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**Decorative Wrought Iron**  
**in England, Wales and Scotland**  
**From 1660 to 1720**  
*The Continental Influences*

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## **SUMMARY OF THE THESIS**

The study investigates the continental influences upon the development of decorative wrought iron in England, Wales and Scotland from 1660 to 1720. The research explores the influence of ornament prints, and the work of blacksmiths and patrons in response to the social, cultural and political ideals of the time. The study analyses the role and effects of the new continental, transmutable designs upon technical practices. It explores the changing role of the architect in the design process and the implications of this for the blacksmith's craft. It examines the complex network of influences upon the evolution of English taste and demonstrates how a variety of different commissions, such as the designs for ecclesiastical, private and public buildings, created an entirely different language of decorative ironwork. The study focuses largely upon ironwork of the finest quality and innovation, located in exterior and interior sites. The physical setting of decorative ironwork is examined. In particular, the diversity and artistic innovation of Jean Tijou's work at St Paul's Cathedral is analysed in terms of the sources of continental influence. It is significant to note that the work at this cathedral spanned twenty of Tijou's twenty-four-year career in Britain. The thesis challenges conventional interpretations of stylistic change, whereby new styles replace old, arguing for an increased awareness of diversity in design styles and a high degree of liberalism in the creation and composition of new designs, until around 1710. The thesis argues that the early part of the period from 1660 to around 1690 was influenced predominantly by the French with antecedents in Italian style whereas the work from around 1690-1710 illustrates the significant impact of Louis XIV's French court style, typified by the work of Jean Tijou, and more restrained Dutch designs. A shift in patronage from royal and aristocratic commissions to more public and academic buildings was reflected in a more restrained and linear style which responded to prevailing notions of English taste. Appendix I provides a catalogue of Continental and English ornament designers who created ironwork ornament prints during 1660-1720 and Appendix II summarises the period's achievements in wrought iron by collecting together for the first time a list of work by British blacksmiths of the seventeenth and eighteenth-centuries.

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*Decorative Wrought Iron in England, Wales and Scotland, 1660-1720*

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## BACKGROUND

I was first introduced to the subject of wrought iron by Professor Peter Draper whilst an undergraduate and postgraduate student at Birkbeck College, University of London. A module on English Architecture from 1660 to 1740 explored the great country houses of England which coincided with the dawning of new developments for decorative wrought ironwork. Noticing the unique characteristics of this material during the period, which occurred neither before nor afterwards, I was struck by the duality of such an intrinsically strong, dynamic and durable medium worked to create such delicate, elaborate forms which laced the forecourts of impressive historic architecture. The sparsity of topical literature limited further investigation of the subject. Information about wrought iron is almost entirely absent from essential architectural discourse, perhaps due to the location of ironwork which is usually situated some distance from the house and therefore seen as part of the “environs” rather than part of the edifice. The subject has fallen between the architectural history of palaces and great country houses and that of garden/landscape design and whilst forming part of both and yet the core expression of neither. The growing awareness of preserving our architectural heritage has led to the listing of buildings (19% of all listed buildings and edifices in the UK are from the seventeenth-century, 31% from the eighteenth-century) and has resulted in the full-scale restoration of significant historic wrought ironwork. Contemporary restorers of seventeenth and eighteenth-century ironwork rarely publish their findings so the theme has lain nearly dormant for over 100 years since the publication of *English Ironwork of the XVIIth and XVIIIth Centuries* by Mr John Starkie Gardner, the recognised authority on the subject.<sup>1</sup> Yet since then, an increasing amount of primary and secondary sources have become available and accessible through the centralisation of historic archives and the digitisation of images of the nation’s heritage. Equally, web portals are continuously developing access to online resources for example, the Victoria & Albert Museum’s *Ornament Project* which has catalogued approximately 24,000 prints since 2012.<sup>2</sup> Yet, in Paris the process was rather more traditional with the

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<sup>1</sup> Starkie Gardner, J., *English Ironwork of XVIIth and XVIIIth Centuries* (London, 1911)

<sup>2</sup> <http://www.vam.ac.uk/blog/section/engraved-ornament-project>. Accessed 15/03/15

discovery of prints stored under multiple sources and locations, such as the designer's name, or ironwork (*serrurerie*), and others in *divers artistes* or metalwork (*ferronnerie*). By this mixture of methods, previously uncatalogued or remote records have been discovered and this has encouraged and enabled a re-evaluation of the subject. The study explores the new evidence, such as the seventeenth and eighteenth-century ornament prints, metallurgical evidence, the latest scientific analysis of paint finishes and iron stamps. The research investigates how, why and with what enduring visual effects, these influences evolved. Whilst the subject of this thesis is decorative wrought iron, significant technological advancements in the fields of seventeenth-century production evidenced by recent metallurgical testing have necessitated a foray into the associated fields of other metal alloys such as cast iron, copper and brass, in order to explore practical answers to previously unresolved questions. The thesis thereby intends to fulfil a part of the extensive gap in existing literature and practical information on this captivating yet, to date, much neglected subject.

