Repton remarks that Taste in Landscape Gardening, 'is a subject very little understood in the neighbourhood of large manufacturing towns, where each individual feels that he has a right to follow his own taste, however absurd or ridiculous.'[17] Taylor was excepted from this general censure. Although there may have been some snobbery on Repton's part, the engagement of a professional designer indicated a certain level of wealth, land ownership, a desire for aesthetic improvement and perhaps in some instances the desire to be seen to be of sufficient status to engage a designer. It has to be assumed that the other sites in this study were 'designed' by their owners, probably working with their head gardeners or steward, like their gentry contemporaries, with no professional designer or acknowledged amateur involved. There is scant evidence to indicate whether the industrialists set out with a clear design concept for their estate, irrespective of the involvement or otherwise of a designer, but that does not mean that there was none. In most cases too the timescale of development across generations is uncertain. The greenfield sites were more likely to have had some substantial element of planning from the beginning as evidenced for example by Wedgwood's letters to Thomas Bentley about Etruria, which show that Bentley, Wedgwood and his wife were the

[15] Greening and others of his family were gardeners to the Duke of Cumberland and probably involved with the new plantations and walks around the new lake at Virginia Water. https://historicengland.org.uk/listing/the-list/list-entry/1001177 Accessed 22/10//2019 and http://nurserygardeners.com/?p=92 Accessed 22/10/2019.

[16] Emes is known to have worked at a number of sites where Joseph Pickford was the architect, like Etruria. A connection might also be made at Willersley where Thomas Gardener, Pickford's pupil in the 1760s, presented some designs, and John Webb, Emes' associate, and possibly Emes himself were involved. Maxwell Craven and Michael Stanley, *The Derbyshire country house*, (Landmark Publishing Ltd, 2001), p. 21.

[17] Humphry Repton, Red Book for Moseley Hall near Birmingham, a seat of John Taylor, Esqr., 1792. https://iiif.lib.harvard.edu/manifests/view/drs:46526300$7i Accessed 21/10/2019.

combined mind behind the design, and the engagement of a designer, William Emes, was probably to deal with the logistics and particularly the drainage and pools.[18] Wilkinson was clearly his own designer at Castlehead (purchased December 1778) for he wrote to James Stockdale on 7 March 1780,

> I shall proceed upon that plan of cutting the Rock, which will serve my purpose in either Case [….] [re a piece of land] I shall never think of cultivating it further than by planting some Trees upon it, for which those irregular Nabs seem best calculated […] I hope to spend sometime this Summer in your Neighbourhood & to have the pleasure of paying my Respects to You at Cark as also of having your Advice in forming the rough Spot I have chose to amuse Myself with at Castle Head.[19]

The speed of construction at Cyfarthfa suggests that William Crawshay II knew exactly what he wanted to achieve with the assistance of architect Robert Lugar. Others may have developed more organically. As is so often the case, the role of women is little documented, but, as noted earlier, their potential contribution should not be overlooked as the Wedgwood example demonstrates. There are several references to grottoes associated with particular women in the households (for example for Wilkinson's daughter, Mary, at Castlehead, and Sarah Darby's at Sunniside). Boulton's correspondence with his daughter about the garden and Mary Anne Schimmelpenninck's memoir of the Galtons testify to the engagement of women in the landscape including the flower garden and that botany was an acceptable female occupation. One woman known to have been an amateur designer, Mary Knowles, a Quaker and probably related to the Lloyds, was said to have laid out the grounds at Farm where she was a frequent visitor; she also visited the Darbys providing an inscription for a summerhouse.[20]

[18] Payment to William Emes - Crewe - Payment, 55/30661-2, Wedgwood, Wedgwood Museum.
[19] Letters from John Wilkinson to James Stockdale, Cark, 1778-1795, DDHJ 4/3/2/7, Hart Jackson & Sons, Solicitors of Ulverston, Cumbria Archives, Barrow.
[20] Samuel Lloyd, *The Lloyds of Birmingham ... Second edition*, (Birmingham: Cornish Bros., 1907), p. 111. Mary Knowles, was the wife of an eminent London physician. She referred to members of the Lloyd family as 'cousins' and may have been related to them on her mother's side. From her teens she had a lasting friendship with Anna Seward and was a friend of Dr Johnson. She "excelled in the polite art of poetry and painting, and the imitation of nature in needlework" (no ref given). She became a

Wedgwood's letters to his partner and great friend Thomas Bentley demonstrate that both had considerable input into the design and layout of all the buildings and grounds at Etruria (Figure 3.5).[21] Eliza Meteyard's comment that Bentley's true hobby was the drainage of swamps and the cultivation of moorland, and that he had bought a little land on the borders of Chat Moss and drained it, suggests that perhaps Bentley may have been consulted on all the drainage work undertaken at Etruria.[22] Together with Soho, Etruria is one of the most well-documented sites, where, as early as September 1766, the year Wedgwood first mentioned his prospective estate purchase, he voiced his views on engaging a landscape gardener.[23] The only firm evidence for William Emes (1729/30-1803) working on the Etruria grounds is a payment of £117 19s 2d made in 1770, sufficient certainly for a consultation, plan and supervision of some work, but there are no plans or letters as yet discovered to provide further proof. There is only one mention of Emes in Wedgwood's surviving letters to Bentley, on 14 August 1773, about seeking Emes' advice with regard to views for the Frog Service. This is unusual given the nature of their correspondence and the amount of discussion on Pickford's work on the house. However, Emes worked frequently with Pickford and both were known to Wedgwood's close friend Erasmus Darwin and John Whitehurst, another member of the Lunar Society[24] This is most likely to have been Emes introduction to Wedgwood who may also have been familiar with the designer's work through his wide

favorite of the king and queen after having completed in 1771 a full-size needle stitch painting of the king copying that by Zoffany. She accompanied her husband on his medical studies in Leiden, wrote articles and supported the anti-slavery campaign, her husband being one of the anti-slavery Committee of six formed by Clarkson, another was John Lloyd, London banker and son of the second Sampson Lloyd.

[21] Enoch Wood noted that 'Mr Bentley was a learned literary man and was the chief means of introducing Mr. Wedgwood's manufactured earthenware to the Nobility of England and to the Foreign Embassidors (sic) at the British Court.' (Enoch Wood) Cited in Falkner, *The Wood Family of Burslem*, p. 39.

[22] Eliza Meteyard, *Life and Works of Josiah Wedgwood : from his private correspondence and family papers*, ([S.l.]: [s.n.], 1865), p. 15.

[23] 'My Sally . . . will not fix upon a spot for either your house or Gardens no not even the Stables 'til you have viewed & given an opinion of the premises, so now my dear Sir you are invited to the Ridghouse Estate in the quality of a *Brown*… Ten guineas if I remember right is the price of a single call without the advantage of his direction, to make a Lawn & piece of water here – Cut down that wood & plant it there, level the rising ground, & raise yonder valley.' Josiah Wedgwood, Letter to Thomas Bentley 15 September, 1766, E25-18127, Wedgwood, Wedgwood Museum.

[24] https://www.oxforddnb.com/view/10.1093/ref:odnb/9780198614128.001.0001/odnb-9780198614128-e-37398?rskey=8rR43y&result=7 Accessed 23/4/2020. Maxwwell Craven and Michael Stanley, *The Derbyshire Country House,* (Landmark Publishing Ltd, 2001), p. 20.

connections in the area.[25] Wedgwood's son, Josiah engaged John Webb, who took over from Emes, to do work at Maer Hall around 1802-1807. There is one further piece of evidence of potential friendly relations, in a 1788 letter to Samuel More when on a tour to the Lake District, Wedgwood noted, 'Eames & his son meet us at Lan[caster]'.[26] The 1832 Hargreaves plan of the Etruria estate shows a walk from the house to the [kitchen] garden with trees to either side which may have focussed a vista from the house (Figure 3.6).[27] The plan also shows features not uncharacteristic of Emes' designs, particularly the complete shrubbery circuit around the kitchen garden and a narrow belt of trees around the outskirts of the estate, although it is likely that the latter was not planted until later. These features were used by Emes elsewhere, for example at Kings Bromley around an existing kitchen garden and to the parkland side of the kitchen garden at Alderwasley (Figure 3.7).[28] The proposals for Alderwasley show the bounding of a paddock by woodland as also occurs at Willersley (Figure 3.8).[29]

John Webb (1754-1828) has been credited with designing the grounds at Willersley Castle which were 'once a wild desert, trodden only by the miner'.[30]

[25] Emes worked at Ingestre, the home of the Chetwynd family who were friends of the Wedgwoods, where in 1770 Emes' work included completing the 1756 Brown plan 'for the Intended Lawn'. He worked at Keele Hall in 1769, the home of the Sneyd family, also known to Wedgwood, and possibly at Sandon Hall which was built in 1770 for Lord Archibald Hamilton prior to his main work there in 1778-87. Emes also worked at Beaudesert, Tixall. Emes' son William and Erasmus Darwin's son, Edward, were friends.

[26] Josiah Wedgwood, Letter to Samuel More, 1788, E26-18977, Wedgwood, Wedgwood Museum.

[27] Thomas Hargreaves, *Map of the Staffordshire Potteries & Newcastle-under-Lyme Including their Vicinities Shewing the Limits of the Boroughs, Parishes, Townships, etc*, 1832, s1909/5, William Salt Original Collection, Staffordshire and Stoke on Trent Archive Service, William Salt Library.

[28] *A Plan of the Lands around Bromley Hall, the seat of John Newton Esq. with some alterations by William Emes*, 1778, D6179/1/3, Papers of the Lane Family of Kings Bromley, Staffordshire and Stoke on Trent Archive Service, Stafford. William Emes, *A Plan of the Park and Part of the Demesne Lands at Alderwasley the Seat of Francis Hurt Esqr with some Alterations by Wm Emes*, 1784, D2535/M/19/1, Hurt Family of Alderwasley Derbyshire Record Office.

[29] Willersley Castle and Masson Mills 1880, M744 sheets 34.6 and 34.7, Ordnance Survey "1" Inch 1st Series, Derbyshire Record Office.

[30] 'Willersley Castle, Cromford', in *Gardeners Chronicle,* (1886), pp. 440-441. William Adam, *Gem of the Peak*, 5th ed. reprint[ed] / with a new introduction and bibliography by T.D. Ford. edn (Buxton (The Market Place, Hartington, Buxton, Derbyshire): Moorland Publishing Co., 1973), p. 72. Joyce, Barry, Doreen Buxton and David Hool, 'Willersley Castle, Cromford', (Derby: Derwent Valley Mills World Heritage Partnership, 2011), p. 1, state that the pleasure grounds were laid out by John Webb.

In the *Beauties of England and Wales* (1802), Britton and Brayley state that, 'The walks are laid out under the direction of Mr. WEBB, and are kept with greatest neatness.'[31] Webb (also an architect, who lived at Lea Hall, Armitage near Lichfield), was William Emes' foreman, then partner, who increasingly took over after 1789 when Emes moved to Hampshire and continued the business following Emes' death in 1803. However, William Emes (1729/30-1803) had worked on the 'Lovers' Walks' which were part of the Willersley Estate, so he might initially have had an involvement in the Castle grounds.[32] He had also developed a plan for Alderwasley Hall in 1784 for Francis Hurt whose son Charles (1758-1834) married Arkwright's daughter, Susannah (1762-1835) in 1780, so it is highly likely that Arkwright had met him and known of his work. Arkwright embarked on his plans for Willersley Castle in 1786/7, but he never lived there because it was damaged by fire in 1791, the year before he died aged sixty, but his son completed the construction and moved there in 1796. It was probably always intended for his son and that therefore Arkwright II was the driving force behind the development of the landscape.

Repton was engaged by two of the industrialists, in each case for their 'country seat' rather than the site by their works, Gott at Armley, Galton at Warley and also at Moseley Hall by John Taylor, a Birmingham button maker and enameller. In the case of Armley and Warley a visual link was made with the source of the wealth, at Armley it was the mill in the view from the terrace and at Warley a beacon was in sight of both the estate and the works.

Thomas Wright has been suggested as potentially having an involvement at Warmley on the basis of the rustic character of the extant buildings and the connection between Champion and Norborne Berkeley, later Lord Botetout, of Stoke Park, and Charles Bragge of Cleve Hill, whose gardens had been designed by Wright.[33] Eileen Harris has noted that a feature of Wright's buildings was semi-circular or semi-octagonal bows; there is a large double

[31] John Britton and Edward Wedlake Brayley, *The Beauties of England and Wales; or, Delineations, topographical, historical, and descriptive, of each country. Embellished with engravings.*, (1802), pp. 504-512.
[32] Barry Joyce and Doreen Buxton, 'Willersley Castle, Cromford', (Derby, 2011), p. 27.
[33] Timothy Mowl, *Gloucestershire*, (Stroud, Gloucestershire: Tempus Publishing Ltd, 2005), pp. 93-94.

storey bow to the south front of Warmley House and another smaller one.[34] However, such bows were not uncommon and there is no firm evidence to indicate Wright's involvement, the organization of the landscape suggesting piecemeal design and development.

Robert Lugar commented on landscaping in the various editions of his *Architectural sketches for cottages, rural dwellings, and villas* and in *Villa Architecture* in which he featured a view of Cyfarthfa as the final plate, he therefore may have had more input into landscape design than is credited with the landscape at Cyfarthfa and the design of the icehouse discussed later being potential evidence.[35]

3.3 Design Style

With the majority of the sites having been developed in the latter half of the eighteenth century and some in the first decades of the nineteenth, they largely adopted the aesthetic of the landscape park, although some picturesque features do occur but none appear to have embraced the full-blown Picturesque as advocated by Price and Payne Knight. A number of the landscapes were likely to have developed organically over time as resources allowed rather than have been the implementation of a predetermined design. The fact that the majority of the sites were initially on barren land and far less wooded than they were later to become, meant that in many cases the design effect would have been some years in coming to fruition, and may have been amended by their creators or their successors. This is something particularly to bear in mind as industrial activity increased and cultural norms shifted, such that screening, for example, might have become more desirable.

There were several sites mainly dating from late seventeenth or early eighteenth century, Pontypool, the Gnoll, the Derby Silk Mill and the Darby

[34] Thomas Wright of Durham, *[Universal Architecture.] Arbours & Grottos. A facsimile of the two parts of Universal architecture, 1755 and 1758, with a catalogue of Wright's works in architecture and garden design by Eileen Harris*, (London: Scolar Press, 1979). Also http://reed.dur.ac.uk/xtf/view?docId=ark/32150_s1nz805z75w.xml Accessed 22/2/2019.

[35] Robert Lugar, *Architectural Sketches for Cottages, Rural Dwellings, and Villas, in the Grecian, Gothic, and Fancy Styles, with plans ... Preceded by some observations on scenery ... Thirty-eight plates*, (1805). Robert Lugar, *Villa Architecture: a Collection of Views, with Plans, of Buildings Executed in England, Scotland, &c,* (London, 1828).

houses at Coalbrookdale, that retained remnant formal, geometric design features, the first two even into the nineteenth century. This indicates that formality was retained longer than often suggested, with rectangular spaces, axial views, avenues and topiaried 'greens'. The jewel like island in the River Derwent was a miniature in comparison with the scale of the Gnoll; yet despite its river setting with a wide vista it has an internal focus from the summer house along a gravel path to a proposed fountain with grass walks to either side and all enclosed with evergreen hedge and topiarized trees, as described by Henry Lombe in a letter.[36] In a view of c. 1690 looking from the east, which shows Sorocold's waterwheel installed to raise water for the town supply, neither the mill nor the island were developed, yet it was by c. 1725, the date of *A Prospect of the City of Derby,* although the fountain is not apparent in a view of that time (Figures 3.9 and 3.10). One might speculate that John Lombe was creating a tiny version of those gardens of the wealthy Derbians that had also been developed in the preceding thirty years and that ran down to the river including fountains, statues and small banqueting-cum-summer houses at the water's edge.

The gardens around Pontypool house are modest in scale compared with those of the Gnoll. The earliest plan is from 1752, depicting a court, possibly a bowling green, extending from the eastern front of the house with below to the south two long geometric canals, discharging into a pool with the forge beyond and an enclosed garden stretching south and south-west down to the river (Figures 3.11 and 3.12).[37] Although the Gnoll has been described as once having a formal canal, both *A Plan of the Town & Port of Neath* by M. O'Connor of c. 1720 and *Gnol Demesne and Lands* by B. Jones, 1740-65, do not show a geometric canal, but a broadly rectangular shape with island to the north-east corner and carp trap hook to the south west. On the O'Connor plan the series of battery, rolling, slitting and wire mills descend from the Great Pond towards the valley; the landscape around the house has 'Walks made in the Hill' in an arc to the north east with a horseshoe avenue, probably of sweet chestnut, running through, the whole encircled by a water system that supplied the house and the

[36] Harding and Taigel, 'An Air of Detachment', p. 247.
[37] The key to the fields on the 1752 plan identifies 9 as 'The Canals'. M. Jones, *An Accurate Plan of the Seat and Park of the Honorable Capel Hanbury Esq. with inset South Prospect*, 1752, Hanbury, Courtesy of Dr Jack Hanbury, Pontypool Park Estate.

Great Pond, and with a pool in the centre (Figures 3.13).[38] By the time of the Jones plan there appears to be less industrial works to the south of the house below the Great Pond and there is no evidence of a central pool in the vicinity of the house. However, what is clear is the straight route of the formal cascades created in the 1740s descending into the [Fish] Pond, these are on axis with the long straight terrace extending east from the environs of the house (Figure 3.14). This plan also shows a circular bowling green surrounded by gardens and the Pleasure Ground to the north east extending to 284 acres with the newer [Guinea] Pond (Figure 3.15). (See Chapter 5.5, p. 218 for a discussion on the term 'canal'.)[39]

The formal cores of both sites in the mid-century were essentially inward focussed gardens, not appearing to appropriate the wider landscape, Pontypool sits in the valley bottom, whilst in contrast, the Gnoll is above the valley and although from the wider landscape there would have been views out including to the ironworks, the majority of the formal landscape around and spreading to the east of the house encompassed internal views rather than outward, but more distant views were enjoyed from the pleasure grounds and wider landscape. Formality existed at Pontypool until the early years of the nineteenth century when Archdeacon William Coxe who stayed at Pontypool for a week or more in 1799, reported that, 'specimens of false taste will soon be removed, a lawn of verdure will gradually slope from the house to the torrent and harmonize with the native beauties of the scenery.'[40] Whereas at the Gnoll, although some of the formal elements remained, including the cascades, the wider landscape accommodated changing taste, such that even in the 1740s there was development in Mosshouse Woods of a naturalistic cascade falling from a grotto

[38] CADW, 'Register of Historic Parks and Gardens of Wales: The Gnoll'. A sweet chestnut stump was identified in the 1980s as dating from this period, and it was a tree of choice for avenues.

[39] *A plan of the town & port of Neath in the County of Glamorgan, Being part of ye Estate of Sir Humphry Mackworth Situated near ye Bristol Channel,* M O'Connor, 1710, D/DT 2297, Gnoll Estate Records, West Glamorgan Archive Service.
*Gnol Demesne and Lands contiguous Belonging to H. Mackworth Esq*r *MP For Glamorgan*, B Jones, 1740-65, DD GNE/1, Gnoll Estate Papers, West Glamorgan Archive Service.

[40] William Coxe and Sir Richard Colt Hoare, *An Historical Tour in Monmouthshire; illustrated with views by Sir R. C. Hoare, Bart., a new map of the county, and other engravings*, (London: T. Cadell, 1801), p. 239.

and view-points took in the wider landscape, like that from the castellated seat (Figures 3.16 and 3.17). The impetus for this development however may well have been to ensure an increased water supply for the ironworks, because the new (Guinea) pond-reservoir, dammed on three sides, was built by the time of the Jones estate map of 1740-65 to receive water from the leats channelled across the contours from Mosshouse Woods and running alongside walks. Industrial development was driving and underlying an extensive picturesque landscape.[41]

There are two views of Coalbrookdale from slightly different perspectives that show the gardens of the Darby houses. One is the François Vivares engraving of the *South West View of Coalbrookdale* of 1757[?8] drawn by Thomas Smith and George Perry, the other an anonymous (? Vivares) view of about the same date, *Upper Works at Coalbrookdale*; both show the walled garden of traditional formal cruciform layout, the quadrants bordered by and possibly containing further fruit trees; extending up the hill behind Dale House (Figures 3.18 and 3.19).[42] The small building adjacent to the top wall has been identified as the summer house to which Abraham Darby II, an asthmatic, would retire to escape the smoke of the works below.[43] Stretching from the walled garden further up the hill was an avenue of trees that appears to stop in the middle of a field, but was possibly centred on a small structure or single tree. On the summit of the hill, not connected apparently with the avenue, an octagonal or hexagonal tower that appears to be of two stories and with a balustrade or battlements.[44] To the right, towards the top of an adjacent hill is Sunniside, the home built c. 1750 by Abraham Darby II, with a formal layout of rectangular lawn stretching out in front of the house bordered by trees, with what appears to be a straight avenue of trees to the right; this is not apparent on the anonymous view. Archaeology has confirmed the presence of walls in the location of the walled garden, foundations for the summerhouse and the tower. However, whilst these

[41] CADW, 'Register of Historic Parks and Gardens of Wales: The Gnoll'.
[42] F. Vivares, *South West View of Coalbrookdale, Shropshire*, [?1757/8], SY1255, Shropshire Council, Shropshire Museums. Unknown, *Upper Works at Coalbrookdale*, 1758, SY0889, Shropshire Council, Shropshire Museums.
[43] Amanda Winkworth, 'Sunniside Arboretum, Coalbrookdale - A Preliminary Report', in *Ironbridge Archaeological Series,* ed. by Hilary Thompson (Ironbridge: Ironbridge Gorge Museum Archaeology Unit, June 1988).
[44] For discussion of the tower see p. 191.

geometric gardens present an ordered formality juxtaposed to the industrial, they are not those described by Samuel More on 17July 1786, some twenty years later on one of his many visits to Broseley and Coalbrookdale, he gives the only description yet found of the Sunniside gardens as they were at the time of Abiah Darby (1716-94), the formidable second wife of Abraham Darby II (1711-63).[45] More walked up to Sunniside, pleased that 'the winding paths and easy steps' made the ascent easier,

> the Ground being laid out with great Elegance and Taste and ornamented with Grottoes formed of Mss Iron Slag etc. the Trees growing luxuriantly and yielding Fruit in Abundance and the Hills steep and rocky on the opposite Side of the Dale, with Fish Pond and large Pools of Water, and Views of the Works intermixed, delight the Eye with their Grandeur at the same Time that the Novelty of the Scene transports the Beholder with its Beauty for the Sudden Transition from Smoke and Fire to Verdure and Coolness is so amazing that a Traveller almost believes himself transported by Magick to some other Climate.'[46]

A later anonymous *Description of Coalbrookdale* reported,

> in the front [of the house] there is a small park & fine sheet of water, surrounded with firs. The garden is laid out with taste & ingenuity, & contains a hot house, & green house with a good collection of plants native & exotic; also a bath & summer house.[47]

This evidence illustrates clearly that landscapes are mutable, in twenty plus years many different developments could occur. Also, one has to bear in mind that engravings for public consumption may have presented an idealised or sanitised view of the reality.

[45] The diaries of Abiah herself are singularly unrevealing, giving no names of the many visitors other than Friends and concentrating on her religious activities.
[46] Samuel More, Travel Journal, Volume 2, West Midlands, North West England and North Wales in 1776 and 1780, Uncatalogued, British Library July 1786.
[47] Anon, *A Description of Coalbrook Dale Iron Works and the Environs*, c. 1834-50 dated from internal evidence, 1987/64/6, Darby of Coalbrookdale (1654-1917), Shropshire County Archives. This also gives a detailed description of the Sabbath Walks.

Unlike the Darby gardens in the steep sided Coalbrookdale gorge, was Warmley in the fairly flat land to the east of Bristol, which was developed between 1748 and 1768 by William Champion, also a Quaker and with strong links to the Darbys from whom he bought large quantities of iron. The development of Warmley was almost exactly contemporary with that of the garden at Stourhead (1745-65) by Henry Hoare with its allegorical circuit referencing the *Aeneid*.[48] Warmley too, particularly the grotto, could have a Virgilian interpretation (Figure 3.20). Almost wholly surrounded by the brass works and its associated infrastructure, this would seem to have been a landscape harking back with possibly a Dutch influence from Champion's time in Europe; its self-contained interconnected spaces almost all with some industrial interaction, relying on an internal dynamic, where the visitor was drawn on to the next space by a particular visual device; only the statue of Neptune potentially providing a fulcrum for several of the views (Figure 3.21). It is the only site known to have included a mount, possibly an opportunistic feature built from the spoil taken from the construction of the manufactory pools or the icehouse, it was situated to overlook the industrial complex and the pleasure grounds (Figure 3.22). The terrace to the west of the house would have had views down over the Echo pond and the lake, whilst the 'tea house' would probably have looked towards coal pits. The Tudor heyday of the mount had waned by the early eighteenth century, although that in the gardens at Kew was built in the 1740s. Apart from the elevated position for viewing the gardens and the wider landscape, mounts had strong religious and classical connotations associated with spirituality and being away from the hurly burly of man, a place for contemplation and being nearer to god.[49] The Ark came to rest on a mountain, Abraham went to the mountain to sacrifice his son, the life of Christ was punctuated by a number of key episodes associated with a mountain; and in classical mythology the gods resided on Mount Parnassus. In freemasonry the journey up the mount is symbolic of the road to enlightenment. Whether such allegorical associations resonated with Champion is unknown, but the existence of Neptune in the lake-reservoir is indicative that he might also

[48] Jacques, *Georgian Gardens*, p. 52. Mowl, *Gentlemen Gardeners,* p. 145.
[49] John Evelyn and John E. Ingram, *Elysium Britannicum, or The Royal Gardens*, (Philadelphia, Pa.: University of Pennsylvania Press, 2000), pp. 199-203.

have appropriated the religious and classical to a large amount of spoil. For John Wilkinson, it was no mean feat fashioning the inhospitable mount-like Castlehead hill into a garden with narrow paths forming a terrace to the south and east and winding up to the summit with its spectacular views; Samuel More not only described eating its peaches and nectarines, but also its mystical qualities.[50] The topography of other sites made such viewing points unnecessary. However, both Jedediah Strutt's house at Milford overlooking the mills and that of Josiah Spode II in Penkhull half a mile from the works were called The Mount.

Two sites that developed in parallel from 1766/7, Soho and Etruria, express the different approaches that owners might take even when they were extremely well-acquainted and keen to express their modernity. Boulton moved to Soho house in 1766, the same year that Wedgwood first mentioned purchase of the Ridgehouse estate that he was to conclude the following year, although Boulton had first leased the 13 acres and slitting mill in 1761.[51] He was strongly influenced by gardens like The Leasowes (1740 - 1760) and Painshill (1738 - 1773), he knew Shenstone and in 1772 visited Painshill making notes; both landscapes were described as a ferme ornée and both were to be experienced via a defined circuit.[52] The ferme ornée's amalgamation of the ornamental with the utilitarian would have appealed to the industrialist who made ornate versions of utilitarian objects (buckles, snuff boxes, tableware etc.). There is no suggestion that Soho had a defined route, having more in common with the style of the 1740s and 50s than the emergent naturalistic style of Brown which was adopted by Wedgwood at Etruria. Soho, for its compact size, packed in a number of garden buildings and features particularly in the gardens nearer to the house, which might have subjected it to the derision that Robert Lloyd heaped on the new gentry landscaping their villas in the London suburbs described in his satirical poem *The Cit's Country Box* (1756).[53] However,

[50] Samuel More, Travel Journal, Volume 3, Lake District, West Midlands, North Wales and to the North East in 1783 and 1784, Uncatalogued, British Library, 28 September 1784.
[51] Ridgehouse is spelt variously by Wedgwood, 'Ridghouse', 'Ridgehouse' and 'Ridge House'.
[52] Ballard, Loggie and Mason, *A Lost Landscape*, pp. 5-6.
[53] Robert Lloyd, 'The Cit's Country Box', *The Connoisseur,* Vol. 3, 4th ed., No. 135, 26 August 1756, p. 233.

Soho's interaction with the ingenious production of consumer goods seemed to shield Boulton's garden from such criticism, as may also it being in Birmingham not London, and particularly its skilful use of space inducing the visitor to think it was larger than it was in reality. The sketches and paintings of Soho, particularly by John Philp, belie the proximity of the various elements; trees were used to screen and create the illusion of greater space (Figure 3.23). Although described as having canals, these were not straight formal channels but leats from one reservoir-pool to another, to the manufactory and mint, they, like the cascades, utilized the contours of the site and were wholly in the service of the manufactory. The form of the water changed over time as industrial need changed. The garden buildings (hermitage, temple, grotto(s), boat houses, 'cascade library room', observatory) were complete by 1778, but planting continued. The building of the tea room and menagerie (1776-9) were essentially public facing, although later (1781-2) two rooms in the former were converted, one for fossils and the other as a laboratory.[54] Boulton bought further land, merging two of the pools into one and moved the kitchen garden from a promontory in the pool to an area alongside the turnpike road, but the focus of the garden in terms of features remained in a relatively small area close to the house, largely between it and the manufactory and mint (Figure 3.24).[55] By comparison, Wedgwood's 360-acre estate was designed in naturalistic style apparently without garden buildings other than portable ones. A short stretch of avenue within the parkland intervened between the house and the kitchen garden, which was surrounded by shrubbery, a feature typical of Emes, and threaded with walks bordered by flowering shrubs, also possibly perennials and annuals given the plant orders (Figure 3.6). Otherwise the landscape appears to have been parkland with a small area of evergreen planting near to the house as shown on the Stringer Plaque (Figure 3.25). It is inconceivable that Wedgwood and Boulton, friends and business associates, did not discuss their gardening, yet contemporaneously they developed rather different landscapes. Soho was more akin to the associative gardens of The Leasowes, Painshill etc, whereas Etruria adopted the Brownian aesthetic, albeit with the help of Emes, perhaps not surprising given that Wedgwood knew Brown and particularly his

[54] Ballard, Loggie and Mason, *A Lost Landscape*, pp. 13-14.
[55] Notebook 'N. B. 27 General', 'Agriculture 1793', containing Matthew Boulton's plan of his landholding at Soho in 1793, 1793-99, MS 3782/12/108/68, Boulton and Watt - Matthew Boulton and Family Papers, Library of Birmingham.

work at Trentham, and, like Boulton, he visited other gardens a favourite being Nuneham Courtney (which Wedgwood spelt Newnham), with its flower garden by William Mason and landscape by Brown.[56]

Enoch Wood's four-acre Fountain Place, probably developed after 1789 when the manufactory was erected, was described as a 'little Hawkstone', and the coloured glass in the hermitage would certainly have recalled the Hawkstone grotto, yet its enclosure would suggest that unlike the rugged terrain and expansive views of Hawkstone the similarity derived from sinuous paths conducting the visitor from one feature to another through dark tunnels formed from trees or shrubs rather than subterranean, moving from dark to light, hiding and revealing, with a couple of views beyond to St Paul's church and over the summit pond of the canal.[57] The paths doubled back on each other giving the impression of far greater extent (Figure 3.26 and 3.27).[58] The 1816 plan of the site suggests a relatively simple layout of paths winding through planting with half comprising paddock and the flint mill, but Wood's memoirs reveal it contained, 'different seats and recesses and Gravell Walks all then covered and shaded with trees which from each side met at the tops and formd covered walks.'[59] The bath is indicated on the plan but no other structures in the garden although he mentioned both a hermitage and a summer house, and one might discern two ornate structures in two west views of his house and manufactory (Figures 3.28 and 3.29).[60] The garden stretched south west from the house with manufactory buildings to the east and a flint mill at the bottom, 'embellished with arched windows and embattled gables looking more like a church than an industrial building.'[61] This comment is substantiated by the later *West View of the House and Manufactory of Enoch Wood* by Edward Brooke and by a photograph of the mid nineteenth century (Figure 3.29 and 4.21). The crenelated wall in the view with ornate structures visible behind must have been erected towards the end of Wood's life because the earlier c. 1830 view shows only a picket fence. Wood's comment in his autobiography of 1836 implies that

[56] Letters Volume X, 1776, 20 June, Wedgwood, Wedgwood Museum.
[57] Enoch Wood, Enoch Wood note on Mr Ashton's Poem, 1836, PM1/1/86-1, Enoch Wood Papers, Potteries Museum.
[58] Plan of Fountain Place, PM1/1/23, ibid.The Potteries Museum and Art Gallery.
[59] PM1/1/86-1, Enoch Wood Papers, Potteries Museum.
[60] PM1/1/86-1, Enoch Wood Papers, Potteries Museum.
[61] http://www.thepotteries.org/walks/burslem/p.htm Accessed 19/9/2017.

the alterations might have been undertaken by this date, ‘Every alteration since made, has spoild its then simplicity and beauty.’[62] The East Front continued the theme with a mock medieval gateway (Figure 3.30).

A plan of Galton’s landscape at Duddeston of 1835 suggests a park dominated by the two large lake-reservoirs with circuit walks shaded by trees, although the testimony of his grand-daughter mentions only one lake of four or five acres, ‘its borders indented, and clothed with the finest willows and poplars’, at one end a rustic fishing-house (Figure 3.31).[63] The simple garden features were consistent with Galton’s Quakerism: his botanic garden probably situated in one of the walled enclosures, and the bees in their glass hives a potent symbol of industry.[64] Similarly the Quaker Lloyds’ Farm in 56 acres was exactly that, a productive landscape with pond and pleasure grounds, its only distinguishing feature being a lawn with rows of elms to either side going down to the road.[65] These were planted in 1745 shortly before the house was built, but there is no suggestion that in the year of the Jacobite rebellion this was an emblematic gesture. Such simplicity is evident also in the gardens of the Lancashire textile industrialists (Ainsworth, Ashworth, Horrocks) who appear to have preferred relatively modest landscapes incorporating lawns surrounded by a circuit walk through shrubbery and trees (Figures 3.32, 3.33, 3.34 and 3.35). William Crawshay II at Cyfarthfa too adopted a parkland setting for his castle, albeit, as will be seen later, with an integrated industrial function and in full view of the ironworks (Figure 3.36).

Whilst there is no evidence to suggest that any industrialist created a wholly associative landscape like The Leasowes abounding with inscriptions, there

[62] PM1/1/86-1, Enoch Wood Papers, Potteries Museum.
[63] Lease for term of 21 years (Duddeston) (Samuel Tertius Galton) to Thomas Lewis for annual rent of £142, 1835, MS 28/74, Wragge and Co., Solicitors, Birmingham, Library of Birmingham.
[64] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 40. Enoch Wood recounted too how his father, ‘was highly delighted with attending to his Bees, at one time he had Thirteen large Hives, but as the Salt Glaze, & Brick Kiln Smokes increasd, an end was put to his pleasing & Productive amusement which he had recourse to as a deviation from his industrious & ingenious employment, & I may say profitable.’ PM1/1-42, Enoch Wood Papers, The Potteries Museum and Art Gallery.)
[65] Lloyd, *The Lloyds of Birmingham*, pp. 38 and 43. Two rows of trees leading from the house are marked on the Ordnance Survey Map for Warwickshire XIV.10 (Birmingham) Surveyed 1888, published 1890.

was certainly allusion and some included inscriptions, usually allied with a building, as at Fountain Place where the Hermitage, 'with Mottoes by Anne', and at Sunnyside for both Sarah Darby's summer house and grotto.[66] Buildings too in themselves provoked association, perhaps the most potent was the rotunda turn seat perched on the tip of Lincoln Hill above Ironbridge at one extremity of the Sabbath Walks and reminiscent of Tivoli. Coalbrookdale particularly lent itself to the Sublime as did other sites like Willersley which worked with the highly picturesque qualities of the Matlock gorge, enhanced by the extensive plantations established by Arkwright II, taking advantage of and manipulating the many and varied views and experiences to be enjoyed.[67]

The fact that most industrialists were creating a new designed landscape around a new-build house or improved modest house, meant that there was no established parkland, unlike the estates of elite landscapes that had been emparked for many years or included new deer parks. Established parks affected the character of the landscape as remnant medieval deer parks were (and are) the main reason why England still had (and has) so many ancient trees particularly venerable oaks.[68] Creation of park like grounds could have been achieved however by retaining old trees in the existing agricultural landscape either singly or in groups and augmenting with new plantings. Another aspect to bear in mind is that the grazing of livestock had long been considered a more effortless, gentlemanly form of agricultural production than cultivation, parkland was polite agriculture.[69] Animals had hitherto been associated with the wild but in the eighteenth century bringing them into the garden sphere, whether park land or paddock, referenced the Garden of Eden where man had lived at peace with the animals. They also introduced animation and suggested productivity. Deer had elite status, they were both an ornamental and productive element of parkland because they could achieve, 'a peerless, closely cropped and uniform sward with no tracks and no excessively

[66] PM1/1/86-1, Enoch Wood Papers, Potteries Museum. Lab/Sar/2/3, Labouchère, Ironbridge Gorge Museum Trust. Verses intended for S Darby's Summer House, Coalbrook Dale, signed by Mary Knowles, Undated, Lab/Sar/2/1, Labouchère, Ironbridge Gorge Museum Trust.
[67] For a guide to the gardens during the time of Richard Arkwright II see Adam, *Gem of the Peak,* Part I, pp. 39-49.
[68] https://herbaria.plants.ox.ac.uk/bol/ancientoaksofengland/deerparks Accessed 24/5/2019.
[69] Brown and Williamson, *Lancelot Brown and the Capability Men*, p. 124.

close grazing' which could not as effortlessly or as economically be achieved by scythe.[70] As Fletcher points out, deer were 'exotic yet native, and, whilst unfamiliar, they belong. They contribute movement, colour and noise: they stimulate all the senses.'[71] In addition, deer implied status and wealth, provided sport and food, and, by cropping the lower branches of trees to an even height, maintained distinctive views through the landscape. Cattle might perform a similar function but with far less grace, uneven cropping of the grass and more compaction of the soil while sheep were better on less lush pasture.

That some industrialists were adopting a parkland style is evident from some plans that have areas designated as 'Park', whether or not they supported a deer herd, as at Moss Bank, where the 'Park' was bounded by the works, the canal leading to the works, the drive to the house and the public road. However, deer were introduced to some of the landscapes, like Pontypool where construction of the park wall was begun c.1698, a few years after the house.[72] Deborah, the wife of Samuel Darby, established a deer park while she lived at Sunniside from 1779 to 1810. There is nothing in the records of other sites comprising several hundred acres and of parkland character like Etruria or Cyfarthfa that suggest a deer herd, although the latter certainly was used for hunting (shooting) and thus seen as a country estate. Other sites are described as having park land, like the grounds of Arkwright I's Rock House that looked out over meadows towards the River Derwent merging into park like land to the south, a setting that was compromised when Arkwright reluctantly sold land in order for the Cromford Canal to be cut, but some substantial trees still exist in the meadows indicative of parkland planting.[73]

Having parkland did not imply that the owners hunted, in fact there are few references to the first generations of industrialists riding to hounds, a rare example being Richard Crawshay mentioning in a letter to William Stevens on

[70] John Fletcher, *Gardens of Earthly Delight : the History of Deer Parks*, (Oxford: Windgather, 2011), p. 187.
[71] Fletcher, *Gardens of Earthly Delight*, p. 187.
[72] Richard Hanbury Tenison, *The Hanburys of Monmouthshire*, (National Library of Wales, 1995), p. 50.
[73] David Hool and others, Rock House, Cromford, 2009, Rock House, Cromford, p. 5. Citing R. S. Fitton, *The Arkwrights : Spinners of Fortune*, (Manchester: Manchester University Press, 1989). Arkwright family papers.

28 December 1790 that riding with the hunt for over fifty miles had cured his stomach disorder.[74] This may have been largely because fox-hunting developed gradually from the mid-century and was essentially a sport of the landed gentry.[75] Later generations however did ride to hounds, including the Quaker Edmund Ashworth and Henry Ashworth was a keen shot.[76] William Crawshay junior too hunted in the Cyfarthfa grounds, frequently sending game birds to his father at Stoke Newington, for example woodcock on 30 November 1813.[77] Hare coursing, interestingly with fishing and shooting a sport which provided food, was also recorded, Richard Reynolds did all three and Samuel More went coursing with Wilkinson on the hills near Castlehead.

Stylistically, Georgian industrialists' gardens were as diverse as those of other landowners of the period although, with one or two exceptions, they largely appear to have conformed with prevailing trends in that they created an environment suited to their resources, aspirations, and lifestyle.

3.4 The Approach

Humphry Repton usually began his report to his clients on potential improvements to their estates by considering the entrances and approaches, he thought an approach, 'ought to be convenient, interesting, and in strict harmony with the character and situation of the mansion to which it belongs.'[78] The impression of greater extent of landownership than was the reality might be achieved, for example, by appropriating neighbouring land to replicate planting on an approach road or by routing a drive along part of the parkland perimeter

[74] Richard Crawshay, *The letterbook of Richard Crawshay 1788-1797 - Calandared by Chris Evans with an introduction by G.G.L. Hayes*, (Cardiff: South Wales Record Society, 1990), pp. xi, p. 89. Letter No. 306.
[75] For an account of the developments in hunting see Fletcher, *Gardens of Earthly Delight*, pp. 180, 187 and 232.
[76] Rhodes Boyson, *The Ashworth cotton enterprise : the rise and fall of a family firm*, (Oxford: Clarendon P, 1970), p. 249.
[77] Boyson, *The Ashworth Cotton Enterprise,* p. 249. William Crawshay I, Letter Book of William Crawshay, c. 1824, 252-280, Cyfarthfa MS, The National Library of Wales.
[78] Humphry Repton Esq., *An Enquiry into the Changes of Taste in Landscape Gardening. To which are added Some Observations on Its Theory and Practice including A Defence of the Art*, (London: J. Taylor (Republished 1969 Gregg International, Farnborough, Hants), 1806), p. 14.

implying both sides were in the same ownership, although undue circuitousness was undesirable. Increasingly the drive was designed to provide interest en route to and give the best view of the house. A straight approach aligned on the house belonged to an earlier period, but occurred at several industrialists' sites, mainly those with pre-existing houses, but not exclusively. Sites like the Lloyd's Farm or the Courts, the Wilkinson home at Bersham which was, 'built on the Summit of the English Dyke' and stood, 'detached from all others has a Handsome Avenue of Trees.'[79] This was also the design adopted at Cyfarthfa in 1824, perhaps fitting for a castle that was highly visible from the road and the ironworks, making a dominant statement, and the entrance also framed a reverse view of the industry (Figure 3.37). Sometimes the main residence was visible from the approach to the entrance, if not directly from the entrance itself, as with Willersley where it could be seen both from Cromford Bridge and from the visitor route alongside the river (Figure 3.38 and 3.39). Both Cyfarthfa Castle and Willersley Castle were gothic and both made a statement in the landscape. Elsewhere, even with industrialists' landscapes that were modest in extent, the approach to the house was at an oblique angle or took an arc so that the house was not visible from the entrance gate but came into view set in parkland. This was more in keeping with contemporary design. The approach to Etruria Hall described a gentle arc up from the entrance above the canal bridge; that at Castlehead serpentined from the lodge at the north between erstwhile water meadows, while at both Penwortham Lodge and Lark Hill the short drives came in at an oblique angle (Figures 3.40, 3.34 and 3.35). However short the distance, they, largely, adopted the contemporary design aesthetic of an indirect approach. Exceptions, other than those with formal avenues, appear to have been where they had little choice as at Fountain Place where Wood's house was approached between manufactory buildings, although there appears to have been another entrance, that led round the front of the house and probably also to the service area (Figure 3.26 and 3.27).

What is most significant about many of the sites is that the approach to the house included the industrial activity, whether experienced immediately prior to entering the gates (e.g. Etruria, Willersley, Cyfarthfa, Fountain Place) and/or

[79] Samuel More, Travel Journal, Volume 2, West Midlands, North West England and North Wales in 1776 and 1780, uncatalogued, British Library, 13th July 1776.

once in the park (e.g. Pontypool, Gnoll, Moss Bank). This embracing of the industrial immediately within the experience of the landscape made it clear that the industrial as part of the landscape was the sphere of the owner. The entrances to the Gnoll changed over time, but the main route on the 1740-65 plan was across a bridge that was the dam to the western end of the Great Pond with industrial works stretching downstream of the dam, then running alongside the lake-reservoir before turning into the park (Figure 3.15).[80] There were two approaches to Willersley Castle, the one by Cromford Bridge close to the first mills and the canal wharf, and the other which passed Masson Mill on the road from Matlock Bath then led the visitor under the rock of Scarthin Nick, (the rock hill between the river and the village) along Chapel Walk that ran along the river with Willersley Castle coming into view across the river on the left about half way along and the chapel ahead (Figure 3.39).[81] At Soho, the original route to the manufactory ran immediately behind the house, but later Boulton moved this slightly, screened it from the house and sought to increase the dramatic effect by creating a piece of immersive theatre, 'Make all the Entrances into Soho Dark by plantations and enter through Gothick arches made by Trees,' thus echoing Alexander Pope's comments about the resemblance of an avenue of trees to a Gothic Cathedral.[82] The transition from dark to light, in this case to the wondrous ingenious objects at the manufactory, would have been an intimation to the cultured visitor of the experience of conflict and spiritual journey from the dark night of the senses and the soul to the wakening light of understanding, with its echoes of Freemasonry.[83]

Gates, with and without lodges, often marked the start of the approach and were sometimes impressive. Wrought iron had been used for many years for decorative purposes like screens, gates etc., but the quantity and complexity increased with the influx of Protestant craftsmen after the accession of William and Mary in 1689. In the *East View of Derby* between the two mill buildings can be seen the large ornamental wrought iron gates of 1725 by Robert Bakewell

[80] B. Jones, *Gnol Demesne and Lands contiguous Belonging to H. Mackworth Esqr MP For Glamorgan*, 1740-65, DD GNE/1, Gnoll Estate Papers, West Glamorgan Archive Service.
[81] Joyce and Buxton, p. 37. Adam, *Gem of the Peak*, pp. 39-49.
[82] Ballard, Loggie and Mason, *A Lost Landscape,* p. 28.
[83] Edmund Burke, 'A Philosophical Inquiry into the Origin of our Ideas of the Sublime and Beautiful', (1757), (pp. Part II, Section XIV, p. 157). Part II, Section XIV, p. 157.

(Figure 3.10).[84] Such an expensive pair of gates by probably the country's leading ornamental ironsmith of the time was a strong statement of confidence in the manufacture of a product reserved for the wealthy. Such gates denoted an important estate or building and graced elite landscapes like those at Chirk Castle, Denbighshire made by the Davies brothers of Bersham in 1711-12.[85] Thus those at the silk mill heralded a domain of elite manufacture. Although firm evidence is not available, Sarah, Duchess of Marlborough is said to have presented the impressive ornate Louis XIV style Pontymoile Gates to Major John Hanbury on the occasion of his second marriage in 1703 (Figure 3.41).[86] These may originally have been installed near to the mansion, but were moved to the southern entrance, from where the drive led through the park, passing the ironworks and to the mansion, entering through them announced an elite environment, and it should not be overlooked that Pontypool was the birthplace of metal Japanware which became highly prized. Boulton erected elegant new gates in 1796 at the main entrance to the carriage drive, which according to James Watt's wife Ann, 'cuts a most flaming dash.'[87] Gates might often be associated with iron railings most evident in those at Cyfarthfa, and those installed in 1795 by the newly formed gravelled terrace fronting the Soho manufactory to keep the area, 'clean and neat' (Figure 3.42).[88] Railings were used elsewhere, like along the hill path at Castlehead, and palisades bought from Coalbrookdale in the 1720s formed the southern boundary of Goldney's garden, later terminating a view down the main walk.[89]

[84] Derby City Council, 'City Centre Conservation Area Appraisal and Management Plan', (October 2012), (p. 19). Robert Bakewell was one of the country's foremost ironsmiths who also made the screen in All Saints Church, Derby, completed in 1730, and the elaborate Birdcage Arbour at Melbourne Hall c. 1705-10 which was a centerpiece to the London and Wise designed garden. https://historicengland.org.uk/listing/the-list/list-entry/1096375 Accessed 12/2/2019.
[85] These wrought iron gates with the Myddleton arms, were initially placed at the forecourt though later moved to be alongside New Hall Lodge as part of William Emes design for the park (1771). https://www.chirk.com/castle.html and https://www.coflein.gov.uk/en/site/26957/details/chirk-castle-gates-chirk Accessed 12/2/2019.
[86] Hanbury Tenison, *The Hanburys of Monmouthshire*, p. 50 and 54.
[87] Letter, Ann Watt to Gregory Watt, 13 November 1796, MS3219/7/1/28, Boulton and Watt, Library of Birmingham.
[88] Ballard, Loggie and Mason, *A Lost Landscape,* p. 35.
[89] P. K. Stembridge, *Thomas Goldney's Garden : the Creation of an Eighteenth-century Garden*, (Bristol: Avon Gardens Trust, 1996), p. 7.

3.5 Boundaries

Screening undesirable or less attractive elements because of their visual jarring or because of the associations such views evoked, was probably heightened as eighteenth-century taste gave way to Victorian sensibility. Trees and shrubs may have screened the unsightly, but they performed other functions in the design. Areas of woodland or shrubbery could create the illusion of greater space implying greater land ownership, might alter perspective to lengthen or shorten the view, might frame a view, create open and closed views, create variety and surprise, light and shade, provide shelter from the elements, sun and wind. In some cases, shelter belts were necessary to help create a more conducive environment, including for more choice plants, something mentioned by Wedgwood. In addition, a band of trees and shrubs weaving around the boundary of the garden or park might create a drive or walk with views into the gardens or park and out providing variety along the route. This was a common design device used by Brown, Emes and other designers, and a number of the sites with extant plans exhibit this feature, which, one might argue, had a greater impact in a smaller landscape, blurring the boundaries, allowing opportunities for the ‘peep’ (evoking the popular peep-show) or a framed view and which might suggest greater land ownership or obscure undesirable views, and creating more opportunities for meandering paths together with others looping from the main circuit. This can be seen for example in the wooded perimeters of Duddeston, Moss Bank, The Oaks, Penwortham Lodge, Lark Hill, and Willersley (Figures 3.31, 3.32, 3.33, 3.34, 3.35 and 3.8).

Such planted boundaries during this period took on the characteristics of the wilderness with its classical and biblical resonance, pushing the designed wildernesses or bosquets (boscos) that had been in the formal gardens of the seventeenth and early eighteenth centuries to the boundaries and, as with the rest of the garden, becoming more ‘natural’. They thus evoked the sacred grove, one of the oldest of all garden features, endowed by the Greeks with both mystical and intellectual properties - both Plato’s Academy and Aristotle’s lyceum were held in a grove or olive tree plantation, obviously for shade, but also because the regular planting pattern was conducive to thought and

contemplation.[90] In elite gardens this was even emphasised by the placing of books in seats.[91] In the Judeo-Christian tradition the wilderness was a place for solitude and spiritual refreshment. The wilderness, probably derived from French bosquet/ Italian bosco, became sanitised wild nature and its appropriation to the perimeter of a garden created a buffer between the ornamental and the productive, the country beyond, even if moor or common was no longer perceived as the real wilderness, which Prest has argued in the seventeenth and eighteenth centuries was America.[92] A characteristic of the wilderness was the prevalence of evergreens, often termed 'greens'. In practical design terms, they provided shelter, year-round colour, glossy leaved evergreens like laurels and hollies contributed further interest because of their reflective quality in moonlight and filtered sunlight, and their usually darker colour was an effective foil to lighter deciduous greens. They also carried symbolic connotations, their all-year green evoked a perpetual spring, 'Ver perpetuum', symbolic of eternal life and pre-lapsarian uncorrupted nature, representing both earthly and heavenly paradises; Shakespeare in *As You Like It* linked the English legend of the green forest with the golden age and Hawkins referred to the Virgin as an 'evergreen Olive'.[93] The use of yew was enhanced by it being symbolic of immortality, one of the reasons why it was planted in churchyards.[94] Joseph Addison in his *Spectator* article of September 1712 advocated a '*Winter garden*, which should consist of such Trees only as never cast their leaves'.[95] A Winter Garden is shown on Repton's plan for Warley with a circuit walk between trees which would provide shelter from the westerly winds and shade in the heat of summer (Figure 6.3). This was replicated in the

[90] Gervase Jackson-Stops and James Pipkin, *The Country House Garden: a Grand Tour*, (London: Pavilion, 1987), p. 162.
[91] Switzer noted at Dyrham in the wilderness 'a place for the sublimest Studies … and here are small Desks erected in Seats for that purpose'; and Bishop Pococke noticed in the woodland walks at Wimborne St Giles in the 1750s, 'in all the houses & seats are books in hanging Glass cases'. Jackson-Stops and Pipkin, *The Country House Garden*, p. 162.
[92] John Prest, *The Garden of Eden : the Botanic Garden and the Re-creation of Paradise*, (New Haven ; London: Yale University Press, 1981), p. 98.
[93] Prest, *The Garden of Eden*, p. 67.
[94] The fact that all parts of yew are highly poisonous to livestock was a further reason as it deterred the grazing of cattle in churchyards. Yew was traditionally used to make English longbows. See https://www.ancient-yew.org/s.php/frequently-asked-questions/2/2 Accessed 21/9/2019. https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/british-trees/a-z-of-british-trees/yew/ Accessed 19/10/2019.
[95] Addison, *The Spectator*, 6 September 1712.

evolution of the wilderness into the pleasure grounds, usually closer to the house, with the inclusion of flowering shrubs particularly scented plants like honeysuckles, jessamines and roses. The presence of these species in some of the industrialists' plant orders suggest they were included in such areas in their landscapes. The description of the visitor route at Willersley which in places takes a course between the ornamental and productive, shows how some of these devices were used and experienced,

> covered with a profusion of native plants and trees, amongst which winds the walk made of the broken fragments of calcareous spar, whitish and glistening in the sun beam, with sweet interesting peeps of the lawns, rocks, and dale, till, on suddenly arriving at the turn northward, the 'Grove' of surpassing beauty comes into view. The walk from the house is canopied with noble oak, elm and lime trees, perfumed with shrubs (aborigines of the rough cliff), which cannot fail to delight the stranger.[96]

Shelter belts, plantations and woodland had the further benefit of distancing the unacceptable and of filtering or deadening sound. The clamour of industry in contrast to the gentler noises of nature were often mentioned in visitor descriptions, like that of Adam describing Willersley, 'the river loses its quiet and peaceful character, breaking in fury over the Weir and foaming amongst the dark fragments under it – and close by, the Mill mingle the din of its heavy machinery with the roar of the fall.'[97] The natural and man-made sights, sounds, smells and perhaps steam stroking the skin; all attacked the senses, imbuing that frisson of excitement, wonder and fear. Something recognized by Thomas Whately in 1770, 'for machinery, especially when its powers are stupendous, or its effects formidable, is an effort of art, which may be accommodated to the extravagancies of nature.'[98] Nature and industry have combined for artistic effect.