This study investigates the diversity of Continental influences upon the development of decorative wrought iron in England, Wales and Scotland from 1660 – 1720. The achievements of this short period form one of the most important phases in the history of British wrought ironwork, yet many of the best examples are comparatively little known. This period witnessed dynamic fluctuations in architectural practices and design responsibilities, which coincided with significant parts of London being rebuilt and an upsurge in building projects for grand country houses. The Office of Works galvanised vast teams of tradesmen to build new public edifices, such as St Paul's Cathedral and made plans for the fifty London city churches. Opportunities blossomed for new forms of decorative wrought iron. This research celebrates the collaborative and fragmentary efforts of *ornemanistes*, blacksmiths, patrons and by extension, the social, cultural and political dynamics of the period. From the second half of the seventeenth-century onwards, decorative ironwork provided royal palaces and country houses with a focal vision that united the house, garden and countryside beyond. After the Great Fire of London in 1666, Parliament passed the Rebuilding Act on 8 February 1667, which ordained brick or stone for the exterior of buildings, with timber being restricted to the essentials of windows, doors,

flooring or roofing. Ironwork became particularly sought after for balconies, staircases and gates as the material is a great deal less flammable than wood. To illustrate this, a range of different types of ironwork commissions are examined to appreciate the diversity of different languages of objects and stylistic outcomes. The study focuses upon ironwork of the finest quality and innovation, located in exterior and interior sites. The dissemination of ideas illustrated within prints was assisted by the presence of foreign craftsmen and influential patrons returning from diplomatic trips abroad or self-imposed religious exile.

## INTRODUCTION

Wrought iron is the purest form of iron and is forged whilst hot. There are many different types of iron, yet forging requires iron that contains the lowest proportion of carbon, on average 99.855% pure iron and less than 0.1% carbon. Strictly speaking, “wrought iron” is not a type of metal though, commonly and for the sake of brevity, it is referred to as such, as it is in this thesis.

The thesis begins in 1660. Charles Stuart was proclaimed King Charles II of England and returned from exile. The period 1660-1720 witnessed radical changes in theories about science, nature and philosophy. Newton’s new model of the universe encapsulated in *Philosophiae Naturalis Principia Mathematica*, published in 1687, advanced science by explaining the three laws of motion. An increase in the availability of printed material fostered a deeper understanding of the physical world, it encouraged foreign continental travel and fuelled a desire for luxury items and conspicuous consumption which became part of the ideal of an aristocratic lifestyle.<sup>3</sup> The possession of land, and the concomitant creation of estates and gardens had long played an important part in social hierarchy. Whilst in earlier times courtiers had built country houses hoping to play host to the sovereign during summer “progresses”, in the Stuart period a preference for country life established itself yet deeper amongst the rich and influential. The deep opposition of the City of London to the Crown during the Civil War resulted in the aristocracy remaining in their country estates. This was then spurred on by relocation from London during the bubonic plague of 1665 and the Great Fire in 1666 in which the destruction of 87 churches, St Paul’s Cathedral, the Royal Exchange, the Guildhall and forty-four livery company halls and 13,200 houses necessitated a construction boom in London.<sup>4</sup> By July 1667, the signing of the Treaty of Breda brought an end to the three year-long second Dutch war. In 1685 Louis XIV revoked the Edict of Nantes which drove an exodus of Protestants,

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<sup>3</sup> Hooke, J., *The Baroque Age in England* (London, 1976); Summerson, J., *Architecture in Britain 1530-1830* (Harmondsworth, 1953); Thornton, P., *Seventeenth-Century Interior Decoration in England, France and Holland* (London, 1978); Baarsen, R. and Cooper-Hewitt Museum, *Courts and Colonies: The William and Mary Style in Holland, England, and America* (New York, 1988); de Jong, E., *Nature and Art: Dutch Garden Landscape Architecture 1650-1740* (Pennsylvania, 2001)

<sup>4</sup> Esterly, D., *Grinling Gibbons and the Art of Carving* (London, 1998), p. 40