Enoch Wood's Fountain Place, a landscape in miniature, was for many years surrounded by a picket fence or paling and trees, but sometime after 1830 this

[96] Adam, *Gem of the Peak*, p. 71.
[97] Adam, *Gem of the Peak*, pp. 73-74.
[98] Thomas Whately and Michael Symes, *Observations on modern gardening : an eighteenth-century study of the English landscape garden*, pp. 101-102.

was replaced by a crenelated wall with a tower or belvedere (Figures 3.28 and 3.29) and arched entrance, probably continuing the gothic theme that had been employed on the manufactory buildings. The wall may have been a response to the development and encroachment of the town.

The boundary device most associated with the landscape garden was the ha-ha, or sunk fence, a device that divided the ornamental from pasture such that the eye continued over a seamless expanse of grass, and it was seen as one of the defining determinants that facilitated the development of the English landscape garden, but references for either a ha-ha or sunk fence in industrialists' landscapes are rare. They were practical, containing livestock from straying onto the finer lawns near the house nor onto roads, but they also allowed animation in the view with animals grazing and passing traffic. The Etruria accounts have numerous references to the sunk fence built from the outset, although its location is unknown; the various views of Etruria Hall show horses or cattle grazing in the pasture below the house which suggests that it might have been between the house and the canal, although there are other indicators that it might have been between the hall and the garden. Also, a new sunk fence was being made probably in 1780 as Wedgwood notes the details in one of his Common Place Books, '16 feet wide at top, 2 ft at bottom, 4 1/2 ft deep. To be laid down with grass […] if any to be had – Otherwise the clay taken out & soil from 6 to 9 inches thick @ 3/6 for 8 yards forwards.'[99] There was a ha-ha at the Gnoll terminating the terrace that provided a viewing platform to the formal cascades. A line on a plan of Pontypool of 1836, replicated on later OS maps suggests a boundary between the gardens and the parkland which may have been ha-ha, sunk fence or a paling.[100] The absence of other references in industrialists' sites to a ha-ha does not mean there were no others, but palings, post and rail, thorn and furze hedges were equally effective at containing livestock, and, dependent on terrain, were easier to install.

[99] Commonplace Book 2, c. 1780, 28410-39, Wedgwood, Wedgwood Museum.
[100] John Wood, Surveyor, Edinburgh, *The Grounds around Pont-y-Pool belonging to C. Hanbury Leigh Esqr Lord Lieut of the County*, 1836, Hanbury, Pontypool Estate Office by courtesy of Dr Jack Hanbury-Tenison.

3.6 Paths/Walks, Drives etc.

Paths and drives are lines of communication, the means by which people move through and experience a landscape. They might align on a viewpoint or lead through a series of views; they might be the route to key points in the landscape or merely provide a walk with occasional seats. Paths around a garden were for exercise and were commonly referred to as walks. Wedgwood measured the distances in the estate so that he could calculate exercise routes including in the mansion itself for inclement weather. It was 330 yards from 'the House to the Garden' and the 'outermost walk around the garden' was 490 yards which four times round 'make 1 mile and 200 yards.'[101] This suggests that there was more than one path through the shrubbery. Even on plans of small sites a characteristic of the design were the paths creating a circuit usually with additional variations. Diary entries sometimes mentioned walking in the garden and Rochfoucauld writing of English gardens in 1784 noted, 'Near the house, usually all round it, is what they call a garden. It is a small, well-tended place for walking: there are little gravel paths, well-rolled, the grass is cut every week.'[102]

Although the advent of informality introduced serpentining paths, some straight walks or avenues existed in industrialists' landscapes either remaining from an earlier period or new and may only have been defined by planting like the avenues of trees at Etruria and Farm. Where they existed, straight paths seem to have aligned on something significant to the owner, thus the Etruria avenue was on the axis of the house and [kitchen] garden and probably also aligned on Mow Cop; that at Farm ran from the house to the road, so may have been the main access. The walk alongside the lake at Warmley aligned on the windmill,

[101] Wedgwood, Common Place Book (2), 28410-39,

	Yards
The outermost walk around the garden	490
Then 4 times round make 1 mile and 200 yards	
From the House to the Garden	330}
Round the outside	304}
From the House to the Green gate	198}
From the green gate to the white gate	170}
From the green gate to the gate short of the garden	440

[102] François duc de La Rochefoucauld and others, *A Frenchman's year in Suffolk : French impressions of Suffolk life in 1784 : including a preliminary week in London, brief visits to Cambridge, Colchester, Mistley and Harwich and a fortnight's tour of Norfolk*, (Woodbridge: Boydell, 1988), pp. 34-35. Brown and Williamson, *Lancelot Brown and the Capability Men*, p. 102.

and the path to the obelisk coffin area at Castlehead was directly in line with the doors opening from the house. Paths were often the connection between the house and the industrial operation as at Duddeston, where a path ran along the lake-reservoir to the mill, at Etruria a route ran down from the hall and across the Chinese bridge to the manufactory, the route up to Sunniside through the gardens described by More suggests this was the direct route between the house and the ironworks. The winding walks or drives through perimeter belts, shrubberies or pleasure grounds would have been punctured by peeps out and in many cases industry itself formed the picturesque view. The plan evidence for sites like The Oaks and Moss Bank suggests that there might have been some views to the works, and the descriptions left of the Sabbath or Workers' Walks at Coalbrookdale leave no doubt of the incorporation of the industrial into the experience of the ornamental landscape.[103] In addition to the framed views into the vast limestone quarries and Coalbrookdale itself, Reynolds retained old plateways used for carrying limestone to the furnaces and hollow roads as paths that encountered references to the cultural heritage of the environment such as semi-circular charcoal hearths predating the introduction of coking coal and an inclined plane that transported limestone to the valley below.[104]

Views revealing the industrial might be reinforced by the dressing or edging of the path itself. Coal and brick dust had been used in earlier broderie parterres and paths, as at Tredegar the seat of the Morgans in Monmouthshire, later related by marriage to the Homfrays of Penydarren and Bedwelty (Figure 3.43). So recycling such materials was not new, and indeed were used in

[103] *Plan of Land in Sharples, Little Bolton and Turton in the County of Lancaster Belonging to Henry and Edmund Ashworth, or Held by them as Lessees,* W. Johnson and Sons, Land Surveyor, Manchester, 1833, ABZ/36/1, Bolton County Borough: Miscellaneous Papers, Bolton Archives & Local Studies Service; *Plan of Lands in Turton in the Parish of Bolton Le Moors and County of Lancaster Belonging to John Ashworth,* William Johnson, Land Surveyor, 1833, ABZ/36/2, Bolton County Borough: Miscellaneous Papers, Bolton Archives & Local Studies Service; *Plan of Moss Bank Estate in the Township of Halliwell Belonging to J. H. Ainsworth Esq.* Surveyed by H. Thornton,1833, ZJA/237/1, Jackson, Joseph and Sons of Bolton, Estate Agents & Surveyors, Bolton Archives & Local Studies Service; *A Plan of Premises and Bleach Works situate in the Township of Halliwell Belonging to Richard Ainsworth Esq*, 1823, ZZ/55/4, Collection of Maps and Plans, Bolton Archives & Local Studies Service; Anon, *A Description of Coalbrook Dale Iron Works and the environs*, c. 1834-50 dated from internal evidence, 1987/64/6, Darby of Coalbrookdale (1654-1917), Shropshire County Archives.

[104] 1987/64/6, Darby of Coalbrookdale (1654-1917), Shropshire County Archives.

contemporary elite landscapes such as the glass and coal slag gravel at Hagley and the paths described by Bishop Pococke at Tankersley Park (Wentworth Woodhouse), 'a red cinder of coals and the spar of the lead mines, blue and white, broken into small pieces laid on it, which does very well.'[105] Loudon commented on Pentillie where,

> extensive walks well laid out under the direction of the late Mrs. Coryton, who, the gardener informed us, was a lady of great taste and skill in landscape-gardening [….] covered with debris from the lead and copper mines, and those which have been laid with this material twenty years ago never bear a weed, not even moss; but, on those which have been covered more recently, weeds grow the second year, because the miners are now more careful in separating the ore.[106]

The pottery industry produced relatively little waste material, ash from the kiln and wasters (over-fired or broken ware) that were reground as grog temper to add to clay, or used to back-fill the kiln, fill in ditches and used like hard-core. It is possible that such waste was used in potters' gardens, but there is no evidence for those in this study, unlike the ironmasters who did utilize waste products. Hopkins used slag chips for the paths and drive at Ty Mawr, Blaenavon, and slag boulders to line the paths (Figure 3.44 and 3.45). Red iron ash distinguished all the Cyfarthfa paths, running counter to Repton's preference for [black] cinders over red for paths, the cinders being neutral whereas the red created a harsher contrast with the green (Figures 3.46).[107] In Coalbrookdale, as well as cinders, it seems that in one or two places the fashionable interest in geology and fossils was catered for, 'the surface is [covered] with petrified shells & fossils of various sorts, with which this hill

[105] Pers. com. Joe Hawkins, Head of Landscape at Hagley. (Also, Joe Hawkins lecture at History West Midlands Conference 29/03/14). Richard Pococke successively Bishop of Ossory and of Meath and James Joel Cartwright, *The Travels through England of Dr. Richard Pococke, successively Bishop of Meath and of Ossory during 1750, 1751, and later years*, (London, 1888), p. 68.

[106] https://www.gardenvisit.com/book/gardening__tours_by_jc_loudon_1831-1842/somersetshire_devonshire_and_cornwall_in_1842/pentillie_castle Accessed 24/12/2017.

[107] Repton in his *Red Book for Woburn* commented that cinders were preferable to red for paths – the red contrasting with the 'tawdry green'. Red and green being contrasting colours in the spectrum and thus too harsh whereas black or grey recedes and is a neutral colour. Architects too advised against red bricks, preferring stone or stucco.

abounds. Here the virtuose may spend some agreeable hours.'[108] Here 'this hill abounds' suggests that the shells and fossils were locally occurring. Iron might be used to edge paths or form drainage gulleys as can be seen at Bedwellty and were used around the borders in Officers' Gardens at Chatham.[109]

3.7 Bringing in the View

Those gardens whose topography, albeit extensive, determined their inwardly facing character (e.g. Mellor, Quarry Bank, Pontypool) relied on features within the landscape for their interest, whereas others, whether deliberately or subconsciously, sought to follow Switzer's example and , 'where-ever Liberty will allow, would throw my Garden open to all View, to the unbounded Felicities of distant Prospect, and the expansive Volumes of Nature herself.'[110] Switzer writing in 1718, had proclaimed that the Prospect was 'one of the greatest Pleasures of a Garden,' and promoted Nature, which hitherto had been perceived as wild and fearful, as a valid and enriching aspect of the garden experience. One consequence of opening up the view was to create an implied land ownership that appeared more extensive than it was in reality, something Repton sought to exploit nearly a century later advocating that, 'The first essential of greatness in a place is the appearance of united and uninterrupted property'.[111] The evidence that industrialists deliberately sought to make their estate appear larger than it was is circumstantial, other than Repton's discussion of Armley and Warley, but the design of some, particularly the view from the house, inferred greater extent of ownership, as with Arkwright's Rock House where meadows stretched out to the south.

Irrespective of potentially conveying greater land ownership, for many industrialists their garden, and the main view from the house too, was 'open to all View' whether for example a view across water, through a valley into the distance, or focussing on an object like a church spire or distinctive topographical feature. In this they were emulating what was being done in many

[108] 1987/64/6, Darby of Coalbrookdale (1654-1917), Shropshire County Archives.
[109] Elisabeth Hall and Jean Lear, 'Chatham Dockyard Gardens', *Garden History,* 20:2 (1992), 145.
[110] Switzer, *Ichnographia rustica*, XXXV-XXXVI and XXXVIII.
[111] Humphry Repton and others, *The Art of Landscape Gardening, including his Sketches and Hints on Landscape Gardening and Theory and Practice of Landscape Gardening*, (Cambridge: The Riverside Press, 1907), p. 51.

elite gardens. In the Potteries, Wedgwood's house appears to have deliberately made maximum use of the surrounding country. Samuel More commented that the summit of Mow Cop some eight miles from Wedgwood's house 'terminates a beautiful View from some of the Windows.'[112] Wood's elegant mansion built to the north east of his manufactory, was 'surrounded by convenient pleasure grounds, having an extensive prospect over the summit Pond of the Trent and Mersey Canal,' across the valley to Dale Hall, Longport Hall with Wolstanton and Bradwell Wood further in the distance.[113] Boulton's house at Soho had, 'a view of the town across a little valley.'[114] In the *Red Book for Warley*, Repton notes that Bar-beacon (sic) [Barr Beacon] is a conspicuous object in the view from the house to the east and would be a pleasing reminder 'from association' of having long been the residence of Galton.'[115] The association was to Great Barr Hall, Galton's previous home in the valley below Barr Beacon, not the beacon itself; interestingly, Boulton made further improvements to Soho that included transplanting a chestnut, 'wch intercepts Bar[r] Beacon', which might have been for similar reasons given his close relationship with Galton as a fellow member of the Lunar Society.[116] Other industrialists enjoyed far views, Samuel Horrocks from Lark Hill had views to Hoghton Tower and Rivington Pike; Wilkinson had views across Morecombe Bay.

The tower or spire of a church was a common focal point, not purely as an interesting visual object but also a reminder of the divine, indicative of the underlying religiosity of the period, and in some cases a connection with ancestors or friends whose last resting place it might have been. Wood had St Paul's Church very much in view from his grounds; he and Wedgwood both seem to have used Wolstanton church as an eyecatcher in a framed view, it is just visible above the trees in the Wedgwood family portrait by Stubbs (Figure 3.47). A number of industrialists built or contributed significantly to the building of a church or chapel (e.g. Oldknow, Wilkinson, Wood). Hopkins and Hill at Blaenavon built St Peter's church with its iron font and iron pillars supporting the

[112] More, Travel Journal, vol. 2, uncatalogued, British Library, 20 July 1776.
[113] Cited in Falkner, *The Wood Family of Burslem*, p. 82.
[114] Norman Scarfe and others, *Innocent Espionage : the La Rochefoucauld Brothers' Tour of England in 1785*, (Woodbridge: Boydell, 1995), pp. 112-113.
[115] Humphrey Repton, *Red Book relating to Warley Estate*, 712.60942/WARH (FP1/1), Sandwell Community History and Archives Service.
[116] Ballard, Loggie and Mason, *A Lost Landscape*, p. 28.

gallery. The spire of the church was in the view from the gardens of both Hopkins and Hill, creating not only a visual focus but also the association that the fruits of industry were used in the house of God, which itself had been endowed by the ironmasters, in part made from iron and where they were buried beneath iron tombs. There were no instances in this study of an industrialist building a feature on a neighbour's land that would enhance and extend the view from their property as was the case with Sir Benjamin Truman, brewer, owner of Popes near Hatfield in the mid-1770s. He made annual payments to John Church, 'for leave to erect a temple in Pickbones Field – this is a view cut thro' Quails Wood from Popes Walk & like to be a standing Rent so long as any Gentleman lives there.'[117]

3.8 Industry in the view

Walpole in his *Essay on Modern Gardening* (1785) noted, 'Men tire of experience that is obvious to few spectators [….] the Doric portico, the Palladian Bridge, the Gothic Ruin, the Chinese Pagoda, that surprise the stranger, soon lose their charms to their surfeited master [….] Prospect, animated prospect, is the theatre that will always be the most frequented'.[118] The screening of industry from the view was not considered necessary for early industrialists or indeed for the elite, particularly those whose wealth derived from industry. The scale of the operations at the time, particularly compared with later developments, were relatively small, physically isolated and mostly in rural areas and therefore might be seen as picturesque.

Modern sensibility, which has been coloured by the massive manufacturing and processing concerns of the nineteenth and twentieth centuries, resulting pollution and distaste of the social conditions of the satanic mills, considers the view of industrial activity as unacceptable. However, this was not the attitude of the Georgians, quite the contrary, mills, ironworks and other manufacturing that was at the technological edge attracted considerable interest because it was

[117] Spooner, *Regions and Designed Landscapes in Georgian England*, p. 70.
[118] Cited in David Dawson and Oliver Kent, ''Animated Prospect' – an 18th century Kiln at 'the Pottery House in the Old Park', Dunster, Somerset ', in *Estate Landscapes: Design, Improvement and Power in the Post-Medieval Landscape,* ed. by Jonathan Finch and Kate Giles (Woodbridge: Boydell & Brewer, 2007), pp. 96-112 (p. 98).

emblematic of improvement and as such conferred approbation and admiration on the owner. The inclusion of the location of manufacturing in the view from a garden or park, whilst it might not of itself be obviously animated other than perhaps by some smoke issuing from a chimney, its presence implied activity and thus suggested a productive estate. There was a correlation too with agriculture, an element of distance stimulated the imagination to develop an association without the reality of the messy business of production tainting the immediate view. Haymaking, scything, livestock grazing etc, in the middle distance were acceptable as evidence of the productive, also with hints to the rustic, pastoral life, but the farmyard and heavy toil should be hidden from the polite view, just as gentlemen did not labour but derive their wealth from land and exercise of their intellect. Daniels has highlighted this distinction in relation to Leeds where, 'selling cloth was considered gentlemanly, making it was not.'[119] At Wingerworth in Derbyshire for the Hunlokes, an established landed family, whose ironworks were in the view from the house, Repton proposed interposing a lake between the park and the ironworks, diffusing the focus of the foundry by enlarging the field of vision whilst introducing a further 'industrial' intervention as the lake could be managed to supply canals.[120]

It has become clear from this research that the industrial in the view of the designed landscape was not only proudly embraced rather more than has often been thought, but also involved a complex of motivations and signals. It demonstrated entrepreneurship, pride in the source of wealth, investment in national infrastructure, patriotism, forward thinking estate management, and provision of the means of livelihood to the poor. However, industrialists were by no means unique, elite landowners whose estates encompassed industrial activity, mostly related to mining, similarly brought the industrial into the aesthetic of their designed landscapes. For example, opencast mining was visible to the north and north-east from the mansion of the Marquis and Marchioness of Rockingham at Wentworth Woodhouse in Yorkshire and they developed a satellite garden at Tankersley Park with its Lady's Folly (c. 1760-70) that similarly looked over the family's coal mines (Figure 3.48 and 3.49).[121]

[119] Daniels, *Fields of Vision*, p. 85.
[120] Daniels, *Humphry Repton*, p. 247.
[121] Patrick Eyres, *The Georgian Monuments of Wentworth Woodhouse : the Whig palace and the estate landscape shaped by political gardening, agriculture and*

Indeed, the estate was literally built on coal, the exploitation of which in the next two centuries was to some extent to reshape the landscape, which also incorporated three lakes forming an elongated serpentine one of which, Mill Dam, supplied the Greaseborough canal promoted by the Marquis.[122] The Duke of Bridgwater built Worsley Hall overlooking the Bridgwater Canal and towards his mines. This, like entrepreneurial industrialists, was recognition of the source of the family wealth and status demonstrating a confidence and pride in their exploitation of their estate's resources. Further, it signalled their standing at the forefront of contributing to the nation's economic growth, technological advance and improvement, in some cases for the war effort. This was reinforced by clear links with investment in wider improvement measures like transport (canals and turnpikes) or providing infrastructure to support such schemes, e.g. lake-reservoirs to supply canals. There was also the implied philanthropy of providing employment and hence a living for the poor. That industry provided work and thus sustenance for the poor was acknowledged by contemporaries, and this added further value to industry in the view even if this attitude might today appear patronizing. Repton in discussing the character and situation of Armley noted that,

> almost everything contiguous is under its immediate control, and it is a proud consideration to reflect, that instead of adjoining landed property being appropriated to the feeding of a few sheep or cattle almost every acre supports hundreds of human beings, whose labour and ingenuity are usefully directed to the aggrandizement of the country.[123]

coalmining, 2nd edition revised and updated. edn (2014), pp. 106-107. 'Where the coal is got' is shown on plans by William Fairbank of 1777 and 1778, *Plans of the Township of Greaseborough*, Maps II, VI-IX, XI and *Township of Wentworth,* Maps I-IV*. A New and Correct Map of the South Part of the County of York by Actual Survey Shewing the true Situation of the Several Towns, Noblemens, and Gentlemens Seats; The Courses of River and Rivulets, present Roads, Roman Ways, Castles, Ancient Abbeys & Priorys, Parks, Woods, Hills, Lakes, Collieries, and other Minerals. Taken at the Cost of the most Honble Thomas Marquiss of Rockingham by J. Dickinson Anno 1750*, 1750, WWM/MP/11/2 (alternative: WWM/MP/95/2) (Milton (Peterborough) Estates Company), Wentworth and Fitzwilliam families of Wentworth Woodhouse (Wentworth Woodhouse Muniments). The Wentworth Woodhouse Muniments have been accepted in lieu of Inheritance Tax by HM Government and allocated to Sheffield City Council, Sheffield Archives.

[122] Eyres, *The Georgian Monuments of Wentworth Woodhouse*, p.107.

[123] Patrick Eyres, Karen Lynch, and Humphry Repton, *On The Spot : The Yorkshire Red Books of Humphry Repton, Landscape Gardener*, (Huddersfield: New Arcadian Press, 2018), p. 122.

The artist Thomas Hornor in his text accompanying a view of a tin plate manufactory similarly commented that although a ‘more pleasing structure’ might be desired,

> But we will not forget the doctrine of utility. This establishment by furnishing the means of employment to a number of the surrounding female cottagers diffuses among them those means of comfort which the imagination delights to associate with their condition, but which in a more agricultural district are to be sought rather in the pages of fiction than among the dwellings of the peasantry.[124]

Consequently, having industry in the view whether as part of a composed landskip, or inferred from a significant building or indicator of activity like smoke, imparted to the owner a number of attributes.

Pontypool house was built in direct sight of the existing forge and for more than one hundred and thirty years there seems to have been no attempt to screen the view, on the contrary the primary view from the lawn, terrace and probably the walk around the canals was towards the ironworks (Figure 3.50).[125] Rheinhold Angerstein, visiting on 27 June 1753, gave a detailed description of the works and his sketch *Water wheel at Pontypool* shows a raised reservoir with small complex of buildings adjoining with a straight avenue of trees stretching beyond (Figure 3.52).[126] Comparing this with detail of the plan of Pontypool Park of 1753, suggests that the Angerstein view is of the works higher up on the Nant y Gollen stream rather than those in direct view of the house and gardens, although there is no avenue stretching from either the forge or the higher works (Figure 3.51).

Clasemont (or Clas Mont) was built by Sir John Morris in 1775 for his son overlooking his Forest copper works. An engraving of 1792 by Thomas Rothwell

[124] Thomas Hornor, *Illustrations of the Vale of Neath Glamorganshire*, 1817, MS 22990, Phillips, The National Library of Wales.
[125] Anon., *Ponty Pool in the County of Monmouthshire, the Seat of Capel Hanbury Esq.*, 1753, Hanbury, Courtesy of Dr Jack Hanbury-Tenison, Pontypool Park Estate
[126] Angerstein, *Illustrated Travel Diary*, Journey 5d.

shows no attempt to screen the view, although there has been a suggestion that a vista was designed to obscure the works, but this was probably a later development as industry increased considerably and quickly in the Swansea valley such that Clasemont was demolished in 1821 and the family moved to Sketty Park.[127] A plan enclosed in an Indenture of 1 July 1835 leasing Duddeston House, 'offices Hothouses Conservatory Gardens Pleasure grounds and two Lodges thereto belonging,' shows the mill in direct line of sight from Galton's house across the ponds/reservoirs (Figure 3.31).[128] Wedgwood not only designed the works to be in view from his mansion and gardens, and vice versa, but also made a symbolic landscape connection between his home and his manufactory by having a Chinese bridge over the canal. (See p. 196)

Gott purchased Armley House in 1802/3 having previously leased it for ten years and having owned contiguous land. Repton advised Gott to use his own estate as 'a buffer to the urban expansion his own enterprise had encouraged.'[129] The view from the terrace at Armley incorporated Gott's water-powered Armley woollen mill rebuilt in 1805, which produced the yarn for small clothiers to process, and 'it sat prettily in water meadows' (Figure 3.53 and 3.54).[130] This appears to be the only instance of a textile manufacturer deliberately framing a view of the mill from the house terrace, although mills were visible from the grounds of others, like at Mellor and Willersley. The bleacher Peter Ainsworth built Moss Bank on ground overlooking the works which were in clear sight from the drive and grounds if not directly from the house; the Ashworths were similar at The Oaks which initially looked directly to the works and its factory garden but which was later screened by trees (Figures 3.32 and 3.33). One might conclude that industrialists of more humble origins were less confident to show off their industry in the environment of their home and particularly in those regions where manufacturing was socially less acceptable, but this hypothesis requires further test with a larger sample and

[127] Steffan John Phillips, 'Caring for Morriston Park: Swansea's oldest garden?', *Welsh Historic Gardens Trust Bulletin,* (2019). Miskell, *Robert Morris and the First Swansea Copper Works, c. 1727-1730*, p. 17.
[128] Indenture of 1 July 1835 leasing Duddeston House, '… offices Hothouses Conservatory Gardens Pleasure grounds and two Lodges thereto belonging.' (Samuel Tertius Galton) to Thomas Lewis for annual rent of £142. MS 28/74, Wragge and Co., Solicitors, Birmingham, Library of Birmingham.
[129] Daniels, *Fields of Vision*, p. 86.
[130] Daniels, *Fields of Vision*, p. 88.

chronology. There was an ornamental value of a mill in the distance, the water wheel evoking an association with a traditional corn mill – distance being key to obscuring the operational noise and paraphernalia of labour. Repton had recognised this, 'The prominent feature of this scene is that large building which at such a distance, and so accompanied by trees, can never fail to be an interesting object by daylight and at night presents a most splendid illumination by gaslight.'[131] The effect of gaslight was also mentioned by John Byng, Viscount Torrington, who commented in 1790 that gaslight made the Cromford mills, 'most luminously beautiful.'[132]

Perhaps the most dramatic juxtaposition of house, grounds and industry was that at Cyfarthfa, where expansion of the furnaces and buildings of the mansion took place simultaneously in 1824/5 (Figure 3.55). The view from William Crawshay II's study was directly aligned on the works, the wider view taking in the huge Watkin George waterwheel and the first iron bridge to carry both an aqueduct and a tramway; conversely the castle was in view from the ironworks (Figure 3.56). Ironmasters, it seems had no qualms about displaying the source of their wealth and proudly. However, not everyone appreciated the industrial in the view, particularly when it came to Picturesque sensibility. Uvedale Price considered Arkwright's mills at Matlock, 'that nothing can equal them for the purpose of dis-beautifying an enchanting piece of scenery; and that economy had produced, what the greatest ingenuity, if a prize were given for ugliness, could not surpass.'[133]

3.9 Statuary, Symbols and Memorial

There is no evidence to suggest that any of the industrialists set out to make overtly political or religious statements in the design of their gardens, although David Lambert has suggested that Gothic elements employed at Arno's Court (Black Castle) and Goldney (tower) could be read as Whig symbolism of

131 Humphry Repton, *Red Book for Armley*, Oak Spring Garden Foundation, Upperville, Virginia.
132 Byng, *The Torrington Diaries*, vol. 2, pp. 196-197.
133 Sir Uvedale Price, *Essays on the picturesque, as compared with the sublime and the beautiful : and, on the use of studying pictures, for the purpose of improving real landscape*, ([S.l.]: Mawman, 1810), p. 198.

patriotism and liberty akin to the iconography at Stowe.[134] Whilst industrialists were versed in the classics, it appears that statuary was rare in their gardens, with locations where particular deities or heroes might have traditionally been expected, particularly earlier in the period, left unornamented. At Soho a pair of carved sphinxes were installed on the 'Sphinx Walk' in 1795, a suitable complement to a house in neoclassical style and in tune with the products of Boulton's manufactory.[135] The only other known example is that of Neptune at Warmley (Figure 3.21). This amateurish industrial creation, purported to have been made by Champion himself, has no refinement but the pathos of a Frankenstein still haunting the demesne of his creator. He is ungainly and grumpy, fashioned of glistening white cement or plaster with black clinker hair, genital adornment and cloak, sadly now damaged and devoid of his trident. It is not the heroic, virile, larger than life figure like that at Bomarzo, or in the Trevi Fountain in Rome, or the Neptune Fountain in Florence, nor even another statue of Neptune in Bristol by John Randall dating from 1723 whose stance is not dissimilar to the Warmley sculpture.[136] However, originally the pristine statue on its island with its reflection in the lake would have commanded several views in the garden. Whilst one might suggest that representations of classical gods and goddesses might not have appealed to no-nonsense men of business, this absence of statuary could largely be attributed to the majority of the sites being developed in the latter half of the period coinciding with naturalistic landscape design and the advent of the Picturesque when statues were considered too artificial for such settings.

What were in evidence were sundials, which for two to three hundred years had become more intricate and purely ornamental as their utilitarian need had given way to increasingly improved mechanical clocks and watches. Sundials were symbolic of the transience of time and of mortality, their location in a garden

[134] David Lambert, 'The Prospect of Trade: The Merchant Gardeners of Bristol in the Second Half of the Eighteenth Century', in *Bourgeois and Aristocratic Cultural Encounters in Garden Art, 1550-1850,* ed. by Michael Conan (Dumbarton Oaks Colloquium on the History of Landscape Architecture: Dumbarton Oaks, Harvard University, 2002), (p. 129).
[135] These were by Edward Gray Saunders https://www.artfund.org/supporting-museums/art-weve-helped-buy/artwork/8201/pair-of-sphinxes Accessed 17/6/2019.
[136] This Grade II* sculpture was originally in Temple Street, then moved to Beer Lane in 1787 and to its present site on St Augustine's Quay in 1999. https://historicengland.org.uk/listing/the-list/list-entry/1202528 Accessed 17/6/2019.

with the passing of the seasons emphasised this association. In the past they had had a strong scientific connection and perhaps it was this that made them a more natural fit for industrialists' gardens. A number of plans of the landscapes feature a sundial. There was one on the edge of the lawn in the mid-eighteenth century views of Pontypool which by the OS map of 1877 had been moved to near the lodge at Trevethin by the entrance to the American Gardens developed in the 1840s (Figure 3.57). Gardens with sundials included The Oaks, the New Eagley works garden, on the hill at Castlehead and possibly also on the lawn by the house.

Urns and vases like statues were not in evidence although they were still considered appropriate, perhaps with Latin inscriptions and dedications, possibly to friends.[137] Arthur Young suggested a reason why they might not be evident because they were best sited in, 'close, shaded and sequestered spots, whereon the eye falls by accident, as it were […] and not open lawns, full in views, and to be walked around.'[138] Repton, in his Red Book for Oulton Hall in Yorkshire of March 1810 for John Blayds II, recommended that a vase may be placed at the end of an island marking the location of a spring.[139]

The garden as a locus for contemplation of mortality was extended to memorial with two known instances in industrialists' landscapes, both to dear friends, their function far more than purely ornamental. Samuel More, noted in his Journal entry for 11 July 1776,

> Among the Additions to Mr Boltons Gardens is a Monument erected to the Memory of his Friend Dr. Small and a Hermitage which is so situated that one of the Windows commands a View (thro a Visto cut in the Groves) of the Church at Birmingham in which the Dr. is buried, and the Monument is so placed that the Steeple of the Church seems to make a

[137] Shenstone had believed that, 'Urns are more solemn, if large and plain; more beautiful, if less and ornamented. Solemnity is perhaps their print, and the situation of them should still co-operate with it.' William Shenstone, *Unconnected Thoughts on Gardening* (1764).
[138] Arthur Young, *A Six Months Tour Through the North of England. Containing, An Account on the Present State of Agriculture, Manufactures and Population, in Several Counties of this Kingdom*, 2nd edn (London: Strahan, W; Nicoll, W, 1771), p. 153.
[139] Eyres and Lynch, *On the Spot*, p. 107.

> Part of it and has a fine Effect, The Monument when finished is to be of a triangular form with an urn on the top; on two sides of the Triangle are to be verses inscribed, of which a Copy is annexed, and on the other Side the Doctor's Name and Additions.

And a little later on 20 July 1776 whilst staying with Wedgwood,

> He has also let the Water into a pit he formerly dug Clay and Gravel from and in the Middle of this Pond is to be erected a Monument in Remembrance and Honour of the late ingenious Surveyor Mr. Brindley, whose greatest Work (the Tunnel through Hare Castle Hill) is about four Miles distant and within sight of this Spot.'

However, which was conceived first? Dr William Small died 1775 aged 41, Brindley died in September 1772 aged 56.[140] Both memorials were clearly designed into the landscape maximising the association of an aligned vista. The urn to Small, inscribed Guillelm Small, was framed in a window from Boulton's hermitage aligned on the church steeple, whilst Brindley's was appropriately set in water in sight of Harecastle Tunnel. One can line up the entrance to the Harecastle Tunnel with both of the lower pools nearer to the canal and that by the gardens at Etruria, however at the time the most likely would have been that by the gardens because it was on higher ground and thus would have had a clearer visual connection. Both have echoes of Pope's memorial to his mother, the Shenstone urn at Hagley (c. 1765) and in the case of the Brindley memorial it calls to mind the reputed burial of Homer on the Greek island of Ios, and it predates by two years, the Rousseau tomb on the Îles des Peupliers at Ermenonville (Rousseau died July 1778) (Figure 3.58).[141] The siting of such

[140] Joan Lane, (2004), 'Small, William (1734-1775), physician and natural philosopher' in *Oxford Dictionary of National Biography,* https://www.oxforddnb.com/search?q=william+small&searchBtn=Search&isQuickSearch=true, Accessed 31/3/2020. K. R. Fairclough, (2004), Brindley, James (1716-1772), civil engineer' in *Oxford Dictionary of National Biography,* https://www.oxforddnb.com/search?q=james+brindley&searchBtn=Search&isQuickSearch=true, Accessed 31/3/2020.

[141] Hagley: Symes and Haynes *Enville, Hagley, the Leasowes : Three Great Eighteenth-Century Gardens*, p. 122; Jean-jacques Rousseau (1717-1778) in Internet Encyclopaedia of Philosophy https://www.iep.utm.edu/rousseau/, Accessed 31/3/2020; Fabrice Bucault and Jean-Marc Vasseur, *Le parc Jean-Jacques*

memorials in a garden, in neither case to a family member, created a locus for remembrance and meditation, but also could be interpreted as a celebration of friendship and joint enterprise, the latter particularly in the case of Brindley and Wedgwood who both enjoyed their gardens. The incorporation of this feature imbued with layers of meaning into the design of the garden created another destination with another mood. The aesthetic of the landscape thus was enriched with remembrance and reminders of mortality. An undated painting of Sunniside shows what appears to be a memorial in the park but nothing further has been found on this (Figure 3.59).

Occasionally monumental structures such as pyramids, obelisks, or triumphal columns were used as decorative features in a garden; obelisks had been part of heraldic decoration in Elizabethan gardens, and often featured in funerary architecture through into the Stuart period.[142] Probably the first commemorative monument was the obelisk Lord Carlisle ordered Vanbrugh to design and erect in 1714 to the Duke of Marlborough at Castle Howard.[143] However, although the elite may have incorporated such features in their earlier eighteenth-century landscapes, industrialists did not follow suit, except for one striking use of an obelisk.[144] Wilkinson requested that he be buried in an iron coffin at Castlehead, and accordingly kept an iron coffin at each of his residences, with more at Castlehead of different sizes purportedly partially hidden amongst the laurel and other evergreens, which he would jokingly offer gratis to friends and family.[145] A pen and ink drawing by Gilbert Gilbert, the only such drawing found in Samuel More's journals and inserted at 1784, clearly shows six coffins or tombs in a railed enclosure.[146] Wilkinson had bought the Castlehead land at the end of

Rousseau à Ermenonville, Éditions du Patrimoine, Centre des monuments nationaux, Paris, 2012.

[142] David R. Coffin, *The English Garden : Meditation and Memorial*, (Princeton, N.J. ; Chichester: Princeton University Press, 1994), p. 187.

[143] Coffin, *The English Garden : Meditation and Memorial*, p. 188.

[144] The terms pyramid and obelisk were not always differentiated in the seventeenth and eighteenth centuries.

[145] James Stockdale, *Annales Caermoelenses: or Annales of Cartmel*, (Ulverston: William Kitchin, Printer, Market Street; London: Simpkin, Marshall & Co., 1872), p. 219.

[146] More, Travel Journal, vol. 3, uncatalogued, British Library, September 1784. It is not clear which Gilbert Gilpin this might be for More refers (23 September 1783) to returning with Wilkinson to Castlehead for dinner with 'Mr Gilpin from Kendal a hearty old Man. Father of Mr Gilpin at Bersham and Grandfather of the Young Man of his Name here.' The Gilbert at Bersham would have been the man who later left to work

1778 at the age of fifty and work began on the house and gardens in 1779, but he was not to die for another thirty years (1808).[147] This permanent prominent reminder of mortality is very unusual and suggests a certain morbidity (Figures 3.60 and 3.61). Wilkinson was initially buried in his niche in the rock at Castle Head and a twenty ton, twelve metre high cast iron obelisk erected above. Both remained in situ until the estate was due to be sold in 1828 when Wilkinson's children considered the grave in the garden 'was not right or was at least unusual' and could injuriously affect the sale so Wilkinson was reburied at Lindale church.[148] A later owner, Edward Mucklow, re-erected the Wilkinson monument in Lindale (Figure 3.62). The obelisk is evident in the cartouche of the 1828 plan of the estate and in William Daniel's aquatint of Castlehead completed in 1815/6 (Figure 3.63 and 3.64). This striking, rather macabre feature in full view of the windows on the south of the house is the only example of both burial and memorial in such a prominent location in the garden, and there is nothing to suggest that Wilkinson was influenced by the classical tradition of burial in the natural landscape or garden although he was very fond of Castlehead.[149] There is also reference in a letter from the Gilbert Gilpin who worked at Bersham and who, given his later disparaging of Wilkinson, might not be a reliable source, that Wilkinson had interred the body of his daughter in the garden, but he does not state which garden and states, 'he has had her remains five times removed, and at present a gooseberry tree is the substitute for a tombstone.'[150] Wilkinson's only daughter, Mary, died with her baby in 1786.

with Wilkinson's brother William before going to South Wales and who wrote disparagingly of John Wilkinson. The most likely, is the 'Young Man of his Name here'.

[147] Dawson cites a lawyer's abstract among documents examined by him in 1982-3, courtesy of Mr Norman Kerr, bookseller, of Cartmell, Cumbria. Frank Dawson, *John Wilkinson : King of the Ironmasters*, (Stroud: History, 2012), p. 87.

[148] Correspondence re Dr Smiles 'Lives of the Engineers', 1860-65, Letter from James Stockdale to Samuel Smiles, October 1860, DDHJ 4/4/11, James Stockdale Papers, Hart Jackson Solicitors, Ulverston, Cumbria Archive Service (Barrow).

[149] Virgil's tomb was in a garden and Theophrastus' will specified his garden for his burial and as a place for study for his friends. Evelyn planned a section "Of Garden Burial" for *Elyssium Britannicum* and has a commentary in *Sylva*.

[150] Mary Wilkinson had died following the birth of a child as had her mother. Gilbert's letter cited in John F. G. S. Randall and John Wilkinson, *Our Coal and Iron Industries, and the men who have wrought in connection with them. The Wilkinsons; with portrait of John Wilkinson, etc. [With plates.]*, (J. Randall: Madeley, 1879 reprinted 1917), p. 42.

As noted earlier, it was not unusual for industrialists to build or contribute significantly to the building of a church or chapel, but devout non-conformist Samuel Walker of Rotherham in addition to the Independent chapel built a mausoleum in c. 1782 on the border of his estate at Masborough with two obelisks to the front of a railed enclosure, to which he and his wife are reputed to have retired to read and meditate on his death (Figure 3.65).[151] It was in Yorkshire that the first mausoleum to be constructed outside the control of the established church was completed at Castle Howard in 1745, others followed but most were on aristocratic estates.[152] The Walker Mausoleum was thus unusual, particularly for a non-conformist.

On a plan of Penwortham Lodge which formed part of the sale particulars in 1829, a cenotaph is marked crossing a walk halfway between the house and the cottage at the south east corner of the grounds; it would appear to have comprised a rectangular plinth along the length of the path with a central feature, perhaps a column or obelisk, within a square whose corners were defined by small structures. Baines' *History of the County Palatine and Duchy of Lancaster:* III records the remains of an ancient cross, 'a huge stone, with a cavity for a pillar, is found near Penwortham Lodge', which would suggest that this was incorporated as a feature in the garden (Figure 3.66).[153]

No record has been found to date of one of these industrialists using the clay based Coade stone in their landscapes. This was the embodiment of eighteenth century invention, combining art, craftsmanship and production techniques; it was used extensively in statuary and buildings sculpture.[154] There are however

[151] J. Guest, *Historic Notices of Rotherham*, (1879), pp. p. 458-500. J. Guest, *Relics and Records of Men and Manufactures at or in the Neighbourhood of Rotherham*, (1865). The Walker Mausoleum is a Grade II monument. The first record of the mausoleum is in Walker's account books for 1782. 'The Walkers - Rotherham's 18th Century Ironmasters', (Rotherham Local History Library). http://www.mmtrust.org.uk/mausolea/view/200/Walker_Mausoleum_South_Yorkshire Accessed 18/6/2019.

[152] Harold Mytum, 'Monuments and Memory in the Estate Landscape: Castle Howard and Sledmere', in *Estate Landscapes: Design, Improvement and Power in the Post-Medieval Landscape,* ed. by Jonathan Finch and Kate Giles (Woodbridge: Boydell and Brewer, 2007), pp. 149-176 (pp.151-152).

[153] Edward Baines, *History of the County Palatine and Duchy of Lancaster*, Vol. III, (London, Fisher, Son, & Co., 1836), p. 489.

[154] Coade stone was manufactured from 1769 by Eleanor Coade who perfected the ceramic artificial stone using 60-70% ball clay and twice firing the sculpture. The

Coade stone monuments to two industrialists, neither of whom feature in this study: Charles Roe (1715-81) in Christ Church, Macclesfield (1781) and Samuel Whitbread (1720-96) in the church of Mary the Virgin, Cardington, Bedfordshire, (1799), where there is also a black basalt Wedgwood font given by the potter to Samuel Whitbread, a friend.[155]

3.10 The Estate Community

There is no evidence to suggest that any of the industrialists were making overtly political or religious statements in the design of their gardens. Although some may have visited, and admired, the likes of Stowe and many certainly had strong support for principles of liberty and free trade, they did not follow the aristocratic Whig tendency of developing gardens isolated within an estate remote from the local community, it was that community after all that supported the industrial activity and to a large extent were drawn to the area for that work. They might be seen in this respect as being more in tune with the Tory self-view as 'custodians of traditional values in land and people management.'[156] Capability Brown re-sited estate villages, like Milton Abbas, which could be viewed as 'an industrial farm' similar to the industrial village at Cromford.[157] In fact, one might see the industrialists encompassing the village into their wider estate whether owned or not. Paternalism characterised particularly those industrialists where theirs was the sole or most significant industry. Such an approach made good business sense, fostering loyalty and good workers.

The owner's private grounds and the industrial buildings themselves were used for significant celebrations both personal and national. Arkwright instituted an annual festival of 'candlelighting' in September, when the workmen and children paraded through the village led by a band, followed by ale, buns, nuts and fruit and in the evening, music and dancing.[158] He gave milch cows as bonuses to his main workmen, and the landlord of the Greyhound was provided with 'beds,

business was continued by her daughter until her death in 1821. They used many of the foremost modellers and sculptors of the time, like John Bacon, John Flaxman, Thomas Banks and Benjamin West.

[155] Both modelled by John Bacon. Information on font pers.com. Charles Whitbread.

[156] Christopher Christie, *The British Country House in the Eighteenth Century*, (Manchester: Manchester University Press, 2000), pp. 131-132.

[157] See John Phibbs, *Place-making : the art of Capability Brown.*

[158] *Derby Mercury*, Sept. 19, 1776, cited in Fitton and Wadsworth, *The Strutts and Arkwrights*, p. 99.

presses, clocks, chairs &c.' to give as prizes to the bakers, butchers etc. who had provided the best produce for the market, which 'bespeak Sr Rd's prudence and cunning; for without ready provisions, his colony cou'd not prosper'. [159] The newly built houses had gardens and pigsties. Sylas Neville visiting Cromford in October 1781 noted that Arkwright,

> by his conduct appears to be a man of great understanding & to know the way of making his people do their best. He not only distributes pecuniary rewards, but gives distinguishing dresses to the most deserving of both sexes, which excites great emulation. He also gives two Balls at the Greyhound to the workmen & their wives & families with a weeks jubilee at the time of each ball. This makes them industrious and sober all the rest of the year.[160]

In 1776, Arkwright and Company gave a feast for more than 200 people who had worked on building a new mill; and in 1778 a ball at Rock House for, 'neighbouring Ladies and Gentlemen, at which the Company was very numerous and brilliant.'[161] John Horrocks did similar slaughtering 'five fat beasts for his work people, Christmas 1798, and dished out other rewards to salute previous conduct and as an incentive for future good behaviour.'[162]

To mark the official opening of the Etruria Ornamental Works on 13 June 1769, Wedgwood threw six 'First Day Vases' after which everyone had lunch on the meadows below the hall, not only the family and their friends, the Bentleys, Brindleys and Whieldons, but also employees. This was two years before both the Useful Works for earthen wares and the Hall were completed in 1771. In 1802 the façade of the Soho manufactory was lit by gas to celebrate the Peace of Amiens, a year before the manufactory itself was lit by gas.[163] The golden

[159] Byng, *The Torrington Diaries,* vol, 2, pp. 195-196.
[160] Cozens-Hardy (ed.), *The Diary of Sylas Neville, 1767-1788* (1950), p. 279, cited in *The Strutts and Arkwrights*, p. 100-101.
[161] *Derby Mercury*, Sept. 25, 1778, cited in Fitton and Wadsworth, *The Strutts and Arkwrights*, p. 99.
[162] Brian Lewis, *The middlemost and the milltowns : bourgeois culture and politics in early industrial England*, (Stanford, CA: Stanford University Press, 2002), p. 290.
[163] Dickinson, *Matthew Boulton*, p. 190. Coal gas for lighting was invented by the engineer William Murdoch who worked for Boulton and Watt and first lit his cottage in Redruth by gas in 1792.

jubilee of George III in 1809 was celebrated by Josiah Spode the second and by Richard Ainsworth of Smithills Hall, the latter treating his workforce of five hundred to a “plentiful repast” and the poor of the neighbourhood to soup and cold meat.’[164] Fireworks might round off such festivities as on Wednesday 16th December 1829, when Enoch Wood and his wife celebrated their fiftieth wedding anniversary and after a private dinner,

> general illumination took place, as if by magic, the whole town, at seven o’clock presenting one blaze of light [….] And several appropriate transparencies were displayed in the windows of different inhabitants [….] At nine o’clock, a brilliant display of fireworks took place from the garden of Mr Wood’s house to which the public were freely admitted; and we rejoice to say that the proceedings of the day were unclouded either by accident, riot or disorder. At eleven o’clock everything was as quiet as usual.[165]

The Strutts created a whole community including owner’s home, industry, farms and villages and seemed to be particularly prone to celebrations. Like many others they marked the preliminary signing of the Treaty of Amiens in October 1801 with a procession, three bands, oxen and fine ale, culminating in a general illumination. Again, in June 1814 when such largesse was reputed to have cost £10,000, and whilst most such events took place in the town or mill buildings, 300 children dined at George Henry Strutt’s house. The Strutt’s support for the First Reform Act occasioned nearly a thousand of their female employees to be entertained by Jedediah Strutt, ‘on the lawn in front of his beautiful residence, by a sumptuous *déjeuner.*’[166] Hubert Galton devised a ‘Pyrotechnical Exhibition’ at Duddeston, but it is not known whether this was celebratory, private or public (Figure 3.67).[167] It seems that it was only on such special occasions that the public as a group might be admitted to the designed landscape, which to some

[164] Leonard Whiter, *Spode : a history of the family, factory and wares from 1733 to 1833*, 2nd ed. edn (London: Barrie and Jenkins, 1978), p. 19. From Obituary of Josiah Spode II - *Gentleman’s Magazine*, 1827, ii, p.470. Lewis, *The Middlemost and the Milltowns*, p. 290.
[165] *Staffordshire Advertiser* 17th December 1829, cited in Falkner, *The Wood Family of Burslem*, p. 86.
[166] Fitton and Wadsworth, *The Strutts and Arkwrights*, pp. 258-260.
[167] H. Galton’s Pyrotechnical Exhibition, ND, MS 3101/B/23/7, Galton, Birmingham Archives.

extent conveyed a benevolence on the part of the owner whilst reinforcing their prestige and denoting the garden as a private space.

Conclusion

With many of the landscapes developed in the latter half of the period it is not surprising that the design of the majority of the industrialists' landscapes was naturalistic with the larger including parkland and even some smaller ones having park like features. Only those landscapes originating in the first half of the eighteenth century showed characteristics of the formal garden (Pontypool, the Gnoll, the Darby houses including Sunniside), most, though not all, of which had been removed by the end of the period.

For the majority of the sites of any size, the house was located to appear to be the hub of the gardens or park even in cases where it was almost on the boundary (e.g. Lark Hill, Penwortham Hall). The house therefore had a view over the gardens, often towards, or with an indication of, the industry; this applied to both inward and outward looking gardens. In almost all water was included in the view from the house as occurred in elite landscapes. In those few instances where the house was not the dominant building of the estate, the house did not have a direct view of the industry (Soho, Mellor). A visitor's view looking towards the house, as in contemporary paintings of gentlemen's seats, rarely included the industrial, but what is most significant about most of the sites was that the approach included the industrial activity, whether experienced immediately prior to entering the gates (e.g. Etruria, Willersley, Cyfarthfa, Fountain Place) and/or once in the park (e.g. Pontypool, Gnoll, Moss Bank). This embracing of the industrial immediately within the experience of the landscape made it clear that the industrial was integral to the estate. Industrialists were making an unequivocal statement about the relationship between their industry and their home particularly in the way their house, or that building which acted as the fulcrum of the estate and landscape, had a clear relationship with the industrial, reinforcing the owner's pride of possession. Industry in the view conveyed further attributes of involvement in technological improvement, of patriotism by contributing to national prosperity and of a social beneficence in providing the poor with a livelihood.

Industrialists exhibited characteristics in common with their landed estate contemporaries in the extent to which they brought in elements of the wider landscape in the view from the house, its immediate vicinity and from viewpoints within the garden. Using features in the landscape whether naturally occurring or manmade afforded eyecatchers that may or may not have conveyed an association, although it must be recognised that largely the industrialists were not setting out to make political or philosophical statements with the gardens. Serpentining walks through the landscape, often in the shade of tree belts or through the pleasure grounds with both panoramic vistas and framed views, occurred even in small sites other than in those with a formal core. Design did not pivot on garden buildings, which were few, although there might have been more portable or temporary structures than the records reveal. There was only isolated incidence of statuary, the most common small feature being sundials, symbols of mortality, and where there were memorials they were to friends or family, not to great men. This is consistent with the landscapes not being designed for public display but for the intimacy of private enjoyment.