which included many highly skilled craftsmen, from France to other countries including England. This emigration coincided with an increase in building projects for private and public patrons. By the eighteenth-century in Britain, towns were growing rapidly but more than two-thirds of the population still lived in the country, and town dwellers were beginning to spend more time there, as improved roads made the countryside increasingly accessible. The introduction of the turnpike system beginning in the seventeenth-century led to roads being kept in better repair so that journeys were quicker and more comfortable, albeit more expensive. This enabled the landowners who sat in the Houses of Parliament to retreat to the countryside more frequently. Political, economic and climatic factors had an impact upon temporary and permanent household movements and the designs of house and garden during the seventeenth and eighteenth-centuries. Significant redevelopment, additions and alterations to country houses encouraged architectural discourse between landowners over increasing distances. Political stability and the relative growth of economic prosperity after the Restoration resulted in an increasing interest in gardens which came to be treated as a symbol of the owner's wealth, power and culture and were seen as an extension of the house and, in some cases, an inspirational fantasy world. There was a widespread belief that England's wealth, expanding naval empire and political laws should be reflected in a cultural flowering at least equal, if not superior, to that of Augustan Rome.<sup>5</sup> Aristocratic patrons and foreign diplomats absorbed new continental ideas and developed a taste for the arts whilst on the Grand Tour or diplomatic trips. The deeper understanding of classical ideas encouraged by Lord Burlington, and supported by the publication of *Vitruvius Britannicus* by Colen Campbell, fostered a fresh wave of house building and further developments in landscape and garden design in which the re-creation of classical designs came to be seen as a mark of learned taste.<sup>6</sup> New forms of majestic iron gates and screens were developed, at first to enclose the forecourts of houses, and later as decorative screens located at the furthest perimeter of properties, connected to the house by long axial vistas. Early designs of forged iron took their inspiration from the Renaissance style which originated from

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<sup>5</sup> Canny, N., *The Origins of the Empire, The Oxford History of the British Empire*, Vol. 1 (Oxford, 1998)

<sup>6</sup> Campbell, C., *Vitruvius Britannicus* (London, 1715)

Roman wall decorations discovered during excavations around 1480 from the vaults of the Golden House of Nero in Rome. This style was employed across a variety of media, such as plasterwork, wood carving and stone masonry, all of which utilised similar motifs such as Raphaelesque grotesques, cloth-of-estate, flower garlands and cartouches.

The thesis challenges conventional interpretations of stylistic change, whereby new styles replace old, arguing for an increased diversity of designs during the period due in part to the design process, changes in workshop practices and the high degree of diverse sources in the creation of new work until c.1710. Attention is focused on the circulation of ornament prints within a variety of social, cultural and political networks, which fostered the cross-fertilisation of ideas between a range of patrons, architects, artists and blacksmiths. These sources enabled and encouraged each designer to engage in the process of eclectic recomposition. The thesis argues that during the early part of the period 1660-1690 wrought iron designs were influenced predominantly by ornament of Italian origin. It is often argued that in the seventeenth-century France regained leadership of the arts from Italy and held it for most of the eighteenth-century<sup>7</sup>. Conspicuous display of artistic riches was a central tenet of French absolutist principles. The royal patronage of William III and Mary brought an unprecedented demand for decorative ironwork within the garden environment and this was reflected by extensive commissions supported by extravagant budgets. Styles of forged iron came to be influenced by an increasing specialisation in continental ornament prints and the impressive, transmutable designs created from iron raised the status of this material. During the period access and use of higher quality iron with fewer impurities and greater ductility enabled the formation of more sculptural, three-dimensional designs in a combination of both wrought and cast irons. New combinations of construction methods and techniques of *repoussé* and casting facilitated the production of new shapes. The organisation of workshop labour permitted a higher degree of specialised skilled labour which facilitated the process of assemblage of the pieces. After 1690, the design of ironwork in

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<sup>7</sup> Miller, E., and Young, H. (eds), *The Arts of Living: Europe 1600-1815* (London, 2016)



England to around 1710 illustrates the predominant influence of Jean Tijou, the French designer/smith/iron contractor, best remembered for the intricate and exuberant designs of the Fountain Garden Screen at Hampton Court Palace. The period from c.1710 onwards illustrates a more restrained linear style that demonstrates a return to traditional smith techniques in which the material is integral to the structure and design. This coincides with the period at which Jean Tijou absences himself from England around 1711/12, yet reference is made by Murdoch to “Mr. Tishue Iron gates etc £64” in the building accounts of Cain Hill House, c. 1716).<sup>8</sup> This resurgence in blacksmith-designed ironwork is evidenced by an increase in linearity and a reduced use of applied decorative elements. The study finishes in 1720 when Palladian styles of architecture become predominant. The appointment of Royal Smith was abolished in 1716 and the upsurge in production efficiencies of cast iron created a new market for high-volume and less-expensive ironwork.