Like many landed gentry, the majority of industrialists appear to have been their own designers, or with their gardeners, the landscapes developing organically over time, with many grasping the challenge of transforming a barren site into something productive and beautiful, very much in the spirit of improvement and more likely to achieve significant change. There is scant evidence to indicate whether the industrialists set out with a clear design concept for their estate, irrespective of the involvement or otherwise of a designer, Repton's Red Books for Armley and Warley are the only two extant designs and neither were virgin territory. However, that does not mean that there were none. Estate surveys exist and particularly greenfield sites, like Etruria and Castlehead, would have required substantial planning from the beginning. The impression, especially where there is evidence of their garden interest, is that the owners, perhaps with their spouses, were the creative force, even if a designer was involved as in the case of Etruria to help manage the logistics. Landscapes are ephemeral and one must bear in mind that for many of these sites their development and land acquisition spanned generations.

Chapter 4
Built Environment

It might seem perverse for the built environment to figure prominently when considering designed landscapes, but the style, setting and function of structures impacted significantly on the aesthetic of the landscape. Brown and Williamson have shown that in the eighteenth century, the park became the principal setting for the mansion, and the 'house became the principal garden building; the views towards it, from the proliferating rides or the main approaches, of key importance.'[1] They were referring of course to elite landscapes, but the same holds true for other designed landscapes, and in industrialists' landscapes there were a wider range of built structures, of which the house might not have been the most significant. Whilst views might embrace the house and other structures, those from inside the house were as important, windows framing a 'landscape', also those from its immediate environs and the pleasure gardens. The landscape was a setting for buildings which might convey meaning, and the interaction between them and their setting contributed to how the landscape was experienced. Architecture was a clear signifier of the wealth, status, taste and aspirations of the owner, and industrialists declared this to varying degrees through their residence, industrial and other buildings. This chapter considers the extent to which the built environment - industrialists' houses, ancillary domestic buildings, garden structures and industrial buildings - was designed to play a role in the landscape experience. There was a range of structures on the estates, this does not attempt to consider all but looks at those which were significant primarily in the ornamental landscape experience. It examines the extent to which contemporary taste impacted on the industrial architecture and how that architecture ornamented, created drama or provoked associations. Although industrialists were by no means unique in incorporating the products or by-products of manufacturing in a landscape setting, some applications appear to be distinctive and were considered appropriate by contemporaries. Indeed, technological advances were applied no less in the garden than they would be today, and recycling of the waste and by-products of industry was neither new

[1] Brown and Williamson, *Lancelot Brown and the Capability Men*, p. 129.

nor uncommon. The elite in Britain and Europe had used waste products like clinker and coal dust for paths and parterres and the slag from glass and iron works in garden buildings and features especially grottoes for many years. It might be suggested that such use by the elite, irrespective of whether or not they might have had industrial interests, not only paid homage to industrial progress but also indicated their desire to demonstrate artistic ingenuity and novelty. Some industrialists went further.

4.1 The House

The owner's house has traditionally been seen as the principal building in the designed landscape, but during this period the scale of industrial buildings eclipsed the majority of domestic mansions and public institutions, such that there were instances where the industrial took the centre stage in the landscape normally occupied by the mansion. The predominant style of the industrialists' houses was the prevailing neo-classical, some solid and simple (e.g. The Lawns, Rock House, Dale and Rose House, the Big House) others relieved with a bay(s) (e.g. Quarry Bank, Mellor, The Mount) or portico (e.g. Moss Bank, Dowlais), and a few were the more elegant Palladian (e.g. Etruria, Warmley, Armley, Bedwellty, Pennydarren), only three in this sample had Gothic exteriors (Figures 4.1-8). It is noteworthy that industrialists who produced stylish consumer goods, particularly copies or interpretations of classical artefacts, tended to the Palladian (Boulton, Taylor, Wedgwood).

Many industrialists' houses were modest, particularly at the outset of their career, and nearly all built a new house or improved an existing one at some stage, even if they were not to live to benefit; those that improved usually had inherited an already substantial property. Unlike the elite, for whom building and improvement was triggered by inheritance or marriage, for industrialists it was when wealth and status endowed the security to make it possible and desirable. There does not appear to be any strong correlation between style of house and religious or political persuasion, though there is a slight indication that Quaker and non-conformists tended to be more restrained.

The earliest, and only refashioning in a Gothic style, was that by Sir Herbert Mackworth who commissioned John Johnson of Leicester to modify The Gnoll

(1776-8) with corner turrets and castellation.[2] Although the Mackworths were relative newcomers who had married into local gentry, the implication of an ancient family seat is reinforced in paintings by its juxtaposition with the ruins of Neath Castle, particularly those by Hendrik Frans de Cort and by the treatment of Cefn Morfidd (Cefn Morfudd), an ancient earthwork on the high ground to the east above Mosshouse Wood, identified on the 1802 plan as an hexagonal sheepcote (Figure 4.9).[3] Of those that built new, only two adopted a castle Gothic: Willersley Castle and Cyfarthfa Castle (Figures 3.39 and 3.36). Willersley (construction 1787-95), perhaps the earliest new-build manifestation of the baronial Gothic style for manufacturers, would appear to have been heavily influenced by Robert Adam's design for Culzean (built 1777-1812) which had possibly been seen by Arkwright when he was in Scotland.[4] Cyfarthfa, designed by Robert Lugar (1773-1855) and originally 'white', was completed in 1824 when such evocations of a medieval past were more the rage and more authentic in detail. Both were also in contrast to the earlier houses of their owners (Rock House for Arkwright and Gwaelodygarth for William Crawshay II). Both Cyfarthfa and The Gnoll are sited in commanding positions on prominent hills accentuating the allusion and very much in the tradition of Welsh castles like that built by Sir John Morris near Swansea to house his workers (1768-74); whilst Willersley, though set high against the rock and overlooking a small winding stretch of the River Derwent, does not command the landscape in the same way and was described by Byng in 1789 as,

> a grand house in the same castellated stile as one sees at Clapham; and *really* he has made a *happy* choice of ground, for by sticking it up on an unsafe bank, he contrives to overlook, not see the beauties of the river, and the surrounding scenery. It is the house of an overseer surveying the

[2] CADW, *Register of Historic Parks and Gardens of Wales: The Gnoll*.
[3] In 1686 Sir Humphrey Mackworth married Mary Evans, the heiress of Gnoll, whose family had lived there since the early seventeenth century.
[4] Culzean http://portal.historicenvironment.scot/designation/GDL00124 Accessed 21/9/2019. Tom Williamson has suggested that the majority of mansions erected in Britain after c. 1820 were built in some self-consciously archaic style, full-blown medieval gothic or pseudo-Jacobethan which was one reason for the return of parterres and topiary which complemented such architecture. Tom Williamson, 'Archaeological Perspectives on Landed Estates: Research Agendas', in *Estate Landscapes*, (2003), p. 12.

> works, not of a gentleman wishing for retirement and quiet. But light come, light go, Sr Rd has honourably made his great fortunes; and so let him still live in a great cotton mill! But his grateful country must adore his inventions, which have already so prosper'd our commerce; and may lead to yet wonderful improvements.[5]

This betrays, perhaps, as much about John Byng as it does about Arkwright. It is, however, indicative of the attitudes of the time amongst certain landed gentry towards the position of entrepreneurs in the patriotic consciousness and the gentlemanly attribute of having a country seat as a quiet retreat. There were two other gothic examples, neither contiguous with the industry. These were Great Barr and Warley, the former leased by Samuel Galton from Sir Joseph Scott and described by Galton's daughter as 'Ogee Gothic style'; whilst the latter, designed by Robert Lugar in more refined Strawberry Hill gothic was built for Galton's son and completed in 1819.[6] Both Great Barr and Warley were nestled in a gentler landscape than the Gnoll, Willersley or Cyfarthfa.

Apart from Arkwright's Willersley Castle and the post 1830 Gothicising of Wood's Fountain Place, the houses of textile industrialists and potters were neo-classical. Arkwright's Rock House that he occupied throughout his time in Cromford, was classical, very similar to those of Greg and Oldknow.[7] Ironmasters too largely adopted the neo-classical (Wilkinson at The Lawns and Castlehead, Homfrays at Penydarren) or the elegance of the Palladian, like William Champion at Warmley, the Darby's at Sunniside and the Hanburys at Pontypool Park after its alterations. The Reynolds at The Bank, Ketley and Ketley Hall appear to have been content with existing houses. Evidence of Quakers rejecting ostentation in their interior décor despite being wealthy would suggest that they similarly applied moderation to the building itself, whilst their interest in gardening was an acceptable Quaker occupation, perhaps as one that brought them closer to God.[8]

5 Byng, *The Torrington Diaries,* vol. 2, p. 40.
6 Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 14.
7 Rock House was described by H. Moore in *Picturesque Excursions from Derby to Matlock Bath,* 1818, as '... A conspicuous object; it is neat but not elegant, and no doubt comfortable within, although it's exterior is tasteless.' Hool and others p. 5.
8 Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 25.

Industrialists who are known to have employed a professional landscape gardener/designer (Wedgwood, Galton, Gott, and possibly Arkwright) also engaged an architect.[9] Wedgwood commissioned Joseph Pickford for Etruria (1767) (who also designed St Helen's House in Derby for Jedediah Strutt), Robert Morris engaged John Johnson of Leicester for Clasemont (c. 1772) as did Sir Herbert Mackworth for alterations at The Gnoll (1776-78); Arkwright engaged William Thomas for Willersley, (1788), Boulton turned to James and Samuel Wyatt for the remodelling at Soho House (1790), whilst Robert Lugar was commissioned by both Hubert Galton, at Warley Hall (1818) and William Crawshay II for Cyfarthfa Castle (1824).[10] Repton submitted some designs for remodelling Armley House but it is not known whether these were realized, but the alterations by Robert Smirke were undertaken by 1821.[11] From this one might draw several conclusions. First, that these industrialists moved, or wished to be seen to move, in circles that considered the employment of an architect and landscape designer essential for the realization of a tasteful residence and setting. Second, that through their various connections they came into contact with or were recommended nationally renowned architects and designers. Third, that they, as leading men in their field, recognized the value of expertise and experience so that when they wanted to create their own estate, they looked to employ a leading designer. Of the rest, without evidence to the contrary, it is conceivable that a number of the houses were designed and built by local architects/builders or master craftsmen. In these cases, the owners

[9] No designer is known however for Robert Morris' Clasemont.

[10] Arkwright seems also to have invited designs from Thomas Gardner of Uttoxeter who was assistant to Joseph Pickford before setting up on his own and may have been the architect of the Mews at Rock House. Hool and others p. 26. Craven and Stanley, *The Derbyshire country house*, p. 21. Gardener was possibly involved with the addition of the two wings to Etruria Hall in 1780.

[11] Robert Smirke was also commissioned by Sir Robert Peel to design his town house and his house in Staffordshire. http://www.scottisharchitects.org.uk/architect_full.php?id=200349 Accessed 28/01/2019. In 1768-74 Sir John Morris built Morris Castle, three storey blocks around a central courtyard with towers at each corner, to house his workers. In 1815, Walter Davies and Edward Williams wrote a survey of the economy of South Wales, and said of Sir John Morris that, 'he seems to have been the most extensive individual builder of comfortable habitations for the labouring class. He first erected a kind of castellated lofty mansion, of a collegiate appearance, with an interior quadrangle, containing the dwellings for forty families, all colliers, excepting one tailor, and one shoemaker, who are considered as useful appendages to the fraternity.' Ronald Rees, *King copper : South Wales and the copper trade, 1584-1895*, (Cardiff: University of Wales Press, 2000), p. 60.

may have either been significantly involved in the design or happy to rely on pattern books as were many landowners at the time.

Important buildings in the eighteenth and nineteenth century, whether classical or gothic, were of white stone or stuccoed evoking the architecture of Greece and Rome which were made or clad in white marble.[12] The light colour made the building more prominent in the landscape, although George Mason thought the practice of whitening objects which brought them forward was done too frequently.[13] Some industrialists' houses, whether neo-classical or gothic, were or were depicted as being a natural light-coloured stone or stuccoed to appear so, even if only the front face. Caution is however necessary as an earlier building may have been stuccoed as part of a later improvement and artistic licence particularly for engravings may have accentuated the building whilst many were of brick and remained so like the Darby houses. Wedgwood wanted Etruria Hall to be built of white bricks, but as he would have had to wait until the following year he settled for red as shown on the 'Stringer Plaque' of 1775 (Figure 3.25).[14] He may have wanted to bring clay from Devon, perhaps having seen the use James Templer of Stover made of the local white ball clay.[15] Pontypool house in a view of 1793 was of a light colour and Cyfarthfa also was originally 'white' (Figure 3.36). The reason for contemporary aversion to red brick is shown by Sir Richard Colt-Hoare's comment that, 'particularly when viewed in a picturesque light. They admit no variety of tints, no effects of light or shade, and have therefore a dull and heavy appearance'.[16] Further, he advised painting brick farm buildings and cottages with a 'wash of soft cream colour' to mitigate their unpleasantness.[17] This sentiment was shared by Repton who, in

[12] In areas where stone was not available stucco jointed to appear like stone achieved a similar effect but at about a quarter of the cost of bringing in stone. http://www.buildingconservation.com/articles/stucco/stucco.htm Accessed 7/1/2019.
[13] Jean Denis Attiret and others, *A particular account of the Emperor of China's gardens*, (New York: Garland, 1982), pp. 29-38.
[14] 'the buildings go on but slowly this bad weather, … the white bricks are brown. - Pray wo.d you advise me to get my house built of red bricks this year or wait 'till the next for white ones, for that I believe must be the Alternative.' Letters Volume 2, 1767-68, Wedgwood, Wedgwood Museum, 10th April 1768, p. 141.
[15] See p. 93.
[16] Richard Colt Sir Hoare, *The journeys of Sir Richard Colt Hoare through Wales and England 1793-1810*, (Gloucester: Alan Sutton, 1983), p. 167.
[17] John Martin Robinson, *Georgian model farms : a study of decorative and model farm buildings in the age of improvement, 1700-1846*, (Oxford: Clarendon, 1983), pp. 58-59.

his *Red Book for Glemham*, indicated that brick was also associated with the industrial,

> since large workhouses have been erected throughout the kingdom, every great red brick house, in which Architectural ornaments have been neglected, resembles one of these Castles of unwilling Industry…. I propose that the house be washed of a stone colour, and if a pediment were added to each front.[18]

A conservatory was an unusual addition during this period, glass still being subject to a tax, but the Gnoll included one as part of the improvements made 1776-78.[19] Interestingly, Repton thought that conservatories could be added to gothic style houses, similar to the appendage of chapter houses to cathedrals, but not to a 'house of regular architecture'.[20]

Scoria blocks found today in copper and iron smelting areas like West Cornwall (known as 'Copperhouse slag'), Bristol, Cheshire, South Durham and Tees Valley, were a by-product of smelting copper and iron.[21] They are highly durable, heavy, and were manufactured in various shapes: rectangular, in length and width roughly comparable with modern 'breeze' type building blocks but twice as deep, used for building walls; triangular or less common half-round for coping walls; and later they were used in roadways. They are lustrous like polished coal, providing a decorative contrast to brick and sandstone. Pococke noted that in Warrington, 'They have boxes of iron 18 in. long, 9 deep and 7 broad, in which they throw the dross, which is cast to that size, for building and

[18] Humphry Repton, *Red Book for Glemham Hall in Suffolk*, a seat of Dudley Long North Esqr., 1791. https://iiif.lib.harvard.edu/manifests/view/drs:46047457$3i Accessed 28/10/2019.
[19] The glass tax was introduced in 1745/6 and repealed in 1845, whereas the window tax introduced in 1696 was not abolished until 1851. https://www.parliament.uk/about/living-heritage/transformingsociety/towncountry/towns/tyne-and-wear-case-study/about-the-group/housing/window-tax/ Accessed 8/1/2019. It was not until 1807 that cast-iron beams were used to support a pitched roof of glazed panes in the conservatory at Barnsley Park, Gloucestershire. Jackson-Stops and Pipkin, *The Country House Garden*, p. 178.
[20] Repton, *The Art of Landscape Gardening… and Hints,* p. 147.
[21] They were used for example in the construction of the Copperhouse Canal and Dock (1769), the Sea Lane or "Black" Road across Copperhouse Creek (about 1811) in Hayle, Cornwall.

making very beautiful walls, and when it is cast in another shape serves to pave courts.'[22] He was referring to the copper slag from the works at Bank Quay, Cheshire, where Thomas Patten (1690-1772) used such blocks for the foundations of Bank Hall designed by James Gibbs and built in 1750, now Warrington Town Hall.[23] Hubert Galton, before he built Warley, leased Hockley Abbey on Handsworth Heath that was in sight of Soho. This was built by Richard Ford with the exterior comprising slag from the iron furnaces of Aston and Birmingham; he had added '1473' in white pebbles on the front, and encouraged ivy and moss to enhance the impression of an ancient abbey.[24] Slag quoins were used in gate posts and a former coach house at Clasemont and extensive use was made of scorria by Champion and Reeve in their ancillary and garden buildings in Bristol. However, scoria blocks do not appear to have been used in the new-build houses of the industrialists studied here.[25]

There are a few instances of the use of their products in their houses. Not surprisingly, given his soubriquet, 'Iron Mad Wilkinson' (John Wilkinson), who was a shareholder in copper works including Parys mine on Anglesey, was reported by Stockdale to have used copper to roof Castlehead house, but Samuel More recorded that in a storm on 6 September 1783, 'the Roof of the Coach House, Stables and great part of the Kitchin all which were covered with plate Iron was torn off.'[26] Iron plates covered the sheets of lead lining the gutters at Cyfarthfa Castle to protect from snow.[27] Thomas Hopkins at Ty Mawr,

[22] Pococke, *Travels through England,* vol. 1, p. 9.
[23] The whole house was built on a foundation of molded blocks of copper slag from the copper smelting works at Bank Quay. They measure 610mm x 610mm, 610mm x 305mm and 457mm x 229mm. The window frames were made from a combination of copper and iron and then painted white.
https://www.warrington.gov.uk/info/201142/local_history_and_heritage/51/history_of_the_town_hall_and_golden_gates/3 Accessed 4/04/2018.
[24] William Dargue, *A History of Birmingham Places and Placenames from A to Y,* https://billdargue.jimdo.com/placenames-gazetteer-a-to-y/places-h/hockley/ Accessed 1/9/2019. William F. S. A. S. Hutton, *A brief history of Birmingham, and guide to strangers: embellished with a plan of the town. Second edition*, pp. 52-53. Accessed 21/9/2019.
[25] Stephen Hughes, *Copperopolis : landscapes of the early industrial period in Swansea*, Rev. [ed.]. edn (Aberystwyth: Royal Commission on the Ancient and Historical Monuments of Wales, 2008), p. 215.
[26] Stockdale, *Annales Caermoelenses*, p. 203.
More, Travel Journal, vol. 3, uncatalogued, British Library, 6 September 1783.
[27] Margaret Stewart Taylor, *The Crawshays of Cyfarthfa Castle. A family history, etc. [With plates, including portraits.]*, (London: Robert Hale, 1967), p. 43.

Blaenavon, had an iron over-mantle painted to resemble marble.[28] The *Gentleman's Magazine* reported that Wedgewood's 'exquisite composition' was 'ornamenting the ceilings and chimney-pieces' in the interior of Etruria Hall, similar to those he marketed to the elite.[29] He also paid John Flaxman handsomely for drawings, designs and 'mantles' for the Saloon in 1785.[30] Thus, largely, industrialists' houses were conventional and compatible with their status in society, whereas the garden might be a locus for novelty.

4.2 Stable Blocks

Stable blocks, usually replicating the style of the house, were adjacent to it or in close proximity, even if screened by planting as at Soho, Etruria and Willersley. There are no examples of elaborate stable blocks resembling a mansion like those built at some elite sites, although the mock castle incorporating scoria blocks at Arno's Court was substantial and included other offices associated with the works (Figure 4.10). Wedgwood's Barns and Stables which were built in a former 'stone pit' behind and thus lower than the house, cost £244 3s 41/4d compared with his garden at the same account date, £982 8s 11/4d.[31] At Pontypool the original stables, much admired by Ralph Allen of Prior Park in Bath in 1730, were to the east of the house; they were demolished and new ones built 1800-1810 on the site of the former chapel and dovecote to the west of the house.[32] The stable block at Cyfarthfa, though separate from the house, was incorporated into the whole castle complex thus making it appear as one building and more imposing.

4.3 Other Domestic Buildings

At Rock House there is a small two-storey building, probably used as an office, to the north on the edge of the rock with a Venetian window on the first floor overlooking the original mill. The roof eaves on this side finish just above the window suggesting that it might have been hidden by a parapet level with the flanking parapet walls. Joyce, Buxton and Hool have suggested that the

[28] Pers. Com. Adam Greenway, owner of Ty Mawr, Blaenavon.
[29] *Gentleman's Magazine*, (December 1794), (p. 1078).
[30] Wedgwood E62-33418, Wedgwood, Wedgwood Museum.
[31] Wedgwood Archives, Ledger D.
[32] CADW, 'Register of Parks and Gardens of Special Historic Interest in Wales, Pontypool Park', (1991).

unusual setting of the window to the back face of the stone dressings, giving the appearance of the window being unglazed, might have been deliberate to suggest a garden gazebo.[33] If so, this could only have been from a distance and thus possibly visible from Willersley Castle or its grounds.

4.4 Lodges

Gateways and associated lodges at the entrance were a signal of what was to come, the architecture suggesting what to expect of the house. Mowl and Earnshaw have argued that it was during the eighteenth century that the park gate lodge became an established feature, whereas previously it had been natural to use the architecture of a residence to overawe and impress, between, '1710 and 1834 there had been a change in the aristocratic self-concept,' resulting in the adoption of retirement and even understatement.[34] Thus the mansions of the elite were usually not visible from a public road or area, only from within their own parkland. The gate lodge became established as a standard park feature and seems, therefore, 'likely to have developed as a substitute for the hidden house which it guarded, a statement of minor magnificence: if the servants are housed thus, what must be the condition of their unseen master?'[35] A prerequisite similarly advocated by Robert Lugar who believed that , 'Lodges should be in due character with the house, and mark its style distinctly. A more flagrant error can scarcely be committed, than to give the lodge a character opposite to that of the house.'[36]

Although there were lodges to a number of industrialists' estates from an early date, as at Etruria, Willersley, Gnoll, Cyfarthfa, and Castlehead, many were nineteenth-century additions by later occupants. Castlehead in Wilkinson's time had one lodge to the north, later in the nineteenth century one was built to the south-west (Figure 4.11). Willersley Castle had two lodges, one on the A6 with crenelated roofline, gothic door and window openings nestling picturesquely under the rock of Scarthin Nick, (the rock hill between the river and the village)

[33] Hool and others p. 22.
[34] Tim Mowl and Brian Earnshaw, *Trumpet at a distant gate : the lodge as prelude to the country house*, (London: Waterstone, 1985, 1984), p. 17.
[35] Mowl and Earnshaw, *Trumpet at a Distant Gate*, p. 17.
[36] Lugar, *Architectural Sketches*, (1805), pp. 13-14. https://babel.hathitrust.org/cgi/pt?id=osu.32435002962090&view=1up&seq=9 Accessed 7/7/2019.

and guarding the entrance onto Chapel Walk that ran along the river.[37] A second gritstone lodge in keeping with the design of the mansion stands just inside the gates to the drive up to the mansion (Figure 4.11). The twin lodges to Cyfarthfa framed the direct view up to the castle (Figure 3.37). At the Gnoll there were at least two lodges, including a castle gateway and one for a period served as the gamekeeper's house, it being not uncommon to house an estate employee in a lodge, particularly those more remote from the house.

There were instances of where the industrial building itself was more dominantly conceived as at Mellor, where the substantial neo-classical Mellor Lodge and Marple Lodge were built by Oldknow as houses for himself and the mill manager respectively and stood one at each end of the bridge on the approach to the mill. Whether intentional or not, it was as if they were heralding the mill building with the corner and central bays of the Mellor Lodge a foretaste of the architecture of the mill itself (Figure 4.13). Thus the mill was the principal building in the landscape, becoming the focus for views, including from the owner's gardens, rather than the industrialist's house. At Soho too the original route to the manufactory ran immediately behind the house, so like Mellor the house was as a prelude to the greater manufactory. Sites with a Palladian house set in a landscape park either do not appear to have had a lodge, or had a single lodge from which the house could not be seen (e.g. Pontypool), and in some cases the lodges were added at a later date (e.g. Spode II's The Mount, The Oaks).

4.5 Main Industrial Buildings

It could be argued that while the elite demonstrated their power in their mansions, the industrialists proclaimed theirs in their industrial buildings. Hitherto, utilitarian buildings had been domestic in scale, related to the human figure even if the overall building was vast, like a cathedral.[38] Industrial buildings introduced a different aesthetic into the landscape: structures that bore no relationship to the human, but to the supra-human industrial activity. Initially small-scale and indigenous in character, harmonizing with the environment,

[37] Joyce and Buxton, p. 37. Also Adam, *Gem of the Peak*.
[38] J. M. Richards and Eric Samuel De Mare, *The functional tradition in early industrial buildings*, (London : Architectural Pr., 1958 (1968)), p. 20.

they escalated to dominate and change the aesthetic and social character of their landscape. It was as if man's intervention was challenging the God-given vastness of nature. From this standpoint one can appreciate the Romantics' aversion to the industrial. It went against the notion of understanding nature through emotional engagement with its inherent beauty and beneficence. Industry, particularly in the landscape, interjected a symbol of the enlightenment – the antithesis of Romanticism – demonstrating a rational harnessing of the laws of nature to the service of man, in addition, the burgeoning factory system was at odds with individualism. People and nature were becoming components of a production process, and people were becoming dissociated with the land.

The sheer scale of ironworks embodied power both literally and symbolically and the intrinsic nature of the process of smelting and forging determined the architecture which left little for architectural niceties. However, as the industry and confidence of the ironmasters grew so even these works sometimes acquired embellishment, perhaps most flamboyantly in the third set of Egyptian influenced furnaces (1828) at the Rhymney works (Bute Town) which appear in a painting by Penry Williams to have an adjacent well-manicured garden (Figure 4.14).[39] But this was unusual. In any case, ironworks were likely to be shrouded in heavy smoke and grime. In comparison, potters as their business expanded, whilst still largely constricted in terms of the design of the hovels, their main buildings acquired some neo-classical refinement, not dissimilar to textile mills, and sympathetic with their adjacent houses, so the later gothic embellishment of the Fountain Place industrial buildings was untypical. Textile manufacturers, whether spinning, weaving, bleaching or printing, also embraced the neo-classical. The majority of the mills were established in rural areas; hills and water providing the setting, akin to a mansion in a landscape park and testament to the standing of the owner. In the growing industrial towns, mills mainly followed the conventional pattern, an exception in the 1840s, was the new single-storey flax mills of James Marshall in Leeds which were based on the Typhonium at Dendera and the associated offices on the Temple at Antaeopolis and the Temple of Edfu (completed 1840 and 1843 respectively),

[39] The Rhymney Iron works established in 1800 were purchased by Richard Crawshay in 1803 as a wedding gift to his daughter Charlotte and her husband Benjamin Hall. https://archiveswales.llgc.org.uk/anw/get_collection.php?inst_id=33&coll_id=25099&expand=&L=1 Accessed 8/1/2019.

which also had conical skylights and a grass roof on which sheep grazed (Figure 4.15).[40] Sometimes an industrial building was provided with an ornamental front to appease a local elite landowner as was the case with John Dickinson's paper mill at Batchworth, Hertfordshire, built in the late 1820s, which could be seen from the Moor Park mansion, seat of Lord Ebury, and was therefore given an 'Egyptian front' with 'massive columns and an entablature of painted stucco.'[41] This was perhaps more likely in the counties surrounding the metropolis where elite estates tended to be smaller than those in the provinces, with their ornamental landscapes closer together with the guarding of views at a premium and, significantly, in an area largely without mineral resources so owners were not themselves involved in industry.

The Derby Silk Mills built 1722 by the engineer George Sorocold for John and Sir Thomas Lombe, are shown on eighteenth-century views with one building having five storeys and the other three, and between them a pair of ornate gates (Figure 3.10).[42] Their style bears a striking resemblance to later mills like those of the Strutts at Milford.[43] As production increased, so architectural treatment particularly of mills, reflected the prevalent neo-classical in both proportion and ornament. This is seen in Richard Arkwright's innovative great Masson Mill at Cromford, built in 1783, which was to become the pattern for future cotton mills in England, Scotland and further afield including America (Figure 4.16 and 4.17).[44] It had projecting stair and service bays at each end, to

[40] https://historicengland.org.uk/listing/the-list/list-entry/1375162 Accessed 14/10/2019. Victorian Society https://www.victoriansociety.org.uk/news/temple-mill-leeds Accessed 10/10/2019.
[41] Tom Williamson, 'Gardens and industry: The landscape of the Gade Valley in the nineteenth century' in Deborah Spring, *Hertfordshire Garden History. Volume II, Gardens pleasant, groves delicious*, (Hatfield: Hertfordshire Publications an imprint of the University of Hertfordshire Press, 2012), p. 130.
[42] The silk mill was started in 1702 by Thomas Cotchett who engaged the best-known millwright of the time, George Sorocold, but it was Cotchett's successors, Thomas and John Lombe who in 1722 completed an enlarged mill and perfected the throwing of silk. Jill Armitage, *Derby, A History*, (Stroud: Amberley Publishing, 2014), chapter 7; Stephen Glover, *The History, Gazetteer, and Directory of the County of Derby,* Vol.1, Derby. Edited by Thomas Noble. (Derby, 1831), p. 212.
[43] *View of Strutt's Cotton Mill at Milford* by Zachariah Boreman, 1787, Derbyshire Archaeological Society on loan to Derby Museum and Art Gallery.
[44] Brian Cooper, *Transformation of a Valley, The Derbyshire Derwent*, (London: Heinemann, 1983), p. 83; The Derwent Valley Mills Partnership, *Nomination of the Derwent Valley Mills for inscription on the World Heritage List,* (Derby, 2000), p. 28-29 and 38.

keep the whole of the centre open for machinery; on each floor of the central projecting bay there was a small lunette window between venetian windows, and a cupola on top, hung with a bell. It was later extended. The six-storey Mellor mill follows a similar pattern with a central pediment to the front facing the large mill pond, visible from Oldknow's garden, and a similar arrangement to Masson of two side bays and a central one with cupola to the opposite front facing the approach and visible from the road on the opposite side of the River Goyt (Figure 4.18 and 4.19).[45] Such large-scale buildings complemented by stretches of water and picturesque scenery had hitherto been the mansions of the elite and powerful. Now, these vast manufacturing mansions situated in picturesque landscape adjacent or close to fast-flowing rivers, usually also with reservoirs/mill ponds, were becoming the nation's powerhouses and were celebrated on fine china.

In his *Red Book for Armley*, Repton complimented Gott on his Armley Mill, the first and largest of Leeds woollen mills, in view from the terrace of the mansion, 'on the unaffected simplicity of this large building which looks what it is – a Mill and Manufactory, and is not disguised by Gothic Windows or other architectural pretensions too often misapplied by way of ornament.'[46] This indicates that Repton, and maybe others, considered it inappropriate for industrial buildings to assume unnecessary decoration, although as noted earlier (p. 143) he recognised the ornamental value of the building in the landscape. Industrial buildings might conjure other associations as did the Cromford mills for John Byng in 1790, despite his earlier comments, 'These cotton mills, seven stories high, and fill'd with inhabitants, remind me of a first rate man of war; and when they are lighted up, on a dark night, look most luminously beautiful'.[47] So, the manufactory became not only a point of interest in the landscape, an eye-catcher, but also evoked connotations of Britain's naval prowess and international supremacy. The Derby Silk Mills and Cromford mills featured on Derby porcelain, as did Soho and Etruria on Wedgwood china, indicating a

[45] Oldknow had bought the Bottoms Hall estate in 1787 and Mellor Mill was begun in 1790 and completed 1793. George Unwin, *Samuel Oldknow and the Arkwrights, The Industrial Revolution at Stockport and Marple*, (Manchester and London: Longmans, Green & Co, 1924), p. 127.
[46] Repton, *Red Book for Armley.*
[47] Byng, *The Torrington Diaries*, vol. 2, p. 196.

national pride in these ‘monuments’ and, as will be seen later, became a focus at times of national celebration (Figure 4.20).

Cupolas or bell towers feature on many of the manufactory buildings, like Soho, Quarry Bank and Etruria. Being high they were usually clearly visible and thus ornamental, but also very functional, bells signalling the beginning and end of the working day or shift. Wedgwood had previously renamed the Brick House Works to which he moved in 1763 to Bell House, because, unlike other potters who used a horn, he introduced summoning his workmen with a bell.[48] In January 1768, Wedgwood when planning his new works at Etruria, where the manufactory building fronted the canal and, certainly initially, was in full view of his mansion and gardens, considered, ‘a Lanthorn, or Cupola build on the middle over the Gateway, it will serve both to hang a bell in, and to raise the middle part so as to give it the Air of a principal member of the whole which I think it should have.’[49] The campanile at the Derby Silk Mills was a nineteenth-century addition to a stair turret, and the apparently free-standing one at Castlehead, not apparent on all the views, was probably only used for employment purposes during the construction of the house.[50] Arkwright’s Rock House had a cupola on the mews with a distinctly chinoiserie lattice-work design.

Pot works tended to be unadorned, the foremost potters having showrooms in London, though some tile makers decorated the façades of their manufactories with samples of their product. Two pot works exhibited some architectural bravura: Etruria and Fountain Place, the former planned and built from scratch and the latter developed over time incorporating several pot works into one. The Etruria manufactory on which by Christmas 1787 Wedgwood had spent a total of £6424 19s 8 ¼ d including the windmill, compared with £5049 3s 10 ¼ d on Etruria Hall, was depicted on an anonymous watercolour of 1794 (possibly by

[48] 'Burslem: Local government, economic history and social life', in *A History of the County of Stafford*, ed. J. G. Jenkins, (London, 1963), pp. 125-142. Via https://www.british-history.ac.uk/vch/staffs/vol8/pp105-121 Accessed 17/10/2019.
[49] Letters, Volume II, 16 January 1768, p. 111, Wedgwood, Wedgwood Museum.
[50] https://derbytm.co.uk/gazetteer/derwent-area/derbysilkmill/1739-2/ Accessed 11/02/2019.

Stebbing Shaw).[51] This shows an interesting stylistic mix: the three-storey central main buildings were classical with walls to either side linking to lower two-storey buildings, the whole, including the ball finials, evocative of Etruria Hall itself. The outer most buildings in the range were domed with circular cathedral-like gothic windows and to the rear of the hovels the windmill. The Chinese Bridge was just visible spanning the canal. This formed a view from the Etruria grounds, but importantly, visitors, whether tourists or potential customers, would see a tidy synthesis of classical and gothic with the oriental reference to the Chinese origin of fine porcelain manufactured within (Figure 4.21). The view of water in the foreground and the buildings against a background of green hills was the conventional depiction of gentlemen's seats. The canal too had further resonance of the great national project. All a visible articulation of the entrepreneur's taste, ingenuity and patriotism. Despite the gothic windows, Wedgwood rejected his friend and partner Bentley's suggestion to have castellated hovels, 'Will not Gothic Battlements to Buildings in every other respect in the modern taste be a little heterogenous?'[52] In contrast, Enoch Wood, whose manufactory, Fountain Place, was adjacent to and almost indistinguishable from his classical mansion, was depicted on two views as being akin to a mediaeval township with surrounding crenelated wall encircling the buildings and garden. It has previously been assumed that this was the original construction based on an engraving, *West View of the House and Manufactory of Enoch Wood Esq,* c. 1818-46, drawn and engraved by Edward Brooke (Figure 3.29).[53] However, if this refers to Edward Adveno Brooke (1821-1910) who compiled *The Gardens of England,* published 185*6,* comprising views of nineteen of the most important gardens of the time, it is most likely to have been a view from the 1840s.[54] Further, other views dated 1830 do not show such gothic traits apart from the top of the chimney and the hovels (Figures 3.29).[55] The inclination of Wedgwood and Wood to add refinement to

[51] Account of Building and Improvements at Etruria Estates since the purchase at Xmas 1787, 28642.43, Wedgwood - Etruria, Wedgwood Museum.
[52] Letters Volume II, 16 January 1768, p. 111, Wedgwood, Wedgwood Museum.
[53] Tim Mowl and Dianne Barre, *Staffordshire*, (Bristol: Redcliffe, 2009), p. 188.
[54] https://thegardenstrust.blog/2018/04/14/edward-adveno-brooke-and-the-gardens-of-england/ Accessed 16/1/2019.
[55] *A Representation of the manufacturing of earthenware : with twenty-one highly finished copperplate engravings, and a short explanation of each, shewing the whole process of the pottery*, 1827, M1644/1/19, William Salt's Original Collection, William Salt Library http://digicoll.library.wisc.edu/cgi-bin/DLDecArts/DLDecArts-

the hovel and the steam engine chimney was not peculiar to potters. The chimney in particular evoked the obelisks and monumental columns seen in both cities and the grandest parks, so it is not surprising to find William Fairbairn, among others, proposing designs for factory chimneys including one as a centrepiece to a grand industrial plaza, like a monument to the steam age.[56]

4.6 Other Industrial Buildings

Windmills used to grind the colours and flint were a particular feature in the Potteries, providing an interesting eye-catcher. That at Etruria was in the view from the Etruria gardens, another built by James Brindley for John and Thomas Wedgwood at the Jenkins which, being on high ground created a focal point in the area.[57] Below the garden walls of Wood's Fountain Place was the firm's flint mill (demolished in 1880), 'embellished with arched windows and embattled gables looking more like a church than an industrial building.'[58] A photograph of 1880 at the time of its demolition confirms the gothic features (Figure 4.22).[59] According to Angerstein, Dutch style windmills were little known in England, but at Warmley, 'there was at the other end of the Pond a Windmill, which pumped up water in this large pond from the area below it and built in the same way as

idx?type=turn&entity=DLDecArts.RepManEarth.p0029&id=DLDecArts.RepManEarth&isize=M&pview=hide Accessed 1/9/2019. This has twenty-one engravings showing the process of pottery manufacture, all of the scenes are from Wood's manufactory. At this date the exterior both to the east and west are both unembellished with battlements and turrets; similarly, the *East View of the Manufactory of Messrs. Enoch Wood and Sons, Burslem, of circa 1830* shows the house, manufactory and garden surrounded by a picket fence, not a wall, but the hovels appear to have crenelated tops, as does the chimney to the right of the garden, possibly that of the steam engine for the flint mill. A companion *West View of the Manufactory of Messrs. Enoch Wood and Sons, Burslem, of circa 1830* depicts the embattled gateway and crenellations to the hovels and chimney, as well as an ornamental trellised verandah fronting the building to the left inside a picket fence. Through the arch is a distant view probably of Porthill House later occupied by Edward Wood, Enoch's third son. On a bill heading with a wide date range of 1818-1846 there is no perimeter wall to the garden but a strong belt of trees and shrubs; to the north there appears to be a building that might be a gateway from Packhorse Lane to the garden or a garden building with pyramidal roof possibly with something ornamental to the top. There might also be a small building near the southern boundary.

[56] William Fairbairn (1789-1874), apprenticed as a millwright, established his own mill machinery business, became a leading structural and civil engineer, and architect. There were also designs in pattern books.

[57] https://www.british-history.ac.uk/vch/staffs/vol8/pp125-142 Accessed 28/1/2019.

[58] http://www.thepotteries.org/walks/burslem/p.htm Accessed 28/1/2019.

[59] Fountain Place, demolition of flint mill below Enoch Wood's factory c. 1880, Warr 494 Burslem, Warrilow, Special Collections, University of Keele.

all those similar in Holland.'[60] Champion had travelled in Holland and his windmill was an eyecatcher with a further reference in his possibly Dutch inspired garden.

Although Oldknow's house was classical, he adopted Gothic for Bottoms Hall farm and Apprentice House at Mellor, and there was to all the buildings, domestic and industrial, a recurring roundel motif. More spectacularly picturesque were the lime kilns at Top Lock canal basin in Marple built to resemble the ruins of an abbey or castle and visible from his gardens. John Farey noted, 'The high wall in front of the Kilns, being strengthened, and its line broken by some circular Buttresses, faced so as to imitate an ancient Castle, has a good effect, from its commanding situation, so far above the level of the Valley and Grounds at Mellor-Mills' (Figure 4.23). [61] The wharf buildings at Cromford in view of Willersley Castle grounds originally had a battlemented tower, similar to that of the chapel, but this was later replaced with a crenelated end wall (Figure 4.24).[62] The canal and wharf were completed in 1794, two years after the death of Sir Richard Arkwright, thus their ornamentation is likely to be attributable to his son, who also demolished the farm buildings by the old bridge, which had masked the remains of the ancient chapel, and re-fashioned the fishing pavilion (Figure 3.39).[63] All the buildings associated with Willersley Castle and Mellor have a stylistic consistency, and although it is unlikely that their siting was dictated by other than practical considerations, it demonstrates the intent to create an estate aesthetic. In the case of Willersley, one might even infer an intentional symbolism particularly in the most important view from the castle in which architectural elements combined the key attributes of a man of taste: the religious or spiritual (the chapels new and ruined), the industrious or profitable (the wharf buildings and possibly later the steam from the steam engine), the pleasures of the simple or contemplative life (the fishing pavilion),

[60] Angerstein, *Illustrated Travel Diaries*, p. 139.
[61] John Farey Sen., *General View of the Agriculture and Minerals of Derbyshire; with observations on the means of their improvement drawn up for the consideration of the Board of Agriculture and Internal Improvement*, (London, 1811-17), p. 427.
[62] Barry Joyce and Doreen Buxton, 'Willersley Castle, Cromford', (Derby: Derwent Valley Mills World Heritage Partnership, 2011), pp. 16-18, referring to an undated pen and ink view by George Robertson, possibly from the late 1790s when he worked for William Duesbury at Derby China Works.
[63] Ibid., p. 20.

and improvement (the Willersley grounds, now a small park, and wider estate with the water meadows beyond and the industry).

Repton, had advocated 'appropriating' the surrounding area to the estate so that it harmonized with the house and park including key buildings in adjoining villages reflecting the style of the mansion.[64] Although usually building on an existing village, industrialists often created a homogeneity in the vastly expanded communities they developed that was unlike the traditional village or town that had grown organically over hundreds of years. The industry increased the population and thus the extent of the built environment unlike the model villages built by elite landowners who largely relocated an existing population. The employees' housing and the industrial activity were an imposition on the landscape, but their relationship with the industrialists' estate was still very much in the tradition of the paternalistic landowner with dependent villagers housed slightly out of sight of the mansion and gardens but encompassed by implication in their wider ownership. In some cases, employee housing was visible from the ornamental landscape (e.g. Warmley, Etruria, Mellor, Cyfarthfa, possibly from The Oaks), certainly prior to planting becoming established, and in others was experienced on route to the industrialist's house. Thus, to reach both Rock House and Willersley one went through Cromford, with the first distinctive terrace of houses built by Arkwright in 1776-77 and the Greyhound inn established in 1778.[65] The approach to Etruria Hall either passed the houses Wedgwood built or had them in view prior to turning in at the gates.[66] House building was obviously a practical measure but had resonance of the paternalistic landowner providing his estate workers with both a living and a home, whilst making a clear statement of possession. A key factor for industrialists establishing a new works in a rural area was attracting and

[64] His suggestion that the coat of arms might be appended to milestones attracted derision and was later revised. Repton, *The Art of Landscape Gardening… and Hints*, p. 52.
[65] The Derwent Valley Mills Partnership, *Nomination of the Derwent Valley Mills for Inscription on the World Heritage List,* Derbyshire *County Council,* 2000*,* p. 99.
[66] The first phase of seventy six houses was built at Etruria between the summer of 1769 and early 1770 at an average cost of £45 per house; they were supplied with bakehouse and ovens, wells and pumps erected for every few houses. Kevin Leonard Salt, *The History of Etruria, the Rise and Decline of the Factory Community Established by Josiah Wedgwood*, (Barlaston, UK: The Wedgwood Museum Trust, 2006), p. 3.

retaining skilled workers. The early housing, of which much survives at places like Blaenavon, Coalbrookdale, Cyfarthfa, Cromford, Etruria, and Warmley was relatively spacious and well built, particularly in comparison with much contemporary agricultural and later industrial housing.[67] Industrial estate housing at sites such as Coalbrookdale, Warmley, Etruria, and Soho predated more enlightened attitudes to the living conditions of rural poor as disseminated by Nathaniel Kent in *Hints to Gentlemen of Landed Property* of 1775, and the first book devoted entirely to the design of cottages by John Wood junior, *Series of Plans for Cottages or the Habitations of Labourers* (1781).[68] Both of these preceded the establishment of the Board of Agriculture in 1793 designed to promote good agricultural practice and humane living conditions with basic standards for cottages laid down in 1804.[69] The existence of good workers' housing within the wider estate implied an enlightened owner who took care of his workers. In the textile industry, which relied on children for much of the work, apprentice houses accommodating a large number mostly came before family houses as at Quarry Bank where the apprentice house cost £300 and cottages between £50 and £100.[70] Here and at Mellor, the apprentice house was not within the experience of the garden but was in the wider estate.

As a part of establishing the community to support the industry, many of the industrialists built facilities in the locality. Churches or chapels were common, or they gave funds for additional church grounds, like Enoch Wood. Wilkinson built

[67] Later, some industrialists recognized that housing supply could itself be profitable and thus entrepreneurial, such developments were not so directly related to the industrial activity. Lowe cites L.D.W. Smith as having distinguished between managerial and entrepreneurial objectives, with early house building being managerial insofar as it ensured a supply of labour and the estate might provide employment at times when the works output might be reduced; it could also benefit cashflow. Jeremy Lowe, 'Housing as a Source for Industrial History: A Case Study of Blaenafon, A Welsh Ironworks Settlement, from 1788 to c1845', *The Journal of the Society for Industrial Archaeology,* 8 (1982), p. 33.

[68] Christie, *The British Country House in the Eighteenth Century*, p. 165. Robinson, *Georgian Model Farms*, p. 109. Nathaniel Kent, *Hints to Gentlemen of Landed Property*, (London: J. Dodsley, 1775). Mr. J. Wood, of Bath, Architect, *A Series of Plans for Cottages or Habitations of the Labourer, either in Husbandry, or the Mechanic Arts, adapted as well to Towns as to the Country. Engraved on Thirty Plates,* (London: The Architectural Library, 1782).

[69] Christie, *The British Country House in the Eighteenth Century*, p. 165.

[70] Mary B. Rose, *The Gregs of Quarry Bank Mill : the rise and decline of a family firm, 1750-1914*, (Cambridge: Cambridge University Press, 1986), p. 28.

a chapel at Bradley with an iron pulpit.[71] Hopkins and Hill at Blaenavon built St Peter's church including iron columns, window frames and font.[72] Arkwright built an inn and a chapel.[73] These all contributed to the well-being of the industrial estate.

4.7 Garden Buildings

Garden buildings by their disassociation from the principal building did not have to conform to the architectural style of the house, so they were often experimental in design.[74] In the latter half of the eighteenth century, whilst classical forms were still built, the increasing adoption of a more natural and vernacular aesthetic engendered a move away from excessive use of garden buildings. William Mason's poem *The English Garden* echoed the mood by urging simplicity as a characteristic of beautiful gardening, any buildings being rustic and reflecting British history rather than foreign.[75] The Picturesque too favoured the simpler and often rustic. Repton similarly sought to locate buildings appropriate to the setting, often preferring cottages or farmhouses, the plume of smoke rising from their chimneys inferring human activity and, like Mason, suggesting domesticity.

Industrialists' gardens largely did not abound in garden buildings, partly because the fashion had declined somewhat, but also, their gardens, mostly, were on a rather smaller scale than those of the elite, and probably because the pattern of their year was different from the elite who had defined periods in the city, the country and possibly at Bath or another resort, which impacted on the use of the garden. The elite too might have a significant entourage of long-term guests and entertain more lavishly that, one might argue, required a suitable landscape which thus became in effect a public pleasure ground, albeit for a restricted group. In contrast, industrialists spent much of their time throughout

[71] Ron Davis, *John Wilkinson – Ironmaster Extraordinary,* (The Dulston Press, 1987) via http://www.broseley.org.uk/Archive/Broseley/john_wilkinson.htm - _Toc49814286 Accessed 23/4/2020.
[72] Peter Wakelin, *Blaenavon Ironworks and World Heritage Landscape*, (Cadw, Welsh Government, 2011), p. 11.
[73] The Derwent Valley Mills Partnership*, Nomination of the Derwent Valley Mills for Inscription on the World Heritage List*, p. 47 and 99.
[74] Jackson-Stops and Pipkin, *The Country House Garden,* p. 191.
[75] William Mason M A, *The English Garden: A Poem in Four Books*, A new edition edn (Dublin: Byrne, P, 1786). Book 4, p. 103.

the year at their works and thus at home, and even when they travelled for business, some considerably, their families mostly did not. They certainly entertained, but more intimately, largely family, friends and business associates. This reinforces the garden as a space reserved for their private enjoyment, not something designed for display. Summerhouses, hermitages, and grottoes in gothic style were the most prevalent, largely performing the function of a place for resting, refreshment, quiet retreat or admiring a view. There were also less substantial structures that have rarely left a trace in the record like the 'Brick recess with grass seats' at Fountain Place.[76] There appears to have been little use of classical or religious allusion, although there were some classically inspired buildings. Temples in classical times were built in remote places to placate the gods; their use in the landscape indicated the owner's learning and taste. Perhaps the most elegant were rotundas evoking the Temple of the Sybil at Tivoli, depicted in the paintings of Claude, Poussin and British artists like Richard Wilson, Francis Towne and others. They were built at some of the grand landscape gardens, for example at Stowe (1719-20), Duncombe Park (1718-24), Studley Royal Temple of Fame (first built by 1730 then relocated c. 1770), Hagley (1748-49), Kew Temple of Aeolus (1763), and Halswell (1775).[77] All of these were located in a more manicured garden setting both to give a view and to be seen from other viewpoints. However, nowhere else did the location so nearly replicate that of Tivoli itself as that built on Lincoln Hill by Richard Reynolds at the furthest point of his Sabbath Walks. It perched at the tip of a narrow promontory with a precipitous fall on one side some thirty metres to the floor of the limestone quarries and on the other a steep descent into the woods, but commanded magnificent views encompassing quarries, ironworks, pools, the River Severn, the hills towards the Wrekin, across to Broseley and the symbol of the new iron age: the Iron Bridge, built in 1779 and opened on New Year's Day 1781.[78] Probably erected in the early 1790s, this short-lived

[76] PM1/1/86-1, Enoch Wood Papers, The Potteries Museum & Art Gallery.
[77] Strictly the circular temple is that of Vesta, while the adjacent rectangular one is the temple of the Sibyl. Stowe and Duncombe: Christopher Hussey, *English Gardens and Landscapes, 1700-1750 [with Plates.]* (London: Country Life, 1967), p. 143; Studley Royal: Hussey, p. 135 and view by Balthazar Nebot c. 1730, plate 180; Hagley: Symes and Haynes *Enville, Hagley, the Leasowes : Three Great Eighteenth-Century Gardens,* p. 73; Kew: https://historicengland.org.uk/listing/the-list/list-entry/1262669; Halswell: https://halswellpark.wordpress.com/2014/11/27/48/
[78] The designer of the Iron Bridge, Thomas Farnolls Pritchard, also did work for John Wilkinson at The Lawns. One might speculate whether Farnolls Pritchard was involved

rotunda with nine columns might have replaced a previous structure on the site.[79] Joshua Gilpin in 1796, described the Rotunda as being, 'On the pinnacle of a very point of the hill [...] about 10 feet diam. Pillars of cast iron hollow. Roof of Lead.' It had a turn-seat fastened to a pin in the centre around which it revolved by means of wheels [5 or 8?] running upon a circular wooden ring. The seat was a segment of a circle with screens to each side to protect from the wind.[80] Such seats were not common, but Reynolds had visited both Kensington Gardens where William Kent had designed one for Queen Caroline in 1733, and Kew, where Sir William Chambers had designed the Temple of Aeolus, a rotunda with turn-seat built of wood in the 1760s.[81] He is also likely to have visited Enville, only eighteen miles from Coalbrookdale, with its turn-seat at the centre of a patte d'oie on Round Hill, which was reached by a path along a small ridge marked by yew trees.[82] The form of this seat is unknown but one of the views from it was to the rotunda so it is unlikely to have had such a similar superstructure.

Richard Reynolds development of the Sabbath Walks also included, 'a Doric building embosomed deep in a fine grove of oaks.' [83] This had been built by September 1784, as Hannah Mary noted in her diary on Friday, September 3rd,

in the design of the Rotunda or William Reynolds given that the latter recommended the design of the iron bridge at Trentham across the river Trent installed in 1794 to connect the mansion with the pleasure grounds. Hugh Torrens and Barrie Trinder, 'The Iron Bridge at Trentham', *Industrial Archaeology Review,* 6:1 (1981), p. 46.

[79] The Rotunda was noted by Colt Hoare on 13th May 1801, Sir Richard Colt Hoare, *The Journeys of Sir Richard Colt Hoare through Wales and England 1793-1810*, (Gloucester: Alan Sutton, 1983), p. 51. Richard Reynolds refers to 'your arbor' in letters to his daughter in July 1782. The Rotunda appears to have been taken down in February 1804, possibly because it became unstable due to its proximity to the quarry face. Michael Pooley, 'Coalbrookdale: 3 Historic Woodland Walks', (Countryside Trust), (p. 18).

[80] 1987/64/6, Darby of Coalbrookdale (1654-1917), Shropshire County Archives.

[81] Letter from Reynolds to John Maccappen, 1768, Reynolds, Richard, of Bristol Ironmaster, and Hannah Mary Rathbone, *Letters of Richard Reynolds. With a Memoir of His Life By ... H. M. Rathbone* (London, 1852), p. 90; Symes and Haynes *Enville, Hagley, the Leasowes : Three Great Eighteenth-Century Gardens,* p. 71; RIBA, https://www.architecture.com/image-library/RIBApix/image-information/poster/temple-of-aeolus-royal-botanic-garden-kew-london/posterid/RIBA25772.html Accessed 2/4/2020 and William Chambers, *Plans, Elevations, Sections, and Perspective Views of the Gardens and Buildings at Kew in Surrey,* (London: 1763), p. 4.

[82] Symes and Haynes, *Enville, Hagley and The Leasowes*, p. 71. Richard Reynolds letter to John Maccappen, 20th of the First Month, 1768, in Reynolds, *Letters of Richard Reynolds*, pp. 90-91.

[83] Hoare, *The Journeys of Sir Richard Colt Hoare,* p. 167.

‘At the Temple.’[84] An anonymous source wrote that the temple was visible from near the Upper Forge Pool on the summit of a hill above a wood of oaks and birch, and described it, ‘a neat brick building with a seat the whole length. The front is supported by 4 pillars & the road bordered with a beautiful clump of Laurels. The prospects from hence are beautifully variegated, with wood, water & fields.’[85] Samuel More commented on 11 October 1784, ‘the only fault I found was that the Columns Pilasters and Pediment are of Wood all which in this Country ought certainly to have been of cast Iron’.[86] He was signalling that it was not only acceptable but also desirable for local industrial outputs to be celebrated in a garden context, bearing witness to the area and the owner contributing to Britain being the world’s leading industrial nation.

According to Mary Anne Schimmelpenninck, at Madeley, Richard Reynolds and his wife formed for Priscilla Gurney, who went to live with them, ‘what Catholics would call a Solitude, a walk through a thick grove which terminated in a verdant open space, where was a rill and cascade falling through the rocks into the river below: here was a sort of open summer-house, and behind it were two more substantial rooms, one of which was furnished with books, writing materials, and everything suitable for contemplation or solitary employment: the other was a little apartment in which Joan was ensconced with her book and her needle, when her presence was not needed by her mistress.’[87] It is also possible that Mary Anne’s memory was defective and this building was the small two storey cottage, built for Reynold’s daughter Hannah Mary, begun in May 1784 with accommodation on the ground floor for a ‘keeper’ and on the upper floor for Hannah Mary.[88] There are frequent references in Hannah Mary’s diary and in the correspondence with her father, about being at the cottage, often dining and sleeping there, with a close friend or family member including Reynolds himself, although Samuel More believed that Hannah Mary ‘here indulges herself too much in Contemplation when her Accomplishments and beautiful Person should lead her to shine an Example to the Other Young

[84] Rathbone, *Reynolds-Rathbone Diaries and Letters*, p. 21. Hannah Reynolds Diary 1762, LAB/Assoc/42, Labouchere, Ironbridge Gorge Museum Trust.
[85] 1987/64/6, Darby of Coalbrookdale (1654-1917), Shropshire County Archives.
[86] More, *Travel Journal*, vol. 3, uncatalogued, British Library, 11 October 1784.
[87] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 195.
[88] Rathbone, *Reynolds-Rathbone Diaries and Letters*, pp. 2-3.

Women of her Acquaintance.'[89] This cottage was very much in the tradition of a place for solitary retirement and contemplation.

Boulton's Temple of Flora at Soho built in 1776 overlooking the Shell Pool was inspired by the Doric Temple of Bacchus at Painshill which he had visited in 1772.[90] Whilst not in a remote location, its embrasure in planting is suggestive of isolation, yet a sketch by John Phillp shows the cascade descending fifty-one steps from the Shell Pool to the Little Hockley Pool below on the edge of which was the 'cascade library room' (Figure 4.25 and 4.26).[91]

At Warmley, the summerhouse on the small bridge over a stream feeding the reservoir-cum-lake was in direct sight from the mansion at the termination of a walk between the canal/leat and the lake/reservoir, bordered by elm trees, a tree of choice for walks and avenues (Figure 4.27). Its design and the walk to it was reminiscent of a Dutch tea house traditionally sited by water, and it might have been multi-functional, possibly as a guard house or for an employee who controlled the adjacent sluices. It appears to have been the only garden building apart from the boathouse and extensive grotto complex, yet its architecture exhibits a major feature of this garden: the use of recycled waste from the furnaces, here in the form of scoria blocks. Abraham Darby II, an asthmatic, would retire to a small summerhouse adjoining the top wall of the garden behind Dale House to escape the smoke of the works below.[92] Mary Knowles was reputed to have designed the gardens at Sampson Lloyd's Farm where there were two summer houses, 'One choice summer arbour, called the fish-house, was placed by the pond, and another was also erected, in a more secluded situation, lighted by a window containing blue, green, yellow and purple panes of glass.'[93] She also wrote some verses for S. Darby's Summer

[89] More, Travel Journal, vol. 3, uncatalogued, British Library, 11 October 1784.
[90] Ballard, Loggie, and Mason, *A Lost Landscape : Matthew Boulton's Gardens at Soho*, p. 6.
[91] Two consignments of shrubs from Brunton and Forbes in 1787 and 1788 for planting on either side of the Temple of Flora, the latter was for, '300 fine Herbaceous plants' and '200 evergreen and flowering shrubs'. Ballard, Loggie and Mason, *A Lost Landscape*, pp. 8 and 16.
[92] E. Thomas, *Coalbrookdale and the Darby Family,* 2nd edn (The Ironbridge Gorge Museum, 1994), pp. 11 and 66-67.
[93] Lloyd, *The Lloyds of Birmingham*, pp. 34-35.

House at Coalbrookdale, but there is no indication of where this was.[94] The most unusual setting for a summer house and an arbour at this time was that in the pleasure grounds surrounding the extensive New Eagley Mills Factory Garden as shown on the estate plan of 1833, both looking down over water to the productive garden; whilst the owner's summer house was in the woodland beyond the lawn of The Oaks with apparently no view (Figure 4.28).[95] Enoch Wood recalled that, 'Mr Ashton a Gentleman from Manchester' had 'spent a long time on the Grass Plot and sat in the Summer House and saw the sports and play of my then numerous young children, and admired all the different seats and recesses.'[96] The landscapes certainly had a number of seats, like the covered seat in the form of a castellated temple at the Gnoll looking down to the works in the valley, or some as simple as a plank of wood supported on two trunks as were a number of those in the Sabbath Walks.[97]

Garden structures were often ephemeral, made of wood and canvas, particularly the case with tents like the Turkish Tent at Painshill, Hestercombe and elsewhere, or umbrellos, like that at Stourhead. In the Wedgwood Ledger of 1778 there are numerous entries regarding the building of the 'Portable Summer House', including in August for Mary Lawton grinding the paint, and its total cost up to the 1787 account was £12 6s 1¾d.[98] Notes on the 'Bowling House', which may have been a permanent structure, included a turning post, but there is no reference to its total cost. These payments to Mr Samuel Heath and other workmen were alongside others for mending of the 'China Bridge', a children's Horse and Mr. Wedgwood's Leg, for helping to take down a small Temple leading to the garden and in November 1782 for taking down 'Summer House on ye Green.'[99] There is also reference to a tent. Mary Ann Schimmelpenninck recalled that at Great Barr, 'We children had then a little sail

[94] Lab/Sar/2/1, Labouchère, Ironbridge Gorge Museum Trust. For Mary Knowles see p. 111.
[95] *Plan of Lands in Turton in the Parish of Bolton Le Moors and County of Lancaster Belonging to John Ashworth,* William Johnson, Land Surveyor, 1833, ABZ/36/2, Bolton County Borough: Miscellaneous Papers, Bolton Archives & Local Studies Service.
[96] PM1/1/86-1, Enoch Wood Papers, Potteries Museum and Art Gallery.
[97] Anon, *A Description of Coalbrook Dale Iron Works and the environs*, c. 1834-50 dated from internal evidence, 1987/64/6, Darby of Coalbrookdale (1654-1917), Shropshire County Archives.
[98] Ledger, 1778, 28690-43, Wedgwood, Wedgwood Museum.
[99] Josiah Wedgwood had his leg amputated in 1768, despite which he would ride daily.

cloth tent, erected in the botanic garden near the cascade, fitted up with table and chairs, and there we often examined our botanic and entomologic specimens.'[100] It is unlikely that any of the industrialists' temporary structures were as elaborate as the Duke of Buccleugh's Chinese tea tent which survives at Boughton House, Northamptonshire, and which can just be seen in a Canaletto painting of the River Thames and the city of London.[101] Although in 1799, four years after the death of Josiah Wedgwood senior, there was a payment to Smith, Barbe and Downing of £20 for an '8ft portable octagon temple'.[102]

4.7.i Hermitages

The idea of the hermit and hermitage as signifying retirement from a public and social life in the city with its connotations of unnecessary luxuries, distractions and sins of the world had existed since medieval times. The popularity of Milton's *Il Penseroso (*and *L'Allegro),* which celebrated the pleasures of melancholy, was augmented mid-century by the writings of Rousseau and by the interest in antiquarianism such that the garden hermitage became a commonplace in the eighteenth century.[103] Notable examples were those of Queen Caroline at Richmond (1730) designed by William Kent, Hagley (c. 1739), Shenstone's at the Leasowes (1740), whilst that at Badminton designed by Thomas Wright was begun in October 1747.[104]

[100] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, pp. 130-131.
[101] http://thames-landscape-strategy.org.uk/the-arcadian-thames-pagoda-camera-obscura-funding-appeal-launched/ Canaletto, *The Thames and the City of London from Richmond House,* 1747, Private Collection, Goodwood Collection no. 235, held by West Sussex Record Office, Goodwood/PD245.
[102] Smith, Barbe, and Downing, 8ft portable octagon temple £20, 1799, 100/18600, Wedgwood Liverpool and Etruria, Wedgwood Museum.
[103] See Gordon Campbell, *The Hermit in the Garden : from Imperial Rome to Ornamental Gnome*, first edn (Oxford: Oxford University Press, 2013). Rosemary Sweet, *Antiquaries : the discovery of the past in eighteenth-century Britain*, (London: Hambledon and London, 2004). William Stukeley, who investigated the early history of England, looked at Druids and explored caves of hermits in the Peak District which he recorded in *Itinerarium Curiosum* (1724). He built a rock work hermitage at Barnhill, his Stamford home. Francis Tolson's *Hermathenae* (c. 1740), Emblem XLVII is devoted to the hermit. Reverend Thomas Percy's ballad, *The Hermit of Warkworth (*May 1771 with numerous further editions and reprints) was inspired by a ruined rock work hermitage on the edge of River Coquet near Warkworth Castle; William Wrighte, *Grotesque Architecture; or, rural amusement; consisting of plans, elevations and sections for Huts, ... Hermitages ... Cascades, etc*. (1767).
[104] Campbell, *The Hermit in the Garden*, p. 99, 117, 109; Symes and Haynes *Enville, Hagley, the Leasowes : Three Great Eighteenth-Century Gardens,* p. 125.

Many of these industrialists led extremely busy lives, involved as they were not just with their own business but with canals, turnpikes, mining and other extractive industries, the scientific and cultural communities and political campaigning, so it is not surprising that some were attracted to the idea of the hermitage and retreated, even if only occasionally, to a place of solitude and quiet, whether there was a purpose-built hermitage or not, for other garden buildings might have been appropriated to this use both symbolically and in practice. Matthew Boulton, perhaps not unsurprisingly given that his business was fashionable 'toys', conceived a 'building adapted for contemplation', begun in 1776.[105] An Italian architect who later designed La Fenice in Venice, Giannantonio Selva, was most impressed by the ingenious use of reflecting mirrors in the hermitage, which had the effect of transposing the ornamental waterfall draining the 'Shell Pool' from one side of the lake to the other.[106] Mr Ashton, a visitor to Fountain Place, had left various inscriptions for Wood's garden including one for the hermitage which emphasizes its designation as a locus for contemplation,

> Stranger! Leave the world behind thee,
> Stop, a moment here, and rest!
> Pay Court to Nature! –silent be!-
> Turn thy thoughts within they breast-
> Leave, for a moment, worldly strife;
> Rest within this mossy cell!'[107]

Wood was obviously proud of his garden and particularly the Hermitage, 'with Mottoes by Anne', which had, 'A good painting transparent inlosed, two Panes of Glass closed all round with lead and putty, a view a monastry and monks etc walking form'd a window in the long wall. Was much admired in this

[105] Ballard, Loggie and Mason, *A Lost Landscape*, p. 12.
[106] G. Zorzanello, 'Il diplomatico veneziano Simon Cavelli et le sua legazione in Ighilterra (1778-1782)', *Ateno Veneto*, 22 (1984), 239-40; idem, 'L'inedita correspondenza del diplomatico veneziano Simon Cavelli con Matthew Boulton (1779-1786)', *Archivo Vento*, 122 (1984), 45-8). Cited in Jones, *Industrial Enlightenment*, p. 59.
[107] PM1/1/86-1, Enoch Wood Papers, The Potteries Museum and Art Gallery.

Hermitage.'[108] Coloured glass was popular and was also used in structures that might have a similar function like grottoes, including in the main chamber at Hawkstone. The colours, apart from the association with church stained glass windows, evoked different emotions and seasons, as described for those at Farm, 'The blue panes, when looked through, gave a wintry appearance to the scene: the green, spring; the yellow, summer, with glowing sunshine; and the purple panes, autumn.'[109]

4.7.ii Grottoes

Grottoes too might serve as locations for contemplation or solitary pursuits like reading and writing as suggested by the words written over the entrance to Sarah Darby's grotto, 'Here quietly meditate upon the past, the present and the future; what thou owes thy Supreme Creator, and what is due to thy Companions through this Vale of tears!'[110] Some were equally used as summerhouses where refreshments could be taken. Originally grottoes were cool shady retreats from the Mediterranean sun often associated with a sacred spring, shrine and the water nymphs. Alongside the elaborate Renaissance confections with spectacular water features often used for entertainments and theatrical backdrops, there were more humble, rustic structures nestling in the landscape. It is the latter that appealed to the British eighteenth-century sensibility, their association with springs often meant they were sited at the head of a valley so that the waters could 'appear to gush from its dark recesses'.[111] Tourist sites like Cheddar Gorge and Pool's Hole in Derbyshire boosted interest in caves and grottoes, and it is therefore not surprising that grottoes were probably the most common garden feature mentioned in industrialists' gardens, particularly ironmasters, and in some cases, there were more than one, although details are scarce. Grottoes or shell houses were noted in the gardens of Baskerville's Easy Hill House, Thomas Wedgwood's Big House that incorporated the old font from Burslem church, Sunniside, Pontypool, the Gnoll, Castlehead, possibly one at Ty Mawr, Blaenavon, and the

[108] Enoch Wood Memoir, Enoch Wood Papers, The Potteries Museum and Art Gallery.
[109] Lloyd, *The Lloyds of Birmingham*, pp. 34-35.
[110] Lab/Sar/2/3, Labouchere, Ironbridge Gorge Museum Trust.
[111] Jackson-Stops and Pipkin, *The Country House Garden*, p. 148. The first grottoes in Britain were built in the seventeenth century as indoor rooms (e.g. Chatsworth 1692), and sometimes under the raised entrance stair porch. Hazelle Jackson, *Shell houses and grottoes*, (Princes Risborough: Shire, 2001), p. 6.

extensive complex at Warmley. Their design could be experimental, some had 'lanterns' or roof lights of coloured glass and candle niches were often set in the walls.[112] The use of industrial waste products including recycled furnace slag and clinker together with natural mineral specimens and shells for decoration had been used in garden buildings, and in all forms of the grotto across Europe for many years.[113] Furnace slag ranges in colour from black, purplish black, deep greens and blues, cobalt through turquoise, aqua, pale blue and even carnelian, dependent on the exact process and raw materials. It could therefore be highly decorative. In June 1734 Aaron Hill (1685-1750), in a letter to Lady Walpole, described his proposed 'Grotto of Riches', 'The rocks, along the inside of this grotto, are to be composed, chiefly, of glasshouse clinkers, enlivened by the oars (sic), and glittering spar of metals.' He also noted, 'The expence of this kind of work differs incredibly, according to the manner in which it is executed; but the most natural is not only the cheapest, but will also be found the most beautiful.'[114]

The use of shells and mineral ores, the 'products of the *Sea* and *Mine'* both coming from deep mysterious places, invokes the imagination and man's endeavor to explore new realms and bring back the treasures of the world to Britain. At the north end of Hornbeam Walk at Enville the Grotto (or Donkey Hovel/Hollow) was faced with slag encrustations.[115] Valentine Morris used rustic slag blocks in his semi-circular grotto at Piercefield (developed from 1752) overlooking the River Wye; they formed the foundation walls supporting the hemispherical domed roof made of brick with occasional slag blocks and quartzite.[116] The main chamber in the grotto at Hawkstone, under construction in 1765, was decorated with blue furnace slag, shells, pumice and tufa by the

[112] Jackson, *Shell houses and grottoes*, p. 34.
[113] In 1755 Thomas Wright had published *Six Original Designs for Grottos*.
[114] Aaron Hill, *The works of the late Aaron Hill, Esq; in four volumes. Consisting of letters on various subjects, and of original poems, moral and facetious. With an essay on the art of acting*, The second edition. edn (1753). Vol. 1, London 1753, p. 209. Hill was a writer and dramatist, while manager of the Theatre Royal Drury Lane he produced the G. F. Handel's *Rinaldo*, the first Italian opera designed for a London audience.
[115] Symes and Haynes, *Enville, Hagley and The Leasowes*, p. 72. https://historicengland.org.uk/listing/the-list/list-entry/1000114 Accessed 21/01/2019.
[116] K. Murphy, 'The Piercefield Walks and Associated Picturesque Landscape Features: An Archaeological Survey', (Cambria Archaeology for Wye Valley AONB, 2005), (p. 11). The grotto was 2.7m diameter and the foundation walls 0.95m high.

Misses Hill and originally had stained glass windows.[117] The rustic shell house overlooking the heart shaped lake in the Rococo garden at Hampton Court House, Middlesex, was designed by Thomas Wright of Durham (1711-1786) in 1757 for the mistress of the Earl of Halifax, the opera singer Anna Maria Donaldson. It was built from furnace slag and unusual mineral specimens, decorated with shells, many from the West Indies said to have been sent back by Mrs Donaldson's husband, a sea captain.[118] A nearby icehouse was built in the same style and there were similar rustic buildings by the lake and in the ruined winter garden.

The association with water predisposed the grotto to be a feature that transformed an otherwise utilitarian water system into an ornamental landscape which was certainly the case at the Gnoll. Here the cascades in Mosshouse Woods, developed in the 1740s, included a grotto hewn in the rock of some eighteen feet diameter with domed roof, the floor paved with manmade stalagmites from limestone and cockle shells set in mortar. This stood at the top of a prodigious cascade of some 300 feet with a root house at the bottom whose arched entrance framed the view.[119] The stone grotto and the wooden root house both created from nature were very much in the spirit of the place yet they embellished one of the water systems for the works in the valley.

The extensive grotto complex at Warmley incorporated slag, scoria blocks and clinker, rills, pool and possibly cascades (Figure 4.29). There is no documentary evidence to elucidate its form or purpose, but the degraded remains including pipework strongly suggests it was linked in with the brassworks water system and it is possible that it might have been used at least in part as a laboratory with experimental steam engine. Champion was notoriously secretive about his works as witnessed by overseas engineers among others, and it is notable that the young Sir Joseph Banks who visited the site in 1767 did not mention the grotto in his journal although he commented on the echo associated with the

[117] Jackson, *Shell houses and grottoes*, p. 19.
[118] Jackson, *Shell houses and grottoes*, p. 15.
[119] P. Wyndham, A Gentleman's Tour through Monmouthshire and Wales in the Months of June and July 1774, MS 2589B, Pennant MS 69, The National Library of Wales. Interleaved handwritten notes by Thomas Pennant opposite p. 42.

semi-circular pool (known as Echo Pond).[120] It has been suggested that Champion was wishing to emulate the grotto in Clifton, Bristol, created by his relative, Thomas Goldney III, with its associated tower containing a steam engine to pump water from the pool and through the waterworks in the grotto.[121] However, Warmley was more extensive than the Goldney grotto, comprising a number of chambers and tunnels built in four or five stages from stone, scoria blocks and clinker, and was located below a terrace to the west front of the house with openings allowing views across the lake-reservoir (Figures 4.30 and 4.31).[122] The original exterior architecture is now unclear and it may have largely been covered as if underground. Whilst the rugged, rustic style of the buildings at Warmley, including the battlemented Summer House with round windows, is reflective of the work of the astronomer-mathematician turned architect cum garden designer Thomas Wright, there is no evidence that he was involved. although he did build a tunnel at Stoke Park where he worked for Lord Botetout, who was involved with Warmley, but this was not associated with a grotto.

Samuel More, on one of many visits to Broseley and Coalbrookdale, gives the only description yet found of the Sunniside gardens as they were at the time of Abiah Darby (1716-94), the formidable second wife of Abraham Darby II (1711-63).[123] He walked up to Sunniside, pleased that 'the winding paths and easy steps' made the ascent easier, 'the Ground being laid out with great Elegance and Taste and ornamented with Grottoes formed of Mss Iron Slag etc.'[124]

[120] Bengt Ferrner and A. P. Woolrich, *Ferrner's journal 1759-1760 : an industrial spy in Bath and Bristol*, (Eindhoven: De Archaeologische Pers, 1986), p. 32. Sir Joseph Banks, Journal of an Excursion to Eastbury and Bristol etc. in May and June 1767 MS. Add. 6294, Sir Joseph Banks: Journals, Cambridge University Library.
[121] For detailed description of Goldney grotto and garden see Stembridge, *Thomas Goldney's Garden*, pp. 6-9.
[122] For detailed description of the grotto and landscape at Warmley see Dianne Long, 'Warmley, A brass works landscape 1748-1768', *Avon Gardens Trust,* 8 (2015).
[123] The diaries of Abiah herself are singularly unrevealing, giving no names of the many visitors other than Friends and concentrating on her religious activities.
[124] More, Travel Journal, vol. 2, uncatalogued, British Library, 12 July 1786. The date on a poem written by Sarah Darby that was placed over her grotto (Lab/Sar/2/3) of c. 1750 must be wrong because Sarah, the spinster sister of Abraham Darby III, was born in 1752 (died 1821) at Sunniside which was not occupied until 1751; she remained living there for the rest of her life. Perhaps a misprint for 1780?

The shell grotto at Pontypool was not in a secluded nook but unusually on the top of a hill with commanding views. There is some debate as to the date of its construction (Figures 4.32, 4.33 and 4.34). It has been thought that Molly Mackworth who married Capel Hanbury (Leigh) in 1797, was the driver behind its construction in the 1830s; there was a grotto with some cockle shell decoration at the Gnoll her previous marital home and the Mackworth family had subscribed to Thomas Wright's *Universal Architecture,* (Book II, *Six Original Designs of Grottos* was published in 1758). However, Archdeacon William Coxe, who stayed at Pontypool Park for a week or more in 1799, took a ride with his hosts, 'through the park and grounds to the folly, a summerhouse built by the late Mr Hanbury near the southern extremity of the chain of hills, which stretch from Ponty-y-Pool Park and terminate in the Blorenge'.[125] This suggests the location of the grotto rather than that of the prospect tower. The 'late Mr [John] Hanbury' died in 1784, so there was a structure described as a 'summer house' built prior to 1784. It is therefore probable that some years later the shell grotto replaced an earlier building.

Natural caves or quarries were ripe for picturesque use and, depending on scale, could be fashioned as sheltered seats or grottoes, although there are no examples amongst these industrialists' sites of anything extensive, but the small caves at Quarry Bank were in sight of the mill and an integral element of the experience of the garden. One was only fifty metres to the west of the house above the river, and another in the vicinity of the main weir. The lower cave has rectilinear sides, which show signs of excavation, indicating that the caves were at least partially manmade. There are also signs of housings for structures such as partitions.[126] They were particularly used by the Greg children, the eldest, Bessy, aged 11, wrote to a cousin saying, 'Papa has given Thomas, Robert and me the upper cave and we have put up a ladder of ropes but Mama says we must not get up it.'[127] A younger child, Thomas, wrote in his journal that he,

[125] Coxe and Hoare, *An Historical Tour in Monmouthshire*, p. 241.
[126] Pers.com. Jonathan Price.
[127] David Sekers, *A Lady of Cotton : Hannah Greg, Mistress of Quarry Bank Mill*, (Stroud: The History Press, 2013), p. 127. Letter from Bessy Greg (aged 11), November 1801.

‘made a bench for the cave; sawed, planed and painted. NB took 5hrs’ (Figure 4.35).[128]

4.7.iii Ruins

Ruins became increasingly popular as garden buildings from about 1745, with the building of the mock tower at Edgehill by Sanderson Miller; they evoked antiquity whilst symbolising transience and the dominance of nature over man.[129] They were perhaps the folly par excellence and hence why industrialists did not indulge in such artificial structures, however strong their aesthetic sensibilities and potential desire to legitimise their status, for these were men of the present and the future, whose present was not authenticated by history because they were making history. They had no need to waste money on such folly, but they did sometimes indulge whimsy making use of existing structures or new to evoke or reveal antiquity. Sir Herbert Mackworth took advantage of an ancient defensive earthwork on high ground above Mosshouse Woods at the Gnoll and created Cefn Morfydd Castle in the late eighteenth century, which is seen in views of the period and identified as the ‘Sheepcot’ on the 1801 plan.[130] Perhaps one of the most creative of gothic ruins masked an industrial activity. These were the extensive range of lime kilns at Marple, which began operating in autumn 1797 and construction costs, probably inclusive of an arm of the Peak Forest canal, amounted to £4561 3s 9d.[131] The arches between the bottoms of the kilns served as stables for the horses of the famers’ or boatmen and the circular buttresses strengthening the front of the kilns resembled an ancient abbey or castle.[132] These would have been visible from Oldknow’s gardens (Figure 4.23). At Cromford, the ruins of a fifteenth-century chapel stand right on the edge of the riverbank adjoining the end of the bridge before the turn into the drive up to the mansion. During Arkwright’s time these were subsumed in farm buildings, so would not have been visible, but his son removed the farm buildings to reveal the ruins, at the same time as he refashioned the entrance

[128] Sekers, *A Lady of Cotton*, p. 127.
[129] Nuttgens, *The landscape of ideas*, p. 26.
[130] CADW, *Register of Historic Parks and Gardens of Wales: The Gnoll*, p. 10.
[131] A Hulme, 'The Marple Lime-Kilns', in *Samuel Oldknow and the Arkwrights: The Industrial Revolution at Stockport,* ed. by George Unwin (Manchester, London, New York: Longmans, Green & Co, 1924), (p. 215).
[132] Farey, *General View of the Agriculture and Minerals of Derbyshire*, vol. 2, pp. 426-427.

gates and gatehouse to the drive. From the Willersley grounds and from the Chapel Walk, it formed a picturesque composition with the fishing temple and the fifteenth-century Cromford Bridge, which had been widened in the mid-eighteenth century and is unusual in having three pointed gothic arches on the downstream chapel ruins side, and rounded arches to the upstream face - the view from Willersley Castle (Figure 3.40).

Whilst not built as ruins, prospect towers were akin to ruins in the associations they aroused, conjuring a bygone age when a prospect of the surrounding country was required for defence and therefore an implication that the owner was patriotic. The somewhat elusive yet substantial hexagonal or octagonal tower on the hill above the Darby gardens seen in the Vivares engraving of 1757 and the anonymous *View of the Upper Works* of 1758, might have been a prospect tower or observatory (Figures 3.18 and 3.19).[133] These views are the only evidence of the tower, other than some inconclusive foundations and a very faint indication of a building in the trees behind Sunniside in the *Morning View of Coalbrookdale* by William Williams of 1777; it is likely therefore that it only existed for a short period (Figure 4.36).[134] Its function is unknown with speculation of an observatory or belvedere with extensive views of the surrounding countryside, possibly that it was a water tower or that it housed a pump to supply Sunniside, there being below it a small pool formed from damming a small stream.[135] The Darbys were 'plain Quakers', lived well, but simply, so a purely ornamental folly would seem to be out of character, but it should be remembered that Thomas Goldney, who was a major shareholder in the Coalbrookdale company, was at this time creating his garden at Clifton, the steam engine tower there being erected in the mid 1760s, might the Coalbrookdale tower have been its inspiration? There are no references to the tower in visitors' accounts, most of which were later in the century, or in other documents. In contrast, the Gothic castellated prospect tower on the ridge east

[133] *South West View of Coalbrookdale*, Shropshire, SY1255, Shropshire Council, Shropshire Museums. *Upper Works at Coalbrookdale*, SY0889, Shropshire Council, Shropshire Museums. Winkworth, 'Sunniside Arboretum', in *Ironbridge Archaeological Series*.
[134] William Williams, *Morning View of Coalbrookdale*, 1777, SY2064, Shropshire Council, Shropshire Museums.
[135] Thomas, *Coalbrookdale and the Darby Family,* p. 66. Pers. Comm. Dr Harriet Devlin, Ironbridge Gorge Museum Trust/University of Birmingham.

of Pontypool Park, which became known as Pontypool Folly, has survived (Figure 4.37). Originally built by John Hanbury (1744-84) in 1766/7 of octagonal plan with arrow slit windows, it was remodelled in around 1830 with new round-headed windows, demolished during World War II it was restored in the 1990s.[136] Similarly extant is the Gothic banqueting house, known as the Ivy Tower at the Gnoll, surveying the prospect over Neath which was designed by John Johnson in 1776, at the same time as he remodelled the mansion.[137] John Byng visiting on 5th August 1787 recorded that

> At the end of the Knoll-grounds is built a tower in which is a noble well-constructed room, from whence are all the grand prospects grasp'd, except the one (as I told Mr Ronson [the agent]) which might be easily had of the cascade in the wood; which improvement Mr R. said, with high approbation of my taste, shou'd be instantly adopted.[138]

It is interesting that it took John Byng to make the connection to the view of the Mosshouse Woods' cascade, something not mentioned elsewhere, but it is not known whether his suggestion was implemented. Both prospect towers commanded extensive views as would the 'Hunting Tower' at Gurnos on the Cyfarthfa estate. The Warder's Tower at Knypersley built by the Batemans (1828) was both ornamental and functional, serving for the gamekeeper to guard from poachers the herd of deer introduced into the park and the ducks on the lake/reservoir, but it was likely also have had a view of the Bateman mines (Figure 4.38).

It is not known whether any of these towers were used for astronomy - the word 'observatory' conjured the dual use as prospect tower and for star-gazing - as did some other buildings. Indeed, astronomy was possibly the most frequently mentioned scientific activity and a number of the industrialists, particularly those

136 Land Use Consultants, 'Pontypool Urban Leisure Park, Development of a Long-Term Straegy and Master Plan', (1994).
137 Elisabeth Whittle, *The Historic Gardens of Wales : an Introduction to Parks and Gardens in the History of Wales*, (Cardiff: Cadw: Welsh Historic Monuments, 1992), p. 49.
138 Byng, *The Torrington Diaries*, vol. 2, p. 298.

in the orbit of the Lunar Society, were acquainted with Herschel.[139] At Soho there was a building in the garden begun in 1774 whose equipment, installed in 1775, needed frequent repair because of rain damage; eventually Boulton remodelled the top of his house, which he had originally considered over twenty years earlier, as Stebbing Shaw recorded, 'At the top of the roof, which is made very neat and commodious, either for common or telescopic observations.'[140] The tower at Warley probably contained a telescope, and much later in 1852-54, a four-tiered brick tower, Italianate in style, was built a short distance from the house at Moss Bank (John Horrocks Ainsworth), 'with stained-glass windows and a flagstaff where one could admire the fine prospect from the parapet or study astronomy on a clear night.'[141]

4.7.iv Boat houses

With reservoirs-cum-lakes, navigable rivers and canals associated with most if not all of the industrial sites, the existence of boats and structures to house them was both utilitarian and potentially recreational. There is evidence for boat houses at a number of the sites including the Gnoll and Soho. The building on the edge of the lake at Warmley was likely to have been a boat house, possibly with first floor tea or fishing room, though this may have been added some time later. Like other buildings on the site it uses scoria blocks (Figure 4.39). The early eighteenth-century views of Derby depict a number of such buildings beside the river at the end of the gardens of wealthy Derby citizens (Figure 3.10). An entry in one of the Wedgwood ledgers notes a cost for the boat house of £9 2s 11 ½ d, and a boat was bought in 1784 for £15, two years later a new boat was built and seemingly the old one repaired, the cost totalling £126 15s 2 ¼ d, an entry in the Xmas 1787 Account noted that these were for coals &c. although they did use the canal for personal transport.[142] This boat house was therefore likely to have been on the canal side, as was one below Rock House at Cromford set into the steep bank, with stone walls and barrel-vaulted roof

[139] Frederick William Herschel (1738-1822) was an astronomer who discovered the planet Uranus, was appointed court astronomer and became the first President of the Royal Astronomical Society.
[140] Ballard, Loggie, and Mason, *A Lost Landscape*, pp. 11-12. Stebbing Shaw, *The History and Antiquities of Staffordshire*, [1st ed. reprinted] / introduction by M.W. Greenslade and G.C. Baugh. edn (Wakefield: EP Publishing [for] Staffordshire County Library, 1976), p. 121.
[141] Lewis, *The Middlemost and the Milltowns*, pp. 357-358.
[142] E62-33418, Wedgwood, Wedgwood Museum.

(Figure 4.40). This was for personal use and was reached only from the Rock House gardens via a narrow flight of stone steps. Indeed, Arkwright negotiated for the Cromford Canal Act (1789) to include provision for owners of adjacent land to use pleasure boats on the canal.[143] The arched entrance under the terrace at Castlehead was likely to be a boathouse (Figure 3.61). Wilkinson often approached the house from across Morecambe Sands even by carriage with occasional mishaps, including when his coffin ran into quicksand as it was being transported from Bradley in Staffordshire, and had to be dragged out.[144]

4.7.v Fishing houses/pavilions

The small square building with a pyramidal roof surmounted by a ball finial by the bridge at Cromford with 'Piscatoribus Sanctum' inscribed over the door was created from former farm buildings.[145] It can be seen by the bridge in the Wright painting (Figures 3.39). It was remodelled by Richard Arkwright junior in 1796 for the estate water bailiff, its roof and ball finial alluding to the Fishing Temple built in 1674 by Charles Cotton for Izaak Walton at Beresford Dale, some 30 miles south of Cromford (Figure 4.41).[146] It is not and never would have been on the bank of the river, because the medieval chapel interposes between, but it was part of the picturesque composition as seen from the grounds of Willersley that included the castellated wharf buildings. In contrast, the 'fishing-house' at Duddeston would appear to have been on the bank of the mill pool, as Mary Anne Schimmelpenninck wrote to a friend, 'Go to the fishing-house, where my dear grandfather and dear Lizzie Forster used to take me after breakfast, to call the water-fowl, who would fly the whole length of the pool to be fed.'[147]

4.7.vi Bath houses

Bath houses are perhaps not strictly an ornamental garden building, and, in

[143] https://www.cromfordcanal.info/about/history.htm Accessed 7/08/2018.
[144] James Stockdale, *Annales Caermoelenses,* p. 220-221.
[145] The Derwent Valley Mills Partnership*, Nomination of the Derwent Valley Mills for Inscription on the World Heritage List,* p. 49.
[146] Izaak Walton was author of *The Compleat Angler or the Contemplative Man's Recreation*,. The fishing temple is a secular shrine to anglers. A fishing lodge was built in 1797 at Calwich Abbey the home of the Granville family, with cast iron bridges to either side spanning two arms of a former mill race. Handel spent some time at Calwich, Erasmus Darwin and Anna Seward were also visitors. https://britishlistedbuildings.co.uk/101230741-calwich-abbey-temple-flanking-bridges-with-gates-gate-piers-and-railings-ellastone - .XbLpGy_Mz2J Accessed 25/10/2019,
[147] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 356.

some cases, it is not clear whether the 'bath' was even in the house. The only bath which definitely appears to have a connection with industrial activity was that erected by Enoch Wood, 'a most commodious circular BATH, supplied with water, to any height of temperature, from 85°to 90°. The interior is beautifully painted in Landscapes and marine views; the public are admitted for a very small acknowledgment.'[148] The warm water was a by-product from the steam engine Wood had erected at Birchers Colliery in 1806. He also had a 'Garden Bath', identified as circular on the 1816 plan of his garden and whose temperature he recorded for example on June 20th and July 17th 1808 (Figure 3.26).[149] However, two years later he recorded the danger of such luxuries, 'October 10th 1810 – God preserved the life of Tom my son in a wonderful manner, his sister Mary took him lifeless (sic) from the bottom of the bath in the garden – May I ever thankfully remember it.'[150] Wedgwood's Bath had cost £37 1s 8d to June 1781 and by 1787 expenditure to date was £66 6s 7 1/2d.[151] This might suggest it was a separate building, particularly as Josiah's daughter, Sukie, commented in a letter from Flintshire in 1782 that the sea water, 'is not near so cold as our bath.'[152] A pool in the grotto at Warmley might have been built or used as a cold bath.

4.7.vii Bridges

The bridge is both practical and symbolic. It might convey antiquity, a link to the past, or new technology; it links one space with another, sometimes of different kinds (town and country, different countries, different ideological spaces) usually crossing a void or something that is unstable, unknown or dangerous; it could be between two worlds, a crossing, it enables transfer, practically and symbolically. Crossing a bridge was often in mythology a challenge or test, those failing falling to the depths whilst those who succeed passing to a better place, to paradise. Crossing might be going from one reality to another. The bridges in elite gardens often sought to convey such ideas and often disguised an artifice – for example a change in water level on a dam or termination of a

148 Falkner, *Wood Family of Burslem,* p. 74.
149 From Wood's pocket notebooks as cited in Falkner, *Wood Family of Burslem,* p. 75.
150 From Wood's pocket notebooks as cited in Falkner, *Wood Family of Burslem,* p. 76.
151 Ledger D, E62-33418, Wedgwood, Wedgwood Museum.
152 Letter from (Susannah) Sukie Wedgwood to her father, 1782, W/M 1460, Wedgwood, Wedgwood Museum.

stretch of water – and in many cases created a viewpoint or eye-catcher, as well as a place to rest rather than purely a means of getting from one place to another.[153] Dramatic effect was enhanced by the reflection in the water, arches often being designed to form perfect circles. On plans there are bridges or crossings evident at many industrialists' sites particularly over leats or small watercourses, but their form is unknown, and they were probably of simple construction. There were also many bridges on public highways, as already mentioned, in view of the gardens or associated with the industrial activities. Bridges over canals were usually plain, but occasionally the local landowner prevailed to have a more ornamental structure as a condition of acquisition of their land.[154] Ladies Bridge on the Kennet and Avon, built in 1808 by John Rennie is an example, as is Avenue Bridge on the Shropshire Union of c. 1830-40 designed by Thomas Telford and which carries the drive to Chillington Hall.[155] Sir Robert Peel at Drayton Manor erected a rather fanciful footbridge on the Birmingham and Fazeley Canal, opposite the entrance to the manor though neither within site of the mansion nor his mills at Fazeley (Figure 4.42).[156]

A distinctive feature of industrialists' use of bridges was the marking of the interconnectedness of the ornamental and the industrial, the enlightened gentleman with the source of his wealth. Those at Coalbrookdale and Etruria were particular examples, and possibly the most ornamental (arguably unnecessarily so), but their form was imbued with symbolism. The Rochefoucauld brothers visited Etruria on their second visit to England in 1785, on 12th March François wrote, 'Mr Wedgwood has a superb house beyond the canal, lacking neither gardens nor any attribute of magnificence: there is even a very elegant Chinese bridge communicating with his factories.' [157] This is substantiated by a careful inspection of a view of the manufactories, probably

[153] The Palladian bridge was a common device used to conceal a change in water level or termination of a lake but with the implication that the water continued, used for example at Stowe, Hagley, Prior Park, and Scampston.
[154] David Daniel Francis Gladwin, *The Canals of Britain*, (London: Batsford, 1973), p. 28.
[155] Historic England https://historicengland.org.uk/listing/the-list/list-entry/1180238 Kennet and Avon Canal http://www.kennet-avon-canal.co.uk/Kennet-Avon-Canal-Devizes.html Canal and River Trust https://canalrivertrust.org.uk/news-and-views/blogs/nigel-crowe/fancy-bridges Accessed 20/03/2019.
[156] Gladwin, *The Canals of Britain*, p. 28.
[157] La Rochefoucauld, *Innocent Espionage*, p. 89.

by Stebbing Shaw (Figure 4.21).[158] In other records this bridge is referred to as 'Mr. Wedgwood's Footbridge' from the park over the canal roughly to the central building of the manufactory, barely visible on the Grand Trunk map (Figure 4.43).[159] The siting of this bridge, which initially cost £35 10s 11d, between the gardens and the manufactory demonstrates the integrated design of the genteel and the industrial landscape at Etruria.[160] Repairs to the bridge in 1787 cost £6 17s 31/2d and required 281/2 days' work, bringing the total cost of the bridge to date to £72 8s 21/2d including Wedgwood's payment to 'The Proprietors of the Canal allowance for a Bridge' of £30, which suggests a bridge that was not necessary as far as the canal was concerned.[161] Wedgwood could have had a utilitarian bridge, but the Chinese bridge was a popular form, invoking that at Virginia Water, Stourhead and other elite sites, it also referenced the origins of porcelain. The bridge at Etruria was of a more practical design than some whose extreme arch created a circle with their reflection, Mrs Lybbe Powys contemplating the Chinese bridge at Stourhead, commented, 'the idea of going over a kind of ladder only is frightful.'[162] Fortunately, it also came some years before Payne Knight considered the Chinese bridge as, 'Light and fantastical, yet stiff and prim,| The child of barren fancy turn'd to whim.'[163] In addition to the message of Wedgwood's taste, potential customers crossing the bridge would have made the connection between the fine Chinese porcelain and the new British pottery that was rivalling, even excelling, it in quality and ingenuity. The landscape therefore played its part in the Wedgwood marketing strategy. However, it seems that this bridge did not last long. Even on the Grand Trunk plan the word 'removed' appears to have been added, and it features in no other views than that by the Shaw. A similar simple Chinese bridge is also shown in a painting of Soho by John Phillp (Figure 4.44).

158 Anonymous [Stebbing Shaw], Etruria works, 1794, William Salt Library.
159 *Etruria section of a 'Plan of the Grand Trunk' (Trent and Mersey Canal), from Etruria potteries Parish Stoke on Trent to Grange Bridge Parish Burslem*, (n.d. early 19th century), D3192/2/4, Canal Plans, Staffordshire and Stoke on Trent Archive Service.
160 28642-43, Wedgwood, Wedgwood Museum.
There were other bridges at Etruria including 'Bridge in Nurseries' 5300 (suggesting bricks) of £3 19s 6d. Ledger D.
161 E62-33418, Wedgwood, Wedgwood Museum.
162 Cited in Phibbs, *Place-making : the Art of Capability Brown*, p. 44.
163 Knight, *The Landscape*, p. 33.

The potent symbol of iron in the late eighteenth century, and of British ingenuity and manufacturing prowess, was the Iron Bridge over the River Severn built by Abraham Darby III and opened in 1781 (Figure 4.45).[164] It spawned replicas and other iron bridges including in garden settings in Britain and abroad. The bridge at Fonthill of one hundred foot span was part of William Beckford's improvements after 1781.[165] Another of the earliest was the iron bridge at Trentham built in 1794, also manufactured at Coalbrookdale, that connected the mansion with the pleasure grounds on the other side of the River Trent, which in turn possibly inspired the Shugborough footbridge built in 1811.[166] Second Earl Gower, later first Marquess of Stafford (1786), controlled the majority of the Coalbrookdale coalfield because he owned the manors of Lilleshall and Ketley, from which the Darbys drew their iron. He was also very much involved with the Trent and Mersey canal.[167] A view by William Westwood of 1835 depicts an iron bridge spanning part of the Upper Furnace Pool at Coalbrookdale within the view of the Darby houses, it is similar in design to the Iron Bridge, though artistic licence has perhaps enhanced its ornamental character (Figure 4.46). This semi-replica reinforces the theory of Paul Belford that the water courses at Coalbrookdale were designed and built as much for ornamental effect as for their functional requirement, although he suggests the ornamental design originated much earlier.[168] Torrens and Trinder have noted that the Coalbrookdale Company had received requests for designs for iron bridges and

[164] The bridge was promoted by John Wilkinson, designed by Thomas Farnolls Prichard and made by Abraham Darby III. It was not the first iron bridge, that distinction is considered due to a garden bridge erected at Kirklees Hall in 1769 by Sir George Armytage. https://historicengland.org.uk/listing/the-list/list-entry/1413828 Accessed 26/01/2019.

[165] Michael Cousins, 'The Landscape at Fonthill: An assessment of the grottoes and their builders', in *Fonthill Recovered, A Cultural History,* ed. by Caroline Dakers (London: UCL Press, 2018), pp. 247-275 (p. 261). Citing Bodleian Library, MS Beckford c. 284, fol.110. A 1:4 scale replica of the Iron Bridge was built in 1791 at the extensive gardens and park at Wörlitz, Sachsen-Anhalt, Germany, by Prince Leopold Friedrich Franz of Anhalt-Dessau (1740-1817) and has recently been restored. Some German guidebooks refer to it as a replica of John Wilkinson's iron bridge.

[166] S. Shaw, South east View of Trentham, ND [c.1794], SV XI.49a, William Salt Library. Torrens and Trinder, 'The Iron Bridge at Trentham', p. 46.

[167] In 1764 Lord Gower formed a partnership with brothers John and Thomas Gilbert to exploit the mines on the Lilleshall estate. Torrens and Trinder, 'The Iron Bridge at Trentham', p. 45. John Gilbert (1724-179) was land agent to the Duke of Bridgwater, and Thomas Gilbert (1720-1798) to Lord Gower, Marquess of Stafford, both men very engaged in industrial developments in the north midlands.

[168] Paul Belford, 'Sublime Cascades: Water and Power in Coalbrookdale', *Industrial Archaeology Review* XXIX, no. 2 (2007): 133-48.

probably built some of limited size for light traffic during the 1780s. So the bridge constructed over the Upper Furnace Pool at Coalbrookdale by 1801, 'but probably built some years before', seems a potentially superfluous form of advertising, although it might have been a project for the works when orders were low.[169] It was built during the period Deborah, wife of Samuel Darby, lived at Sunniside and established a deer park there, which perhaps indicates a period of development in the landscape. This bridge would have enhanced the outlook from the Darby houses, and may have been a more pleasant route across the valley than that closer to the ironworks.

Similar to bridges and increasing in the canal age, were aqueducts. Spectacular aqueducts carrying canals and flights of locks were often considered the wonder of their time and were on the tourist trail. Although not within a garden landscape they were in the wider landscape sphere of the industrialists and their interests. Canal construction was crucial to industrialists' transport requirements and symbolic of the progressive age. The three arched Marple aqueduct begun in 1794 and completed 1800, was built 100 feet over the River Goyt (pre-1896 River Mersey) on the Peak Forest canal (begun 1794), it is the highest canal aqueduct in England and the highest masonry-arch aqueduct in Britain (Figure 4.47).[170] It was designed by canal engineer Benjamin Outram and has design echoes of the Ironbridge, especially in the circular piercing of the spandrels, and, whether intentionally or not, Oldknow's corn mill and Bottoms Hall both had 'porthole' detailing. The use of different materials and such detailing increased its ornamental appeal within the wider landscape experience of Oldknow's activities. Similar was the dual aqueduct and tramway at Cyfarthfa, Pont-y-Cafnau, which was designed by Watkin George, built in 1792/3 of iron, probably the oldest known combined railway bridge and aqueduct and was in view of Cyfarthfa Castle and its grounds.[171] Bridges therefore played their part in the wider landscapes of industrialists from the simplest of crossings to those using the latest techniques and design. The functional aqueduct was as acceptable in the view as a Chinese bridge, both carrying meaning of the industrial aesthetic.

[169] Torrens and Trinder, 'The Iron Bridge at Trentham', p. 50.
[170] https://en.wikipedia.org/wiki/Marple_Aqueduct Accessed 21/1/2019.
[171] https://www.coflein.gov.uk/en/site/34860/details/pont-y-cafnau-merthyr-tydfil Accessed 26/1/2019.

4.7.viii Ice Houses

Ice houses by their very need to be cool were often barely visible in the landscape, sometimes shaded by trees. If not integrated into a structure like a terrace, they were sculpted into the landscape, part below ground level and the remainder forming a mound, probably with the excavated soil. This was sometimes incorporated into an ornamental garden feature, perhaps a mount, or surmounted by a garden building. The Ice Tower at Penrhyn Castle was built in the 1820s above the icehouse, whilst at Craig-y-don on the Menai Straits, an octagonal structure like a small summer house sits atop the icehouse.[172] At Bedwellty House a small room was built above the icehouse with its seventeen feet deep chamber which itself was linked to an adjacent service building.[173] The icehouse at Etruria was built in 1787 at a cost of £968 18s 0 ¾d, its location unknown.[174] Occasionally grottos formed the façade to icehouses, but there is no record of industrialists using such a device.[175] There appear to be only two instances in this sample of industrialists' landscapes where the icehouse either may have had an industrial use or interaction. The Pontypool icehouse was supplied with ice from the ponds in the park, probably including those supplying the industrial operations. It is the only known double chamber ice house in Britain and was built unusually close to the house into the slope of the hill rising to the north and thus facing south, possibly in the eighteenth century or early nineteenth (Figure 4.48).[176] The second was the particularly large chamber of the icehouse at Warmley whose location adjacent to both the lake and the brassworks suggests it might have been either an integral part of the production process or for commercial use rather than for the house.[177]

[172] Eurwyn William, 'Gin and ice-cream: the search for Welsh ice-houses', in *WHGT Bulletin,* (Welsh Historic Gardens Trust, 2015), (p. 3). At West Wycombe Park the octagonal Tower/Temple of the Four Winds (after 1755) was built above the icehouse and at Halswell, Somerset, the icehouse mount was surmounted by a rotunda.
[173] Tim Buxbaum, *Icehouses*, [New edition]. edn (Oxford: Shire Publications, 2014), p. 8.
[174] It does not feature as a separate item in the annual account, but is included in the amount for the Garden in Ledger D. There were 17,000 bricks costing £12 15s, wages including 'Sergeant's bill for carriage of Stone to icehouse &c'. Wedgwood Ledger D, E62-33418, Wedgwood, Wedgwood Museum.
[175] Buxbaum, *Icehouses*, p. 33. Buxbaum notes this of the icehouse at Gosford House near Edinburgh.
[176] CADW. Pontypool Park, 1991.
[177] Buxbaum, *Icehouses*, p. 37.

The icehouse at Cyfarthfa poses a conundrum; it was combined with a game store which was not an uncommon occurrence and drained into one of the ditches running into the balance ponds and then on to the lake-reservoir. A plinth about one metre wide surrounds the outside of the circular icehouse and thirteen stone lined holes have been found in an arc beyond the plinth, their function unsolved (Figure 4.49). These, together with its location that provides views over the balance ponds, castle, lake and ironworks, suggest there might have been a covered structure that might have been an ornamental feature and place to enjoy the view, or was this the game larder rather than the area of the corridor leading to the icehouse door? Might Lugar have designed the icehouse while he was working on the castle?[178] In his *Hints on Ornamental Gardening*, John Buonarotti Papworth included a design and description of an ice well, 'a garden seat might be formed, which, if so placed as to command a prospect, would make a pleasant retreat, and an arbour in which ices and other refreshments might be taken' (Figure 4.50).[179]

There were other structures on the estates, like farm buildings and functional ones, like saw pits, but these were mostly more distant from the pleasure gardens and park and there is scant evidence of their design.

Conclusion

Industrialists were using contemporary architectural language for the built environment both personal and industrial, therefore when building or remodelling their homes they largely conformed with the styles pursued by the landed gentry, in most cases neo-classical, which conferred legitimacy to or reinforced their status as gentlemen. They did not indulge in architectural innovation other than for a few examples by ironmasters who used iron in mainly exterior construction. The buildings, both house and works, of those sites which produced desirable consumer goods and attracted visitors would appear to have been deliberately more elegant or suitably embellished. The evidence of Boulton, Wedgwood and possibly Wood suggests that their

[178] Robert Lugar's *Villa Architecture* (1828) includes Cyfarthfa as the final plate.
[179] John Buonarotti Papworth, *Hints on Ornamental Gardening, consisting of a series of designs for garden buildings, ... gates, fences, etc. ... accompanied by observations on the principles and theory of rural improvement*, (London: R. Ackermann, 1823), p. 80.

immersion in design and matters of taste was the driver together with an awareness of the potential impact on visitors to their works and showrooms.