A review of literature summarises the publications to date. To some extent this has guided the choice of some of the previously under-researched topics of this thesis. Chapter One discusses the physical properties and characteristics of wrought iron in order that the natural limitations of wrought iron (as a solid, natural and earthy material) can be appreciated for the important effects upon blacksmiths’ traditional designs. This is essential background material to understanding the practical and technical requirements of work forged to traditional or innovative designs. This research uncovers the use, meaning and application of iron stamps. The blacksmith is considered as a craftsman and as a designer/artist. His background and extensive training is discussed, the broader organisation of the iron trade is explored, and the smith’s place in the building industry and within society at large is imparted. The dynamic technological advancements, particularly in methods of production during the period, are discussed to uncover the impact and opportunities for decorative wrought iron. The stimuli, and historic background, of these new decorative forms is explored. The technical considerations relating to creating new, transmutable designs is

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<sup>8</sup> Murdoch, T. V., *Huguenot Artists, Designers and Craftsmen in Great Britain and Ireland, 1680-1760* (Unpublished PhD Thesis, University of London, 1982), p. 25

discussed. The impact of new materials is considered alongside the continental influence of new techniques, such as *repoussé*. The training of French and British blacksmiths is considered in relation to their exposure to this particular method. Concerns are expressed about the preconceptions regarding widespread use of this specialist French technique in Britain within the period under study.

Technological advancements in iron production and finery processes created a range of newly available metal alloys that enabled the latest fashionable and transmutable designs to be produced in iron. The influx and impact of highly skilled, foreign-trained labour is explored in relation to changes in designs, workshop organisation and outsourcing. The stimuli driving these dramatic changes is discussed. The chapter seeks to discover the extent of cross-fertilisation of ideas from craftsmen with training in different material backgrounds and the impact this had upon finished designs of iron. Consideration is given to the range of media creating transmutable designs and their likely chronological order.

Evidence is sought for the use of combinations of metals to create the new designs. Similarly, different techniques of working with irons such as cast, chased and *repoussé* work are discussed in order to uncover the likely contemporaneous processes. The metallurgical evidence of the Hampton Court Palace Fountain court screen is analysed in relation to the cast or forged methods of working and the physical properties of the material. The finishes of the objects are considered in relation to the perceived value and status of these pieces.

In terms of material finishes discussions with historic paint specialists, Patrick Baty and Lisa Oestricher, have discovered previously unevidenced paint colour data from seventeenth- and eighteenth-century ironwork undergoing restoration. Scientific advancements have enabled new practical investigations into paint colours, prior to which claims made for coloured, painted wrought ironwork have been difficult to evaluate critically due to the paucity of evidence-based, primary source material. Historic Royal Palaces commissioned a paint analysis report of the Hampton Court Palace Fountain Garden Screen and the new data provides proof of the original colour schemes which suggests a re-evaluation of the perceived worth of these objects. In some cases, access to private restoration papers and related photographs, X-ray scans and an eclectic mix of broader

information relating to the field of ironwork finishes has kindly been made available and is hereby drawn upon.

In a similar technical vein, this is the first study of seventeenth and eighteenth-century decorative wrought iron to make use of new metallurgical evidence made possible by advancements in testing metals. This method combined with discoveries made during ironwork restorations has uncovered the widespread use of a variety of metals in applied motifs throughout the period such as copper, brass, cast iron, lead. Whilst it is generally acknowledged that cast brass masks are an addition and much admired feature of Boulle furniture and perhaps the greatest innovation of Huguenot silverware was the method of casting and chasing separate applied ornaments, acknowledgement of significant elements of cast iron fixed onto scrolled wrought iron during the period has not previously been evidenced by technical data.<sup>9</sup> The results suggest a revision of current perceptions about the constitution of seventeenth and eighteenth-century “wrought iron” work.

Chapter Two uncovers a range of French ornament prints of iron which, until now, have laid dormant and escaped comparative analysis with English forged work of the period. The importance and significant influence of ornament prints has long been recognised in the development of other crafts, yet in relation to ironwork it has received scant attention perhaps due to the relative rarity of decorative prints of iron. I have researched the visual records of ornament prints at the Victoria & Albert Museum London, the Metropolitan Museum New York and the École des Beaux-Arts in Paris and I have uncovered a selection of prints of iron that have not previously been comparatively analysed. Many of the prints have been identified in correlation with those listed in Désiré Guilmard’s *Les Maîtres Ornemanistes, Dessinateurs, Peintres, Architectes, Sculpteurs Et Graveurs: École Française, Italienne, Allemande, et Des Pays-Bas (Flamande &*

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<sup>9</sup> Shears, P. J., “Huguenot Connections with the Clockmaking Trade in England”, *Proceedings of the Huguenot Society of London*, Vol. xx/2 (1959–60); Sargentson, C., “Design, Craft and identity; A Case Study in Boulle Furniture from the V & A”, *Lambrequins and Luxury: Ornament in The time of Louis XIV and Beyond, Victoria & Albert Museum Conference* (London, 2015)