The research has highlighted that particularly in the case of the neo-classical mill, its setting in some cases led to it becoming the dominant building in the landscape. Their presence was a symbol of improvement and innovation whilst their setting was comparable with that of elite mansions, both proclaiming the prestige of the owner. Thus, for example, the approach to the Soho manufactory was designed to create an impression, whilst at Mellor the owner's and manager's houses were as prelude to the imposing mill. If not encountered on the approach or seen directly from the house, the works were usually a feature in the landscape often seen across water, typical of views of gentlemen's seats. Within the landscape the industrial building might thus be seen to be taking on the tropes of elite landscapes with the industrial being the pivot of the designed landscape rather than the owner's house. Further, the creation of an industrial community in order to ensure a supply of labour meant the building of houses and community facilities with a stylistic consistency that reinforced the impression of the industrial estate.

Industrialists do not appear to have indulged significantly in permanent garden buildings, Boulton and Champion perhaps being exceptions, but there may have been more temporary structures than the records reveal. This to large extent is consistent with the fact that the majority of the sites were developed in the latter half of the period when there was more understated use of garden buildings, and that the size of their estates was mostly smaller than those of many landed gentry. It is significant that the most substantial garden buildings were in a public space and two were classical; these were the structures built in the Sabbath Walks, the temple and rotunda, which were sited to have spectacular views of the industrial set within the wider countryside, and might have been placed to be visible from elsewhere, whilst the rustic cottage as retreat/hermitage was appropriately sequestered. All built in the late eighteenth century, they were more in common with developments in elite landscapes a few decades earlier, yet Reynolds was deliberately bringing the classical into a public space and creating a striking juxtaposition of ancient civilisation with the modern industrial, whilst his own gardens were very modest and seemingly

without garden structures permanent or temporary. These were the only classical structures apart from the Soho temple(s) and possibly one at Etruria, for predominantly the garden buildings were rustic: hermitages, grottoes, summerhouses, arbours. The paucity of evidence of their form and location hinders an assessment of the extent to which they interacted with the industrial except for grottoes, which mostly seem to have been made in ironmasters' gardens. The ready availability of appropriate materials together with a likely propensity of the owners to an interest in geology may account for this.

One of the key manifestations of the industrial in the garden was the use some ironmasters made of both their product and by-products, particularly the use of scoria blocks and waste, like clinker, in garden structures and paths. The use of such materials, particularly clinker, was not unique to ironmasters, it was used by the elite, notably in grottos, but the extent of use in some industrialists' sites was distinctive. The industrial product was also used or signified in bridges which provided both actual and symbolic transition between the personal and the industrial, prime examples being the Chinese bridge at Etruria and the iron bridge at Coalbrookdale.

What is clear is that hermitages, summer houses and also grottoes performed the same role as they did in elite landscapes, as places for retirement, to read, write, contemplate. There are indications that some buildings were used for experiment, as laboratories, and prospect towers doubled as observatories satisfying a contemporary fascination with astronomy.

Chapter 5
Water

From ancient times water had been revered and feared for its power to give and destroy life and was associated with spirits and religious rites. In classical literature water was commonly the division between two worlds or a rite of passage, similarly in Celtic worship a river was the route to the afterlife. Such associations together with its intrinsic qualities of sound, movement, mutability and reflection, had resonance to eighteenth-century garden makers who regarded water to be an essential element in a designed landscape along with ground/lawn, wood/trees and sky, and in the case of Whately, rock. It is 'the most interesting object in a landscape […] captivates the eye at a distance, invites approach, and is delightful when near […] may spread in a calm expanse to soothe the tranquillity of a peaceful scene; or hurrying along a devious course, add splendour to a gay, and extravagance to a romantic, situation.'[1]

In the late sixteenth and seventeenth century man's prowess in taming of nature was exhibited in man-made cascades, extravagant fountains and ingenious jets'deau/giocchi d'acqua. Celia Fiennes had described the gilded lead fountain in the shape of a tree at Chatsworth and the clock in the garden at nearby Bretby, 'on their pedistalls is a dial one for ye Sun ye other a Clock wch by ye water worke is moved and strikes ye hours, and Chimes ye quarters, and when they please play Lilibolaro on ye Chimes.'[2] As the eighteenth century progressed, water in geometric forms and extravagant water works gave way to water appearing to be following its natural course, though in reality the natural was as artful as had been the earlier formality. Yet there were still some elements that harked back to the crisp lines of the rectangular canals, like the naked shorelines of Brown's lakes, kept devoid of planting to maintain a clear definition between ground and water, other than where trees or shrubs were planted for variety or to disguise extent. Brown was criticised for this, but for many of his commissions the topography was relatively flat and in keeping with Shenstone's stipulation that 'the eye should always look rather down upon

[1] Whately, *Observations on Modern Gardening*, pp. 70-71.
[2] Fiennes, *Through England on a Side Saddle*, p. 142.

water', and for the maximum of water to be seen from the house, the Brownian aesthetic had to maintain an unimpeded view.[3] Critics of Brown, like Payne Knight and Price may have overlooked this because they were working in countryside with steep valleys and winding rivers.

There were further factors underlying the perception of water. From medieval times fresh water was a status symbol, not just access to a good potable supply, but also because fresh-water fish were preferred to salt-water fish, the expense of their production in man-made and managed ponds meant that they were reserved for the elite. As Wendy Bishop has shown, the presence of water often close to the house continued from the moated gardens, mill and fish ponds of high status individuals of the medieval and early modern periods through proto-lakes of the late sixteenth and early seventeenth centuries to the lakes of the eighteenth-century landscape garden.[4] The productive role of water and its conveyance of status validated the wealth and power of elite landowners, and authenticated the landscapes of new men, especially where the landscapes themselves were new without the pre-existing symbols of seigneury, such as Robert Cecil's Dell water garden at Hatfield House with its mill.[5]

Visually, an expanse of water in the vicinity of a house conferred twin attributes: one, it enhanced the view from the main rooms of the house, a value recognised by Vanbrugh with respect to Blenheim, and second, it provided a setting for the house particularly when viewed from afar, often on the approach. This latter was key to many of the landscapes developed by Brown.[6] Appearing to be natural was the defining characteristic of the English landscape style with rocky, tumbling streams and dramatic waterfalls becoming a prerequisite of the Picturesque experience. Chambers in 1757 had stressed the variety that the Chinese achieved in the treatment of lakes and rivers, particularly admiring 'the termination of their lakes they always hide, leaving room for the imagination to

[3] For a discussion of Brown's use of water see Phibbs, *Place-making : the Art of Capability Brown*, pp. 31-53.
[4] Wendy Bishop, 'Origins and Evolution of Ornamental Lakes in English Designed Landscapes', (University of East Anglia, 2017), pp. 63-64.
[5] Bishop, 'Origins and Evolution of Ornamental Lakes', p. 98.
[6] Vanbrugh was probably the first to use the word 'lake' with regard to a man-made expanse of water. Bishop, 'Origins and Evolution of Ornamental Lakes', p. 94.

work.'[7] Thus it was desirable to disguise the ends of artificial rivers and lakes to imply that the water course continued, a device which also reinforced the impression of extent of ownership. Brown and other landscapers used the device and it was reinforced by Gilpin in the 1790s, although he was cautious of advising the creation of a river (or ruins) as he had rarely seen them 'well manufactured' including those of Brown, 'an artificial lake has sometimes a good effect; but neither propriety, nor beauty can arise from it, unless the heads and extremities of it are perfectly well managed and concealed […] you must always suppose it a portion of a larger piece of water.'[8] Shenstone had added to the design considerations in *Unconnected Thoughts on Gardening* (1764): **'**Water should ever appear, as an irregular lake, or widening stream. Islands give beauty, if the water be adequate; but lessen grandeur through variety.'[9] Where a lake was not possible either for topographic or economic reasons, Repton found ways to make the most of water in the garden and park as in the Red Book for Warley where he noted that a stream running through the valley would be sufficient to 'furnish a pond, as may give variety to the walks altho' it may not be a striking feature in the view from the house; it will also furnish another source of pleasure from animation by encouraging wild fowl to frequent the spot'.[10] Water also provided fishing and boating. Wedgwood's partner, Bentley, extolled the pleasures of having, 'a lawn terminated by water with objects passing and repassing upon it, is a finishing of all others the most desirable […] (an) imagination can scarcely conceive the charming variety of such a landscape […] and (will) feast the fancy with ideas equal to the most romantic illusions.'[11] Navigable rivers and canals were transport routes, the Darbys regularly used the River Severn to travel to Stourport for onward journeys, but they were also used for pleasure. On Tuesday 12th September 1805 Hannah Mary Rathbone recorded in her diary going to Quarrybank to visit the Gregs, 'We sailed on the river and walked in the garden.'[12] The depth of the

[7] Chambers, *Designs of Chinese Buildings*, in Hunt and Willis, *The Genius of the Place*, p. 286.
[8] Gilpin, *Remarks on Forest Scenery*, p. 195.
[9] Shenstone, *Works*, p. 141.
[10] 712.60942/WARH (FP1/1), Sandwell Community History and Archives Service.
[11] Lucy Lead, 'The Importance of Canals to the Eighteenth-Century Pottery Industry', in *Sixty-First Annual Wedgwood International Seminar, 27-30 April,* (Birmingham, 2017), (p. 35). Citing Christopher Lewis, *The Canal Pioneers: Brindley's School of Engineers*, (The History Press, 2011), p. 29.
[12] Rathbone, *Reynolds-Rathbone Diaries and Letters*, p. 105.

River Bolin through the gardens would today not support boating, but it is possible she was describing further up river where the water was impounded.

This chapter explores how industrialists adopted such principles, whether consciously or not, in their manipulation of both naturally occurring and man-made water courses to the needs of industry whilst also delivering an aesthetic effect, both reinforcing the experience and the interpretation of the landscape. It was not only the multi-sensory qualities of water that became the most inventive aspect of the interaction between the industrial activity and the ornamental, but also the means of its reaching the industry, its discharge, recycling and storage were often designed and engineered for ornamental and even horticultural benefit.

5.1 Practicalities

Crucially, the very location of most industrialists' landscapes was determined by the availability of water, often the presence of fast flowing rivers, essential not only to power the waterwheels that drove the machinery and for the steam engines, but also often in the manufacturing processes. None of the industries could operate without water, but to varying degree: pottery did not require power to drive machinery to the extent demanded by textiles and metals. As the size of operations increased, particularly with the introduction of further mechanization and steam engines, so too did the requirement for water, which, if the natural supply was not sufficient, meant the creation of additional resources usually in the form of reservoirs, which in turn doubled as ornamental lakes. Occasionally recirculation could be employed to boost supply. The necessity to manipulate natural water courses also often created picturesque effects that were appropriated to the ornamental experience of the landscape. Water was also a crucial means of transporting increasing quantities of raw materials and goods, especially important to potters and glass makers as it ensured fewer breakages on the inadequate roads. Rivers were not always navigable in the location of industrial workings even if they supplied sufficient water, industrialists were therefore at the forefront of canal promotion.

The constant demand for water meant that a number of sites experienced disputes with neighbouring landowners, including other industrialists, both up and downstream because of the impact of industrial processes on waterflow, and even elite landowners were not immune as in the case of when the new weir built in 1760-1 at Chatsworth caused problems for the corn mill.[13] Securing water rights was thus an important operational factor particularly on smaller rivers and streams though not necessarily such an issue on a major river like the Derwent or Severn, and a further spur to land acquisition.

At Mellor Oldknow bought up land adjacent to the mill complex including the Goitt Cliff Torr estate which secured, 'the sole Right to the powerful river Goit running along the Easterly side thereof which might be easily appropriated for the use of Cotton or other Manufacturies worked by water.'[14] In a letter dated 23 December 1807, Netlam Giles wrote to Samuel Galton advising that enlarging the 'Feeder to Dudstone Boring Grinding Mills' to improve the drainage to the 'upper Grounds' in order to prevent the 'inundations they now experience and to make the Feeder an additional Reservoir' would be 'in every way unprofitable.'[15] After the construction of a weir in c. 1807, letters of 1816 indicate that Mr Sargant complained of its height.[16] At Quarry Bank, in 1815 Mr Neild of nearby Ashby Mill made a claim for damages against Greg for interrupting his water supply. Neild's solicitor wrote to Greg:

> Mr Greg has for years past so impounded the water that in dry seasons Mr Neild's Mill has been stopped every day until noon […] If Mr Greg will make an offer of compensation, or will meet Mr Neild to confer on the

[13] The corn mill was designed by James Paine and built 1761-1762.
[14] Auction notice in the Manchester Mercury January 4th, 1785. Cited in Unwin, *Samuel Oldknow and the Arkwrights*, p. 139.
[15] *Letter from N. Giles to Samuel Galton*, Dudstone, 23 Dec 1807, MS 28/49, Galton Papers, Library of Birmingham.
[16] *Copy of Letter to William Sargant from S. T. G. (Samuel Tertius Galton) Birmingham*, 9 October, 1816, MS 28/55 Galton Papers, Library of Birmingham. *Letter from James Woolley Birmingham to Samuel Tertius Galton with attached copy letter from Samuel Tertius Galton to James Woolley,* 6 October, 1816, MS 28/58, Galton Papers Library of Birmingham.

> subject, Mr Greg will find that Mr Neild is not intractable or unreasonable.[17]

Neild ultimately abandoned the case because of expense. Three years later Greg received complaints concerning the dangerous state of a bridge near Pownall Hall constructed because a ford had become impassable as a result of his weir; he reluctantly rebuilt the bridge.[18] Penydarren ironworks on the opposite side of the Morlais stream from the Homfray mansion and gardens was downstream of the Dowlais works and thus suffered especially during dry seasons and resulted in legal proceedings between the owners of the respective works. The stream ran through the grounds of Penydarren House and fed the 'Fishpond'.

5.2 Construction

Switzer had detailed the various requirements for bringing water to a site, like the fall necessary, the need for reservoirs and best types of pipes. He advised that there was no need for canals to be more than four to five feet deep, thus saving cost, and that the sides and bottoms of pools, canals etc. should be clayed six or eight inches thick; reservoirs of 100 or 200 feet square however should be seven or eight feet deep and if built on a hillside should be lined with brick or stone.[19] The dimensions of lake-reservoirs were to large extent influenced by the topography. Apart from sites where expanses of water could be created by digging into the water table, dams and weirs were required to impound the water and its integrity secured, particularly by puddling a technique whose invention was ascribed to Brindley as described by John Trussler.[20] The

[17] Rose, *The Gregs of Quarry Bank Mill*, p. 43. Rose, *The Gregs of Quarry Bank Mill : the Rise and Decline of a Family Firm, 1750-1914*, p. 43. Citing MCL C5/8/6, disputes over damming the River Bollin.
[18] Rose, *The Gregs of Quarry Bank Mill*, p. 43.
[19] Switzer, *Ichnographia rustica*, pp. 305-306.
[20] John Trussler describes the process, 'Dams to pen up water were formerly difficult and expensive to make; but we are indebted to the ingenious Mr Brindley for a readier and cheaper method of constructing them. It is called *puddling*, and consists in turning and soaking of the soil, be it of what land it will, in the manner in which we temper mortar. The operation is thus performed. Dig a deep perpendicular trench about four feet wide; in this, if contiguous to water, the water will rise presently; into this trench, throw again, by degrees, the soil you have dug out, turning it, trampling and beating it with shovels and spades, as if it were mortar; by which means it becomes perfectly viscous and clings so together, that when dry it will be waterproof. This is to be continued until the trench is filled to the top.' John Trussler, *Elements of Modern*

construction techniques for ornamental water were the same as for industrial and public projects like canals. The experts in one could lend their expertise to the other, indeed, some of the canal engineers and contractors had previously been gardeners or agents in areas where significant drainage works had been undertaken.[21] This relationship between gardeners (landscape designers) and canal engineers was not a coincidence. Drainage was a major aspect of improvement to increase agricultural productivity, but it was also a factor in the creation of the water that was such a major feature of designed landscapes, and the country's extensive programme of canal building similarly called on engineers with drainage expertise. Recent work on Brown has elucidated the extent of his engineering ability, probably gained whilst working in the Lincolnshire Fens in 1740 before moving to Stowe. He mixed with canal builders and used the clay puddling techniques perfected by Brindley. Jane Brown recorded that Brindley was called in to advise on 'ornamental' water at Alnwick, 'Brown must have nominated Brindley because he was unable to be there.' [22] It is far more likely that he recognised Brindley as the expert, the £450 payment to Brindley was not a day's work. Implying that canals were less important, Jane Brown perhaps somewhat prejudiced towards Brown remarked that, 'there were vast differences between a utilitarian canal and an ornamental lake – and equally fascinating contrasts between the characters of James Brindley and Lancelot Brown.[23]

Gardening in Robert Morris, *An Essay upon Harmony, as it relates chiefly to situation and building. [By R. Morris?]*, (London, 1739), pp. 45-46.

[21] Peter Cross-Rudkin, 'Canal Contractors 1760-1820', *Railway and Canal Historical Society,* (2016).

[22] In 1771, the Duke's 'principal estate servant', Thomas Call, and Cornelius Griffin (Brown's foreman) accompanied Brindley (who was paid £450), on a site inspection for the dam and cascades associated with the new lake. Brown, *The Omnipotent Magician*, p. 216.

[23] Brown, *The Omnipotent Magician*, p. 189. She continued, that, 'surely Lancelot recoiled at the straight-line canal philosophy. Brindley followed contours to save on earth-moving, and wherever possible sent his canals in straight lines; curves were anathema to him, and nothing could change this rule.' Like others, she quotes Wedgwood's comment about Brindley's deputy Hugh Henshall surveying the line for the Trent and Mersey canal, but fails to note what actually transpired at Etruria, as described below later.

5.3 Natural Water – Rivers and Streams

With the requirement for water the proximity of rivers was essential for industrial operations, particularly ironworks and textiles, yet they were not necessarily the direct source of industrial power, and only in a few cases were rivers used directly as part of the experience of the landscape. It was more often tributary streams and brooks associated with reservoirs that powered the machinery and assumed a major role in the ornamental landscape. Many images of early forges, corn and paper mills situated them beside a river and one of the most potent images of early industrialisation is that of the Derby silk mills on the River Derwent, its island garden overshadowed by the power of the water and dominance of the mill buildings, yet, together with the church tower, like a stately ship it draws the eye more than do the larger gardens on the banks of the river (Figure 3.10).

The first two mills at Cromford (1771 and 1776) were powered by the Bonsall Brook and Cromford Sough which was tunnelled through the hills to draw water from the lead mines, possibly avoiding the likelihood of water freezing in winter. It was only when the Masson mill was built in 1783 that it directly used the power of the River Derwent. The direct view from Willersley Castle was to a pastoral view of the river meandering down the widening valley, whilst in the vicinity of the new mill the dramatic and sublime held sway in a multi-sensory landscape experience. Further downstream, Jedediah Strutt's modest house The Mount at Milford and George Benson Strutt's Bridge Hill House at Belper both overlooked the Derwent and the weirs built to service the mills.[24] Bridge Hill House also took advantage of the water meadows to provide a park-like setting which were later utilized further for a carriage drive (Figure 5.1).

Creating a new watercourse that drew water from a river or stream was an option taken by Oldknow who re-routed the River Goyt along a new cutting to divert water into two large millponds, the second to the rear of the mill which was also fed by a stream from a third smaller pond constructed at Linnet Clough. Oldknow's Mellor Lodge and relatively small adjacent garden immediately

[24] Bridge Hill House was designed by William Strutt for his brother and built 1793-5. The distinctive horseshoe weir and its associated sluices at Belper were built 1796-7. Jedediah Strutt's main home, Exeter House, was in Derby.

overlooked the river but was also bounded by the main mill pond (Figure 5.2).[25] Yet the dominant feature in the landscape was the vast mill reflected in the mill pond (Figure 4.18). It commanded the view like an elite mansion set in lawn reflected in a foreground lake, the building closer to the water than probably most gentlemen's houses would have been and thus betraying the industrial relationship. The outfall from the mill emerged further downstream in view of the garden that Oldknow developed to produce food for sale which lay on the opposite bank of the river facing towards the mill. It is worth noting the business relationships between Arkwright, the Strutts and Oldknow. Jedediah Strutt had been a financial investor and partner with Arkwright in the first Cromford mills. In turn, the Arkwrights were mortgagor's to Oldknow and eventually ownership passed to Arkwright junior because of Oldknow's inadequate financial management not helped by his extensive projects. All these textile manufacturers appropriated the river that drove their machinery into the experience of their personal landscape. Yet probably the most engineered integration of a river is that of the River Bollin at Greg's Quarry Bank where the mansion was immediately adjacent to the mill, with the river emerging from a canalized section alongside the mill to form the spine of the valley-side garden and separating it from the lawn stretching alongside the mill with a dramatic weir in view at its furthest extremity (Figure 5.3 a-d). At no point in this garden is one far from the river.

Where industrialists moved to live a little further from their works, the river which powered their machinery was sometimes retained in the view from the landscaped grounds. Benjamin Gott followed Humphry Repton's advice (or was it in the client brief?) in retaining not only views of his new Armley Mill and haze of the expanding city of Leeds in the distance, but enhancing the composition by subtle adjustments to the planting that accentuated the meandering of the River Aire and softened the lines of the canal. 'To this part of the picture little can be done, except the more effectually cloathing and hiding if possible, the awkward line of the canal.'[26]

[25] The largest of these millponds later became a huge tourist attraction and was christened "Roman Lakes" in Victorian times. It still remains in use today, mainly as a venue for course fishing. http://www.marple-uk.com/Marple.htm Accessed 13/8/2015.
[26] Humphry Repton, *Red Book for Armley*, Oak Spring Garden Foundation, Upperville, Virginia.

The river connected Gott's landscape symbolically with his first mill in Leeds, and the silver ribbon meandering through a picturesque landscape would have appealed to a man who developed a significant art collection (Figure 5.4). Not dissimilar was Rheola with views to the River Neath winding in the valley backed by mountains achieving a classic landscape picture and with a small tin works, though more remote from the Vaughan's main industrial operations in Swansea, it hinted at the source of their wealth and of industry (Figure 5.5).

The more important role of streams and brooks is demonstrated at Pontypool where the forges and slitting mills were powered not by the Afon Llwyd that flowed along the west of the site, but by the Nant y Gollen stream a tributary to the Afon Llwyd and which itself was fed by springs and smaller streams. Here, despite the Afon Llwyd forming the western border of the park and gardens it seems always to have been screened by planting thus not employed in the visual experience of the gardens, although it would have been audible. In the plan of 1752 and the 1753 panorama of Pontypool Park the Nant y Gollen is shown dammed to create a small teardrop shaped pool-reservoir with industrial buildings (Figures 3.11, 3.50 and 3.51). It flows downhill through the park to both the forge and a further rectangular reservoir overlooked by a circular tree seat. The tree planting, including a line of extant sweet chestnuts with growth typical of being pollarded for fuel, indicates that it was appropriated into the ornamental aesthetic. This stream, manipulated and incorporated into the industrial, aesthetically took precedence over the more impressive river, testifying to contemporary embracing of the integration of the industrial and the ornamental.

The head of water required to power the Mackworth tin and copper works at Neath were powered by tributaries to the River Neath, but the river itself was some distance below in the valley bottom thus did not itself feature in the ornamental landscape. This was possibly the earliest most extensive landscape developed concurrently for industry and pleasure (Figure 5.6).[27] Most of the watercourses in this landscape were manmade, collecting from small streams

[27] D/DT 2297, Gnoll Estate Records, West Glamorgan Archive Service.

into large lake-reservoirs. The Preswylfa Brook flowing through three pond-reservoirs fed into the Lower Great Pond (Fish Pond/Reservoir C, Built c.1680) thence into the Upper Great Pond and into the Gnoll Brook down to the industry in the valley below. The Llantwit Brook emanated from above Mosshouse Wood with its rustic cascade and ran through the steep sided valley down to the River Neath, but water was diverted into leats that supplied the Guinea Pond and the Lower Great Pond.

Rivers might also be appropriated when they had no direct association with the industrialist's business as in the case of John Horrocks who had a meteoric rise from a small workshop in 1791 and his first horse powered factory the same year to a sixth mill, and the first to be steam driven, in 1796. He built his new house Penwortham Hall overlooking the River Ribble, but on the opposite bank and away from the works.[28] His brother Samuel built his house, Lark Hill, close to the mills but with its gardens facing away or screened from them with views towards the river and in addition he utilized the Swill Brook running through the site, which was widened to create a lake, or river-lake comprised of two ponds connected by a cascade and with a metal bridge (Figure 5.7).[29] Thus here, in both cases, a river was enjoyed as part of the visual experience of the gardens dissociated from the mill works.

Appropriation of a river, or indeed any expanse of water, for the enjoyment of both the owner and the employees was rare but can be seen at New Eagley Mills where the River Eagley separates the parkland of The Oaks from the manufactory garden spreading out to the west of the works and bordering the river (Figure 3.33).[30] Here the river would appear not to be in the view from the house and pleasure grounds but is very much the setting for the manufactory gardens and the mill itself.

[28] Burscough, *The Horrockses: Cotton Kings of Preston*, p. 14.
[29] *Plan of the Township of Preston Divided into Ten Districts, Scale: 1 in to 42 yds, District No. 4,* William Shakeshaft, Land Surveyor, 1808, DX 2044/147, Documents of Unknown Provenance, Lancashire Archives. Burscough, *The Horrockses: Cotton Kings of Preston*, p. 64.
[30] ABZ/36/1, Ashworth, Bolton Archives & Local Studies Service.

5.4 Leats, culverts and tunnels

In addition to natural streams, networks of leats and culverted watercourses were installed at a number of sites necessitating thorough engineering expertise and a knowledge of hydraulics. Probably the most extensive system, and certainly the earliest, was that at the Gnoll, where water was drawn off the Upper Great Pond, routed round the hill, encircling the pleasure grounds, taking water to the house and returning it to the Lower Great Pond (Figure 5.6). Archaeological investigations have identified a 'pipe leading up the hill from the Upper Great Pond […] working at pressures which were then unparalleled.'[31] Switzer in 1718 had noted that fifty or sixty pounds would 'purchase a very good Horse Engine' for forcing water up a hill.[32] The archaeology has also confirmed the accuracy of the plan of 1720 showing the location of a rock-cut circular reservoir fifteen metres diameter and three metres deep in the area of the bowling green near the house which may have provided water for the house and/or to power a fountain, it also identified structures, 'which were in advance of known technology of the time.'[33] There were also remnants of man-made water courses in the area of Mosshouse Wood a mile or so further east from the house and predating the 'natural' cascade (1740s), suggesting an extremely extensive water system from an early date. A watercourse was dug early in the eighteenth century along the eastern contours from Mosshouse Wood to channel water over a mile to both the Great Pond and Guinea Pond often running alongside paths or drives and forming ornamental rills, all controlled by sluices and changes of level forming small cascades. Further drainage leats contributed to a landscape enlivened with the sight and sound of water.

Not extending over such a large area as the Gnoll but with potentially more intricate interaction with a possible experimental facility as well as the garden was the water system at Warmley (Figure 3.20). Decoding the ruins of the grotto complex with its culverts, rills and pools is difficult with no contemporary sources, but it is evident that it was very much inter-connected with the water system supplying the works. The source of water to the Warmley works was the Siston Brook which derived water from

[31] M. Locock, 'Archaeological Field Evaluation Gnoll Estate, Neath', in *Glamorgan-Gwent Archaeological Trust Contracts Section,* (1992), (p. 9).

[32] Switzer, *Ichnographia rustica,* XX. Isaac de Caus (1590-1648) had previously described principles of mechanics and hydrology in *Wilton Garden, New and Rare Inventions of Water Works* (1659), a work based on the work of his brother, Salomon de Caus (1576-1626), *Les Raisons des forces mouvantes* (1615).

[33] Locock, 'Archaeological Field Evaluation Gnoll Estate, Neath', p. 9.

many of the levels from the coal pits including Mr Player's new Level which had 36 associated pits as shown on a plan from 1750.[34] Like Richard Arkwright later for his cotton mills at Cromford, Derbyshire, Champion was using water drained from mining operations, which might have meant that it was less likely to freeze in severe winters. The leat taking water from the brook to the lake-reservoir and Echo Pond was given ornamental treatment with a walk lined with elm and lime trees.

Jabez Maud Fisher an American Quaker travelling in the British Isles between 1775 and 1779, commented on Boulton's use of leats over which were, 'bridges, and other good objects, which are not a little beautiful.'[35] Cyfarthfa developed some forty years later was not on the tourist trail, but the watercourses were still integrated with the garden. The Taf Fechan leat, which fed the lake, was supplied by the Afon Taf Fechan at the Gurnos Quarry and was formed by a ledge cut into the rock above the level of the Taf Fechan (or Gurnos) tramway, with a low limestone rubble wall to the exposed side (Figures 5.8 and 5.9). It formed a boundary to the park mostly running alongside the river but diverting slightly shortly before joining the lake and thus creating an area for planting. This industrial leat was being brought into the experience of the garden as were other elements of the industrial water supply. Like the Gnoll, drainage channels throughout the Cyfarthfa grounds, that were both open like rills and covered, fed the balance ponds and lake-reservoir whilst creating visual interest and providing an ornamental soundscape.

Many water courses were not visible but ran in tunnels. Paul Belford has argued that the water courses at Coalbrookdale and particularly the culverts in the upper dale were designed and built as much for ornamental effect as for their functional requirement (Figure 5.10).[36] The Upper Furnace Pool forms a sheet of water below and within the view of both Dale House and Rosehill, a culvert from the New Pool discharges from the far, opposite bank, creating a feature within the view. Belford maintains that there was no need for the culvert as an open watercourse would have served the industrial purpose at the time, and the

[34] Henry Thomas Ellacombe, *The History of the Parish of Bitton in the County of Gloucester*, (Exeter: Privately printed, 1881). Plate XI.
[35] Ballard, Loggie and Mason, *A Lost Landscape*, p. 2. Citing Fisher and Morgan, *An American Quaker in the British Isles : the Travel Journals of Jabez Maud Fisher, 1775-1779*, p. 253.
[36] Paul Belford, 'Sublime Cascades: Water and Power in Coalbrookdale', *Industrial Archaeology Review,* XXIX (2007).

architectural treatment of the outlet is more akin to the interest in cascades and the picturesque. However, the New Pool was built in 1698, therefore if the culvert to the Upper Furnace Pool were contemporaneous, it existed before the Darbys and Fords came to Coalbrookdale, thus they may merely have adopted the view. Belford's hypothesis does not take account of contemporary conflation of the ornamental and the industrial in the use of language which continued into the nineteenth century as an anonymous description shows, 'We now enter a wood mostly composed of Birch trees & almost immediately arrive at a Cascade falling down from a pretty sheet of water called the New Pool, winding its way through an umbrageous passage, for a considerable distance, to the reservoir below.'[37]

A larger water wheel was installed at Quarry Bank mill in 1820, the resulting tail water discharge was at a level lower than the river necessitating a tunnel which emerged three-quarters of a mile downstream. This reduced the flow in the river which may have prompted the construction of the small weirs.[38] Similar engineering feats were required elsewhere, like Mellor where the exit level from the bottom of the 'Waterloo' wheelpit was below that of the River Goyt at its nearest point, so a tunnel was driven under the bed of the river to carry the water 600 yards downstream until the level had fallen sufficiently to allow it to be discharged into the river, potentially creating a small water feature opposite the Garden House. At The Oaks a tunnel took the tail water from the factory, under or over the river, across a meadow and under the long narrow stretch of garden woodland before returning it to the River Eagley (Figure 5.11).[39] The resulting construction disruption to these gardens would have been considerable but the manufacturing need took precedence.

5.5 Canals

The term 'canal' to a garden historian conjures the rectangular features of geometric gardens often seen in the views of the late seventeenth or early eighteenth centuries like those of Kipp and Knyff.[40] Typically, the long canal that

[37] Anon, *Coalbrookdale in 1801*, Ironbridge Gorge Museum Trust.
[38] Rose, *The Gregs of Quarry Bank Mill*, p. 38.
[39] ABZ/36/2, Bolton County Borough: Miscellaneous Papers, Bolton Archives & Local Studies Service.
[40] Kipp and Knyff, *Britannia Illustrata.*

was the landscape equivalent of the enfilade or axial vista of the Baroque interior was often placed on axis with the house, as in the designs of Le Nôtre, and possibly terminated by a subsidiary building as with the gazebo at Westbury and the orangery at Dyrham, both with a Dutch influence.[41] Some sites in this study with an early history incorporated formal ornamental canals. It seems however, that contemporaries' concept of 'canal' was rather more fluid than modern interpretation. As early as 1712, John James' translation of d'Argenville includes designs with a canal on the cross-axis some way from the house serving 'for an Inclosure to separate the Park and Garden'; this represents an early suggestion of the serpentine lake that was to be such a feature later in the century.[42] This separation is clearly evident at Pontypool where the canal was close to the mansion with more informal parkland beyond, and the much larger formal early gardens at the Gnoll with the rectangular water [canal] some distance from the mansion forming a separation with the wilder woods beyond, although in the case of the Gnoll the map evidence does not support a crisp-edged rectangle. The term 'canal' was still in use later in the century for more informal irregular (man-made) bodies of water, including at Croome Court where 'the house is nearly surrounded by a beautiful canal, which has been formed at a prodigious expence.'[43] This was Capability Brown's manipulation of the river. Shardeloes too had a 'grand and spacious canal, at some distance in the front; the formation of which, from a delightful but small trout stream, with the innumerable alterations it has from time to time undergone, is supposed to have cost the owner at least ten thousand pounds.'[44] In both these cases the water was ornamental, though certainly as far as Croome was concerned it was also integral to drainage of the site. At Moss Bank, John Horrocks Ainsworth had a serpentine feeder to the bleach works running in front of the house, described as 'a canal or moat.'[45] The canal

[41] Jackson-Stops and Pipkin, *The Country House Garden*, p. 130.
[42] D'Argenville, *The Theory and Practice of Gardening* Antoine Joseph Dezallier D'Argenville and John James, *The theory and practice of gardening: wherein is fully handled all that relates to fine gardens, commonly called pleasure-gardens ... Done from the French original [of Antoine Joseph Dezallier d'Argenville] ... by John James, etc*, (London: printed by Geo. James, and sold by Maurice Atkins, 1712).
[43] *Picturesque Views of the Principal Seats of the Nobility and Gentry in England and Wales By the most Eminent British Artists with A Description of each Seat*, (London: Harrison & Co., 1786).
[44] *Picturesque Views.*
[45] Lewis, *The Middlemost and the Milltowns*, pp. 357-358.

arguably could have had a straighter route, but it might then not have afforded ornamental water in the view, through the pleasure grounds and park, providing a feature on the carriage drive and bordering the carriage turn. In 1823 there was a second feeder to the works going through the park, but by 1833 this had morphed into a lake (Figures 5.12, 5.13 and 5.14).

From such evidence, it is somewhat surprising that the vast transport network of canals begun in the eighteenth century have been almost completely ignored as an element of the garden aesthetic. Yet, as the garden canal and other geometric water gave way to 'natural' water features, many canal navigations were drawn into the garden experience and not only in the landscapes of industrialists. Land might be compulsory purchased for canals but some landowners gave the land or at a modest cost if they were convinced of the benefits to themselves, either financially or perhaps indirectly by the canal being 'beautified' where it passed through their lands.[46] Many canal acts specified how close a canal might pass to a named house, or which side of the canal the towpath might be for certain stretches, or that mooring should be prohibited near gentlemen's houses and parks. They also might give specific instructions as to removal of topsoil for later return to the completed banks and neighbouring land, or the planting of the towpath hedge with quicksets.[47] Thus, the introduction of canals might be considered as an enhancement. John Loudon writing in 1831 recognised the aesthetic potential of canals,

> Many of them in the hilly countries form beautiful ribands of water, admirably adapted for supplying foregrounds to villas. Canals of this description we should be sorry to see destroyed; and all of them, we trust, may long be found useful for local and agricultural purposes, if for no other.[48]

[46] Gladwin, *The Canals of Britain*, p. 62.
[47] Charles Hadfield, *The Canal Age*, 2nd edn (Newton Abbot: David & Charles, 1981), p. 59 and 68. For example, Nottingham Canal committee instructed their engineers in 1793, 'The Spoil Banks on the whole length of the Canal should be neatly trimmed, and covered with Soil (where it has been saved for the purpose) and early in Spring they should be sown with Hay Seeds so that they may become returnable land as soon as may be.'
[48] https://www.gardenvisit.com/book/gardening__tours_by_jc_loudon_1831-1842/manchester_chester_liverpool_and_scotland_in_the_summer_of_1831/leisure_use_of_canals Accessed 24/12/2017.

The suggestion that there was an antipathy to canals in the landscape in the latter half of the eighteenth century because of an aversion to the association with industry and commerce, is a generalisation unsubstantiated by the evidence of this research.

Louis Simond travelling through England in 1810-11 commented on passing the 'grand junction and other canals many times, on handsome stone bridges' and that they were 'rarely carried on in a straight line for any long continuance, but wind around hills gracefully enough […] and are never offensive except when carried along-side a river; the effect being in these cases very awkward.'[49]

A canal not only brought all the attributes of having water in the landscape but also a symbol of the industrial age and improvement with the movement of barges animating the view – and one that the landowner was not (necessarily) responsible for maintaining. The Grand Union Canal went through estates of both Lord Essex at Cassiobury (Cashiobury), and Lord Clarendon at The Grove in Hertfordshire; both required that the area around the canal be landscaped to make it more picturesque, including lock keepers' cottages.[50] At Cassiobury in the 1820s, William Sawrey Gilpin opened up views to the river and canal by adjusting the planting, having commented that 'the improver' (possibly Repton) had concealed the 'cheerfulness created by the river and canal, and by the wooded bank beyond, by poorly judged planting.[51] Elite owners were often investors and promoters of canals, like Lord Egremont who owned a large percentage of the land through which the River Rother canalisation passed, and the eleven miles was cut by his labourers who otherwise maintained his estate.[52] Sir Nigel Greasley (Gresley) and Nigel Bowyer Gresley Esq., his son and heir-apparent, cut the Gresley (Apedale) Canal to carry coal from his mines at Apedale in Staffordshire to Newcastle-under-lyme. Thomas Anson of Shugborough whose gardens were designed with Thomas Wright and later

[49] Louis Simond, *Journal of a Tour and Residence in Great Britain during the years 1810 and 1811*, ([S.l.]: [s.n.], 1815), p. 282.
[50] The Grove was the largest of the three manors of Watford and is now a hotel near Sarratt.
[51] Susan Flood and Tom Williamson, *Humphry Repton in Hertfordshire : Documents and Landscapes*, (Hatfield: Hertfordshire Publications, 2018), p. 235 and 238.
[52] Gladwin, *The Canals of Britain*, p. 50.

James ‘Athenian’ Stuart, and who subscribed £800 to the Trent and Mersey Canal, became a member of the canal committee and also invested in the Birmingham Canal, commissioned a painting of his house with a canal boat passing in the foreground, though using a little artistic licence; the River Trent flowed through the estate between the house and the canal (Figure 5.15). In 1770, Emes deliberately widened and landscaped Brindley’s new Staffordshire and Worcestershire Canal (Act passed 1766, canal finished 1772) at Tixall to make it appear like a lake where it passed within sight of the house through the grounds of the Hon. Thomas Clifford, which could also be seen from Shugborough.[53] It is known as Tixall Wide, was possibly originally proposed by Brown, and was contemporaneous with the section of the Trent and Mersey Canal from the Trent to the Potteries which includes Etruria where the widening of the canal was first mooted by Wedgwood in 1767, so which came first?[54] Was Etruria the inspiration for Emes widening of the canal at Tixall, or vice versa? Wedgwood knew Brown and was friends with Thomas Anson at Shugborough, Emes was known for his manipulation of water, and Brindley, a great friend of Wedgwood, was the engineer on both canals.[55]

Etruria is probably one of the best documented examples of the deliberately designed integration of a canal with an industrial operation and an ornamental landscape. The Etruria works and Etruria Hall and the Trent and Mersey Canal were all constructed at the same time Wedgwood being one of the promoters of

[53] Patrick Goode and others, *The Oxford Companion to Gardens*, (Oxford: Oxford University Press, 1986), p. 161. Mowl and Barre, *Staffordshire*, p. 165. Hadfield, *The Canal Age*, p. 39. Keith Goodway pers. com. re Emes.

[54] There are conflicting accounts regarding the genesis of the design of Tixall Wide and interpretation of its being a lake rather than a widening of the canal or the river. Brown’s work at Tixall was early 1770’s at the same time as he was working for Clifford’s brother at Ugbrooke in Devon. ‘Thomas Clifford paid twenty-five guineas for a plan for widening the River Sow in the park, with a bridge, the ‘lake’ being known locally as ‘Tixall Wide’.’ (Brown*, The Omnipotent Magician*) However the canal, opened in 1772, runs between the house and the river and from the Tixall portico the Cliffords had a view of, ‘one continued lawn of the finest verdure, gently sloping from the house to the canal: which here appears like a noble river meandering through the valley.’ (T. S. Clifford and A. Clifford, *A Topographical and Historical Description of the Parish of Tixall in the County of Stafford* (Paris, M. Nouzou*,* 1817), p. 95-6 cited in Phibbs, *Place-making : the Art of Capability Brown*, p. 215.

[55] At Hawkstone, Shropshire, Emes built a canal along the contour below the Hall, by making a dam along its lower side, thus creating the one and a half mile long "River Hawk" winding along the slope below the Hall, with trees planted on the far side from the Hall, so that the slope continuing to fall away beyond could not be seen. The late Keith Goodway kindly pointed out that no stream or river runs into the ‘River Hawk’, so the water must come from land drainage. A ‘Menagerie Pool’ was made on the other side of the Hawkstone estate.

the canal and its treasurer.[56] He was understandably closely involved with the construction of the canal and particularly in the vicinity of Etruria. Wedgwood commented in a letter of 1767 to Bentley,

> Mr Henshall [James Brindley's surveyor] and I have spent yesterday and today at Hetruria in setting out the Canal through the district and on Monday next I shall begin to make it. The fields are unfortunately so very level that the Canal will run in a straight line through them, at least so it is set out, for I could not prevail upon the inflexible Vandal to give me one line of Grace – He must go the nearest, and best way, or Mr Brindly wod go mad.[57]

This has been taken as implied criticism of Brindley, yet he and Wedgwood were great family friends, so one suspects the comment is more ironic, for map and survey evidence reveal that Wedgwood achieved his wish to give the canal a 'line of Grace' and he also had it widened because he wanted, 'to make the canal opposite the works wide enough for a boat to lye to the side of the Canal without interrupting the Navigation by which means every material will be taken out of the boat opposite to that part of the works where it is wanted.'[58] He also wanted a branch of the canal to go round the back of the works so that he could have 'the front clear of all business.'[59] Wedgwood was thus very much concerned with the view of the works from the canal and from the Hall. A detail of the Etruria section from a 'Plan of the Grand Trunk Canal' and the earliest surviving plan of Etruria of 1796, show the works alongside the canal with the branch going behind and the two widened areas, with Etruria Hall and Bank House identified (Figure 4.43 and 5.16).[60] A plan in the Wedgwood Manuscripts dated 1805 shows a number of half-circle inlet sections to the canal on the Etruria Hall bank, including one with a circular island (Figure 5.17). The geometric shapes are similar to those on the plans of Fountain Place, in reality

[56] Canal company treasurers were sometimes responsible for payments from subscribers to the engineer who then paid the contractor on site; this was the case with the Trent and Mersey of which Wedgwood was treasurer and Brindley engineer.
[57] Letters Volume 2, p. 86, Wedgwood, Wedgwood Museum.
[58] Letters Volume 2, p. 106, Wedgwood, Wedgwood Museum.
[59] Letters Volume 2, p. 110, Wedgwood, Wedgwood Museum.
[60] *Plan of Grand Trunk Canal (Trent and Mersey Canal) from Etruria potteries Parish Stoke on Trent to Grange Bridge Parish Burslem*, n.d. probably early 19th century, D3191/2/4, Staffordshire and Stoke on Trent Archive Service.

the inlet formation may have been softer. There is tree planting to a minimum width of four trees along the whole of the canal boundary with the park and there is no evidence of a bridge between the park and the works. Further development may have occurred after Wedgwood's death (1795), perhaps when more screening was considered desirable. The canal at Etruria formed an integral setting for the manufactory equating to the ornamental sheet of water in the view from the Hall and the grounds, but it also foregrounds views of the Hall itself as was typical of views of gentlemen's seats (Figure 5.18).

Canals cut through one's grounds were not always welcomed even by industrialists who appreciated their benefits, as was the case with the Cromford Canal (opened 1794), which, although of commercial importance to the Arkwright mills, cut through the lawn and garden of Rock House which had enjoyed uninterrupted views to the south, west and east over park-like pastureland with the River Derwent and hills to the west (Figure 5.19). Arkwright complained of the inconvenience the canal crossing his land would cause him, and that 'The roads would be soiled during construction and the horses used on the canal will eat all the meadows.'[61] He negotiated changes to the design of the canal as noted by Captain Gell, 'He was always against the Canal running so near the House [...] he will be satisfied if we can carry it near the Bridge & as close the Derwent as possible he wants the Green--- & will not be so closed hemmed in if he can help it.'[62] An undated plan of the canal of c.1790 shows clearly how the canal divided the garden in two, suggesting a productive area.[63] Yet Arkwright recognized potential pleasurable advantages as only a couple of weeks later he spoke, 'of pleasure Boats and entertaining my Company in the Water & talked of having inserted in the (Parliamentary) Act his Boat—an open Canal where every Man an Englishman may have a Boat that pleases.'[64] A

[61] Friends of Cromford Canal, 'Cromford Canal'. https://www.cromfordcanal.info/about/history.htm Accessed 21/10/2019.
[62] Hool and Joyce, 'Rock House', p. 4. Hool and others p. 4. Citing Fitton, *Spinners of Fortune*. Letter from Captain Gell to his brother Philip Gell of Hopton.
[63] Hool and Joyce, 'Rock House', p. 9.
[64] Hool and Joyce, 'Rock House', p. 5. In fact, the following was included in the Act: XCI. 'And be it further enacted, That it shall be lawful for the Owners and Occupiers of any Lands adjoining to the said Canal and Collateral Cut to use any Pleasure Boat or Boats upon the said intended Canal and Collateral Cut (not passing through any Lock, unless they shall first pay Tonnage equal to a Boat or Vessel carrying Ten Tons, or obtain the Consent of the said Cromford Canal Company) without any Interruption from the said Cromford Canal Company, and without paying any Rate for the same, so as

year later he negotiated, ‘for upward of two hours [...] for the Sale of part of [...] (his) Garden and Lawn &c.’[65] It was agreed that Arkwright would be paid £50 compensation “for the injury done to his Garden” and a further £207 5s 10d for building “new Garden Walls” and removing soil from the old to the new garden.[66] Though unhappy about the significant impact on his gardens Arkwright made a virtue out of necessity ensuring he achieved both financial recompense and provision in the Act to use the canal for a pleasure boat.

Canals not directly within the immediate garden experience might still have been within that of the industrial estate. Oldknow was a chief sponsor of the Peak Forest Canal that transported limestone from his quarries at Doveholes to his Marple lime kilns.[67] This canal was carried one hundred feet above the River Goyt by an aqueduct (begun 1794, completed 1805), and a painting by Joseph Parry of 1803 bears a remarkable compositional similarity to one of the Iron Bridge by William Williams of 1780, and the aqueduct has roundels not dissimilar in design to the Iron Bridge (Figures 4.45 and 4.47).[68] The aqueduct was part of the experience of the wider Mellor and Marple landscape and the canal itself ran almost parallel with the River Goyt in order to deliver limestone and coal direct into the top of the limekilns; though higher than Oldknow’s gardens it is possible that the movement of barges might have been visible.

Whilst primarily for commercial benefit, it is evident that canals were used for pleasure. The Wedgwood family had a pleasure boat which they used on the Trent and Mersey Canal, including taking visitors through the Harecastle Tunnel engineered by Brindley and about four Miles from Etruria (Figure 5.20).[69] This was similar to the Duke of Bridgwater taking excursions in a

the same be not made use of for carrying any Goods, or other Things, and so as the same shall not obstruct or prejudice the Navigation of the said intended Canal and Collateral Cut, or the Towing Paths on the Sides thereof.’ 1 May 1789.

[65] Hool and Joyce, ’Rock House’, p. 5.

[66] Hool and Joyce, ‘Rock House’, p. 39.

[67] Peak Forest Canal Act of Parliament passed 1794, main section opened 1797.

[68] The Marple Website, 'Peak Forest Canal and Marple Aqueduct History'. https://www.marple.website/canals-and-waterways/peak-forest-canal-history.html Accessed 18/10/2019.

[69] More, Travel Journal, vol. 2, uncatalogued, British Library, 20 July 1776. Repairs to boat, various including for example to H. Henshall & Co ‘for the Pleasure Boat’, £0 11s 8d, Etruria 25 June 1779 to H. Henshall & Co., 1779, W/M 1735, Wedgwood - Mosley, Wedgwood Museum.

gondola on the Bridgwater Canal to view his works like the occasion described by Wedgwood, 'drawn by a mule 9 miles along the Canal from Worsley to Manchester in his Graces Gondola & in about an hour & half along the most delightful valley, at least it appeared to me, perhaps not a little owing to the mode of conveyance. Here we had ocular demonstration of the great utility of Inland Navigation for the improving of land.'[70] Arkwright, despite being concerned about the Cromford canal cutting through his land, was nevertheless keen to have a boat that he could sail and entertain. Boulton used the canal in August 1799 as part of his entertainment of the Russian Ambassador, Count Woronzoff, hiring two 'Compleat Seating Barges with Covered Cabins & 6 Sash Windows in each.'[71] One of the barges had musicians who played as the party travelled on the canal to tour the foundry, 'Coal Mines, Iron Furnaces, Fire Engines & sundry works', with 100 torches lighting the way when night fell.

5.6 Canal Reservoirs

Fountain Place, the 'spacious and elegant mansion' built to the west of his manufactory in Burslem by Wedgwood's fellow potter and friend, Enoch Wood, was 'surrounded by convenient pleasure grounds, having an extensive prospect over the summit pond of the Trent and Mersey Canal.'[72] Ward notes that the 'first clod of the Grand Trunk Canal was dug by Josiah Wedgwood on the 26th July, 1766, on the declivity of Brownhills, in a piece of land, now belonging to Mr. Wood.'[73] Whether this is referring to Enoch Wood or another of his family is unclear, but it would suggest he had a direct interest in the canal, certainly his business partner of twenty eight years, John Caldwell, was a prominent shareholder. Thus, the prospect over the summit pond was both pleasing aesthetically and a reminder of the canal's commercial benefits. Summit pools and reservoirs such as this were built to maintain water levels if a canal could

[70] Letter from Josiah Wedgwood to Dr Darwin, Lichfield. 10 July, 1765, MS 1633/4, Boulton and Watt, Library of Birmingham.
[71] Mason, *The Hardware Man's Daughter*, p. 114. Citing a letter from Matthew Boulton to Charlotte Matthews, 7 Aug 1799, MS3782/12/69/161, Boulton and Watt, Library of Birmingham.
[72] Stebbing Shaw cited in Falkner, *The Wood Family of Burslem*, p. 81.
[73] John Ward, *The Borough of Stoke-upon-Trent in the Commencement of the Reign of Her Most Gracious Majesty Queen Victoria, Comprising Its History, Statistics, Civil Polity, & Traffic, with Biographical and Genealogical Notices of Eminent Individuals and Families; Also the Manorial History of Newcastle-under-Lyme, and Incidental Notices of Other Neighbouring Places & Objects.*, (London, UK: W. Lewis & Son, 1843), p. 154.

not be adequately supplied from natural sources. Sir Nigel Gresley, who had already built a three mile canal from his collieries at Apedale to Newcastle-under-Lyme (completed c. 1776), created the Serpentine Lake at Knypersley Hall in 1783 as one of three reservoirs to help maintain supply to the Caldon Canal, a branch of the Trent and Mersey Canal, though unusual in being below the summit level.[74] James Bateman of Bateman and Sherratt bought Kypersley in 1809, but it was his son, John, who, looking after the family's industrial interests in the area, further developed the grounds.[75] In 1827 he linked the Knypersley Pool to the 'higher' lake making a 43-acre reservoir which increased both the picturesque qualities of the landscape and the security of supply to the Caldon Canal (Figure 5.21). This use of canal reservoirs was not unusual, for example at Wentworth Woodhouse one of the lakes in the park was a reservoir for the Greaseborough Canal, and at Belvoir one of the two reservoirs for the Grantham Canal, which was the first in England to be wholly supplied by reservoir, is within Capability Brown's design of the park, with a carriage drive going across the dam.[76]

5.7 Pond/Lake-reservoirs

Bodies of water had been associated with elite landscapes since medieval times when moats often holding fish formed an ornamental and productive as well as defensive function. Fresh water fish were high status with holding ponds (*servatoria*) often located close to the house, being both ornamental and signifier of status to visitors, rather than in a service area; the larger production ponds (*vivaria)* were often in the deer park which gave some measure of protection. Mills were the preserve of the lord of the manor and thus mill ponds similarly denoted high status and might be incorporated into a designed landscape whilst the mill itself might be hidden from view. Bishop has shown

[74] Priestley's Navigable Rivers gives 3 miles. Sir Nigel Bowyer Gresley purchased Apedale from his father in 1776.
[75] Bateman and Sherratt, based in Stockport, were rivals to Boulton and Watt. It was John's son, James who developed the gardens at Biddulph.
[76] Charles Hadfield and A. W. Skempton, *William Jessop, Engineer*, (Newton Abbot: David and Charles, 1979), p. 262. 'The canal is cut through a clay soil, and has its water entirely supplied by reservoirs, of which there are two; one at the summit level near Denton, of twenty acres, 9 feet deep; the other at Knipton, made for the purpose of receiving the flood waters of the River Devon, and covering sixty acres; when first made, this reservoir was 9 feet deep, but the head has since been raised 4 feet higher.' Act of Parliament, 33 George III. Cap. 94, Royal Assent 30th April 1793.

that both fish ponds and mill ponds were subsumed into later ornamental water and that watermills were a recurring motif into the eighteenth century, for example Brown's improvements at Chatsworth which disposed of the mill and fish pond close to the house but erected an ornamental mill in the gardens.[77] For a long time therefore water had been used simultaneously for its productive and aesthetic qualities. In industrialists' landscapes where reservoirs were integral to the provision of power, they were located in the best place to facilitate supply and demand, not necessarily the most aesthetically pleasing, but the water was nearly always brought into the ornamental aesthetic.