*Hollandaise*).<sup>10</sup> For the first time, a catalogue of prints of iron created during 1660-1720 by designers, architects, engravers and publishers has been produced. These have been sourced from across international libraries in London, the Prints and Drawings Collections at Victoria & Albert Museum, the National Art Library, the RIBA Library; in Paris, at the École des Beaux-Arts and BNF; Amsterdam, Rijksmuseum; Stockholm, National Museum of Sweden; New York, Metropolitan Museum) together with sources from houses in private and public ownership and public records offices. In this study, the key ornament prints are identified, illustrated and described. The significance of each is considered in relation to the continental influence on the development of an English style. A comparative analysis of the realised designs of wrought iron (whether extant or surviving through detailed depiction in paintings or country house views) and the rare designs of iron by Charles-Augustin D'Aviler, Jean Berain (the Elder) and Jean le Blond, Robert Davesne, Pierre Gautier, Nicholas Guérard, Michel Haste, Antoine Pierretz le Jeune, Jean and Daniel Marot, Jean le Pautre, Jean Tijou and others. The methodology allows for the attribution of individual ornament prints and in some cases, I have traced the specific source of ornament print in connection to existing ironwork, hitherto not identified. This chapter aims to uncover how styles of wrought iron evolved during the period and where the main design influences originated from. The methods of financing, printing and distributing prints are discussed and consumption by a broad variety of audiences is considered. The influence of prints of iron is discussed in terms of the numbers of prints published, the occurrence of reprints, the evidence of copies and the likely levels of circulation. The networks of Italian, French and Dutch craftsmen are explored to uncover the exchanges in foreign ideas. The study considers how new design ideas were absorbed into ironwork and the changing role of the architect is explored.

During the period, ironwork formed part of the cultural sequence of reception, representation and entertainment at country houses. Yet since inception, entire landscapes have changed and the ironwork has been relocated and/or recomposed

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<sup>10</sup> Guillemard, D., *Les Maîtres Ornemanistes, Dessinateurs, Peintres, Architectes, Sculpteurs et Graveurs: Écoles Française, Italienne, Allemande, et Des Pays-Bas (Flamande & Hollandaise)* (Paris, 1880)

to suit new purposes and these dramatic changes skew the viewer's perception of "place" and the intended context of the ironwork. In order to redress the imbalance, reference is made to the "lost evidence" illustrated in drawings, engravings and paintings. In order to understand the local topological and architectural context in which wrought iron is/was located and to make first-hand comparisons of prints with ironwork, I have visited sites at Cambridge: Trinity College, Clare College, Jesus College; at Oxford, Magdalen College, New College; in London at St Paul's Cathedral and Hampton Court Palace; Tredegar House Monmouthshire, St Mary Redcliffe Bristol, St Giles Wrexham, Chirk Castle Denbighshire, Chatsworth and Melbourne Hall, Derbyshire, Malpas Church Cheshire, St Peter's Church Ruthin, Oswestry Church Shropshire, Leeswood Hall Flintshire, Erdigg Wrexham and Staunton Harold Church, Leicestershire. In France examples at Versailles and Fontainebleau and in The Netherlands at Het Loo, Roosendaal and Clingendael have all been examined. Viewing ironwork in a topological context immediately impresses upon the viewer the sense of arrival and importance that was accorded to these structures. These vast screens created an impressive, insurmountable barrier through which gates permitted access to the invited few. They were indicative of the social strata of landowner and visitor or guest. It could be said that the impression of the influence of power was radically heightened in proportion to the dimensions of the gates. During the period, screens became grander and taller, yet at the same time the adjoining railings permitted a more intimate scale. This suggests that the purpose of security was diminished and yet the representation of power became paramount. Screens thereby became a statement of power, in cultural, social, economic and political terms, which was used to create a barrier from the populace. Nevertheless, they were highly decorative and afforded the passer-by then, as they do now, a truly remarkable, memorable vision of originality and extravagance to which the owner was inextricably linked and connected with.

Chapter Three identifies and illustrates Tijou's work at St Paul's Cathedral which continued for twenty years, the great majority, of his twenty-four residence in Britain. Whilst Tijou's work can be identified in part by correlation with the building records, an analysis of the stylistic diversity has never been attempted. This section explores the continental sources of these designs during a period in

which the influx of continental ornament prints dynamically transformed British design. The geographic origins of designs in iron are explored. The transmutable designs apparent in other forms of metalwork, such as locks, silver furniture and silver plate, are discussed. Analysis of Tijou's work at St Paul's Cathedral provides key evidence of the diversity of continental stylistic and technical innovations through the period up until around 1710. The fascinating impact on regional developments across Britain are highlighted and celebrated. A summary of the continental effects upon the style that succeeded is proffered. The thesis considers the variant roles of Tijou in the design and production processes of different genres of commissions, specifically in relation to royal and aristocratic palatial residences and the rebuilding of St Paul's Cathedral. It analyses the different design processes and the divergent workshop practices that become evident through disparate forms of commissions. The level of involvement of Tijou and foreign smiths in each design commission is discussed and the influence of new continental styles, new materials and techniques is explored.

Chapter Four examines the nature of different forms of patronage and traces how a variety of commissions created new forms of production for decorative ironwork evolving an entirely new language of expression. It explores the complex network and effects of aristocratic patronage upon the development of an English style. The case studies re-evaluate the effects of the intricate machinations of court and aristocratic networks and the influences brought to bear on the evolution of English taste during the period. The sources of cultural inspiration derived from courtly interactions, travel and trade are explored. The evidence links specific patrons with unique stylistic impacts upon forms of production and designs of wrought ironwork. The circulation of new visual ideas is discussed. The social, political and artistic motivations that prompted these changes are considered. Continental influences arrived in a variety of formats and from various aristocratic, mercantile and artistic sources. The impact upon the designs and forms of production of ironwork are interrogated. The divergent outcome of these disparate sources is discussed. The increasing influence of architects upon increasingly unified architectural and design schemes is considered in relation to the evolving opportunities for ironwork in the environs. The importance of the physical setting is discussed. Several case studies of different patronage are

illustrated in Chapter Four (that of the monarch, high aristocratic patronage from the court circle and finally the patronage between architects and blacksmiths) and the impact of these co-existing relationships is discussed.

The thesis aims to contribute to a more comprehensive understanding of the continental sources and influences of design, the circulation of ideas, the new combinations of methods of working, and how a variety of types of high aristocratic patronage created an entirely different language of expression through new forms of iron production. It is only through the ongoing discourse between historians of art and metal, blacksmiths and restorers that the subject may find an enamoured audience to nurture it through the next generation and indeed inspire the future one. Never before have cultural, technical, practical or economic approaches given adequate consideration to the origins, production and spectacular artistic effects achieved by forged iron during the seventeenth and eighteenth-centuries. The subject of decorative wrought iron has been largely neglected and under-nourished in the majority of architectural discourse. This thesis aims to make a start at redressing this imbalance.

## IRONWORK: A REVIEW OF LITERATURE & DOCUMENTS

Architectural discourse has largely overlooked the subject of decorative wrought ironwork. This may in part be due to its location, being situated at some distance from the house; it may be considered as part of the “environs” rather than forming part of the architecture. The subject has therefore fallen between the architectural history of palatial residences and that of gardens and landscape design, whilst forming part of both and yet the core expression of neither. Yet decorative wrought ironwork is an important, integral part of architectural and cultural, social history of the seventeenth and eighteenth century and the material itself is part of Britain’s industrial heritage.

Of the few authors who have studied the subject, none has yet produced a comprehensive account of the extent of continental design influences upon British ironwork. The recognised English authority since 1911 has been John Starkie Gardner with his book entitled *English Ironwork of XVIIth and XVIIIth Centuries*.<sup>11</sup> Whilst Starkie Gardner and Geerlings both acknowledge the general use of ornament prints in the design process neither discusses, in any depth or with detailed reference, the impact and significance of these influences.<sup>12</sup> At the time of their writing, around 100 years ago, accessibility to ironwork ornament prints was limited, yet the present study has uncovered a collection of French ironwork ornament prints that have hitherto been neglected and with which the influence of continental designs upon ironwork can now be analysed. It was only in the 1870’s when Jean Tijou’s *New Booke of Drawings* was rediscovered and its significance for designs in iron fully appreciated.<sup>13</sup> Harris supports the theory that Continental pattern books had long been recognised in the development of English furniture design but the extent to which blacksmiths relied on ornament prints is a subject that requires further investigation.<sup>14</sup> Harris began to develop the idea, illustrating it with several examples.<sup>15</sup> Brief articles by Gervase Jackson-Stops for

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<sup>11</sup> Starkie Gardner (1911)

<sup>12</sup> Geerlings, G. K., *Wrought Iron in Architecture* (New York, 1929)

<sup>13</sup> Tijou, J., *New Booke of Drawings* (London, 1693)

<sup>14</sup> Harris, J., *Connoisseur*, June (1961), p. 286

<sup>15</sup> Harris, J., *English Decorative Ironwork 1610–1836* (London, 1960), p. 15



*Country Life* refer to a limited number of ornament prints during the period (such as the influence of Jean Tijou's designs for ironwork at Wimpole Hall, Cambridgeshire) however the articles are limited in number and scope, so the more detailed work of relating individual prints (either by parts or whole designs), to specific ironwork has remained unresolved.<sup>16</sup> Chapter three seeks to readdress this balance with a detailed analysis of the influences. The Italian scholars Zimelli and Vergerio have suggested that Tijou's book of designs disseminated the ideas throughout Britain and that they "can be found in most parts of the country".<sup>17</sup> Yet the material evidence provided by this thesis suggests otherwise. It is rather that Tijou's artistic achievements have so dominated the period due to the lack of knowledge and evidence surrounding the work of other blacksmiths that, over the years, writers have attributed nearly every significant ironwork from the period to him. Attributions tend to have been based on the use of similar motifs which were easily copied with little distinction between Tijou or his followers. In any event, to term a design "a Tijou ironwork" is to define the whole by its parts and to pass over the significance of the overall design process, which was particularly evolutionary within this period. A detailed exploration of the design sources using the newly available information is thereby enabled.