Lakes, river-lakes or serpentines, were the signature of the English landscape garden and it has been assumed that they evolved in tandem with more naturalistic design, however, Bishop's recent research has identified that irregular lakes were constructed in essentially geometric gardens from the 1720s and that if anything it was the naturalistic lake that influenced the development of the naturalistic garden rather than vice versa.[78] Natural lakes were rare in a garden context but adoption of the irregular naturalistic lake gathered pace through the eighteenth century.[79] Bishop has also noted that the term 'lake', although first used by Vanbrugh, was not usually used throughout the period.[80] This has similarly been noted during this research on industrialists' landscapes. Bishop uses the definition of a lake to be an area in excess of one hectare, stream or river fed and thus running water, a point reinforced by Mary Anne Schimmelpenninck when describing Galton's grounds at Duddeston with its long lake of four or five acres, 'the pond, or rather, perhaps, lake, since the stream on which Birmingham stands runs through it' (Figure 3.31).[81]

In addition to the rectangular canals to the front of the mansion suggesting a construction date of late seventeenth or early eighteenth century, the 1752 plan of Pontypool shows four substantial ponds in the park (each under one hectare), all linked to the forge (Figure 3.12). The perspective of the plan dated

[77] Bishop, 'Origins and Evolution of Ornamental Lakes', p. 51. See also Phibbs, *Place-making: the Art of Capability Brown*, p. 47.
[78] Bishop, 'Origins and Evolution of Ornamental Lakes', p.98.
[79] Bishop, 'Origins and Evolution of Ornamental Lakes', p.191.
[80] Bishop, 'Origins and Evolution of Ornamental Lakes', p. 112.
[81] Bishop, 'Origins and Evolution of Ornamental Lakes', pp. 20 and 26. Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 40.

September 1753 appears to clarify the change in level between the canals and the forge pool immediately below (Figure 3.50). The canals, even if purely ornamental, would have required an overflow, it would be logical for that to feed into an intermediate pool; the flow to the forge could thus be regulated at more than one point. At least two ponds were fed by the Nant y Gollen stream which flows through the teardrop shaped pool further south in the park. Ornamental value appears to have been conveyed on all of the ponds, with the large rectangular pond furthest from the mansion nearest to the gates at Pontymoile being overlooked by a seat around a tree and that on the Nant y Gollen flanked with an avenue of chestnuts, which themselves served a dual purpose of beauty and profit, providing wood from regular pollarding. Additionally, there were two reservoirs higher up in the hills, more remote from the main park and forge, in an area that was developed in the 1850s into the American Gardens. It is not unlikely that these reservoirs had originally been created in the eighteenth century or earlier to help supply the forge pond, and when Park Forge was demolished in 1827, a new use was found for them.[82] One is on the Nant y Gollen stream, the other is stream fed by small cascades with its several outfalls discharging also in cascades into the Nant y Gollen. The latter pond-reservoir is retained by a dam that follows the contours and forms a 'natural terrace' from which there would have been views or glimpses out across the park from the carriage drive going up to the folly tower.[83] Using the top of a dam for a carriage drive was a common device, adopted by Brown and other designers. The Japanned painting dated to 1763 shows a ridden horse drinking at a trough fed from a circular pool, which is not shown on either the 1752 or the more detailed 1753 view, although a strange crescent appears in about the same location on the 1753 view (Figure 3.50). A small pond exists at this point today and is referred to as the Deer Pond after its depiction in the 1765 japanned painting (Figure 5.22). Further evidence of its historic existence is given by Hanbury Tenison's recounting of a story dating to 1798 that Thomas Stoughton (who had married John Hanbury's widow, Jane) would occasionally tease his step son, Capel Hanbury Leigh who was managing the forge at the time, by turning off the supply to the forge from a large pond near Pontypool

[82] Hanbury Tenison, *The Hanburys of Monmouthshire*, p. 205. No forge is shown on the Plan of Pontypool 1836.
[83] For a discussion on the 'natural terrace' see Phibbs, *Place-making: the Art of Capability Brown*, p. 81.

House, sometimes thought to be the Deer Pond, although it could have been the 'The Pond in the Little Park'.[84]

At the Gnoll, the complex of pond-reservoirs and the associated natural streams were all engineered to power the various works on the Preswylfa /Gnoll Brook and in the valley at Neath, including the steam engines used to pump water from the mines. The first reservoir for the works was the Great Pond built c.1680. The second, Fish Pond, that had evolved possibly from a series of fishponds into one stretch of water became a key feature of the extensive gardens begun in the mid-1720s and was enlarged in the 1730s incorporating a minor road (Figure 3.13).[85] The formal cascades tumbling down the hill and into the pool were constructed in about 1727 in the woods on axis with a long garden vista (Figure 5.23). The Guinea Pond was built in the 1740s to supplement the increase in industrial production; unlike Great Pond and Fish Pond, which only required dams to one end, it required damming on three sides, its outline is therefore less organic but it still appeared aesthetically pleasing, forming a large waterscape in the extensive pleasure grounds. The circular pool in the area nearer to the house shown on the 1720 plan had gone. By the time of the 1801 Padley *Map of part of Gnoll Estate,* both ponds retain their earlier shape including the carp hook to the southern end of the Fish Pond but the route of the cascades is not evident in the woods, although the route of the old road dissected by the Fish Pond is still shown (Figure 5.24).

The first reservoir at Warmley, known as Echo Pond after the description given by the 24-year-old Joseph Banks in his journal of 1767, was either built or adapted around the same time that the Fish Pond at the Gnoll was being embellished with cascades (Figures 5.25 and plan 3.20).[86] It has been dated to

[84] Hanbury Tenison, *The Hanburys of Monmouthshire*, p. 199.
[85] There is some evidence of limes having been used also at Pontypool along the river.
[86] MS. Add. 6294, Sir Joseph Banks: Journals, Cambridge University Library 'A very surprising Echo standing about ten or twelve yards from the person who speaks their voice seems to be repeated out of the Clouds in the softest tone imaginable, they themselves not hearing the Repetition but what is more remarkable is that tho' it is confined to a small gravel walk not more than twenty yards in length it is not always in the same place, being sometimes at one [part] & sometimes at the other the walk is close by the side of a semi-circular piece of water walld in with a small parapet but I was told by the people there that the Echo was there before that wall was built or water made.'

the early to mid-eighteenth century, so it is possible it existed prior to the site's purchase by Nehemiah Champion (William's father) in the early 1740s. Built of pennant sandstone with slag block coping, possibly added later, and deep clay base, it is a rather unusual semi-circle, the curved edge stepped out internally forming a dam between it and the 13-acre lake-reservoir which came into operation around 1752; a path now runs along the top of the dam.[87] This small sheet of water lies at the foot of a sloping lawn directly below the mansion, thus, whichever came first there was no attempt to remove the industrial from the ornamental environment. Although it must have been in existence at the time of his visit, Banks does not mention the lake nor indeed any other element of the gardens. The thirteen acre lake-reservoir was a long irregular rectangle stretching from the summerhouse in the north to the windmill in the south, it was formed by damming the Warmley Brook at the south western edge of the site, and the building of substantial retaining walls along the southern end continuing up to the top end of the Echo Pond. Gates in the dam regulated the water level, ensuring a continual supply of water to the works. A weir between the canal/leat and the lake-reservoir was another means of controlling the flow of water from the Siston Brook and providing a picturesque incident on the Elm Walk. The treatment of the environs of the lake was clearly for ornamental effect, according to Ellacombe's history (1881), there were rows of trees to either side of the large pond in front of the house.[88] Writing over one hundred years later, the description of large trees could be consistent with them having been planted by Champion. Trees would have deadened the sound and the pollution from the works, but were also consistent with Batty Langley's advice that, 'Canals, Fish-Ponds, &c. are most beautiful when environ'd with a Walk of stately Pines.'[89]

[87] The lake can be dated from Champion's 1767 proposal for the new floating harbour in Bristol in which he referred to the dams he had built at Warmley and at Bitton, 'Two Dams (of those I have built) at Warmley and Bitton, I think, are each of them wider than the intended one over the River (Avon), and near its altitude, consequently the pressure of water against them near equal to this of the dam now intended; their bases for resistance but twenty-five feet; […] Over Warmley and Bitton Dams run very rapid floods; the former has been fifteen years in use; The Gleg or Filling up, although not half a mile long and generally no current, is scarcely perceptible.' Printed matter re "Design for keeping the Ships afloat at all times in the Harbour of Bristol", 1767, with letter about them, 1803, item 4) 'William Champion's address to the citizens of Bristol on the scheme for keeping ships afloat in Bristol Harbour', D421/X3 Bathurst family of Lydney, Gloucestershire Archives.

[88] Ellacombe, *The History of the Parish of Bitton in the County of Gloucester*, p. 228.

[89] Langley, *New Principles of Gardening*, XXIV.

The presence too of the eight metre high Neptune rising from the island is a strong indication that Champion had an aesthetic agenda alongside the industrial.[90]

At Duddeston House (Galton) there were two large lake-reservoirs both in view of the house, and a small horseshoe shaped pool, all incorporated into the ornamental experience of the landscape, the largest with the mill at the far southern end. These are shown on the plan included with a lease of 1835 and another of 1819 identifies the mill at the end of the lake (Figure 3.31).[91] The lake-reservoir border was, 'indented, and clothed with the finest willows and poplars I ever saw', paths meandering on the banks and with a 'rustic fishing-house at the farthest end of a pool'.[92] The lake-reservoir was clearly seen and used as a lake by the Galtons as were those of fellow Lunar Society member, Matthew Boulton at Soho, who altered the pre-existing mill pool primarily to increase the water available for the manufactory.[93] In 1785 François de La Rochfoucauld noted, 'There is no lack of ornamental water: three strips of it have been created, at great expense.'[94] A peninsular became part of the kitchen garden and the island planted with trees was intended for swans.[95] The pool was extended several times until it was amalgamated with Great Hockley Pool in the 1820s. Both pencil and watercolour views of Soho House, for example by John Phillp and Francis Eginton depict the house set in parkland, water in the foreground, the lake-reservoir was thus part of the setting of the house as with elite mansions.[96] An undated drawing by Rachel Albright of

[90] See p. 146 for more on the Neptune statue.
[91] MS 28/74, Wragge and Co., Solicitors, Birmingham, Library of Birmingham. Lease for term of 21 years (Duddeston), (Samuel Tertius Galton) to Thomas Lewis for annual rent of £142, 1835, MS 28/74. Lease of Land at Dudson, 1 November 1819, MS 28/70, Galton Papers, Library of Birmingham.
[92] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, pp. 40-41.
[93] Ballard, Loggie, and Mason, *A Lost Landscape : Matthew Boulton's Gardens at Soho*, p. 2.
[94] La Rochfoucauld, *Innocent Espionage*, pp. 112-113.
[95] Ballard, Loggie, and Mason, *A Lost Landscape : Matthew Boulton's Gardens at Soho*, p. 10.
[96] Various views in an album of watercolours and sketches by John Phillp, e.g. catalogues 27-29, Birmingham Museum and Art Gallery. Francis Eginton, *South West View of Soho,* 1798, William Salt Library, https://www.search.staffspasttrack.org.uk/Details.aspx?&ResourceID=9285&PageIndex=1&KeyWord=soho&SortOrder=2

Farm Pool shows a summerhouse or fishing house in a shaded corner (Figure 5.26).[97]

At Mellor Mill, a series of three large reservoirs were created for the mill which remained water powered from its construction in 1790 until 1860. The gardens of Samuel Oldknow's Mellor Lodge were contained to the east by the mill pond immediately to the south of the mill and its larger feeder reservoir beyond, and to the west by the River Goyt. A third smaller reservoir-pond was constructed at Linnet Clough a little distance away. The main lake-reservoir in this case was the setting for the vast mill, enhancing its size by reflection, rather than for Oldknow's house (Figure 4.18). Oldknow planted willow around the 'lakes' to provide employment for men (it was mostly women and children in the mills) in making baskets or skips etc for use in the mill and for sale.[98] This also encouraged water fowl which could be used for food, duck being better eating without lead shot and although there is no direct evidence, it is not unlikely that there were decoys in order to catch the fowl.[99]

One of the more interesting water systems was created by William Crawshay II at Cyfarthfa which included a lake and substantial water storage balancing ponds as an integral feature of the grounds, all constructed at the same time as the castle and park (Figure 5.8). The Bryn Cae Owen Pond at the highest point fed a flight of four elliptical ponds, the balance ponds, which in turn, controlled with sluices linked into a leat that, together with the Taf Fechan Leat, fed the large puddled clay lake-reservoir below the castle that was dammed on the lower side (Figure 5.27). Samuel Homfray, who had lived at Penydarren next door to Cyfarthfa Castle, later developed a similar series of [five] interlinked rectangular ponds with small spillway/cascades from one to another at Bedwelty, not unlike the balance ponds, but these appear to have been purely ornamental with no industrial function. The large reservoir for New Eagley mill was to the rear of the works buildings, not within the environs of the house, but it immediately bordered the road to Bank Top the housing built by the

[97] Drawing of Farm Pool by Rachel Albright, undated, MS 1509/4/1/3 Finding No MS 1509/4/3 [Partially unlocated], Albright Family of Edgbaston, Library of Birmingham.
[98] Unwin, Samuel Oldknow and the Arkwrights, p. 213.
[99] Decoys were much used in seventeenth century and revived in the nineteenth for sporting interest. Brown, *The Omnipotent Magician,* p. 278.

Ashworths and to the west by woodland, which was possibly an extension to the orchard of the extensive manufactory garden and thus was potentially more to be enjoyed by the employees (Figure 5.28).[100]

There was no blueprint for the lake-reservoir, each situation resulted in a different solution for the industrial need but in all cases the body of water became ornamental as well as operational, becoming a principal feature in the landscape design as a setting for a principal building, whether that was the house or the manufactory, and of the landscape experience. Where there were more than one lake-reservoir, then these too were subsumed into the landscape aesthetic to be enjoyed for their picturesque qualities and appreciated also for their productive role in the industrial process.

There are a number of references to boating on lake-reservoirs, with visitors to Soho sailing on one of the pools.[101] The presence of boat houses for example at Warmley, Duddeston, and Cyfarthfa, reinforces this as does the existence of islands which whilst providing for wild fowl also afforded a destination for boating trips and picnics. The younger Ashworths and their friends sailed on the lake-reservoir at The Oaks.[102] But sailing was not confined to lakes and canals, Richard Crawshay wrote to John Wilkinson on 20 April 1797 about spending six weeks in Devon inspecting the silver mine and sailing.[103]

5.8 Other Large Areas of Water

There is no evidence of any of John Wilkinson's homes being directly integrated with his industrial activities; most, though close, were not adjacent to one of his major enterprises. However, the small scale experimental and industrial activity at Wilson House was contiguous with his Castlehead estate and it was here that

[100] ABZ/36/1, Ashworth, Bolton Archives & Local Studies Service.
[101] Ballard, Loggie and Mason, *A Lost Landscape*, p. 11
[102] Boyson, *The Ashworth Cotton Enterprise*, p. 248.
[103] D2.162, Crawshay Brothers (Cyfarthfa) Ltd, Gwent Archives. A few months later he requested Samuel More to supply him with, 'a harpoon gun or blunderbuss capable of being fired from the shoulder with which to shoot porpoises' and he enclosed instructions on the design of the harpoon. He had long thought that, 'porpoises consume twenty times more fish than man and that a cull would therefore cheapen salmon in the Severn and Thames.' Crawshay, *The Letterbook of Richard Crawshay 1788-1797 - Calandared by Chris Evans with an introduction by G.G.L. Hayes*. Letter No. 591, 6 August 1797, RC to Samuel More, p. 172.

he embarked on probably the most audacious feat of water manipulation. In 1778 in return for land, he agreed to undertake flood defence measures to control a large tract of salt marsh and meadows including an area known as Lindale Pool that flooded at high spring tides. In his Autobiography Sir John Barrow (1764-1848), a distinguished naval administrator and Secretary to the Admiralty originally from Ulverston, recalled, paying a visit to Castlehead in about 1781, 'to see the manner in which Mr Wilkinson had proceeded in obtaining from the naked sands of Morecambe a great extent of the most verdant meadow-land that eyes could wish to behold, mostly and simply by driving in stakes to obstruct the tide both in its flood and ebb.[104] However, elsewhere reference is made to Wilkinson building a bank across the River Winster valley between Castlehead and Low Meathop, and that appears to be shown in a William Daniell aquatint of 1815/6 (Figure 3.64).[105] James Watt, while staying at Castlehead, reported in a letter to Matthew Boulton (25 November 1787) that Wilkinson was 'doing great things in the way of draining mosses.'[106] This was something also commented upon in Wilkinson's obituary in the *Lancaster Gazette*, 23 July 1808, 'he had created a considerable increase to his property by reclaiming a large part of moss land, which has been spoken of by agriculturists as among the first efforts of the kind in this or any other county.'[107] In addition to the improvement of the land, making it more productive, this provided a dramatic setting for Castlehead, particularly when approached across Morcambe Sands, as Wilkinson often did. It is not dissimilar from the setting of Mount Edgcumbe, described by Wedgwood and Samuel More, which Wilkinson may have visited on one of his visits to Cornwall, although there is no documentary evidence to support this. It would also have improved the view from Wilson House slightly further inland.

There were smaller pools, smaller incidents on a walk or as seems the case at Etruria to water stock or plants. There were four fish ponds at Etruria including

[104] Sir John Barrow, Bart, *An Auto-Biographical Memoir of Sir John Barrow, Bart, Late of the Admiralty; Including Reflections, Observations, and Reminiscences at Home and Abroad from Early Life to Advanced Age*, (London: Murray, John, 1847), p. 29.
[105] Frank Dawson, *John Wilkinson : King of the Ironmasters*, (Stroud: History, 2012), p. 87 Dawson cites a lawyer's abstract among documents examined by him in 1982-3, courtesy of Mr Norman Kerr, bookseller, of Cartmell, Cumbria.
[106] Frank Dawson, Research Notes, ARCH/31, John Wilkinson, Ironbridge Gorge Museum Trust.
[107] 'Births, Deaths, Marriages and Obituaries', *Lancaster Gazette,* 371 (1808).

that by the walled garden and two pools between the house and the canal, one much larger than the other, which created a single pool after heavy rainfall.[108] A letter from thirteen-year-old Tom Wedgwood to his father, dated 20 April 1784, refers to a dam on a lower pool having been damaged by the cows that drank there with a suggestion to erect post and rail fencing to protect the dam and allow water from the pool to create a new watering place for the cattle.[109] The damning technique on the downhill slope appears to be similar to that used by Emes' for the River Hawk at Hawkstone.

By 1600 ponds were being used for angling as a pastime, rather than purely for obtaining food, and fishing was a frequently mentioned pastime of industrialists' families.[110] Dezailler d'Argenville had included water as one of the three essential conditions out of his five main criteria for the situation of a country house and garden, and not only for its visual aesthetic,

> where Water is plenty, Ponds and Canals may be made, which are most delightful Pieces in a Garden. Upon these Canals you may have small gilt Gondolas and Pleasure-Boats, and they should be very well stock'd with Fish, for the Diversion of Fishing in them. To add still father to the Ornament of the Water, Swans, Geese, and Ducks of different Kinds and Colours, are a very agreeable Sight.[111]

William Shenstone writing to Edward Knight on 5th May 1759 on possible improvements to Wolverley, had similarly suggested that a place for 'Gold-fishes, somewhere in ye stream yt runs beside your Lower-walk – These things you say savour much of *Art*: but in answer to this, the Love of *Variety* is no inconsiderable Part of *Nature*'.[112] Fishing, and a watery or 'fishing' garden, was associated with the concept of quietism in Puritan eschatological thought; the subtitle of Izaak Walton's *The Compleat Angler* (1653)*, 'the contemplative*

[108] The total cost of the fish ponds to Christmas 1787 was £267 18s 5¾d. 28642.43, Wedgwood - Etruria, Wedgwood Museum.
[109] Ernest J. D. Warrillow, *History of Etruria, Staffordshire, England, 1760-1951*, Coronation - 3rd and final edn (Hanley, Stoke-on-Trent: Etruscan Publications, 1953), p. 38.
[110] Bishop, 'Origins and Evolution of Ornamental Lakes', p. 52.
[111] D'Argenville, *The Theory and Practice of Gardening*, p. 75.
[112] Roy Lewis, 'William Shenstone and Edward Knight: Some New Letters', *The Modern Language Review,* 42 (1947), 424, Shenstone Letter 423.

man's recreation', indicates that it was a quietist tract as well as a handbook on fishing, and the poetry of his friend, Charles Cotton is full of such sentiment allied with fishing.[113] Thus fishing was associated with retirement and contemplation. Samuel More noted 'attending some Fishermen at the Pond in the Garden at Broseley where they caught 3 ½ Braces of fine Tench,' and he also often records fishing at Castlehead.[114] Josiah Wedgwood junior wrote to his father on 29 May 1789, 'H. Wood saw a large pike [???] at the Ducks [sic] in the pool below the horse wath [wash], the which he caught but turned in again, it was about six or seven pounds.'[115] Successive members of the Hanbury family were keen on both shooting and fishing, in 1744 Capel Hanbury bought from Uvedale Price the remainder of the lease on the Manor of Undy which included the Crown Fishery, a stretch of some twelve miles, and in 1745 he leased from Lord Abergavenny fishing on the River Usk.[116] However, it was not a pastime reserved for the gentlemen but was also enjoyed by women as the Hogarth painting testifies (Figure 5.29).

5.9 Cascades and Weirs

In addition to the still, reflective (in both senses of the word) attributes of lakes, contemporaries valued the visual and aural sensations of waterfalls which increased in the latter decades of the eighteenth century as picturesque travellers extolled the thrill of natural cascades particularly in North Wales and the Lake District. The power of running water and especially waterfalls to

[113] Charles Cotton wrote a poem entitled *The Retirement*, that compared the virtue of the country with the idea of society and town/city being corrupt and bad,

> Farewell thou busie World, and may
> We never meet again;
> Here I can eat, and sleep, and pray,
> And do more good in one short day,
> Than he who his whole Age out wears
> Upon the most conspicuous Theatres,
> Where nought but Vice and Vanity do reign.

Paul Everson, 'Reflecting a Stance: Establishing a Position; Moving Beyond Description and Function in Designed Estate Landscapes' in *Estate Landscapes: Design, Improvement and Power in the Post-Medieval Landscape*', ed. by Jonathan Finch and Kate Giles (Woodbridge: Boydell & Brewer, 2007), pp. 113-128 (p. 116).

[114] More, Travel Journal, vol. 3, uncatalogued, British Library, 12 August, 18 and 20 September 1783, 17 September 1784.

[115] Letter from Josiah Wedgwood Junior to His Father, 29 May 1789, W/M 1460, Wedgwood, Wedgwood Museum.

[116] Hanbury Tenison, *The Hanburys of Monmouthshire*, pp. 114-115.

animate the landscape had been a much-appreciated feature in both the countryside and gardened landscapes for many years. Visiting Hagley in 1751, Dr Richard Pococke gave a matter-of-fact description, ‘Then you come to a rock-work of rough materials of the glass-houses and quarries, which supports the hanging ground above. This is formed into a hollow in the middle, and rising up about twenty feet, the water comes out of the rock-work in several streams in a falling about fifteen feet.[117] He also mentioned the beautiful cascades at Hackfall. Cascades of varying scale feature in many eighteenth-century landscapes. The greater the fall, the more dramatic the impact and the more evocative of the sublime. When linked with industrial production, this was a testament to man’s ingenuity and capacity to harness the power of nature for improvement. Weirs and man-made cascades as well as a few natural cascades were as much a feature of industrialists’ landscapes as of the elite, only in these cases the man-made usually fulfilled a dual function both productive and ornamental.

Mention has already been made of cascades falling from one of the reservoirs into the Nant y Gollen at Pontypool acting as regulators, but it is likely that there were other, smaller ones on its route through the park and nearer to the house which might have been encountered when approaching from the south. The formal cascades at the Gnoll have been described earlier, but further advantage was taken of the steep terrain to create small falls throughout the grounds as watercourses changed level. With the further development of the gardens in the 1740s, dramatic natural cascades were created in Mosshouse Wood over a mile distant from the Gnoll house with the grotto at the top and root house at the bottom.[118] These were fed by a reservoir higher up on the hill; the spectacle could therefore be enhanced by deliberately releasing more water (Figure 5.30). Thomas Pennant visited in 1774 and described the Mosshouse Wood cascade,

> the noblest Cascade I ever saw. The Length of the Fall is prodigious; & the Depths of the Cataracts gradually increase with Interstices of glassy Basons to the Foot of the Cascades. It is a little curved wch (sic) greatly

[117] Pococke, *The Travels through England*, p. 226, Hackfall p. 179.
[118] Whittle, *The Historic Gardens of Wales*, p. 49.

> heightens the Beauty; & at the Bottom one has the Whole Cascade in view braking (sic) from under a close Arch of Wood & roaring down the Middle of an Amphitheatre of Rocks finely mantled. [119]

A decade or so later, John Byng described how the cascade was manipulated,

> At a mile from the house, in a deep wood, is a fall of water of 300 feet over great rocks, towards a root house, where we sat; and saw the reservoir let loose to roll the stream with greater vehemence; this powerful body of water was 15 minutes in its descent of violent noise, and emotion, and was truly grand; but I own I prefer'd the first, modest and rural fall. [120]

The fact that this cascade could be manipulated to provide a spectacle for visitors – and possibly if necessary for extra supply to the works or to top up the reservoirs – demonstrates that it was very much designed to be a major feature in the landscape experience, even if the underlying requirement was to release water from a higher reservoir for industrial purposes.

More confined were the cascades at Soho, Boulton constructed the first in 1774 from the Little or Shell Pool down to Great Hockley Pool, which doubled as a storm drain and the second, built 1775-6, transected the first, and in a series of small pools described by Samuel Curwen as 'running down a narrow pebbled oval over a slope some length and emptying itself in a pond below making 2 artificial ponds.'[121] The 'lower pool and island' were created in 1775 on land below the manufactory in order to gather water for return to the water wheel in the manufactory.[122]

Cascades were mostly an incident on a walk in the park often some distance from and not directly visible from the house, but Mary Anne Schimmelpenninck

[119] MS 2589B, Pennant MS 69, The National Library of Wales.
[120] Byng, *The Torrington Diaries*, Vol. 1, Tour to South Wales 1787, p. 298.
[121] Ballard, Loggie and Mason, *A Lost Landscape*, p. 8. Citing Samuel Curwen and Andrew Oliver, *The Journal of Samuel Curwen, Loyalist. Edited by Andrew Oliver*, (Cambridge, Mass.: published by Harvard University Press for the Essex Institute, Salem, Mass., 1972), p. 348.
[122] Ballard, Loggie and Mason, *A Lost Landscape*, p. 10.

remembered the gardens at Great Barr seen from the house after snowfall, ‘the trees were beautifully fledged with frost and snow; the cascade seen from the windows was adorned with long and clear icicles, and the whole expanse of the lawn and valley was a sheet of unsullied snow.’[123] Descriptions of gardens in the snow are not common.[124] On later OS maps there is no cascade obvious but there are weirs on the river which might have been in view from the house and described as cascades.

Many sites were not located in terrain suitable for such dramatic water features. Quite often the industrial site was developed from an earlier operation like a corn, paper, fulling or slitting mill. Existing weirs, impounding or diverting water through the industrial process, usually to power a waterwheel, were put to new use, particularly for textile mills and ironworks. Thus, the Derby Silk Mills were developed from fulling mills using the weir and tail race of the adjacent town corn mill. The weir, which might have been raised around the time the silk mills were built, provided a cascade-like feature in the view from the summer house on the small formal island garden of John Lombe as well as from the water-side terrace of the mill itself. In about 1739, William Wilson of Leeds, joint owner with Samuel Lloyd of the mills from 1739 to 1753, is thought to have written the following in his description of the mill,

> The east side of the space or court-yard between the building afore-mentioned is open to a fine shute of water, being a main part of the River Derwent. From the same space by the side of the great building is a handsome gravel walk, which serves as a passage to the dwelling house at the north end of the building, and from the said space and walk is a prospect of the weir which turns the water to the mill wheels and forms a beautiful cascade, as also of another island belonging to the works, and made into a garden, which is 124 feet long and 27 feet wide, on the south end of which stands a very handsome summer-house with 4

[123] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 59.
[124] It is possible that recalling this in her old age her memory was at fault.

windows therein large and neat, the room within is 14 feet high by 13 feet 2 inches square.[125]

It is interesting that as a new owner his description of the water was in language that today would be considered to refer to its ornamental characteristics rather than technical or industrial. This is another indication that to contemporaries an industrial environment was not distinguished from an ornamental landscape in terms of how they viewed it aesthetically as a spectacle or as an example of improvement.

At Warmley, a small weir at the junction from the Siston Brook and the leat-canal that fed the Echo Pond and the lake-reservoir would have been a feature at the end of the elm walk between the canal and lake that led to the summerhouse and would have been visible and audible from its east-facing first floor window and door as well as on the walk. At the other end of the walk there was also a small weir from the leat-canal falling into the lake-reservoir opposite Neptune. It is as if this part of the landscape was a water garden (Figure 3.20).

The weir just upstream of Masson Mill on the River Derwent was probably built about the same time as the mill in 1783; its unusual convex form is possibly due to the underlying rock structure (Figures 5.31). William Adam in his description emphasizes the sublime atmospheric qualities of the effect of the water coupled with that of industry, 'Immediately below to the left the river loses its quiet and peaceful character, breaking in fury over the Weir and foaming amongst the dark fragments under it – and close by, the Mill mingle the din of its heavy machinery with the roar of the fall.'[126] Thus visitors first encountered the sound of the weir accompanied by the noise of the mill from the precipitous Cat Tor, only when they had traversed the narrow paths down to the riverside walk did they see the mill and its waterwheel across the water. Further upstream, at the conclusion of their tour of the Willersley grounds, as they moved from the private gardens into the public Lovers' Walks, visitors were greeted with the

[125] 'Derby Textile Mills', https://derbytm.co.uk/gazetteer/derwent-area/derbysilkmill/1739-2/ Accessed 11/2/2019, Note as at 28/10/2019 this website was under maintenance.
[126] Adam, *Gem of the Peak*, pp. 73-74.

sublime experience of a highly picturesque waterfall cascading from the opposite side of the river (Figure 5.32).

At Quarry Bank, a dam for the mill pond and a stone weir on the River Bolin were completed in 1801 to control the water supply to two new water wheels (Figure 5.33). The fall on the weir generated a substantial cascade at the southern extremity of the lawn stretching to the west of the mill. This dramatic feature was in the setting of the mill rather than of the gardens that extended westwards from the house to the north of the mill but from which there would have been a distant view of the cascade. In addition, a cascade was constructed under the south bridge from a sluice in the mill race. This could be used, if necessary, to divert water away from the mill wheel and could have been directed through a culvert.[127] Both of these weirs created visual and aural interest in the vicinity of the mill but remote from the house and garden. Further small weirs were created on the river below the hillside gardens, possibly to retain water in pools when the flow rate was low, performing no industrial function, but increasing the noise of water, perhaps dampening the noise from the mill. This suggests that the Gregs wanted to retain the natural river in a pastoral view from their house and gardens whilst in the landscape to the south, more in the environs of the mill, they developed a more sublime, dramatic effect.

Canal reservoirs might also furnish opportunity for picturesque effect, like the spillway/weir at Knypersley, excess water overtopping the weir creating a cascade (Figure 5.34).

5.10 Islands

There were few very large lakes in industrialists' gardens, but a number included islands for both aesthetic effect, practical reasons and enjoyment. Their inclusion in the design might have been a device to disguise the end of the lake from the main views or to distort the breadth, both to make the expanse of water appear larger than it was, like the small one towards the south western

[127] Jonathan Price, '*The History of Quarry Bank House Garden, Cheshire*', (Institute of Historical Research, University of London, 2017).

end of the river-lake at Lark Hill (Figure 3.35).[128] They also broke up an otherwise engineered shoreline creating a more naturalistic view, this would have be particularly the case at Cyfathfa where the dam retaining the lake, farthest away from the view from castle, was straight thus the island interposed and softened the outline. Brown, Emes and others designing for elite landscapes employed these devices, so industrialists were adopting contemporary aesthetics for an industrial body of water. Some were designed primarily for wildfowl (utility) such as those at Mellor, but probably those elsewhere like Duddeston, Pontypool and Cyfarthfa performed a dual use. The presence of boathouses, for example at Warmley, Soho, and Duddeston, indicates that the lakes were used for pleasure with the islands being a destination perhaps for picnics or retreat. There is only one instance of an industrialist's house situated on an island, albeit one reached by 'a beautiful small bridge' and gates. This belonged to Mr. J. Carey and was, 'in a large reservoir, that supplies condensing water for the Steam Engine at the Mill, where are ground flour, and the various materials and colours for the manufactories; and when the engine is working, a single jet fountain throws up warm water several feet high.'[129] It also sported large cannons, but was exposed to the smoke of the manufactories. Warmley would appear to have been the only island designed solely to support a statue, the memorial to Brindley at Etruria rose from a pond formed from a former clay pit with there being no suggestion of an island. Wedgwood also had a mock 'island' garden in the canal which was an area of land almost surrounded by water but still connected to the park thus enhancing the impression of the canal being an ornamental sheet of water. Land forms that gave the appearance of being islands were used elsewhere like a promontory at Soho formed between the tail race and the Hockley Brook when a new reservoir pool was created in 1773; the kitchen garden was developed on this land with a new fruit wall built in 1776; later this became an island when the lake-reservoir was enlarged.[130] At Knypersley the Warder's Tower appeared to be on an island reached by an ornamental bridge, both of which were reflected in the water, but it was a promontory (Figure 4.38). The Lombe's island garden in a river is unusual.

[128] DX 2044/147, Documents of Unknown Provenance, Lancashire Archives.
[129] Shaw, *History of the Staffordshire Potteries*, p. 77.
[130] Ballard, Loggie and Mason, *A Lost Landscape*, p. 19.

5.11 Technology in the Garden

Where supply was limited, in some cases water was re-circulated to a reservoir affording ornamental interest, as was the case at Warmley, where the operation of the first Newcomen steam engine on the site, installed at a cost of £2000, was reported in the *Bristol Journal* on 30 September 1749: 'the water buoyed up by several tubes in a hemisphere of a conical form, falling into a pool as a cascade and affording a grand and beautiful scene.'[131] A more factual description was noted in 1754 by the Swedish engineer-cum-industrial spy Reinhold Angerstein,

> What is special about this mill is that it is driven by water, which is brought up from 3 fathoms (18ft) by a Fire Engine and then runs into a wide reservoir: from this onto the wheels and finally to the Fire Engine to be pumped up anew. Apart from this water engine there was at the other end of the Pond a Windmill, which pumped up water in this large pond from the area below it and built in the same way as all those similar in Holland.[132]

The Fire (steam) Engine was recycling the water, pumping it from a lower reservoir to a higher pool from which the water flowed into the headrace and back onto the water wheel to drive the hammers of the battery mills. Joan Day mentions that there had been similar use of a steam engine at Coalbrookdale some seven years earlier, however Richard Ford wrote to Thomas Goldney on 1 June 1734, 'been contriving and erecting a machine for Discharging a Part of our water back into ye Pool wch in a great measure I have perfected […] with help of one horse […] above half as much more as ye fier Engine in Madeley Wood.'[133] The second engine at Warmley mentioned by Angerstein could well have been an Archimedes screw, widely used in Holland for draining land and driven by a windmill, in itself an ornamental feature as such windmills were rarely seen in England. In Derby in 1692, an Archimedes screw

[131] Latimer, *The Annals of Bristol*, p. 550. Joan Day, *Bristol brass : a history of the industry*, (Newton Abbot: David and Charles, 1973), p. 81.
[132] Angerstein, *Illustrated Travel Diary*, p. 138. Pontypool drawing p. 139.
[133] Day, *Bristol Brass*, p. 80. Ford/Goldney [Letter] Book 1732-1776, Lab/ASSOC/10, Labouchere, Ironbridge Gorge Museum Trust Library. Goldney commissioned his engine for the circulation of water through the grotto and other water features at his Clifton gardens in 1764. Stembridge, *Thomas Goldney's Garden*, p. 18.

was used by George Sorocold to raise water from the River Derwent to a holding tank for distribution via wooden pipes, establishing the first town water supply in England.[134] Later, in 1784, John Trussler (1735-1820) in *Elements of Modern Gardening*, reinforced the potential of an Archimedes screw for raising water in a garden setting,

> If it be required to bring water out of an adjoining reiver that lies below the level of your ground […] raising the water still higher, either by a fire engine, or a water-wheel called Archimedes's screw, which takes it up at the circumference and throws it out at the centre; of course the height it is to be raised depends on the diameter of the wheel. Such a wheel may be seen at Painshill, Cobham.[135]

Charles Hamilton had designed and installed just such a waterwheel at Painshill, to lift water via an underground channel to the rustic cascade falling into the lake which was made about 1750.[136] It is worth remembering that engineers were employed to design and install waterworks in gardens, John Whitehurst FRS (1713-1788), clockmaker and member of the Lunar society, engineered cascades and hydraulic devices.[137] At Kew, John Smeaton (1724-92), 'In a Thicket near the House of Confucius' erected an engine in 1761 to supply the lake and pools, 'it answers perfectly well, raising by means of two Horses, upwards of 3600 Hogsheads of Water in Twelve Hours.'[138]

However, the use of a steam engine wholly for ornamental use is unusual even in elite landscapes, and it should be remembered that until 1781 and Watt's improvement that allowed for rotative action the steam engine was for pumping water. Thomas Goldney III erected one in his small (1.6 hectares) garden at Clifton, Bristol, in 1764 to power

[134] Celia Fiennes, describing Derby in 1698, noted 'a fine stone Cunduite' in the marketplace. Fiennes, *Through England on a Side Saddle*, p. 140.
[135] Robert Morris, *An Essay upon Harmony, as it relates chiefly to situation and building.*, (London, 1739), p. 41.
[136] Jacques, *Georgian Gardens*, p. 64. https://www.painshill.co.uk/about-us/our-story/influence-on-painshill/ Accessed 7/4/2019.
[137] Whitehurst also engineered other devices for improvements in domestic economy. Craven and Stanley, *The Derbyshire Country House*, p. 20
[138] *A Description of the Gardens and Buildings at Kew,* ND but c. 1760s. In Serle, *A Plan of Mr Pope's Garden (1745)*, p. 9. Also, William Chambers, *Plans, Elevations, Sections, and Perspective Views of the Gardens and Buildings at Kew in Surrey,* (London: Published for the Author, 1763), p. 4 and plate of 'The Water Engine'.

the fountain in the canal and the cascade within his grotto, though it was probably not working until after 1766, some seventeen years after the first Warmley engine.[139] Goldney was the major shareholder of the Coalbrookdale company, one of the partners (with Sampson Lloyd) in the Warmley works and was uncle to William Champion. The second steam engine at Warmley was installed after 1761 and Sir Joseph Banks noted when he visited in 1767, 'The immense number of wheels which are employed in this work, are turned by water, to supply which, as there is only a small brook, Mr. Champion has erected two of the largest fire engines in England, or perhaps anywhere else, which raise the water that has been made use of, again into the Reservoir.'[140] This, and the earlier description reveal that contemporary appreciation conflated the experience of an improved landscape and an industrial operation. Both were equally interesting and evinced a similar response. To what extent the owner in this case deliberately engineered the landscape to be both operationally effective and ornamental we do not know, but despite the apparent lack of contemporary access to the gardens, their design testifies to Champion's considerable interest in creating a complex ornamental landscape.

Mention has already been made of Champion's possible use of the grotto for an experimental facility, but experiment appears to have been undertaken in other industrialists' gardens. Svedenstierna remarks that he would have liked to see the Ketley ironworks 'partly because Mr raynolds [sic] had set up several large-scale experiments, to make steel with an addition of manganese.' He had no special letter of introduction, so Mr Raynolds was 'obliged to refuse us a courtesy which he otherwise gladly extends to strangers.' However, he did receive permission to view 'an inclined plane in Mr Raynold's [sic] garden, over which boats were let up and down to a canal lying below.'[141] He must be referring to Joseph Reynolds who at this time lived at The Hall just to the east of the Ketley works which he managed and to the inclined plane built by Richard Reynolds and his son William in 1787-88 which connected the canal to the

[139] Stembridge, *Thomas Goldney's Garden*, p. 18.
[140] MS. Add. 6294, Sir Joseph Banks: Journals, Cambridge University Library. The second steam engine was erected after 1761 when the inventory only listed one 48-inch cylinder fire engine. D421/B1, Badminton Muniments, Gloucestershire Records Office.
[141] Eric Thomas Svedenstierna and Ernest Lawrence Dellow, *Svedenstierna's Tour [of] Great Britain, 1802-3 : the Travel Diary of an Industrial Spy*, (Newton Abbot: David and Charles, 1973), pp. 75-76.

level of the furnaces 73 feet below. The Ketley Canal flows through shrubbery in the garden very close to the house (Figure 5.35). William is known to have had a laboratory at his home in Ketley, The Bank, and a plan of 1839 shows three pools, the largest appearing to be bordered by a path and planting whilst one of the other two is rectangular with a narrow strip of land between it and a triangular pool (Figure 5.36). However, both a late eighteenth-century plan and one of 1794 give no such detail, indicating that these pools may have been constructed in the early nineteenth century although William Reynolds died in 1803.[142]

Technology was used not only for industrial production. Boulton used the manufactory steam engine to pump water up to the gardens to water the plants and John Wilkinson wrote to James Watt with detailed specifications for a steam engine to raise water from sea level to the top of the hill at Castlehead, '50 yards high from low water mark […] for a Jett at top to play water round the top of the hill let us call it 60 yards.'[143] This was to supply what he called his 'Watering Pan Scheme' which included a warm salt water bath, a fountain, and at low tide a salt water jet. The steam engine was never built. James Watt junior might also have been using technology for horticultural purposes as noted by Svedenstierna who spent an evening with James Watt in 1802/3. Watt had set up in his garden at Soho, 'a large example of the hydraulic ram of Montgolfier, from which the water, partly through pipes, partly with a hose, was conducted up a small eminences, and from here distributed in various directions.'[144] It is not clear whether this was experimental, ornamental or used for watering the garden.

5.12 Fountains

Science and technology employed in the garden had a long history, most notably the giocchi d'acqua of Renaissance gardens. In the 1620s, the Enstone

[142] *Plan of the manor of Ketley*, late 18th century, 972/7/1/37, Lilleshall, Shropshire County Archives. *Plan of the manor of Ketley*, 1839, 972/7/1/39, Lilleshall, Shropshire County Archives. *Plan of the manor of Ketley* By Samuel Botham, 1794, 972/7/1/38, Lilleshall, Shropshire County Archives.
[143] Letter from John Wilkinson to James Watt, 26 March 1781, Boulton & Watt, Library of Birmingham.
[144] Svedenstierna, *Svedenstierna's Tour of Great Britain*, p. 86. Montgolfier invented the first self-acting ram in 1796 for raising water in his paper mill at Voiron; Matthew Boulton took out a British patent on his behalf in 1797.

Marvels particularly illustrated the connection between gardening and scientific advances, with hydraulic effects like the silver ball rising and falling on a single jet of water, and optical effects like the 'canopy of rain' formed to create a rainbow.'[145] At Wilton a curved lip of a high waterfall was designed so that it caught the refraction of light to cause rainbows at certain times of day.[146] However, the naturalistic English landscape style did not easily accommodate such artificial effects and in 1755 John Shebbeare (Letters on the English Nation) had written that 'the *jet d'eau* is quite out of fashion in this kingdom.'[147] There are few examples in industrialists' gardens, even in the formal gardens around the house at Pontypool there appear to have been no fountains, although there was one at the Gnoll in the early formal gardens and on Lombe's island garden. There is only one reference yet found to a pottery site where the manufactory steam engine and water system was used for ornamental effect, and that was Mr J. Carey's island mentioned earlier. Wilkinson's unexecuted plan for a jet at Castlehead has also been noted above. Thus, it would seem that the overt artifice of a fountain, however it might display the owner's wealth and capacity to engineer water, was not a feature adopted by industrialists and is consistent with the period during which most of these gardens were developed. The fountain at the front of Wood's Fountain Place supplied water for public use, his manufactory steam engine used to pump the water. This is reminiscent of the builders of Italian Renaissance gardens who not only authenticated their power and reputation through their garden but also conveyed public benefit, an improved public water supply often went hand in hand with elaborate water gardens as occurred at Villa d'Este at Tivoli.[148] The fountain made a come-back in the nineteenth century utilising new engineering skills that enabled single jets of enormous height, like Paxton's Emperor Fountain at Chatsworth.[149]

[145] Stephen Wass, 'The Enstone Marvels Rediscovered', *Garden History,* 45:2 (2017), 176-192.
[146] Jackson-Stops and Pipkin, *The Country House Garden,* p. 130.
[147] Jackson-Stops and Pipkin, *The Country House Garden,* p. 132.
[148] Louise Wickham, *Gardens in History : a Political Perspective*, (Oxford: Windgather, 2012), p. 71.
[149] Jackson-Stops and Pipkin, *The Country House Garden,* p. 132.

5.13 By-products and Waste in Water Features

The use of waste from the glass manufactories in a cascade at Hagley has already been mentioned. Only a few miles away at Enville the large cascade falling into the Serpentine Pool was composed of iron slag 'bowls', effectively tuning the water as it showered out.[150] Yet in ironmasters' gardens there is little evidence of such by-products or waste being used in their water features other than in the grotto at Warmley and possibly in the Gnoll's Mosshouse Wood cascade as Thomas Pennant mentions the water tumbling over 'glassy basons'.[151]

Conclusion

Water was a key component of the eighteenth-century garden along with lawn and trees, for streams, cascades and pools, whether natural or enhanced by art, created mood, movement, variety, reflection and noise, in some instances excessive noise that conjured the sublime. For industrialists, water was the vital driving force of their industry. It is therefore not surprising that they designed and engineered water into their landscapes in an industrial and aesthetic symbiosis. The incorporation of water for industrial or commercial purposes into an ornamental designed landscape was not unique to these industrialists but also was proudly espoused by elite landowners particularly those involved with industrial or commercial enterprises, notably mineral extraction and canals. However, what is unique about many industrialists' landscapes is the proximity of the industry to the gardens and that the water was interposed between or a feature of the designed landscape.

It has been shown that contemporary descriptions of natural and man-made water for productive purposes and for ornamental effect, as with other landscape features, were framed in identical language.[152] This indicates that contemporaries did not distinguish in terms of experience between man-made and natural, industrial and agricultural improvement; they were discovering nature's marvels and man's ingenuity in harnessing nature. They were not

[150] Symes and Haynes, *Enville, Hagley and The Leasowes*, p. 86.
[151] MS 2589B, Pennant MS 69, The National Library of Wales.
[152] Derby Textile Mills. See p. 239. https://derbytm.co.uk/gazetteer/derwent-area/derbysilkmill/1739-2/ As at 28/10/2019 website stated as currently undergoing maintenance.

constrained by a twentieth or twenty-first century sensibility to industry being anathema to an aesthetic experience.

It has been shown that ‘canal’ was a term applied more widely, including to irregular ornamental water, than has perhaps been appreciated hitherto, including in elite landscapes, the word ‘lake’ not being used for designed expanses of water during the period. Sometimes such canals or serpentines preceded a lake as at Bicton Park, Devon. Thus, it was an easy extension for navigational canals to be very much appropriated to the garden aesthetic, particularly where no other substantial body of water existed, by industrialists and elite landowners alike. This was as much for their visual appeal as for what it might imply about the improving activities of the landowner, even if the canal was not on their land bringing it into the view might imply ownership and enlightenment. In some cases, the route or design of the canal was amended to accommodate landowners’ requirements.

Broad expanses of water were one of the defining characteristics of the English landscape style providing a setting for the house and with it a fulcrum to the landscape. Industrialists embraced the aesthetic by exploiting their industrial reservoirs, locating, shaping and planting them to fashionable taste whether as a setting for their house or their manufactory building, which may itself have conjured a stately mansion. Whether offsetting house or manufactory, the existence of large man-made water signified power and wealth reinforcing status and thus authenticating the owner and their industry.

Where there was no lake, rivers and canals were used both visually and in the soundscape of the experience of the grounds, occasionally being the main view from the house and grounds, or additional to other water and even providing the setting across which the house could be viewed as in the fashionable views of gentlemen’s seats. The utilization of springs, streams and man-made watercourses were maximized for industrial benefit but often they were designed or embellished to bely their industrial function as were the rills at the Gnoll, the leats at Warmley and the stream at Pontypool.

The impounding or diversion of water on rivers and streams created both large lake-like pools, as on the River Derwent at Belper, and weirs which injected drama into the landscape, a reminder of the power of nature which evoked the sublime. This was especially potent in areas which lent themselves to the Picturesque, like the Matlock Gorge. On occasion, cascade-like features were introduced with no apparent underlying industrial need as at Quarry Bank indicating their design, if not their function, was purely ornamental. A by-product of technology was that it could be used for aesthetic and horticultural benefit, whether that might be a steam engine recycling water to a mill pond or pumping water for irrigation.

In addition to the aesthetic attributes of water, it was used for leisure, for boating and for fishing, the latter and the existence of islands suggesting that water too could provide the locus for retirement and contemplation.

What is clear with regard to industrialists' management of water is that they pushed improvement to the limits, the industrial and the ornamental were seen as an integrated whole. Ornamentation in the garden, like grottos and bridges were seen as consistent with the landowner's status, not superfluous, indeed on the contrary, the dual use was admired. The landscape was made to work for industry and industry for man's enjoyment of the landscape. Jackson-Stops summing up of the characteristics of the landscape garden as '… unifying the works of man and nature in an ideal whole,' might very aptly be applied to industrialist's management of water in their landscapes.[153]

[153] Jackson-Stops and Pipkin, *The Country House Garden,* p. 132.

Chapter 6
Horticulture and Agriculture

Land exerted a complex resonance for the eighteenth-century landowner. It continued to confer political and economic value, but in addition, and in part inspired by the classics, particularly Virgil's *Georgics,* and later Rousseau, who encouraged and valued a return to a simple rural life working the land away from the vices of the city, it became valued as morally improving, and as Sarah Tarlow has argued, agricultural production was associated, 'with Science and Progress and thus with the moral welfare of the individual, the community and the nation as a whole.'[1] Increasing the utility and beauty of the land was fundamental to improvement, thus knowledge of husbandry, stewardship of the earth, and its application in good horticultural and agricultural practice was a necessary attribute of the eighteenth-century gentleman. The fact that the king, George III, was a keen farmer may also have bolstered agriculture as an honourable endeavour.[2] Improvements in husbandry were promulgated by a wealth of publications on horticulture, estate management, forestry and farming, which resulted in increased production and profitability. This was reinforced by the introduction of an ever-increasing range of new plants both ornamental and useful.

Some industrialists certainly travelled abroad, visited other estates, and are likely also to have read about horticulture and land management including from authors such as Defoe who described the 'great Improvement' at Painshill in the early eighteenth century,

> by enclosing a large Tract of Land designed for a Park, which was most of it so poor as not to produce anything but Heath and Broom; but by burning of the Heath, and spreading of the Ashes on the Ground, a crop of Turneps was obtained; and by feeding Sheep on the Turneps, their

[1] Wickham, *Gardens in History : a Political Perspective*, p. 148. Sarah Tarlow, *The Archaeology of Improvement in Britain, 1750-1850*, Cambridge: Cambridge University Press, 2007), p. 41.
[2] 'The reason that farming is regarded as an honourable estate is that the highest in the land engage in it.' François de Rochefoucauld (Suffolk visit 1784), cited in Robinson, *Georgian Model Farms*, p. 74.