Typically, most books of wrought ironwork originating from English or continental sources tend to be geographically culture-centric, which is to say that they are centred upon the location, culture and language within which the author has worked. Equally, existing literature on the history of wrought ironwork has tended to be focussed on national centres with little reference to or correlation with the adjoining border countries where itinerancy of ideas and craftsmen was more fluid and affective. Equally, most histories of wrought ironwork only reference work that is currently in existence and yet much of that which was designed and created over 350 years ago has long since disappeared, particularly work located in exterior locations which has suffered corrosion, poor maintenance and even removal. There were practical issues too, for example with gateways.

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<sup>16</sup> Jackson-Stops, G., "French Ideas for English Houses: The Influence of Pattern Books, 1660-1700", *Country Life*, Vol. 167 (1970), p. 261

<sup>17</sup> Zimelli, U., and Vergerio, G., *Decorative Ironwork*, Sutton, A. (trans.) (London, 1969), p. 124

H. M. Colvin has noted that many gates during this period were demolished due to the increased use of carriages and coaches and the inconvenience caused to them by the existing relatively narrow width of gates. This was the subject of a House of Commons Committee in 1718 and resulted in many gates and gateways being demolished to stop the restriction of horse-drawn vehicles.<sup>18</sup>

The majority of authors including Lister (1960), Starkie Gardner (1911) and Geerlings (1929), highlight the geographical isolation of smiths and provide a general survey of characteristics of each style. However, most of these studies are based on visual attributions that rely almost exclusively on comparisons of similar compositions or motifs which by their nature were easily copied. Recent research by Edward Saunders culminating in the “Biographical Dictionary of English Wrought Iron Smiths of the Seventeenth and Eighteenth Centuries” has highlighted some of the inaccuracies of historic attributions, many of which hail from over 100 years ago.<sup>19</sup> A reassessment of the achievements of blacksmiths within the period is overdue.

The influx of continental styles arrived in a variety of ways. The evidence at royal palaces and aristocratic houses suggests that both the intricate machinations of the Court and social and political networks were highly influential upon the spread of continental styles throughout Britain during the period. Yet the specific links of patrons to blacksmiths and the bonds of inter-trade and mercantile patronage have so far evaded study. Ayrton & Silcock have acknowledged that William III and Mary II increased the influence of continental styles upon English wrought iron during the period by encouraging an influx of foreign craftsmen, many of whom were Huguenot refugees fleeing from France following the Revocation of the Edict of Nantes.<sup>20</sup> The influx of Huguenots has been extensively researched by Dr Tessa Murdoch who has provided a comprehensive resource documenting the emigration of Huguenot craftsmen and the influences upon the applied arts in

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<sup>18</sup> Colvin, H. M., “Palace and Public Gateways”, *Commons’ Journals*, Vol. 19, pp. 22-23 (referenced by Colvin, p. 302).

<sup>19</sup> Saunders, E., “Biographical Dictionary of English Wrought Iron Smiths of the Seventeenth and Eighteenth Centuries”, *Walpole Society*, Vol. 67 (2005), pp. 237-384

<sup>20</sup> Ayrton, M., and Silcock, A., *Wrought Iron & Its Decorative Use* (London, 1929), p. x

England.<sup>21</sup> Aristocratic patronage is referred to by Mr Dunkerley in his book entitled *Robert Bakewell* which charts the development of blacksmith Bakewell's career and surveys the effects of patronage by Thomas Coke, Lord Stamford and his friends and relations located in Derbyshire and the environs.<sup>22</sup> Dunkerley's book has provided invaluable research and background information relating to Bakewell's network of noble patrons. However, as well as the aristocratic supporters, there was a rise in the affluent merchant and mining classes and whilst taste might be driven by emulation of the aristocratic classes, as Mireille Galinou has commented in *City Merchants and the Arts 1670-1720*, aristocrats may also have been influenced by the mercantile classes and their imports of exotic and fantastic luxury goods through trading links with the East and the Americas.<sup>23</sup> Traditional patronage systems persisted while alternatives came into being. Valerie Cumming has commented that social fluidity was of importance in the exchange of ideas. Similarly, Laura Wortley has noted that "bankers and artists have cultivated overlapping networks of clients among merchants and landowners" and in this way the artist may be identified as the catalyst for change and innovation.