> Dung became a good Manure to the Land, so that a good Sward of Grass is now upon the Land, where it was judged by most People impossible to get any Herbage.'[3]

This description of converting barren land with its connotations of returning fruitfulness and beauty to the earth was not uncommon irrespective of whether the cost justified the outcome. Wedgwood wrote to his son describing a family stay at Matlock, 'Took a ride to Darby upon the Bakewell road, & amongst other things were highly pleased with a view of the effects of persevering industry in clearing & cultivating the side of an Hill on our right, which a few years since was quite barren and covere'd over with stones, but is now converted into beautifull [sic] fields of grass & corn.'[4]

Enclosure, and the transformation of areas of hitherto underutilized, or seemingly barren, land like heaths, moors, and marshes or mosses, were all mentioned with respect to industrialists' landscapes. Boulton, Wedgwood and others turned a 'barren heath' or 'desert' into a garden.[5] In his 'Rough Draft of the Life of Josiah Wedgwood 'in 1795, Tom Byerly, Wedgwood's nephew and later business partner, wrote

> This land had little to recommend it but the convenience of its situation: it was naturally an indifferent soil, and had been neglected for many years. But Mr Wedgwood did not live long in a desert: and the taste which he displayed in new moulding the exterior surface while he remedied its sterility in the disposition of extensive plantations, and the laying out of the ground for varying the prospects have a just correspondence with the

[3] Defoe cited in Jackson-Stops and Pipkin, *The Country House Garden*, pp. 206-207.
[4] E25-18541, Wedgwood - Etruria, Wedgwood Museum.
[5] Boulton obviously loved and was proud of his garden, and his design philosophy might be summed up in the verse he addressed to 'the crityks in Landskip Gardening'

No Forest, but a Garden neat
An easy Walk a resting seat
Made from the barren Wast by me
Who planted every Flower and Tree
To screen me from the NE Broose
And mst of all my self to please
Nor Knight nor Price nor Burk sublime
I ape, in Landskip, nor in Rhime.

MS3782/12/108/70, 'Notebook', (1795). Boulton and Watt, Library of Birmingham.

> simplicity and elegance of his other works […] but it has gradually assumed the smiling aspect which usually accompanies prosperous industry.[6]

Wilkinson drained the Meathop water meadows and created a garden in probably the most challenging of conditions on the top of a hill with the walled garden facing slightly to the north, and with access only on foot or possibly with a pony, described by James Stockdale's son, 'He covered this bare rock, in almost inaccessible places, with soil, carried up on the backs of horses in panniers, at great cost, and thus converted a barren waste into beautiful gardens and shrubberies' (Figures 6.1 and 6.2).[7] Such major land reclamation measures had a significant impact on the landscapes of these and other industrialists who were employing the power of man over nature in favour of productivity as well as ornament.

Horticulture and agriculture were not differentiated as they are today, likewise the term 'garden' usually referred to a productive area, quite often an 'orchard', and the two words were often interchangeable. The ornamental areas were referred to as the pleasure grounds, or possibly late in the period as shrubbery, but might also be termed the garden. Horticulture was a clear extension of the widespread interest in natural philosophy and botanizing was a common pursuit, suitable for women. Quakers, 'regarded all natural objects, plant, animal and mineral as works of a beneficent creator, to be studied and used for the benefit of mankind,' therefore horticulture could lead to habits of peace and contemplation, indeed, George Fox had insisted that schools should teach, along with languages, 'the nature of herbs, roots, plants and trees.' [8] The Quaker botanist Thomas Lawson, a contemporary and friend of naturalist John Ray, believed that the raising of plants including trees was, 'work in no ways dishonourable, but very useful and profitable.'[9] Mary Anne Schimmelpenninck recorded botanizing as a child, carrying a little magnifying glass and an insect

[6] Rough Draft of Life by Tom Byerley, 1795, 21439-29 (1), Wedgwood, Wedgwood Museum.
[7] Stockdale, *Annales Caermoelenses*, p. 203.
[8] Raistrick, *Quakers in Science and Industry*, p. 243.
[9] Letter from Thomas Lawson to John Rodes, 1690, cited in Raistrick, *Quakers in Science and Industry*, p. 245.

box.[10] Erasmus Darwin established a botanic garden and records suggest that industrialists' interest in horticulture included experimentation. The focus of many gardening writers of the time, especially in practical gardening books, including ones specifically for women, was the selection, propagation and cultivation of plants particularly trees and fruit, something also demonstrated in garden accounts.[11] There were even instances (e.g. La Quintinie and John Laurence) of suggesting the growing of more ornamental vegetables amongst flowers in the part of the garden nearest to the house.[12]

Agricultural improvement entailed addressing soil structure and fertility, drainage, improving crop varieties to increase yields, improving stock breeds, efficient and serviceable farm steadings, and the means of getting produce to market. Livestock was an essential element in the operation of the estate, providing food, manure, grass cutting and transport as well as labour on the estate and for the industry. Extensive horticultural and agricultural records are scarce for industrialists' landscapes, although some activities were reported in the *General Views*, county histories and Arthur Young's tours.[13] Such evidence

[10] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 215.
[11] E.g. Charles Evelyn, *The Lady's Recreation* (1717).
[12] La Quintinie's preference was to do without the Parterre, placing the aspects of the kitchen garden which are most pleasing nearest to the house, and those less sightly or which 'might offend the Sight or Smell' at most distance from the house, 'Fine Espaliers, Dwarfs, Greens, Artichokes, Sallads and the perpetual Action of the Gard'ners, &c. being sufficient to employ the Neighbourhood of some Windows, even for pretty considerable Houses, as well as for ordinary ones.' Jean de La Quintinie and John Evelyn, *The Compleat Gard'ner*, (New York: Garland Pub., 1982), p. 36.
John Laurence, 'I never thought it any disparagement to my best Garden, where I make my Soil commonly better than ordinary, to sow in some of the intermediate Spaces some of those Reptiles useful in the Kitchen, viz. Carrots, Onions, Parsnips, Spinage &c. that it may answer its purpose, a profitable as well as a pleasant Garden; for these not growing tall, but kept clean from Weeds, are no unseemly sight at all, but rather make a pleasing variety amongst Trees and Flowers.' John Laurence, *Gardening Improv'd*, (London: W.Taylor, 1718), p. 28.
[13] For example, Walter Davies, *General View of the Agriculture and Domestic Economy of South Wales Containing the Counties of Brecon, Caermarthen, Cardigan, Glamorgan, Pembroke, Radnor, Drawn up for the Consideration of the Board of Agriculture and Internal Improvement,* (London: Sherwood, Neely and Jones, 1815); John Farey Sen., *General View of the Agriculture and Minerals of Derbyshire; with Observations on the Means of Their Improvement Drawn up for the Consideration of the Board of Agriculture and Internal Improvement*. 3 vols. (London, 1811-17); Arthur Young, *A Six Months Tour through the North of England. Containing, an Account on the Present State of Agriculture, Manufactures and Population, in Several Counties of This Kingdom*. 2nd edn. 4 vols. (London: Strahan, W; Nicoll, W, 1771).

as exists suggests that industrialists were genuinely interested in both the agricultural and horticultural development of their estates, largely following current trends and practice, but with some experimentation. Oldknow was possibly the most renowned agriculturist at the time, his obituary in the *Gentleman's Magazine*, November 1828, noted that, 'He considered it patriotism to convert one blade of grass into two'.[14] A number of industrialists were members of the early agricultural societies, evidence of their interest in improvement, for example Robert Peel, James Watt, Oldknow and Arthur Young were among the subscribers to the Society of Agriculture at Manchester, Oldknow was also President of the Derbyshire Agricultural Society for the year 1828 and Richard Crawshay was one of the founder members of the Bath and West Agricultural Society.[15]

Detailed planting design is particularly difficult to determine, but there is sufficient data to indicate how industrialists used plants for structure in the design of their gardens, for practical reasons, for example to provide shelter or screening, or to create mood and experiential variety, how they employed plants for profit (trees and crops) and for their own enjoyment. There are indications that some indulged the contemporary fascination with new plants and fruit growing held a special interest particularly the challenge of growing exotic fruit for the table. There are only a few instances of the application of their industrial or technical knowledge or of some integration between the industry and horticulture. For some however their garden appears to have been less important, like Henry Ashworth whose total personal expenditure for 1824 was £321 11s 2d, of which £5 7s 0d was for 'Fruit Trees, Shrubs etc.' and £4 10s 6d for 'Gardening etc.', whilst his new Fowling piece was £14.[16]

The wider context of the national obsession with improvement in the eighteenth century and its impact on all facets of eighteenth-century life - aesthetic, economic, social and patriotic - in a desire to change society for the better, has

[14] Hulme, 'High-Farming at Mellor', p. 214.
[15] Hulme, 'High-Farming at Mellor', pp. 205 and 214. Susan Bennett, 'Those rare individuals – innovators', in Philip Bryant, Susan Bennett and Ted Collins, *The story of the 'Bath and West' innovation and application,* (Gillingham: Royal Bath and West of England Society, 2002), p. 11.
[16] Henry Ashworth Personal Accounts, ZWL/69, Ashworth, Bolton Archives & Local Studies Service.

been discussed in Chapter 2. This chapter considers the extent to which industrialists exhibited the improving characteristics of their age with respect to the horticultural and agricultural management of their estates, whether they displayed similar zeal and innovation here as they did in their industrial operations and whether there were any unique interactions with the industrial.

6.1 Trees

Trees carried considerable cultural symbolism, with roots and age implying tradition and stability, whilst new growth looked to reform and regeneration. The planting of trees was a fundamental aspect of improvement conveying symbolic and actual patriotism whilst demonstrating dynastic confidence and making sound economic sense. Jon Finch has pointed out that political consequence was given to investment in woodland and arboriculture in the post-Civil War period, boosted by John Evelyn's *Sylva,* first published in 1664, which was produced at the behest of the Commissioners of the Navy concerned about shortage of timber and targeted at landowners.[17] Such concern, shared with other European nations, continued through the eighteenth century reinforced by the wars through the period and the increasing quantities of wood and charcoal required to fuel the furnaces prior to the widespread use of coal.[18] The Royal Society for Arts Manufactures and Commerce promoted planting of trees and other crops through its rewards and premiums. It was mostly native trees that were planted as cash crop and Phibbs has argued that planting native species conformed with a desire for all things English.[19] Tree species carried symbolic significance particularly the oak associated with England, its battleships and naval tradition, as well as denoting longevity. This was reinforced in popular culture like the song 'Heart of Oak' written by David Garrick to music by William Boyce and first sung on New Year's Day 1760 as part of Garrick's *Harlequin's*

[17] Finch, 'Pallas, Flora and Ceres', in *Estate landscapes : Design, Improvement and Power in the Post-medieval Landscape*, p. 27. John Evelyn and John Nisbet, *Sylva ... With an essay on the life and works of the author by John Nisbet ... A reprint of the fourth edition*, (London: Arthur Doubleday & Co., 1908). John Evelyn's (1620-1706) *Sylva,* first published in 1664, was produced at the behest of the Commissioners of the Navy concerned about shortage of timber and targeted at landowners.

[18] Giulia Pacini, 'A Culture of Trees: The Politics of Pruning and Felling in Late Eighteenth-Century France', *Eighteenth-Century Studies,* 41 (2007), p. 3.

[19] Wickham, *Gardens in History : a Political Perspective*, p. 149 and citing John Phibbs, 'Mingle, Mass and Muddle: the Use of Plants in Eighteenth-century Gardens', *Garden History,* 38:1, pp. 35-49.

Invasion at the Theatre Royal Drury Lane; the previous year Britain had secured major victories during the Seven Years' War.[20] The elm was also good for boat building and like Scots pine for hollowing out to make water pipes. The introduction of the Dutch elm hybrid meant that post 1688 it was associated with the new order and thus with Whig sympathies, whereas the lime was symbolic of Tory and the Scots pine had a touch of Stuart symbolism. Hester Thrale Piozzi, the friend of Samuel Johnson whose first husband was Henry Thrale owner of the brewery at Southwark, wrote, 'it has often struck me that the great old wise spreading Oak Tree was emblematical of a Country Gentleman residing at his Seat in one of these remote Counties; while the Elm puts one rather in mind of the rich London Tradesman flourishing most happily when nearest the Metropolis.'[21]

In 1776 and 1777 Wedgwood ordered over fourteen thousand trees with different heights of the same species and in addition, ten thousand quicksetts to be planted in the Great Field.[22] Similarly, Boulton planted 'above 2000 firs' in the vicinity of the newly finished house, and 'a great variety of shrubs' to give protection from the prevailing winds.[23] These were planted in an arc to the south of the house and to the north-east parallel to the line of the former main road. The Caldwell Nursery (Chester) sales ledger dated 23rd October 1789, notes a sale to Samuel Greg of Quarry Bank, Styal, for a 'parcel of trees', with further orders for more trees, and 10,000 thorns in 1790, 700 Hollies and 50 Laurel in 1791, and 80 large Philbert trees, four Portuguese Laurel and four *Laurus tinus* in 1792. This was some years prior to construction of the Gregs house at Quarry Bank which was begun in 1798.[24] Between 1791 and 1800 John Wood (Brownhills) ordered a number of trees and other plants from Daniel

[20] 'Heart of oak are our ships, heart of oak are our men', also had the 'To honour we call you, not press you like slaves, For who are so free as the sons of the waves.' Echoing the refrain of Rule Britannia written a couple of decades earlier, 'Britons never will be slaves!'

[21] Hester Thrale Piozzi, Journey through the North of England & Part of Scotland Wales &c., June-December 1789, MS No 623, Thrale Piozzi Manuscripts, John Rylands Library, University of Manchester.

[22] Josiah Wedgwood Esq Drn to Danl Haywood, 1776, 23105-23110/119, Wedgwood, Wedgwood Museum.

[23] Memorandum, dispute between Boulton and Fothergill, n.d. [1766], MS3782/12/60/265, Boulton and Watt, Library of Birmingham.

[24] Price, 'The History of Quarry Bank House Garden', p. 22.

Haywood, including 450 trees from two to ten-foot tall in 1800.[25] Wedgwood also used Haywood. Arkwright II at Willersley planted on average 50,000 trees for seven years.[26] Near Swansea between 1770 and 1796, Sir John Morris was noted as having planted 'above half a million', averaging 20,000 a year, reducing to 10,000 (principally beech, oak and ash; many sycamores, firs, larches, and birch; besides Spanish chestnuts, plane, elm, and poplars).[27] His 'ample plantations' (possibly of larch) at Clasemont, would soon 'furnish a considerable supply'. However, these quantities are small in comparison when seen in the context of the quantities of trees being planted by enthusiastic elite landowners, Mr Johnes at Hafod planted 3,977,500 between October 1796 and April 1813.[28] Sir John Clerk of Penicuik, Midlothian, planted over three million trees, James Farquerson of Invercauld sixteen million and the fourth Duke of Atholl twenty-seven million.[29]

Stock was brought from nurserymen, often as small plants and grown on in nurseries; but there were also exchanges between friends and neighbours.[30] Over the years Wedgwood bought from a number of suppliers, a favorite being Daniel Haywood, but also had several consignments of trees from Trentham, Lord Gower's estate, and yews from Spen Green his father-in-law's home.[31] Tree seed was also purchased or gathered, propagated and grown on. Richard Crawshay wrote to Lord Dynevor on 2nd January 1797, that he, 'will wait another Season for Acorns from your Lordship and another Friend rather than plant

[25] John Wood Order for Plants, Records of Wood Family of Brownhills, Burslem, D4842/13; SD 1160; SD 1756; D4842/16; Wood Estate Miscellanea D4842/16/2/47, Staffordshire and Stoke on Trent Archive Service.
[26] Adam, *Gem of the Peak*, p. 46.
[27] Davies, *General View of the Agriculture and Domestic Economy of South Wales*, vol. 2, pp. 28-29.
[28] Davies, *General View of the Agriculture and Domestic Economy of South Wales*, vol. 2, pp. 48-49.
[29] Christie, *The British Country House*, p. 169.
[30] The stock of forest trees held by nurseryman Mr Hindes of Carmarthenshire was over two million at the time of Walter Davies' visit, he also had half a million white thorns and crab stocks for grafting and three thousand apple trees 'of choice sorts.' Davies, Walter 'General View of the Agriculture and Domestic Economy of South Wales Containing the Counties of Brecon, Caermarthen, Cardigan, Glamorgan, Pembroke, Radnor, Drawn up for the Consideration of the Board of Agriculture and Internal Improvement', (London: Sherwood, Neely and Jones, 1815), Vol. 2, p. 38.
[31] Carriage from Trentham in 1769, Ledger, 1769, 28698-43, Wedgwood, Wedgwood Museum. Carriage from Spen Green, 25 April 1778, 28690-43, Wedgwood, Wedgwood Museum.

Seedlings – for its in the roughs and Crags I mean to adorn the Neighbourhood with Trees.'[32] Wedgwood bought seed and different heights of the same species, perhaps seeking to mimic nature in varied growth, and none would reach maturity for many years. In his Xmas 1787 'Account of Building and Improvements on Etruria Estates since purchase', Wedgwood had spent £1,918 5s 2¼d on his Nurseries, compared with £982 8s 1¼d on the garden.[33] It was not unusual for a number of trees to have to be replaced by the nurseryman at his expense because they had not survived, at Etruria 1,282 had to be 'Replaced with Live ones' in 1776, a majority being Scotch Fir, and often the nurseryman was paid for 'making holes'.[34]

Trees were planted on ground that might not be useful for anything else, as Wilkinson determined for an area next to Wilson House that he thought he would not cultivate, 'further than by planting some Trees upon it, for which those irregular Nabs seem best calculated.'[35] Planting sometimes occurred prior to the house being completed or even begun as in the case of Samuel Greg who did not start building the house adjacent to the mill until 1798, although the family spent time at Oak Farm, Styal, but he ordered trees from 1789.[36] Some of these no doubt to comply with the 1784 lease from Lord Stamford for the land at Quarry Bank that required no felling but that, 'six young plants, oak, ash, elm, poplar until sixty so set' should be planted annually.[16] Often a significant amount of timber was required in the construction of manufactories and associated buildings, usually acquired locally. Thus, Oldknow who had felled a large number of trees to build Mellor mill, houses and cottages, and fencing

[32] D2.162, Crawshay Brothers (Cyfarthfa) Ltd, Gwent Archives.
[33] 28642-43, Wedgwood, Wedgwood Museum.
[34] Accnt of Ded trees that are puld up [?Dught] of the plantations & are to be Replaced By Mr Haywards Expence, 1776/7, 23107-119, ibid..
[35] Letter from John Wilkinson to James Stockdale, Cark, 17 March 1780. Letters to James Stockdale (grandfather of James author of Annals of Cartmel) 1778-1795, DDHJ 4/3/2/7, Hart Jackson & Sons, Solicitors of Ulverston, Cumbria Archives, Barrow.
[36] Caldwell Nursery sales ledger dated 23rd October 1789, notes a sale to Samuel Greg of Quarry Bank, Styal, for a 'parcel of trees.' There follow orders for more trees, and 10,000 thorns in 1790, 700 Hollies and 50 Laurel in 1791, and 80 large Philbert trees, four Portuguese Laurel and four *Laurus tinus* in 1792. There were orders for two Red Virginia Cedars, six Weeping Willows, and for specified varieties of Dutch Hyacinths, Tulips, Roses, Crocuses, Pinks, Anemones and Sweet Briars, all before 1795. From 1792 orders are also placed by a Mr Fawkner 'at Cotton Works, Styal', including those for 15 Larch, 10 Weymouth Pine, 12 Scotch Fir and 13 Spruce in 1795. Price, 'The History of Quarry Bank House Garden', p. 22.

etc., established new plantations and a nursery, numbering young trees and keeping records on growth, effects of pruning and thinning.[37] Oldknow appears to have sold from this stock as well as selling timber for example in February 1806, he recorded £1708 10s 5d from 'sale of timber' and in November the same year £969 5s 6d; and in 1811, he paid £45 18s 11/2d in timber as part of his Mellor taxes.[38] George Henry Strutt at Belper similarly kept 'accurate and systematic accounts, of the expence and time of planting, pruning, and of thinning, of the value of the produce cut, and of the measure and value of those Trees standing in the several Plantations made by his Father.'[39] George Benson Strutt at Belper was considered one of the principal planters in Derbyshire, as were the Strutts at Milford, and both maintained nurseries.

It was not only the sale of timber that was a source of income, but of timber by-products like the use of oak bark in tanning and the red dye from alder bark sought after by dyers with the alder poles being turned into bobbins and spindles. Shrub species too could be planted for use and profit as Oldnow did at Mellor with different varieties of osiers planted on the islands in the lake-reservoirs to provide material for baskets and cover for wild ducks.[40] Large quantities of quicksets, thorns, hollies and furze were used for stock proof hedging.

Some 445 species of tree and shrub were introduced into Britain in the course of the eighteenth century, many in the early and middle decades, including the weeping willow (*Salix babylonica*) which according to Peter Collinson was introduced in 1730, but Celia Fiennes had remarked on the trick weeping tree at Chatsworth in 1697, so it was probably known in England before.[41] The weeping willow, which is not only best on damp ground, but also aesthetically

[37] Hulme, 'High-Farming at Mellor', p. 210. Species planted were Abele, Alder, Beech, Elm (English and Wych), Larch, Mountain Ash, Oak, Poplar (Balsam and Black Italian), Scots Fir, Spanish Chestnut and Sycamore.
[38] Hulme, 'High-Farming at Mellor', pp. 211-212.
[39] Farey, *General View of the Agriculture and Minerals of Derbyshire*, vol.2, p. 239.
[40] Farey, *General View of the Agriculture and Minerals of Derbyshire,* vol. 2, pp. 262.
[41] Maggie Campbell-Culver, *Origin of Plants : the people and the plants that have shaped Britain's garden history since the year 1000*, (London: Headline, 2001), pp. 157-158. Fiennes, *Through England on a Side Saddle*, p. 78. Other introductions included Weymouth pine (1705), Indian bean tree (1722), pitch pine (1743), gingko (1750), tree of heaven (1751), red maple (1755) and Lombardy poplar (1758). Brown and Williamson, *Lancelot Brown and the Capability Men*, p. 17.

linked with water, including in depictions of Chinese gardens, was used at Duddeston where the lake was indented and, 'clothed with the finest willows and poplars.'[42] The island at Soho too was planted with weeping willow and six were ordered for Quarry Bank in 1792, probably to be planted alongside the river.[43] Evergreens that provided structure, year round interest and often reflective qualities, were often employed in the shrubbery or in the winter garden interspersed with flowering shrubs and perennials (Figure 6.3).

6.2 Trees in Design

It has been noted earlier how plants, primarily trees but also shrubs, were used to define areas of the garden, to screen, provide shelter, create structure and convey mood. Early in the development of a garden and estate trees were planted as shelter belts and fast-growing species like Scots pine were often used as nurse trees to be thinned out once the permanent trees were established. Trees were also planted to accentuate or disguise landforms, for example to increase the height of a hill or slope, or below a dam of a lake or canal to mask the artificial drop. Emes planted trees to the lower side of the River Hawk at Hawkstone to give the impression of the river-lake occurring naturally in the landscape rather than being retained by a substantial dam.[44] It is possible that Emes similarly suggested the tree planting at Etruria 'below the Works' to soften the area around the canal, blending it with the wider landscape, filtering the view of the boats, Wedgwood's manufactory and providing further interest with the changing seasons.[45] Topography could help enhance the impact of tree planting. Woods planted on slopes – hanging woods – enhanced the effect of height, in some instances heightening the sense of the sublime, and suggested the landowner was making use of otherwise unproductive land.

[42] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck,* p. 40.
[43] Ballard, Loggie, and Mason, *A Lost Landscape,* p. 16. Price, 'The History of Quarry Bank Bank House Garden' p. 22.
[44] Paul Stamper, *Historic Parks and Gardens of Shropshire, (Shropshire:* Shropshire Books, 1996), p. 56. Pers. com. Keith Goodway for also pointing out that no stream or river runs into River Hawk indicating that it must be supplied from land drainage.
[45] An account in March 1777 for 1071 different species of trees between eighteen inches and six feet high were specified for 'Below the Works', 119/23105, Etruria, Wedgwood Museum.

Whilst clumps of trees and shrubs might be used to mask or frame the view of industry, one has to be cautious with contemporary comments about screening, first because the word was used to convey shelter rather than obscuring a view and secondly, because particularly those late in the period looking back were likely to be coloured by changing attitudes, as indeed were landowners themselves. For example, picturesque theorists Gilpin and Uvedale Price repudiated the images of labour and cultivated countryside that was so appealing to those who were influenced by the Georgic tradition.[46] Therefore, by the 1820s screening which might originally have been for shelter came to hide unsightly views or activity as the scale of industrial activity in many areas increased considerably and the works were no longer in a rural environment. So, Simeon Shaw writing in 1829 of potter John Ridgway at Cauldon Place, who surrounded his gardens by plantations, 'judiciously arranged to preserve every thing essential, and veil whatever would disturb the interesting landscape,' was commenting from the perspective of his own time and Ridgway may have screened for shelter or to hide increasing industrial development and its encroachment upon the enjoyment of his garden.[47] Boulton carried out some landscaping in the vicinity of the newly finished house, planting 'above 2000 firs' and 'a great variety of shrubs' to give protection from the prevailing winds.[48] These were planted in an arc to the south of the house and to the north-east parallel to the line of the former main road. He also used trees to screen his house from the main route to the manufactory. Wedgwood, who often mentioned the estate's exposed position, planted shelter belts to afford protection, also groves, clumps and possibly an avenue and single specimens. A large order in 1777 for Etruria specified trees to be planted below the Works and on the Island in the canal.[49] The use of the same species as the 8540 planted in the Great Field would have ensured a homogeneity in the design,

[46] Malcolm Andrews, *The Search for the Picturesque : Landscape Aesthetics and Tourism in Britain, 1760-1800*, (Aldershot: Scolar, 1989), p. 9.
[47] Shaw, *History of the Staffordshire Potteries*, p. 48. https://babel.hathitrust.org/cgi/pt?id=hvd.hxkltm&view=1up&seq=74 Accessed 22/10/2019.
[48] Ballard, Loggie, and Mason, *A lost landscape*, p. 2.
[49] Josiah Wedgwood Esqr Dr Danl Haywood, 23105-119, Wedgwood, Wedgwood Museum. A mix of broadleaf species with Scotch fir and Spruce fir between eighteen inches and six feet to be planted below the Works and on the Island, twenty-five planes, one hundred larch, one hundred sycamore, fifty hornbeam, twenty five scotch fir, twenty-five elm and twenty horse chestnut ranging from one to four feet high.

embracing the works in the estate whilst creating some screening of the works and kept the amount of activity on the canal going to the rear of the works out of view from the gardens.

Repton in the Red Book for Warley advised a wood to screen or distance arable land, because the imagination extended the scale of the wood so that the arable seen beyond was 'much softened by the aerial perspective that instead of offending, it is a pleasing appendage to the landscape, because it is subordinate.'[50] A similar distancing was achieved by deer and cattle cropping the lower branches of trees which allowed for glimpses through as shown in Repton's improved view from the terrace at Armley where small stretches of the river are visible, ensuring that in the imagination it flows on through the landscape.

6.3 Nurseries

A number of the estates had nurseries, primarily for trees. By the middle of the eighteenth century at the Gnoll there were nurseries to either side of the cascades in Mosshouse Wood, the whole area occupying over thirty acres.[51] At Etruria, the largest single item after the Hall and the Works was for the Nurseries (£1918 5s 2 1/4d), and in a memorandum setting out land taken from Ridge House Farm over the period to May 1780, the majority of the three and three quarter acres was for Nurseries; this was in addition to the Nurseries set out from the beginning.[52] Oldknow also had a nursery, its wall built in 1803, and from which stock was sold like the poplars in 1811 for £18 13s 6d, and firs, £8.[53]

6.6 Plants as Ornament

With the demise of the geometric parterres complete with intricate planting in favour of the Brownian landscape there has been the danger of assuming that flowers were not a part of Georgian gardens. On the contrary, flowers and

[50] Humphrey Repton, *Red Book by landscape gardener Humphry Repton of Hare Street, near Romford, Essex for Warley Estate, property of Samuel Galton Esquire,* March 1795, FP1/1, Galton Family of Birmingham and Warley, Sandwell Community History and Archives Service.
[51] DD GNE/1, Gnoll Estate Papers, West Glamorgan Archive Service.
[52] Admeasurement of land taken from Ridgehouse Farm measured 25 May 1780, 1780, 28636-43, Wedgwood, Wedgwood Museum.
[53] Hulme, High-Farming at Mellor, p. 211.

particularly scent was much valued, and from the records that survive, one might extrapolate that industrialists were certainly wanting colour and fragrance in their gardens and some might have been using the theatrical planting design described by Mark Laird.[54] The only extensive evidence of industrialists' use of ornamental plants is in the Boulton and Watt and Wedgwood archives. Detail indicates that their choice of plants was consistent with that in elite landscapes, including some interest in plants coming from America, although some of these would already have been well-established in English gardens by the time Boulton and Wedgwood were using them. In the case of Etruria, shrubs and perennials were ordered in much smaller quantities than trees, often only single plants and never more than six, tree seeds including spruce, silver fir, Weymouth pine, and a large variety of unspecified annual and perennial flower seeds feature. Trees and shrubs included Carolina bird cherry, a striped leaved horse chestnut, sugar maple, American acacias, variegated holly, Laurestinus, guelder rose, spring Mespilus (possibly an Amelanchier), Persian lilacs, syringas, red roman honeysuckle, Persian jasmine, dogwoods, brooms, bladdersennas with blood and yellow coloured flowers, sumachs, clematis, spindle berry, Belgick, Bonica and other roses.[55] Many of these are scented, as were annuals like night-scented stocks, a key element in the sensory experience of the garden. The perennials ordered suggest a colourful and varied plant palette with ground cover like Saxifrage and Dens canis through to climbers such as the one blue and one white clematis; there were rarely more than one or two plants of each species, for example, Silesian flax, Chinese hollyhocks, larkspur, double blue and double red hepatica, double celandines, one perennial poppy, and two American Golden Rod. In 1779, Wedgwood ordered two crown imperials (introduced c. 1580), two dozen each of yellow, white and blue crocuses (Introduced c. 1579), and one winter aconite (introduced c. 1576). Such small quantities suggest their rarity or high price and perhaps a choice position for their planting. The plants indicate that they were probably concentrated in the shrubbery around the walled garden, providing considerable colour in spring, summer and autumn, as well as winter interest with the striped (variegated) evergreens, hollies, laurels.

[54] Laird, *The Flowering of the Landscape Garden*.
[55] 23105-23110/119, Wedgwood, Wedgwood Museum.

Matthew Boulton's order in 1783 to Brunton and Forbes for 304 herbaceous plants and 18 pinks and carnations was possibly for a flower garden around the hermitage (or hovel), and there were two further consignments of shrubs (from Brunton and Forbes) in 1787 and 1788 for planting on either side of the Temple of Flora, the latter was for '300 fine Herbaceous plants' 200 evergreen and flowering shrubs'.[56] The species planted at Soho would suggest that varieties of native plants were intermixed with introductions including celandines and ladies smock.[57] The Gregs at Quarry Bank between 1792 and 1795 ordered specified varieties of Dutch Hyacinths, Tulips, Roses, Crocuses, Pinks, Anemones and Sweet Briars, indicating that the development of the garden occurred several years prior to their moving into the house.[58] The japanned painting of Pontypool House (1765) with its formal gardens in the immediate vicinity of the house suggests flowering plants in pots and on the hillside behind the house (Figure 3.57). An informal intermixed planting scheme seems to have prevailed at Fountain Place as described by an eighty-year-old Enoch Wood recollecting a visit and poem by a Mr Ashton who visited both the manufactory and his garden, 'The apples, pares, plumbs, cherries, goosberries currants cabbage pees and beens, sunflours Poppies and great varietys of Flowrs were so curiously and unusually planted together, as to meet with his taste,' and in Mr Ashton's poem of inscriptions for the garden, that for the 'Kitchen garden' noted, 'Pomona reigns joint queen with Pulsas here,' as well as 'roses, jessamines and mignionettes.'[59] All suggestive of companion planting. There is no firm evidence that industrialists employed the eighteenth-century graduated arrangement of planting in ornamental areas as discussed by Laird, but the orders quoted above suggest that this might have been adopted.

6.5 The Productive Garden

It is not perhaps surprising that the productive garden and especially fruit was of keen interest to many of the industrialists. References to 'the garden' was often synonymous with kitchen garden or orchard. Although in elite landscapes the kitchen garden might not feature in the views from the park and pleasure grounds, they did form part of the polite landscape, performing an important

[56] Ballard, Loggie and Mason, *A Lost Landscape*, p. 16.
[57] Ballard, Loggie and Mason, *A Lost Landscape*, p. 18.
[58] Price, 'The History of Quarry Bank Bank House Garden' p. 22.
[59] PM1/1/86-1, Enoch Wood Papers, Potteries Museum.

economic function and a destination where owners might display choice specimens and horticultural prowess.[60] Byng, described it as, ‘a place of such luxury, and necessity; and in which the master must wish frequently to walk to observe his hot-houses, fruit, &c, &c, that it should be very near the house – and attach’d to the stable for the convenience of dung.’[61] Despite this ideal proximity, it was not always achieved, sometimes the topography must have made difficult work for the gardeners as at Cyfarthfa where the glasshouses and garden were uphill behind the castle, similarly at Pontypool and Willersley Castle. Probably the most inauspicious and impractical location for a productive garden was that at Castlehead at the top of the hill, and a later owner sensibly built one at the bottom. The Soho kitchen garden was originally on a peninsular south-east of the manufactory in part bounded by the tail race and the main channel of the Hockley Brook, but it was moved to another site near the Soho turnpike in 1800.[62] In his Commonplace Book probably about 1780, Wedgwood noted the distance ‘from the House to the Garden, 330 Yards’, and the admeasurement of the outermost walk around the garden of 490 yards.[63] The practice of creating a shrubbery circuit around the productive garden as an integral feature of the pleasure grounds has been mentioned earlier, performing the dual function of screening the walls, thus merging them into the landscape, and creating an encircling shield for the more choice, rare or tender plants and protection for potential experimentation.

The Etruria records, alongside those of Soho, are probably some of the most detailed that exist for a non-aristocratic and relatively modest estate, for example, in the 1776 account with Daniel Haywood was an order for two hundred and forty asparagus roots and a wide range of vegetable seed.[64] There are also some interesting horticultural insights: Wedgwood did not want to leave the fruit borders fallow but planted them with, ‘early sallads, pease, beans &c. [...] allowing them a Benjamins mess out of Harrys stable, & they will be gratefull to your bounty both in spring & autumn.’[65]

[60] Brown and Williamson, *Lancelot Brown and the Capability Men*, p. 128.
[61] Byng, *The Torrington Diaries*, vol. 3, p. 244.
[62] Ballard, Loggie and Mason, *A Lost Landscape*, p. 38.
[63] 28410-39, Wedgwood, Wedgwood Museum.
[64] 23105-23110/119, Wedgwood, Wedgwood Museum.
[65] Letters, Volume XIV, 1780, 13 March, Wedgwood, Wedgwood Museum. Letters, Volume XIV, 18 March 1780, 1780, Wedgwood, Wedgwood Museum.

Whilst the produce of the kitchen garden was usually for family use, excess produce might also be sold. Oldknow developed three acres between the River Goyt and the foot of Goyt Cliff, on the opposite side of the bridge and river north of his house and below a hanging [beech] wood with a view towards the mill complex, for which a professional gardener was employed. It included a Garden House with adjoining rooms for drying, cleaning and preserving fruit and seeds, also a wool drying chamber for the sheep shearing season (Figure 6.4).[66] The produce was delivered to the workpeople and tenants with the cost deducted fortnightly from their wages. Receipts from garden produce for 1804 were £262, 1809, £285 and 1810, £329.[67] Roughly one half to two-thirds of the total production of the garden was consumed by local inhabitants and workpeople, one sixth by the apprentices, the remainder by Oldknow's household and the livestock.[68]

6.6 Orchards and Fruit

The orchard was imbued with religious allegory, fruit being considered the original food of mankind harking back to the garden of Eden and Christian writers spoke of the church as God's garden or orchard.[69] Indeed the wilderness derived from the orchard rather than from the coppice or grove.[70] Fruit growing was paramount in gardening books, with details on grafting, planting and care of orchards, transport and storage of fruit. And the use of 'artificial' heat, through grates, flues and fires, in addition to walls to hold the warmth of the sun, to encourage growth and flowering.[71] Serving fruit to one's guests throughout the year was one of the marks of a well-provided and managed garden, and fruit growing was very much a gentlemanly preoccupation. Industrialists were no different. A wide range of fruit varieties were planted for successional cropping and different keeping characteristics. In the 1753 and 1765 views of Pontypool espaliers are shown on virtually all the garden walls, all of which would have faced south (Figures 6.5). In 1776 alone,

66 Hulme, 'High-Farming at Mellor', p. 213.
67 Ibid.
68 Ibid.
69 Prest, *The Garden of Eden*, p. 70.
70 Phibbs, *Place-making : the Art of Capability Brown*, p. 160.
71 Prest, *The Garden of Eden*, p. 77.

Wedgwood ordered thirteen dwarf pears, twenty-one cherries, thirty plums, five peaches and nectarines, two apricots.[72] Various methods were used to protect both blossom from frost and fruit from blemishing in rain, particularly in the case of stone fruit. In winter and spring, Wedgwood used netting, 'to warp dried fern in, which we cut down in autumn & store for that purpose, & so fence the trees by a wall of fern. This is kept at a proper distance by pegs, which gives light & air to the bloom, & at the same time prevents its being rubbed by the cover. This is the most effectual preservation from our winter blasts that we have yet discover'd.'[73] But in the summer net was used, 'to defend the fruit from the birds, which are become very troublesome since my plantations are grown up.' In 1798 one hundred and twenty yards of netting cost of £7 3s.10d.[74] Training of fruit was also taken into the industrial environment, for Oldknow trained fruit trees up the walls of the mill, thus providing shelter and support, but also creating an ornamental feature to the mill building.[75] This was also done at the Ashworth's Egerton mill.[76] Wilkinson experimented with planting fruit trees on the outside of the garden wall and training them through a hole, 'left for the purpose by this means the fruit will have different Exposures on the same Trees.'[77] He also experimented with grafting, 'all the Grafts made on old and apparently decayed stocks thrive, and by way of Experiment it is proposed to engraft Liburnums and Lilacks on some of the Ash Trees and Currants on the Buck Thorn which grows wild in Abundance here.'

The apogee of hospitality or offerings to friends was out of season or exotic fruit particularly pineapples, grapes and melons. The first heated greenhouse (stove) in England was that at the Chelsea Physic Garden in 1681.[78] The first pineapples successfully grown in England were those for Matthew Decker at Richmond by his Dutch gardener Henry Telende between 1714 and 1716, whose method was promulgated in Richard Bradley's *A General Treatise of Husbandry and Gardening* (1721) and further treatises were published later in

[72] 23105-23110/119, Wedgwood, Wedgwood Museum.
[73] Letters, Volume XIV, 18 March 1780, Wedgwood, Wedgwood Museum.
[74] 120 yds netting, 23650-122, Wedgwood, Wedgwood Museum.
[75] Hulme, 'High-Farming at Mellor', p. 214.
[76] Rhodes Boyson, Research Notes, ZZ/413/1, Bolton Archives & Local Studies Service.
[77] More, Travel Journal, vol. 3, uncatalogued, British Library, 7 September 1783.
[78] Sue Minter, *The Apothecaries' Garden : a New History of Chelsea Physic Garden*, (Stroud: Sutton, 2000), p. 4.

the century by the likes of Phillip Miller, Adam Taylor, William Speechly, gardener to the third Duke of Portland who was passionate about growing pineapples, and John Abercrombie.[79] Glasshouse improvements including angled glazing in the early decades of the eighteenth century and furnace heating through to the introduction of cast and wrought iron which had a major structural impact in the nineteenth century, facilitated such fruit cultivation.[80] At Duddeston there was a 'metallic hothouse'.[81] However, hothouses, vineries and pineries were very expensive and skilled gardeners were required to produce fruit through the year. Pineapples were considered the 'king of fruits', in the seventeenth century their rarity famously depicted in the painting of a gift being presented to Charles II, now considered to be an import rather than the first to be grown in England. It was estimated that, 'the average total cost of cultivation of just one pineapple was about £80 (nearly £5,000 today) – about the cost of a new coach.'[82] Symbolic of conspicuous consumption, but also of skill and the wealth to engage and deploy such skill, a number of late Georgian industrialists boasted of their pineries and many had hothouses in their gardens. In Wedgwood's ledger, '1779 Paid Mr Large 7s 8d for Green House. 1781 for Hot House £4 10s 6d. […] Garden Hot Walls £4 17s 11/2d.'[83] His total expenditure on the 'Hot House' to May 1781 was £226 17s 71/2d.[84] In 1796 William Pamplin, gardener to Richard Crawshay at Llwycelyn, asked his friend in London (presumably a reputable supplier) for his prices for 'stock of pines' for the new [hot]houses he was building because he did not want to use unknown

[79] https://www.buildingconservation.com/articles/pineapples/pineapples.htm Accessed 20/10/2019. Philip Miller, *Gardnener's Dictionary* (1st edition 1731), Adam Taylor, *A Treatise on the Ananas or Pine*-apple (1769), William Speechly, *A Treatise on the Culture of the Pineapple and the Management of the Hot-house* (1779), John Abercrombie, *The Complete Forcing Gardener* (1781).

[80] J. C. Loudon, *An Encyclopaedia of Gardening comprising the Theory and Practice of Horticulture, Floriculture, Arboriculture and Landscape-Gardening including all the latest Improvements; A General History of Gardening in All Countries; and a Statistical View of its Present State, with Suggestions for its Future Progress, in the British Isles*, Third edn (London: Longman, Hurst, Rees, Orme, Brown and Green, Paternoster Row., 1825), pp. 310 - 311.

[81] Lease of Duddeston House, 1835, MS 28/74, Galton Papers, Library of Birmingham.

[82] Frau Beauman, *The Pineapple: King of Fruits,* Vintage, 2005. Via http://the-history-girls.blogspot.co.uk/2018/03/cabinet-of-curiosities-by-charlotte.html?platform=hootsuite&m=1 Accessed 20/10/2019.

[83] E62-33418, Wedgwood, Wedgwood Museum.

[84] E62-33418, Wedgwood, Wedgwood Museum.

stock from his employer's friends.[85] Glasshouses were built at Cyfarthfa immediately behind the castle at around the same time as the castle, the extensive range further up the hill to the north west came later (Figure 6.6). More than ten years before he embarked on building Cyfarthfa Castle, William Crawshay II often sent gifts to his father William Crawshay I in London of grapes, melons and pineapples from his glasshouses at Gwaelodygarth.[86] Robert Morris noted that peaches and nectarines were ripe in the hothouses at Clasemont at the beginning of August 1800.[87] There were hothouses at Duddeston where Galton, 'affixed to various bunches of grapes or pines the names of invalid friends or others, to whom they might be a comfort.'[88] If his grand-daughter had been good, he would allow her to affix and teach her to print the names on them. Josiah Spode II's The Mount estate of 120 acres had 'Large walled Gardens, stocked with choice fruit trees, in full bearing, hothouse, pinery, green-house, and excellent ice-house.'[89]

Vines had been grown outdoors for many years but growing under glass secured a much longer fruiting season with earlier ripening and the potential to grow a wider range of varieties. The vine at Castlehead was reputed to be a cutting of the vine at Hampton Court, and was planted about 1780.[90] At Castlehead there were, '2 Conservatories, Large Hot-houses, Green House.'[91] Despite this, in a letter to James Stockdale 25th February 1791 Wilkinson said, 'I am obliged to you & Mr Rawlinson for the Vines – But I do not see where Room

[85] Taylor, *The Crawshays of Cyfarthfa Castle*, p. 23. Taylor, *The Crawshays of Cyfarthfa Castle. A family history, etc. [With plates, including portraits.]*, p. 23.
[86] 252-280, William Crawshay I, Letter Book of William Crawshay, c. 1824, Cyfarthfa MS, The National Library of Wales.
[87] Commonplace book of Sir John Morris, containing quotations, aphorisms, family, business and estate memoranda etc, c1780-1818, LAC/81/6, Morris family, baronets, of Clasemont and Sketty Park, Swansea University: Richard Burton Archives.
[88] Schimmelpenninck, *The Life of Mary Anne Schimmelpenninck*, p. 40.
[89] A letting notice in the Staffordshire Advertiser, 24 November 1838, cited in Andrew Dobraszczyc, *Josiah Spode's House: The Mount*, Social History Walks (University of Keele).
[90] Stockdale, *Annales Caermoelenses*, p. 208.
[91] Particulars, conditions of sale and plans of Castlehead Mansion (formerly residence of John Wilkinson, Esq.,) and of farms, houses, mill and hereditaments in Grange, Upper Allithwaite, Lindale, Witherslack and Meethop, to be sold at the Crown Inn, Grange, 28 and 29 August 1828 (2), BDHJ/206/1/11/2, Hart Jackson and Sons, Solicitors of Ulverston - Manor of Lindale and Hampsfield, Cumbria Archives, Barrow

can be found at C. Head for that Article.'[92] John Loudon gives details of the horticulture of the Strutt family whose hothouse at St. Helen's, Derby, was heated, 'from a cockle stove, and a continual flow of warm air is poured into the house, in the same manner as is done in warming the Messrs. Strutt's manufactories.' The vines, 'formerly planted in the inside of the house, and rather too deep; but Mr. Mackay, the present gardener, planted them on the outside, in 1829, and they have since done well, and produced extraordinary crops.'[93] At Belper, where the hothouses were, 'contrived with great ingenuity. The glass roofs are in the ridge and furrow manner of Mr. Paxton, and the pines, grapes, and bananas are in the greatest vigour of growth, and showing abundant crops.'[94] The mill gardens at New Eagley included a large hothouse for vines, a peach house and orchard (Figure 6.7).[95] This interest in growing choice indoor crops for the table indicates that industrialists were at least keeping pace with their landed gentry contemporaries. In some cases, they were in the vanguard of horticultural activities and some, like Strutt, were employing techniques used in their industrial operations to benefit their fruit production.

Whilst the original purpose for greenhouses was for overwintering 'greens', evergreen tender plants, notably oranges (although they were also grown in the ground outside), as the structures and heating of hothouses and conservatories developed, they were also used for ornamental plants. Galton is noted as being, 'a great florist, and delighted to visit his greenhouse, his auriculas, or other choice flowers.'[96] The Batemans at Knypersley became keen orchid growers.

[92] Letter from John Wilkinson to James Stockdale 25 February 1791, DDHJ 4/3/2/20, Stockdale Papers, Cumbria Archives, Barrow.
[93] https://www.gardenvisit.com/book/gardening__tours_by_jc_loudon_1831-1842/from_london_to__sheffield_in_the_spring_of_1839/derby_hot_house Accessed 24/12/2017.
[94] https://www.gardenvisit.com/book/gardening__tours_by_jc_loudon_1831-1842/from_london_to__sheffield_in_the_spring_of_1839/strutt_hot_houses Accessed 29/10/2019
[95] ZZ/413/1, Bolton Archives & Local Studies Service. Boyson, *The Ashworth Cotton Enterprise*, p. 117. ABZ/36/2, Bolton County Borough: Miscellaneous Papers, Bolton Archives & Local Studies Service.
[96] Schimmelpenninck, *The Life of Mary Anne Schimmelpenninck*, p. 40.

6.7 Personal Involvement and Gardeners

Most of the industrialists appear to have taken a keen interest in their gardens, some actively. Wedgwood worked in the fields and encouraged his children to work in the garden; he commented on Erasmus Darwin's *The Loves of the Pl*ants (1787), and *The Botanic Garden*.[97] His son, Tom, who was to become one of the founders of the Royal Horticultural Society, included a note to his brother in a letter to their mother, 'You must allow ample width in your approaches through the plantation in South mead or otherwise the trees 40 years hence will overshadow the road and you will be obliged to trim them & spoil their beauty. I should think there should be at least 5 yards of turf on each side of the road. I am sure you will never repent a little nobleness of plan. I hate anything that seems strangled and skrimped.'[98] John Wilkinson noted in a draft letter to Joseph Priestley, 10 October 1791, 'I return into the North again on 17th [?] this Month to superintend some planting that I have to finish at Castlehead in which I have noted on Transplanting that where a tree is to be moved the longer it is delayed and the older the Plant the greater is the difficulty of getting it to take root. I have some Experiments of this Nature to make this Season that ought to have been done some Years ago.'[99] William Crawshay II writing to his father about tree planting at Gurnos in1828 asserted, 'I have had more pleasure in seeing them grow, & keeping them to single leaders, than the money would in any way have afforded me […]. My whole Sundays were spent there for years, & you have had Woodcocks & Pheasants from Woods I planted partly with my own hands.'[100] Enoch Wood too appears to have worked in his garden and had farming interests, noting acreage sown with oats in 1808.[101] Samuel Galton, 'had no greater pleasure, on his return every day from Birmingham,

[97] Christopher Upham Murray Smith and Robert Arnott, *The Genius of Erasmus Darwin,* (Aldershot: Ashgate, 2005), p.168, citing E25-18846, Wedgwood Archive, University of Keele, Josiah Wedgwood to Thomas Bentley, 17 July 1778; E25-18848, Wedgwood Archive, University of Keele, Josiah Wedgwood to Thomas Bentley, 24 August 1778; E26-18946, Wedgwood Archive, University of Keele, Josiah Wedgwood to Thomas Bentley, 19 December 1779; Josiah Wedgwood to Thomas Bentley, 7 March 1779 in G. Savage and A. Finer, eds. *The Selected Letters of Josiah Wedgwood,* 1965, p. 231.

[98] Thomas Wedgwood, Letter to his mother with a note to his brother Josiah, ND, L54-30651 Wedgwood, Wedgwood Museum.

[99] H. W. Dickinson, *John Wilkinson, Ironmaster ... With numerous illustrations*, (Ulverston: Hume Kitchin, 1914), pp. 43-44.

[100] Letter from William Crawshay, 26 February 1828, 252-280, Cyfarthfa MS, The National Library of Wales.

[101] Falkner, *The Wood Family of Burslem,* p. 74.

than to occupy himself in the formation of his botanic garden and to visit, 'his bees in their glass hives, whence he drew many a lesson on industry.'[102] Bees were supposed to lack procreative ability and so symbolized the state of innocence, but they were also symbolic of industry and thus the keeping of bees would have further resonance for Quakers.[103] Aaron Wood, 'was highly delighted with attending to his Bees, at one time he had Thirteen large Hives, but as the Salt Glaze, & Brick Kiln Smokes increased, an end was put to his pleasing and Productive amusement.'[104]

However, the real responsibility for gardening lay with the gardeners, who may in some cases have been the creative mind behind the design and planting. The letters of William Pamplin, gardener to Richard Crawshay strongly indicate that he was involved in the design of the gardens at Llwyncelyn. The head gardener was the expert horticulturist who might either be employed to do the whole business and engage his own staff or be paid a wage for himself only. At Soho in 1768 the gardener, William Bromley, was employing five labourers to work the garden and farm, whereas in the mid-1770s three men were employed on annual agreements at rates ranging from fourteen guineas to £25.[105] Hiring good gardeners was not without its headaches as evidenced by Wedgwood's letter to Mr Trevis, gardener at Chatsworth, of 31 May 1788, in which he explained that he had offered Mr Mathers either a sum to do the, 'whole business & hire his own labor what he wanted or to give him a wage for himself only,' but Mathers on being offered the same as Wedgwood's current gardener, 'viz 30 guineas a year, & give him more if I found he deserved it' plus 'a house & bed etc in the garden' had declined.[106] Although gardeners might have progressed through from apprenticeship, they might also have been sought by advertisement and by recommendation; Erasmus Darwin suggested potential candidates to Wedgwood and in May 1794 James Downs was recorded as the gardener in the 'List of Male Servants' at Etruria.[107] Long service is suggested by the burial of 'Benjamin

[102] Schimmelpenninck, *The Life of Mary Anne Schimmelpenninck*, pp. 40 and 215.
[103] Prest, *The Garden of Eden*, p. 84.
[104] Enoch Wood Papers, The Potteries Museum and Art Gallery.
[105] Ballard, Loggie and Mason, *A Lost Landscape*, pp. 21-22.
[106] Letter, Josiah Wedgwood to Mr Trevis, Gardiner at Chatsworth, endorsed 31 May 1788, E26-18980, Wedgwood - Etruria, Wedgwood Museum.
[107] List of Male Servants, May 1794, GB 133 Eng MS 1109, Wedgwood Correspondence, University of Manchester John Rylands Library.

Moreton of Castlehead, Gardener, 75 years' on 9 February 1823, recorded in the Cartmel and Lindale registers.[108] Henry and Edmund Ashworth paid gardeners from the New Eagley and Egerton mill accounts and also took fruit and vegetables from the mill gardens, distorting the profits figures.[109]

6.8 Agriculture

The aspiration of successful members of society to acquire a rural seat was to large extent irrelevant to these early industrialists, because their industry was already in the country. It would appear that many, if not all, of the industrialists who had an estate that included a farm engaged in ensuring it was productive and where there is evidence it suggests that they were using the most up to date and efficient methods, including experimentation, rather than traditional unimproved methods.

Discussion of the elite landscape gardens developed from the 1740s that sat within a larger estate sometimes ignores the productive elements of that designed landscape, as if that had no relevance and overlooks the fact that the park itself was managed pasture. Brown and Williamson have noted that, 'The way that contemporaries discussed the difference between the scenery of the park, and that of the wider countryside, leaves no doubt that most believed they should not be visible at the same time, in the same view.' [110] They cite Repton in 1792 condemning as peculiar the practice of some Norfolk landowners to 'unite Lawn with Corn Lands,' which he deemed 'a false taste, as I hold them to be incompatible with each other'.[111] This was specific: agricultural activity in close proximity to the house and the pleasure grounds was to be avoided. However, extrapolating this as a generalisation applied to a particular elite view of landscape that situates the extensive aristocratic Brownian style of landscape garden as a pastoral idyll isolated from the reality of the agricultural labour on the wider estate does not do justice to the complexity of contemporary attitudes

[108] Dawson, Research Notes, Ironbridge Gorge Museum Trust.
[109] ZZ/413/1, Bolton Archives & Local Studies Service.
[110] Brown and Williamson, *Lancelot Brown and the Capability Men,* p. 108. Citing H. Repton, *Red Book for Honing Hall*, Norfolk, 1792, private collection. The flatter lands in the vicinity of some of the large estates of Norfolk would certainly create a different effect than adjoining lawn and cornfields in undulating country.
[111] Ibid.

as borne out by garden writers especially later in the eighteenth century, including Repton himself who, some twenty-four years later, wrote

> For in the present taste for Park Scenery a Corn-field is not admissible, because every fence must be removed except those which are most offensive, such as separate woods and lawns […] I consider the mixture of Cornlands with Woods at a distance more cheerful than grass, because at certain seasons, at seed time and at harvest, it may be enlivened by men as well as beasts. I hope I may be here allowed to indulge my favourite propensity for humanizing as well as animating beautiful Scenery.'[112]

The issue therefore was one of distance. Gilpin recognised that, 'the plough, the mower, the reaper, the hay-field, and the harvest-wane' could be considered beautiful and pleasing; whilst Payne Knight noted that

> the foreground is the proper place for picturesque decoration […] and the kinds of ground best adapted to it are those least suited to the purpose of agriculture. The usual features of a cultivated country are the accidental mixtures of meadows, woods, pastures, and corn fields; interspersed with farm houses, cottages, mills, &c.; and I do not know that in this country better materials for middle grounds and distances can be obtained, or are to be wished for; and why they should be separated by a belt of plantation from the foreground, or even from the middle ground, when that is formed of smooth lawn or shrubbery, I cannot imagine.' [113]

The untidy business of agriculture might have been inconsistent with the pastoral idyll and in large estates might be kept largely out of sight from the house and pleasure grounds, but ornamented rides through outlying areas of

[112] Humphry Repton, *Fragments on the Theory and Practice of Landscape Gardening*, (London: The Architectural Library, 1816), p. 203.
[113] Gilpin, *Essays on Picturesque Beauty; Three Essays on Picturesque Beauty; on Picturesque Travel; and on Sketching Landscape: to which is added a Poem on Landscape Painting*, (London: Blamire, 1794), p. ii-iii. Richard Payne Knight, *THE LANDSCAPE A Didactic Poem in Thee Books Addressed to Uvedale Price Esq,* Second Edition, (London: Bulmer & Co, 1795), Republished in 1972 by Gregg International, Farnborough, Hants. p. 41 and 42.

estates would include the agricultural in the designed view. Whately held that a riding, 'depends on objects without for its pleasantness [...] By concealing therefore much of the prospects, we destroy the amusement of a riding.'[114] Williamson has noted that agricultural improvement schemes themselves could be 'objects of fashionable display as much as practical agriculture,' which may have been the case with some landowners, but more importantly such schemes conferred positive improvement attributes on the owner. [115] This perhaps might further explain the screening of unwanted views, particularly unimproved common 'wastes', it is not so much that they were unpleasant to the eye but that their state of unimprovement was incompatible with a gentleman of taste. It was a view of unimproved land that was more the issue than the purely aesthetic. Hester Thrale Piozzi voiced this when visiting Castle Howard, 'the Cold is kept off by Woods of venerable Dignity, and softer Ideas so delicately conveyed by dint of young Plantations that while one traverses the Pleasure Grounds every image of a coarse Country is completely excluded from the Mind.'[116]

From the lack of clear evidence, it is difficult to determine the extent to which industrialists attempted to repel, or not, arable production from the view, because in many cases their garden and park might have been quite small, newly established and if they engaged in agriculture it may not have been part of the same landholding. Livestock animated the view and thus pasture could be included within the designed composition and some landowners let out land for grazing because it could also provide better income than being used for crops.[117] In the Derbyshire and Cheshire area 'Summerlings' or 'Joist' cattle were often taken at fixed prices by farmers and landed gentry; Oldknow advertised for such summer pasture in 1787.[118] He also kept cows to provide dairy produce for employees, bullocks for beef and some for draught, which was

[114] Whately, *Observations on Modern Gardening,* p. 135.
[115] Williamson, 'Archaeological Perspectives on Estate Landscapes' in Finch and Giles, eds, *Estate Landscapes: Design, Improvement and Power in the Post-medieval Landscape,* p. 7.
[116] Thrale Piozzi, MS No 623, Thrale Piozzi Papers, John Rylands Library, University of Manchester.
[117] Wickham, *Gardens in History : a Political Perspective*, p. 145.
[118] Stephen Glover, *The History, Gazetteer, and Directory of the County of Derby, Part 1, Derby*, (Derby, 1829), p. 204. Hulme, 'The Estate at Mellor', p. 142.

unusual but perhaps done to avoid the horse tax, and sheep, being the first to introduce the Merino breed into the Peak district.

The attraction of farming to landowners during the boom of the second half of the eighteenth century encouraged the trial of new crops and techniques.[119] Turnips feature in some of the accounts because they were used as an initial crop on poor soil to be eaten by sheep, which manured ground that could then be marled and possibly limed prior to planting. (See quote on Painshill on p. 252) Apart from planting potatoes at Mellor, seed bills for spring 1793 indicate the range of vegetables including, 'Turkey long pod beans, marrow peas, speckled kidney peas, Cos lettuce, cabbage lettuce, long prickly cucumber, green Turkey cucumber, sugar loaf cabbage, Italian broccoli, Welsh onion, Salmon radish, early Dutch turnip, new Strasburg onion, orange carrot, white beet, etc.'[120]

Raising the fertility of the soil was essential to improve its productivity, particularly on previously barren or uncultivated areas. George III is reputed to have noted to Arthur Young, 'Cattle give manure, and manure corn.'[121] Manure was thus an important by-product of the farm and the layout of the buildings took that function into account.[122] Manure might also be obtained from elsewhere, like Oldknow taking large quantities from the Manchester Police Commissioners transported to Marple by canal. In addition, Oldknow took the waste from the Apprentice House kitchen, its privies and those of the works via drains to, 'a Cess-pool or Well, whence a Chain-pump lifts the soil into Water-carts, which distribute it on to his Grass-lands, or into landers which convey it to irrigate such as are properly situated for it: and one of which might be made to cross the River, and induce on his excellently managed Sale Garden […] a degree of fertility and luxuriance of produce.'[123] Farey's *General View* for Derbyshire of 1813 noted that this was the only instance of machinery being used to raise water for irrigation, presumably he was referring only to

[119] Robinson, *Georgian Model Farms*, p. 14.
[120] Hulme, 'High-Farming at Mellor', p. 204-205.
[121] M. Betham-Edwards (ed), *Autobiography of Arthur Young* (1898) p. 323, cited in Robinson, *Georgian Model Farms,* p. 62.
[122] Robinson, *Georgian Model Farms,* p. 63.
[123] Farey, *General View of the Agriculture and Minerals of Derbyshire*, vol. 2, pp. 453-454.

Derbyshire; he also mentioned that he saw no examples of canal water being used for irrigation which suggests that this was a practice employed elsewhere, and is worth further research.[124]

George B. Strutt also used sewerage as manure collecting it in, 'a large circular Dung-hole near to the Cotton-mill […] in which an Iron-pump is fixed, which […] from small holes in the bottom of the lander, every part of the surface of the dung may be wetted daily, with the liquid manure from beneath.'[125] Strutt also used soot as manure on grass and encouraged his employees to collect bones, buying them by the wheel-barrow full from the children or others at 1s. 6d. per cwt., which were then ground at Makeney Forge.[126] The opening of Oldknow's lime kilns in 1797 had a significant impact on both his and neighbouring farmers' agricultural activity as the application of lime was especially beneficial on ground that had previously been wooded with its build-up of decayed vegetation. He also experimented with lime and lime ashes to see which might best improve 'Rushy field'.[127] Machinery was used to chop chaff and turnips (Oldknow), and Wilkinson was reported to have been the first to employ a steam driven threshing machine and, like his friend Richard Crawshay, experimented with growing hemp being the only person to receive a premium from the Royal Society.[128]

It has been seen above that Oldknow supplied produce, others also ran farms to ensure the supply of food for the workers, like Henry Strutt who built Crossroads and Moscow Farms (c. 1812) to supply employees at Belper.[129] Similar was being done by the Marquesses of Rockingham at Wentworth Woodhouse with Skyershall built in the 1790s as a dairy farm.[130] Ensuring the

[124] Farey, *General View of the Agriculture and Minerals of Derbyshire*, vol. 2, pp. 477 and 493
[125] Farey, *General View of the Agriculture and Minerals of Derbyshire*, vol. 2, p. 453.
[126] Farey, *General View of the Agriculture and Minerals of Derbyshire*, vol. 2, pp. 449-451.
[127] Hulme, 'High-Farming at Mellor', p. 207.
[128] W. H. Chaloner, 'The Agricultural Activities of John Wilkinson, Ironmaster', *The Agricultural History Review,* (1957). Davies, *General View of the Agriculture and Domestic Economy of South Wales,* p. 532.
[129] Robinson, *Georgian Model Farms,* pp. 116 and 123.
[130] Robinson, *Georgian Model Farms,* p. 143.

whole industrial community was well fed made sound business sense, farms were therefore an integral feature of the larger industrial estates.

With the management of water being crucial for industrialists, drainage of their estate land, which meant that it would be more productive for pasture or arable, often fed into the industrial water supply. At Cyfarthfa, water was channelled to a pool/reservoir near the balancing ponds which appears to have fed six large brick-built water storage tanks used for supplying the water both to the boiler that heated the glasshouses and for irrigation (Figure 6.6 and 6.8).[131] Matthew Boulton employed the steam engine installed for the mint, to pump water up to water young trees, lawns and other plants.[132] It has been noted earlier that Wilkinson enlisted the help of James Watt regarding a steam engine for his 'watering pan system' that would not only provide some ornamental value, 'to exhibit a Fountain', but also to irrigate the productive garden. Although the engine house was built, the engine itself was never installed, and the building was, 'converted into an Apartment for the Gardiner and Store Rooms etc' (Figure 6.1).[133] Other industrialists used more traditional techniques. Wedgwood noted payments for watering trees, for example 2s 4d for half a day in May 1769. It is likely that the four ponds which appear to have been in the vicinity of the Etruria garden should have supplied its needs.

6.9 Impact of Industry on Gardens

As the momentum of the industrial revolution increased so the impact of industry on the environment increased. Samuel More visiting the manager of the Macclesfield Company (copper) on his tour north in 1784 noted that he lived 'in a very pretty house near the Canal. We were treated very politely by him and his Family and in his Garden were shewn the fatal Depradations made on the Fruit Trees by the Sulpherous Fumes arising from the Works.'[134] The pollution from copperworks was particularly deleterious, the abandonment of the Clasemont estate because of the stench only thirty years after it was built has already been mentioned. Neither were the Potteries exempt, Enoch Wood wrote nostalgically about his garden in 1836, 'Where no smoky buildings anoyd us;

131 Site visit and pers. Com. Ian Woolston Cyfarthfa Park Ranger.
132 Ballard, Loggie and Mason, *A Lost Landscape,* p. 37.
133 More, Travel Journal, vol. 3, uncatalogued, British Library, 17 September 1784.
134 More, Travel Journal, vol. 3, uncatalogued, British Library, 6 September 1784.

strangers who came to see it, generally called it little Hawkstone. Every alteration since made, has spoild its then simplicity and beauty. Trees or plants will scarcely grow here none where they once were luxuriant and healthy.'[135] In the 1850s, the Bolton historian, P. A. Whittle described the impact of the factories, 'the smoke of many hundred factories, or mills, impregnates the air, and renders even the herbage of the fields, in a faded and sear state of decrepitude.'[136]

Conclusion

From the available evidence industrialists seem to have been improving landowners whose agricultural, horticultural and silvicultural pursuits were consistent with those of the elite, if not on the same scale. The industrial estate like any community, as had been recognised for centuries by effective rulers who wished to establish a settlement, required sustenance ideally that could be efficiently produced locally. The relatively sharp increase in immigrant population particularly for a number of the cotton mills and ironworks in this study necessitated an increase in agricultural production. It was therefore in the industrialists' interests to ensure efficient agricultural production to keep a well-fed workforce that was therefore more likely to be loyal and compliant. Where industrialists had larger estates that encompassed farms, it was this relationship between the wider estate and the provision of food that was the major interaction between estate and the industrial, although there were some examples of more technological interventions like Oldknow's system for collecting sewage and manuring, or Wilkinson's steam driven threshing machine, but these were rare.

Industrialists, even those with only a few acres, planted trees and those with larger estates embraced the dynastic, patriotic and profitable creation of plantations, often with orders in the thousands of largely native species. Like elite owners they mostly bought small to grow on in nurseries or in situ and, particularly on virgin territory, they established shelter belts both around the estate and in key areas. Although they planted for ornamental interest their

[135] PM1/1/86-1, Enoch Wood Papers, Potteries Museum.
[136] Boyson, *The Ashworth Cotton Enterprise*, p. 118. Citing P. A. Whittle, *History of Bolton,* p.354.

personal focus was primarily on growing fruit, including exotics like pineapple, in this they were exhibiting both the pursuits of a gentleman and that they had the requisite expertise and resources, and they appeared to be successful as they sent presents of such fruit to family and friends. Like all gardeners they sought the best ways of protecting choice specimens from the likes of wind, frost and predation but there was little innovation and no evidence of, for example, using steam from manufactory engines to heat hothouses; the distances of course in many cases would have made this impractical, although there was diversion of water from the works water network to supply both boilers and for irrigation. There was some experimentation like Wilkinson's grafting, but no evidence of, for example, plant breeding, although Galton's interest in auriculas might have involved breeding.

Significant tree planting was reported in the General Views and in county histories, and the premiums given by the Royal Society for the encouragement of Arts, Manufactures and Commerce give quantities and species, but ornamental planting was ephemeral and therefore for most of the sites even if some data exists on species or varieties purchased there is no record of the location of planting and no planting plans. However, such evidence that does survive indicates that the range of trees, shrubs and herbaceous plants grown was typical of the time. The plant palette included evergreens and ornamentals with flowers and scent, but no examples of ornamental rarities or a passion for very recent new introductions, which is probably indicative of the prevailing situation with the majority of landed gentry of the period, new introductions taking some time to become established and to be sold by nurseries.. Although the ornamental and productive garden existed cheek by jowl with industry, mostly innovation in industry was not extended to the horticultural.

Conclusion

This study has sought to explore the designed landscapes of Georgian industrialists with particular reference to those which were contiguous with their industrial activity. By examining sites that have not previously been considered as a group and which may be more representative of the plethora of smaller gentry estates of the period, it was seeking to contribute to a more comprehensive consideration of the Georgian designed landscape than the relatively few iconic aristocratic and atypical oft-cited sites that have tended hitherto to be the subject of the garden history of the period. Specifically, it has examined whether there might be a distinctive design aesthetic that incorporates the industrial which might constitute a unique typology, whilst recognizing that any typology would be to some extent a generalization that must accommodate diversity. The over-riding finding is that there was a distinct design aesthetic that brought the industrial centre stage, it was not disguised, but was incorporated, indeed sometimes enhanced, as an integral, often multi-sensory, element of the landscape experience.

During the course of the research, further themes and issues have been exposed which, it is hoped, will inform future research. Notably, although the research did not set out to look at elite sites and their interaction with the industrial, it has revealed that many of the elite were embracing the industrial within the experience of their designed landscapes as was the case with the ironworks in the view from the Tankersley Park summerhouse at Wentworth Woodhouse and the canals for example at Shugborough and Cassiobury.[1] Whilst noted in the literature on specific sites, this has not previously been recognized as a theme and is worthy of further analysis that includes exploring the extent to which the elite were adopting similar embracing of the industrial in the landscape experience to that employed by industrialists.

Another important issue that should be borne in mind is the language used by contemporaries; examination of contemporary documents has shown that the language employed to describe industrial operations was the same as that used

[1] See pp. 142-3 for Wentworth Woodhouse and p. 221 for Cassiobury and p. 221-2 for Shugborough.

for landscape both designed and natural. This means that care is required in interpretation of the descriptions of landscape features, particularly the case for example with cascades, like that being thrown from the engine at Warmley.[2] Language is also indicative of contemporary attitudes and significantly this research has shown that Georgians' views of industry were not those of later generations, on the contrary, industry and industriousness were admired as a characteristic of improvement. This, of course, had an impact on the industrial in the design of the landscape and the reception of that design.

The scant inclusion of the productive and the industrial in the analysis of the Georgian designed landscape is perhaps a reflection of the propensity of most modern scholarship to concentrate on a very limited elite experience. That isolated experience itself was a conceit that sought to create and preserve an illusion of a pastoral idyll where man and nature coexisted in a nature that had been unsullied by man's intervention; this therefore could not reconcile the industrial, non-human scale existing in the natural God-given environment, for man's intervention in nature was an intrusion and 'unnatural', ignoring of course that the very idyll they inhabited was man-made. The literary, artistic and political romance of the English landscape garden, combined with possible preconceptions coloured by nineteenth- and twentieth-century attitudes, particularly with regard to industry, has arguably contributed to commentators on the designed landscape until fairly recently largely ignoring the productive and the industrial aspects on which those very estates depended for survival. Williamson has emphasized that the traditional concentration of garden historians on the aesthetic and the horticultural has removed and isolated the garden and the practice of gardening from its context where the ornamental, productive and recreational were inextricably intermingled.[3] Perhaps more fundamentally, scholarship's focus on the aesthetic and the contribution of taste in fashioning the particular aesthetic, together with a tendency to a somewhat reverential approach to a rarefied elite world, has segregated the designed

[2] See p. 244. *Bristol Journal,* 30 September 1749, cited in Latimer, *The Annals of Bristol*, p. 550.
[3] Tom Williamson, 'Archaeological Perspectives on Landed Estates: Research Agendas', in Finch and Giles, eds, *Estate Landscapes: Design, Improvement and Power in the Post-medieval Landscape,* p. 9.

landscape from the environment of improvement in which it was created. However, the blinkers are being lifted with more recent work pushing the discussion away from the well-trodden path into setting designed landscapes in the complexity of the broader contemporary context, looking at the wider landscape, smaller estates and even villa or town gardens. Work by Tarlow on the pervasiveness of improvement in eighteenth century life and particularly its impact on the landscape both aestethic and the agricultural, by McDonagh and others revealing the much greater involvement of women in land ownership and estate management than previously recognised, and that by Spooner on smaller gentry estates, all of which, together with research locally on individual non-elite landscapes, will inspire further work in these areas and contribute to the development of a more comprehensive understanding of the design, use and experience of the Georgian landscape.[4] It is also to be hoped that this will encourage more cross-disciplinary work and thus understanding.

Industrialists have often been grouped with nabobs and city businessmen, including merchants, as nouveau riche and thus have been subject to the accusation that they were seeking to establish their credentials amongst the landed elite by acquiring the trappings of house and land. This has not been borne out by this research. As industrialists' enterprise grew, often as a result of their own invention or innovation, so did their cultural capital and wealth. Development of an ornamental landscape went hand in hand with industrial expansion, the landscapes were, however, mostly relatively small (compared with the elite and more wealthy gentry) and for year-round private enjoyment, unlike the elite whose landscapes were for seasonal use, public display and on the tourist route. These industrialists, even if their family had modest means, were not from a labouring background but from master craftsmen or yeomen, so many were used to managing land, however small an area; they were also mostly well-educated and culturally aware. By the time they were embarking on their landscape, if not referred to by their craft, they were considered as gentlemen and often as gentlemen of taste, that combination of the intellectual and cultural filtered through emotion. This appears to have ensured they were

[4] Tarlow, *The Archaeology of Improvement*; McDonagh, *Elite Women and the Agricultural Landscape 1700-1830*; Capern and others, *Women and the Land 1500-1900*; Spooner, *Regions and Designed Landscapes in Georgian England.*

socially accepted, although urban society seems to have been more divided than rural as witnessed by the possibly apocryphal story of a prominent Preston resident and attorney, Thomas Winckley, who declared that Preston was no longer a fit place for a gentleman to live because John Horrocks had been served by a fishmonger ahead of him and bought the fine turbot he had wanted.[5] There seems also to have been a distinction made in Leeds, and perhaps other wool towns, between merchants and manufacturers, the former being acceptable, the latter not, although this may have been more to do with the fact that the term manufacturer at the time was someone who worked with their hands, a labourer, merchants did not, neither did a gentleman.[6] Education, social and cultural interaction all contributed to their absorption of the aesthetics of their time and thus, the concepts underpinning the developments in Georgian designed landscapes tended to be embraced by industrialists, in this respect they were not innovative but were realizing contemporary design conventions. Their original design intentions were rarely, if ever, expressed; therefore, it is not possible to assess the extent to which the landscapes they developed fulfilled their objectives. Similarly, there is little evidence of explicit influences, although a number of the industrialists visited well-known elite landscapes and their libraries included works that affected contemporary landscape aesthetics as well as on horticulture and land management. It has been necessary therefore to assess industrialists' landscapes in the context of what is known of designed landscapes of the period, which currently are largely those of the elite.

The charming recollection by Enoch Wood of his four-acre garden being likened to the hundred-acre Hawkstone is indicative that there appears to have been no anxiety about comparison with other larger landowners, rather that industrialists were content with and proud of what they had.[7] They did not have Shenstone's concerns that smallness of scale might imply smallness of taste, but Shenstone had a tendency to overindulge in garden projects and moved in aristocratic circles without comparable income, whereas industrialists had the financial resources but tended to spend within their means.[8] Industrialists were not

[5] Burscough, *The Horrockses: Cotton Kings of Preston*, p. 20.
[6] Rimmer, *Marshalls of Leeds Flax-spinners*, p. 19.
[7] PM1/1/86-1, Enoch Wood Papers, Potteries Museum.
[8] 'While wealth might easily be recognized as different from taste, taste could not so easily be dissociated from wealth.' Stephen Bending, *Green Retreats*, p. 225.

valorised by their wealth but by their success in their industry and their standing with their peers, thus they did not indulge in public display of their prosperity for their gardens were not, generally, for public consumption and they were not seeking to cement political power. The fact that they developed their pleasure grounds, often as part of a wider estate, but incorporating the industrial in the experience is testament to their belief in and contemporary attitudes to the industrial as part of the national project of improvement. It did not have the satanic mills connotations of the later Victorian period.

Unlike the elite, most industrialists, where they established a new house and landscape, were contemporaneously developing a contiguous new or extended industrial operation and many were building on virgin territory. In these instances, the industrial was confidently incorporated into the design aesthetic clearly and proudly evident from the outset. Thus, although nearly sixty years apart, Wedgwood and William Crawshay II conceived their estates as an integrated whole, the industrial in full view from both the house and its surrounding gardens and with 'industrial' water prominently performing an ornamental purpose between the two.

The challenge of transforming a barren site was very much in the spirit of improvement. In agricultural and horticultural terms the bringing of heath, moss or rough land into productivity was perceived more likely to achieve significant benefit compared with already cultivated land; it also contributed to the national endeavour of increasing the prosperity of the country. Boulton, Wedgwood, Oldknow, Reynolds and others were all credited with creating a thing of beauty from a desert or wilderness. Perhaps the most ambitious example was Wilkinson's conversion of the steep, inhospitable Castlehead hill into a garden and pleasure grounds and particularly his draining of the Meathop salt marsh and meadows.[9]

Industrialists may have been pushing the boundaries scientifically, technically, in the organization of labour and production, but, based on this research, they adopted the conventions of their time as far as the look and feel of the

[9] Sir John Barrow, *An Autobiographical Memoir,* p. 29.

landscape design was concerned, but the underlying structure and purpose especially in relation to water, the built environment and the use of by-products was not conventional. In cases where gardens and park were originally developed in the late seventeenth or early eighteenth century there was a tendency to hang on to formality, often through to the nineteenth century. This was the case on the island at Derby silk mills, at the Darby houses in Coalbrookdale, and on a larger scale at Pontypool and the Gnoll in South Wales, some elements in the latter even surviving to the present day, albeit in restored form. Industrialists planted trees as shelter belts, created serpentining shaded circuit walks often beside water, optimised viewpoints within and on features in the wider landscape, used illusion to imply a greater land ownership, all design devices used by the gentry and elite. Some, as their wealth grew, moved away from their usually very modest homes in the immediate environs of their industrial activity, but often retained a designed link from their new home to the industrial whether visual or by association, like Gott at Armley and Galton at Warley.[10] Even where a designer was involved there is a strong indication that the owners were the creative force, as was the case with Wedgwood. Many exhibited a strong interest in the garden particularly in fruit growing, Galton would retire to his botanic garden after work, Wedgwood often wrote about his gardening and advised friends on techniques, Wilkinson experimented with grafting and grew peaches and nectarines in his hillside garden.[11] Whilst there is scant evidence, there are indications that a number of the women may have had a significant role in the development of the landscapes with for example Lucy Galton and Mary Knowles identified as having skill in landscape gardening.[12]

The gardens and park were for pleasure, but critically their location was driven by industrial requirements, whether closely integrated with the industrial activity as in the case of Pontypool, Warmley, Cyfarthfa, or utilizing the products of the industry, as at Sunniside and Castlehead. In most cases they performed a

[10] See p. 114.
[11] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 215. Wedgwood, *Letters*, Volume XIV, 18 March 1780, p. 10. More, Travel Journal, vol. 3, uncatalogued, British Library, 7 September 1783.
[12] Mary Anne Schimmelpenninck, *Life of Mary Anne Schimmelpenninck,* pp. 268-269. Lloyd, *The Lloyds of Birmingham*, p. 111.

further function, and none more so than the Sabbath Walks at Coalbrookdale: they provided a polite context in which to engage with and to admire the marvels of industry, of ingenuity and endeavour and in so doing they conferred on the owner attributes of patriotism because of their leading position in technological progress and production, and a moral rectitude for giving the poor a means of earning a living.

During the course of this research it has become apparent that confidence in the industrial and in affirming the association was deeper than originally suspected. This confidence of asserting the industrial in the experience of the landscape was demonstrated in several ways, perhaps most significantly that the approach to the house included the industrial activity, whether experienced immediately prior to entering the gates (e.g. passing by the manufactory at Etruria, Willersley, and Cyfarthfa, and through the potworks at Fountain Place) and/or once in the park (e.g. Pontypool, Gnoll, Moss Bank). This might have been for example a direct or oblique view of the works (e.g. Pontypool, Gnoll), or the traversing/passing by a water course that supplied the industrial operations (e.g. Moss Bank, Cyfarthfa). In some sites where the industrial operation and house were developed at the same time, the industrial was in full view from the house as well as the landscape. (e.g. Dale and Rose Houses, Cyfarthfa, Etruria.) There were sites where the main industrial building, particularly the case with textile mills, appropriated the tropes of the elite mansion in a landscape park; there is no evidence that this was deliberate but was a coincidence of the setting and the juxtaposition of a neo-classically inspired building with an expanse of water. It was as if the industrial became the pivot of the designed landscape rather than the owner's house. This can be seen for example at Mellor, Quarry Bank, and at New Eagley mills with their associated manufactory gardens. These, rather than the elite mansions, were now the powerhouses of the nation.

Although Pendlebury and Green noted that former industrial workings from mining in the area of the Rivers Tyne and Wear were often reworked when brought into the 'polite' garden context, it is striking that this research has highlighted an apparent lack of disguise, which further indicates industrialists' pride in, and contemporaries' acceptance of, the industrial. Where industrial

structures were built in a style not necessary for their purpose it would appear to have been ornamentation rather than disguise, if anything drawing attention to, rather than masking, and thus creating an ornamental feature in the landscape. Mostly this seems to have been Gothic, such as the lime kilns in the form of a ruined abbey or castle at Mellor or the crenelations at Cromford and Fountain Place, and suggests the desire for an element of romance and conjuring of a medieval past, although the post-1830 embellishment of Fountain Place suggests more an exercise in whimsy. Such ornamentation, though executed on an industrial structure, was usually best appreciated from within the designed landscape often in association with other features that reinforced the artifice, like the crenelated wharf at Cromford in association with the fishing pavilion, medieval chapel ruins and old bridge.

The industrialists were not unique in utilizing by-products or waste. Eighteenth-century contemporaries considered it appropriate, ingenious, though in some cases unusual, for by-products or waste, particularly of those industries that involved smelting like iron, brass, copper and glass, to be employed in a landscape setting. In this sample it was only in ironmasters' sites where by-products and waste were used in paths, walling and especially in grottoes. Clinker was evocative of volcanic lava spewn up from the bowels of the earth and therefore might seem especially fitting in an 'underground' environment. The use of scoria blocks was unique to brass or copper smelting areas, resulting in a distinctive built environment.

Permanent garden buildings were few in the pleasure grounds and parks of industrialists' landscapes, in part probably because of their smaller size and the fact that the majority were developed in the second half of the period when there was less appetite for such features, although there is evidence that there may have been temporary or portable structures.[13] A hypothesis that would be worth testing is that designed landscapes with substantial garden buildings both in number and size were essentially public spaces, so the features were essentially to ensure variety and a steady stream of visitors, as was the case with the few elite sites earlier in the century. What is significant with

[13] Wedgwood's portable summerhouse. Ledger, 1778, 28690-43, Wedgwood, Wedgwood Museum.

industrialists' landscapes is that in most cases the landscape was primarily a private space, not one for public display, and in this they were probably representative of the majority of the gentry. Boulton was an exception at Soho and perhaps to a much lesser degree Wedgwood at Etruria. Industrialists did not have to engage in a public demonstration of status to reinforce political power, their manifesto was their industry, so their gardens and parks were personal. Such buildings as there were, appear to have been domestic in scale emphasizing that their use was intimate. Where there were larger buildings that were comparable with those in elite landscapes, like those in the Sabbath Walks, they were in a space designed for public use. It is also worth noting that those structures in public landscapes were classical whereas largely those garden buildings in industrialists' landscapes were rustic; hermitages and grottoes being the most prevalent, the latter particularly in ironmasters gardens, which was perhaps indicative of them being in more naturally picturesque settings. The inclusion of memorials to friends or family rather than to great men, is further indication that the landscapes were personal and intimate. Some certainly allowed visitors, like Wilkinson at Castlehead, but these seem to have been local people, and this freedom was curtailed when a pear grafted two years' previously was stolen, and it has been seen that the few sites which appear to have been used as part of a marketing strategy, like Soho and Etruria, did not necessarily allow all visitors into the gardens, and therefore were still essentially private.[14]

In addition to a typology of industrial garden this research has proposed that there was an industrial estate akin to the landed estate and whilst not defined by was largely signified by the built environment. They mainly developed in rural areas which otherwise could not support a rapid increase in population. Its characteristics were a dominant family or entity at the helm of the enterprise, a sizeable integrated industrial and agricultural estate, a patriarchal interdependence between owner and worker, provision of community facilities to ensure a self-sustaining community and interchange of labour on the estate. This existed for a number of the sites considered in this study like Mellor, Cyfarthfa, Cromford/Willersley, Blaenavon and Etruria. The estate and its

[14] More, Travel Journal, vol. 3, uncatalogued, British Library, 17 September 1784.

community buildings of employee housing, inns, churches, chapels, schools etc. exhibited a stylistic consistency, perhaps only otherwise seen at this period where elite estate villages had been relocated and newly built, they therefore reinforced the industrial estate aesthetic.

Water was the most interesting and most challenging aspect of where the ornamental and the industrial converged. Water then, as now, could be the defining feature of a designed landscape, determining its character and bringing it to life. An expanse of water was the quintessential of the Georgian garden and park. Water was key too to industrial processes, it thus held both aesthetic and productive resonance. It has been seen how river, canal or lake-reservoir performed the same role in industrialists' landscapes as did the ornamental water of the elite; indeed this research has highlighted that canals and their feeder reservoirs were sometimes also appropriated to the view from and enjoyment of elite landscapes, perhaps rather more than has hitherto been recognized (e.g. Cassiobury and The Grove in Hertfordshire, Tixall and Shugborough in Staffordshire). A canal not only brought all the attributes of having water in the landscape but was also a symbol of the industrial age and improvement, perhaps in which the landowner had invested, with the added advantage of barges animating the view – and one that the landowner was not (necessarily) responsible for maintaining. It has been shown that 'canal' was a term applied more commonly through the century than has perhaps been appreciated, including to irregular ornamental water, as for example by Capability Brown to the sinuous lake-river he created at Croome. This therefore recommends that there should be caution in interpretation of contemporary comments about canals because not all might have had a geometric form or signified such form to contemporaries.

There was no blueprint for any of the water, each situation resulted in a different solution to suit the particular requirements and topography, but in all cases the water designed for industry became ornamental as well as operational, a principal feature in the landscape design whether as a setting for a principal building or an encounter in the landscape experience and was planted accordingly. Water was often interposed between the industrialist's house and the works and might also have been the means of symbolically linking a new

residence with more distant works, usually by means of a river as did the River Aire for Armley. The extensive network of lake-reservoirs, leats, culverts, sluices, weirs-cum-cascades that existed at many of the sites necessitated cutting-edge engineering that resulted in far more interesting water systems than normally existed in elite landscapes. Rarely was the industrial engineered solely for an aesthetic intent without an industrial necessity, for example as might have been the case at Quarry Bank in relation to the 'cascade' under the south bridge, although possibly it helped to mask the noise of the mill machinery.[15]

As has been seen elsewhere, the language contemporaries used to describe their aesthetic experience indicates that they did not distinguish between man-made and natural: nature's marvels and man's ingenuity in harnessing nature were equally compelling. This is particularly apparent in the response to what were termed cascades both natural and artificial, the dramatic force of water conjuring the sublime. The effect of these when allied with the industrial was intensified, testifying to man's ingenuity and capacity to harness the power of nature for improvement. The descriptions of water falling from waterwheels and water discharged from an Archimedes screw or steam engine were described in like vein to those of the picturesque waterfalls in North Wales, the Lake District and Derbyshire. Contemporaries were not constrained by a twentieth or twenty-first century sensibility to industry being anathema to an aesthetic experience, as Richard Colt Hoare noted about Coalbrookdale, 'the traveller or inhabitant in the beautiful hanging woods and shady well-kept walks of Mr Reynolds will find retirement and solitude interrupted only by the repeated strokes of the hammer in the furnace beneath [….] There is a cannon foundry and a porcelain manufactory in the neighbourhood. The roaring explosion of the former produced a fine effect whilst I was walking in Mr Reynold's woods.'[16] Whately had described the different effects water might achieve from 'a gently murmuring rill, clear and shallow, just gurgling, just dimpling, imposes silence, suits with solitude, and leads to meditation' through to, 'the roar and the rage of a torrent, its force, its violence, its impetuosity, tend to inspire terror; that terror

[15] See p. 241, Price, '*The History of Quarry Bank House Garden.*
[16] Hoare, *The Journeys of Sir Richard Colt Hoare*, p. 168.

which whether as cause or effect, is so nearly allied to sublimity.'[17] The sight and sound of fast flowing rivers, cascades, and weirs, reinforced the experience of the power of nature, comparable industrial effects and noise attested to the ingenuity of man in taming nature and was not experienced as an unpleasant intrusion as might be perceived today. Nature and industry could act together engaging the senses to aesthetic effect.

The two natural sounds most often mentioned were bird song and water, and both in contrast to the uproar of industry. Medieval tradition held that birds had not participated in the original revolt against God because, although they resembled man in having two legs, their wings like those of angels enabled them to live closer to the heavenly paradise; their song too was a reminder of the songs sung by Isiah and the prophets.[18] Addison had valued his garden more, 'for being full of Blackbirds than Cherries, and very frankly give them Fruit for their Songs.'[19] Galton was fond, 'of his multitudes of animals : his fine dogs, his fawns, his peacocks, his pheasants, his poultry, and water-fowl, all seemed to delight in flocking around him, to receive food from his hand, and to answer to his call. He gave names to all like the first Adam.'[20] Reynolds too would feed the birds from his study window, buying 'carraway comfits' for the robins.[21]

Bending has noted that a garden as a physical location could be shared by more than one person, but each might inhabit and experience it as a fundamentally different space.[22] That experience was a combination of the sensual combining sight, sound, scent, even taste and touch, all endowed with meaning by the design's realization of and the individual's sensibility to and cultural understanding of the various philosophical undertones referencing the classics, history and religion. Apart from the integral industrial purposes, which perhaps enhanced the landscape experience, industrialists' landscapes were, like other designed landscapes, places of retirement, for quiet reading and contemplation, they were outdoor spaces for learning and playing, they were

[17] Whately, *Observations on Modern Gardening*, p. 71.
[18] Prest, *The Garden of Eden*, p. 84.
[19] Addison, *The Spectator,* 6 September 1712.
[20] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, p. 153.
[21] Mary Pryor Hack, *Richard Reynolds*, (London: Headley Brothers, 1896), p. 21.
[22] Bending, *Green Retreats*, p. 48.

used by the families for their own entertainment and that of their friends and business associates, and they provided space for sport. In short, they were, like all gardens, a sanctuary from work and the outside world. The existence of garden buildings including the temporary or portable, of bowling greens (e.g. Etruria, Gnoll), hunting tower (e.g. Cyfarthfa), fishing pavilions and boat houses (e.g. Warmley, Soho, Duddeston), the latter perhaps with dual industrial or maintenance function, all demonstrate that they engaged in leisure pursuits. It was particularly larger sites that provided sporting facilities, bowling, hunting and angling appear to have been popular. Although the record is scarce, what exists indicates that children enjoyed the gardens as much as their parents, like the Wood children who frolicked and rolled on the lawn.[23] Mary Anne Schimmelpenninck went botanizing and collecting insects and Gregory Watt had a clay pit when the Watt's lived at Harper Hill from which he and his friends made models of fortifications.[24]

Whilst the garden had the moral value of being an innocent, virtuous retreat, a place of retirement, it might also be perceived as an immersive performance space; itself a show, an exposition of ideas, narrative, emotions, sensations, a reflection of contemporary culture, a peep into other worlds, but one that was only fully realised when both the intellectual faculties and emotions were engaged. The natural world offered performances like cascades or the more unusual and occasional like the echo on the hill at Castlehead.[25] Industry too was seen as a performance, Wedgwood used the word 'performances' when talking of Arkwright's mill, and commented on the women and children, 'seated in rows, stamping & breaking the ore [in Gregory Mine] […] in short, the whole Bank was animated & afforded us a most agreeable entertainment.'[26] There were guidebooks for Coalbrookdale that gave performance times for coke making and iron smelting.[27] It is therefore not surprising that the industrial could be incorporated into the performance of the landscape. Ironworks were the ultimate in sensory spectacle, appealing to the primeval, here man was harnessing the power of nature itself, they conjured the sublime, the more so

[23] PM1/1/86-1, Enoch Wood Papers, The Potteries Museum and Art Gallery.
[24] Schimmelpenninck, *Life of Mary Anne Schimmelpenninck*, pp. 17, 20 and 288.
[25] More, Travel Journal, vol. 3, uncatalogued, British, Library, 26 September 1784.
[26] E25-18541, Wedgwood - Etruria, Wedgwood Museum.
[27] Daniels, *Fields of Vision*, p. 48.

when one bears in mind that Vesuvius had major eruptions in the 1760s and 1770s.[28] Sir William Hamilton published his observations on the eruptions, *Campi Phlegraei*, in 1776, and Joseph Wright of Derby had produced a series of views following his visit to Italy in 1773/5).[29] Samuel More described going to Wilkinson's Broseley ironworks on 15 July 1776 to see cannons and two pigs being cast. 'This Furnace is perhaps one of the most exact Representations (in miniature) of a Volcano that can be imagined.' Steam, Fire coming from top like a crater, streams of liquid like lava, 'at the same Time that they appear really tremendous are most astonishingly beautiful and put all Pictures of Volcanos to Shame.'[30] Visitors to Coalbrookdale (and other sites too) did not only partake of this sensory drama during the day, but also at night, presumably for the more sublime effect of the smoke and the flames lighting up the night sky, with allusions to fiery depths of hell.[31] The juxtaposition of ironworks with the garden engaged the senses like no other garden experience; their pervasive sulphurous smell and dust coupled with the dramatic visual and aural experience was a potent reminder of the power and mysteries of nature with its association to the classical world. Ironworks were a potent symbol of improvement, of human endeavour in the national interest, for not only was man harnessing the resources and power of nature, but the process was the result of science and experiment, and the output supported burgeoning manufacturing of cyclinders for steam engines (for manufacturing), iron for machinery and pins, and cannon for the defence of the country.

Travel journals of the period testify that tourists were not only interested in scenery and noble seats but also in 'patriotic' technological industrial advances. Mary Chorley in the 1770s, 'was taken to admire Preston and Liverpool docks, a

[28] https://volcano.si.edu/volcano.cfm?vn=211020 Accessed 19/4/2020.
[29] Iain McCalman ed., *An Oxford Companion to the Romantic Age British Culture 1776-1832*, (Oxford: Oxford University Press, 1999), p. 773. Other artists, like William Daniel also produced paintings of the eruptions. https://www.oxfordreference.com/view/10.1093/acref/9780195104301.001.0001/acref-9780195104301-e-295 Accessed 20/4/2020.
[30] More, Travel Journal, vol. 2, uncatalogued, British, Library, 15 July 1776.
[31] The anonymous description of Coalbrookdale also mentions how visitors were attracted by beautifully variegated colours in the piles of scoria from the blast furnace and that, though scoria was difficult to grind because it was hard and brittle, pieces were capable of 'takeing a shine' and were sometimes made into buttons, resembling 'Mocca or Cornelian'. 1987/64/6, Anon, *A Description of Coalbrook Dale Iron Works and the environs*, c. 1834-50.

paper factory, a coal pit, a picture gallery, a china auction, an army exercise and the opening of the Lancaster assize.' And twenty years later her daughter Sarah Ford of Lancaster, 'catalogued her visits to a furnace, a sugar house, a rural powder mill, the new Lancaster canal and the aqueducts at both Preston and Lancaster.'[32] Millicent Bant and Lady Wilson toured Wales in 1806 and on 11 August visited Bersham ironworks and later Merthyr Tydfil.[33] This indicates that women were as much tourists as men. The industrialists' gardens as adjuncts to their works were business assets that could enhance their marketing objectives in terms of being a locus for doing business and a means by which visitors might engage directly or subliminally with the product, this was particularly the case with luxury consumer goods. Thus, the immediate environment of the Derby Silk Mills with ornate high status gates, trellis work and formal planting together with the elegant island garden, a formality that would still have been the expectation and garden experience of most visitors in the first decades of the eighteenth century, reinforced the refinement and desirability of its luxury product.[34] Similar were Soho and Etruria, where the garden played a role in manipulating the impression elite visitors had of the place of manufacture. Other producers of consumer goods featured on the tourist itinerary like Clay (japanware) and Taylor (gilt buttons and snuff boxes with guilloche enamelling) in Birmingham, but their gardens did not, although the wife of John Baskerville (japanware and type) did show visitors the adjacent gardens.[35] However, few sites were like Soho where, in addition to a showroom from 1772, Boulton built a tea room and menagerie between 1776 and 1779, the latter was primarily an aviary, but was perhaps symbolic of Boulton's goods being traded around the world.[36] The gardens were not always part of a visit, Byng on his journey in 1781, visited the manufactory but does not report on the garden, whereas later in 1792 when he visits Etruria, whilst waiting to look

[32] Vickery, *The Gentleman's Daughter*, p. 252.
[33] Liz Pitman, *Pigsties and paradise : lady diarists and the tour of Wales 1795-1860*, (Llanrwst: Gwasg Carreg Gwalch, 2009), p. 68 and 75. (Essex RO D/DFr F2 and D/DFr F4)
[34] The gates are discernible on a painting of around 1725.
[35] On 12 September 1806 the Prince of Wales, later George IV, and the Duke of Clarence, later William IV, visited the Spode manufactory with an entourage of aristocrats. Spode was appointed Potters to the Prince of Wales, and subsequently to the Regent in 18011 and to the king in 1820. Reported in The Staffordshire Advertiser 20th September 1806. Whiter, *Spode*, p. 231. Other manufactories visited were Taylor's button and enameling works, Baskerville's print works, Worcester and Derby pot works.
[36] Ballard, Loggie and Mason, *A Lost Landscape*, pp. 13-14.

around the manufactory he, ‘saunter’d about Mr W.’s grounds; which are green, and pleasant, with some pretty plantations, views of navigation &c &c.’, but he was scathing that there was no corn at the inn for his horses.[37] One must bear in mind that many visitors like Byng might have had a letter of introduction, was a potential customer, also that Soho and Etruria were the exception rather than the commonplace as far as gardens being open to visitors.

Whilst visitors might not have understood the science or technology, they did appreciate the role of the industrial in the national project of improvement which contributed significantly to Britain’s role in the world and in colonialization. However, tourism was limited because industrialists were concerned about exploitation of inventions, particularly by foreign spies. Some industrialists were very cautious about allowing people to tour their works or might permit access only to some parts, perhaps sufficient to attract a purchase, like John Byng who at Clays (japanware), was, ‘most tempted; but at Boltons most amused.’[38] Champion was extremely protective of his spelter works at Warmley which, ‘was built right in front of Mr Champion’s windows’ and ‘so fiery in his surveillance that the workers there will hardly whisper his name.’[39] The only visitors who seem to have been allowed into the Warmley gardens were Count Nicolaus Zinzendorf and a young Joseph Banks who commented on the Echo Pool but nothing else.[40] Wedgwood, despite knowing Arkwright, on a visit to Matlock in 1775 noted in a letter to his son, John, ‘Walk’d to Cromford & attempted to see the Cotton Mills, but were disappointed. Mr Arkwright the inventor & superintendant of the mill permitting very few to have the pleasure of viewing his ingenious performances.’[41]

[37] Byng, *The Torrington Diaries*, vol. 3, p. 127.
[38] Byng, *The Torrington Diaries*, vol. 1, p. 49.
[39] Bengt Ferner (1724-1802), a Swedish astronomer who became Professor of Mathematics at Karlskrona Naval Academy and adviser to King Gustav III, travelled to Bristol expressly to obtain information on industrial processes and practices. On 18 January 1760, he finally managed to visit Warmley, but made no mention of the garden, though the next day, 19 January, he commented on the gardens of Squire Coussens at Redland, so either he did not go into the gardens or was not made aware of their existence. Another Swedish industrial spy, Robsahm had to bribe a workman to get him into the Warmley works after dark in 1761. Ferner, *Ferner’s Journal*, pp. 32 and 40.
[40] MS. Add. 6294, Sir Joseph Banks: Journals, Cambridge University Library.
[41] E25-18541, Wedgwood - Etruria, Wedgwood Museum.

This study has looked at sites where the industrial was integral to the designed landscape; it has been based on a discrete group of industrial sectors and the integration of the industrial was largely a function of the industry concerned. As explained earlier there is no body of literature on this subject and whilst the wealth of scholarship on elite landscapes has informed the analysis, it has also lacked the broader context of improvement within which these landscapes were developed as well as data and evaluation of more modest, non-elite landscapes. The existing literature that has considered the industrial has dealt with isolated sites or groups of sites, which has resulted in a tendency to treat them as a curiosity, as in the case of Basinghill and Daniels' work on Repton's industrialists' landscapes, or a localised phenomenon like the perceptive but restricted appraisal of the mining landscapes on Tyne and Wear.[42] It has been largely narrative, setting the landscapes in the historiography of elite landscapes, often assuming that industrialists were aping the elite, and often engaging with the landscapes' tourist allure and thus their reception by the elite. This has particularly been the case with ironworks and Coalbrookdale in particular, but also those sites which produced fashionable consumer goods and which sometimes admitted visitors like Soho and Etruria for which the marketing value of the garden aesthetic was seen to be exploited.[43] It is rare for the proposition to be made that the industrial in the landscape was deliberately designed to appeal to the aesthetic as did Belford discussing the hydrology of Coalbrookdale in the context of the Picturesque, which certainly stimulated questions for this research.[44] It is encouraging that more recent work even on elite landscapes has pushed the discussion away from the well-trodden path into the wider landscape to consider the aesthetic in the context of the whole

[42] Hunt and Everson, 'Sublime Horror: Industry and Designed Landscape in Miss Wakefield's Garden at Basingill, Cumbria'. Daniels, *Humphry Repton : Landscape Gardening and the Geography of Georgian England* and *Fields of Vision : Landscape Imagery and National Identity in England and the United States.* Pendlebury and Green, 'Impolite landscapes? The influence of local economic and cultural factors in garden history: a case study of Tyne and Wear.'

[43] Symes, *The Picturesque and the Later Georgian Garden;* Jacques, *Georgian Gardens : The Reign of Nature;* Ballard, Loggie and Mason, *A Lost Landscape: Matthew Boulton's Gardens at Soho;* Randall, 'Fit for a Gentleman: The Creation of Etruria Hall'.

[44] Belford, 'Sublime Cascades: Water and Power in Coalbrookdale.'

estate.[45] More importantly there is increasing scholarship on the diversity of the designed landscape, particularly since the inception of this research, for example on non-elite landscapes (Spooner) that were far more numerous than those of the elite and experienced by a greater number of contemporaries; on those who made and maintained the gardens rather than those who commissioned - the gardeners, labourers and nurserymen; and on the role of women (Mc Donagh and others).[46]

The study of designed landscapes (garden history) is still a relatively young discipline, if indeed it is a discipline, for it is both hampered and enriched by the fact that it is multi-disciplinary. It can fall into the realm of the political, social, cultural or economic historian, to the archaeologist and geographer (with their own sub-disciplines), of the landscape architect, architectural and art historians and to the student of literature or philosophy. The study of eighteenth-century designed landscapes will continue to be informed by the traditional historiography, but more recent work is signalling that the discipline is emerging from its fascination with the elite. The conclusions of this study contribute another dimension, challenging assumptions of aesthetic appreciation of the period and the place of the industrial in the contemporary imagination. It has examined designed landscapes that are mostly relatively small and thus might be both representative and a sub-set of gentry landscapes. Tantalisingly it is merely breaking the surface of the subject even with respect to the industries studied. There are other industrial sectors, including extractive, there is the question of the landscapes of non-industrialists that might have engaged with the industrial, and that of the landscapes belonging to industrialists whose manufacturing was in an urban area with little or no space for a garden, like the London brewers or Manchester cotton manufacturers, who developed estates in the country.[47]

[45] Brown and Williamson, *Lancelot Brown and the Capability Men, Landscape Revolution in Eighteenth-Century England.* Phibbs, *Place-Making : The art of Capability Brown.*
[46] Spooner, *Regions and Designed Landscapes in Georgian England.* McDonagh, *Elite Women and the Agricultural Landscape 1700-1830.* Capern and others, *Women and the Land 1500-1900.*
[47] For example, Samuel Whitbread whose brewery was in the City of London and who gradually accumulated property around Cardington from where he originated ultimately acquiring Southill Park, which is still in the family.

In summary, Georgian industrialists' designed landscapes present a distinct industrial design aesthetic, and one that was also adopted by the elite. It could be seen as the ultimate integration and manifestation of the utile dulce that placed the industrial not as something self-contained but as something operating as an integral expression of improvement in the landscape. Greater attention to the contemporary use of language has illuminated eighteenth-century attitudes which in turn has prompted reappraisal of Georgian views of the industrial and the industrial in the landscape, designed and natural, notably with respect to the confidence of having the industrial centre stage, undisguised. This identification of a distinct industrial design aesthetic is new and will contribute to the understanding and assessment of the significance of extant sites, not as isolated local curiosities but as landscapes representing a distinct aesthetic that demonstrates the multi-faceted nature of improvement at the core of Georgian culture. Such recognition of this significance might potentially lead to increased acknowledgment of the importance of their conservation. It is hoped that this study will inform future research on a wider range of industrial sectors, for example brewing, papermaking, glass, providing a basis for questions and comparison that will help to build a more extensive picture of the designed interaction between the ornamental and industrial landscape. Such research may help to identify hitherto unknown landscapes and recognise their local or national heritage value. The landscapes in this study were, mostly, comparable with small to medium gentry landscapes and thus the research will contribute to ongoing and increasing work on non-elite sites that will not only develop a much more inclusive assessment of landscape design in the period, but will also help to set the elite sites in a wider context, perhaps even prompting some reappraisal. It is hoped that this may stimulate further research across a broader spectrum of designed landscapes and encourage more cross-disciplinary engagement that will lead to a more comprehensive and nuanced understanding of the Georgian landscape, of their owners, how they were experienced, and their place in contemporary appreciation.