The problem with the majority of studies of historic ironwork is that they simply outline a chronological history of changes in style rather than analyse how and why these changes occurred. This approach has presumed evolutionary progress whereas the focus of this thesis debates whether artistic production was possible with a variety of visual outcomes, including the possibility for traditionally created ironwork developing at the same time as baroque designs. Along similar lines, Mihaela Criticos has argued for "the existence of a general ornamental dimension with a multiplicity of expressions, rather than a succession of different culturally-determined conceptions on ornament."<sup>24</sup> By analysing the process of exchange and reception between the continent and Britain, a multitude of different

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<sup>21</sup> Museum of London, Huguenot Society of London and Murdoch, T. V., *The Quiet Conquest: the Huguenots, 1685-1985* (London, 1985)

<sup>22</sup> Dunkerley, S., *Robert Bakewell* (Cromford, 1988)

<sup>23</sup> Galinou, M. (ed.), *City Merchants and the Arts 1670-1720* (London, 2004), p. 133

<sup>24</sup> Criticos, M., "The Ornamental Dimension: Contributions to a Theory of Ornament", *New Europe College Yearbook (New Europe College Yearbook)*, special edition (2004), pp. 85-219, [www.ceeol.com](http://www.ceeol.com). Accessed 14/06/11

effects emerge. The important relationship between the patronage of artists and the opportunity for diversity has been referred to by Anthony Blunt who has noted that the literary talents of the same period in France achieved a far higher degree of individuality in their work than prevailed in the visual arts, perhaps because Le Brun exercised greater economic control over visual artists rather than writers.<sup>25</sup> Whilst innovation may build upon what has gone before, establishing the first date of origination for ironwork designs is complicated by the nature of the objects themselves which are relatively rare, almost always unsigned, mostly undocumented (except where noted in accounts) and only materially supported by fragmentary evidence of the few original pieces which survive. A few rare continental exceptions exist where blacksmiths have prominently dated or noted their name upon the work, such as in Spain, at Burgos Cathedral, the Constable's Chapel, Christobal Andino has inscribed his name and date 1523. The German grille at Dresden (Plate 1) is dated 1637 wrought into the upper panels, and at Drayton the smith forged 1699 into the upper left and right panels of his work. The majority of work originates from a period when literacy rates were relatively low, so contracts and documentary evidence are precious finds. Equally, the viewer's perception of the original design intent and date from whence the object hailed is further distorted by many ironwork examples from the period that have been relocated or "recycled" (in part of whole) with the addition of new parts of a later date.

Studies of historic British wrought iron designs have concentrated on stylistic analyses based upon existing remains of wrought iron yet the difficulty of a comparative analysis approach to exterior work is that much of the evidence has corroded or been lost, so truly original examples are extremely rare. Most have undergone significant, if not wholesale, restoration over the 350-year period inbetween. The building records and accounts of H. M. Colvin's *Kings Works* and the *Wren Society Volumes* provide a considerable body of evidence and related information that constitute the largest single collection of accounts relating to payments for wrought ironwork during the period. By bringing a large corpus of comparable financial information into the debate, the data assists in our

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<sup>25</sup> Blunt, A., *Art and Architecture in France 1500-1700* (London, 1953), p. 228

understanding of contemporary perceptions of the value of these objects. The evidence suggests that a re-determination of the status of wrought ironwork is long overdue.

In relation to the iron industry, there are a number of articles on the subject of industrial archaeology, however the localised organisation of the industry in the period, usually generated records relating to single sites. Shipping and trade routes from Sweden and Norway to Scotland, particularly into Dundee, demonstrate the buoyant market for importing high quality iron and exporting wood as ballast. The Dundee shipping records have been accessed to analyse the trends for imported wrought iron and are referred to in Appendix III. The world of the iron merchant is particularly significant as it has been generally missing from previous studies. An examination of trade routes in the eighteenth-century (depicted in Plate 2) also suggests how connections established abroad provided significant links to the exchange of materials and ideas. An understanding of the trade in wrought iron provides a more comprehensive view of the industry and the opportunities for blacksmiths to obtain high quality materials with fewer impurities, resulting in more ductile handling and higher quality ironwork.

Studies relating to the “science of metallurgy” started to emerge in the mid-twentieth century, reliant primarily upon the strength of microscopes. However, the first comprehensive treatise on metallurgy dating from 1540 by Vannoccio Biringuccio entitled *Pirotechnia* has provided a useful insight into the types of metals available during the time of this study and their properties.<sup>26</sup> This is important because it helps us to understand how, over 350 years ago at the beginning of the period of this study, blacksmiths and foundrymen may have thought about constructing a variety of metal objects, given the metal alloys and refinery processes available at that period. Advancements in metal refining during the period enabled consistent production of high quality metallurgical compositions and this in turn enabled a broader spectrum and more reliable range of aesthetic effects.

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<sup>26</sup> Biringuccio, V., *The Pirotechnia of Vannoccio Biringuccio, The Classic Sixteenth-Century Treatise on Metals and Metallurgy*, Smith, C. S., and Gnudi, M. T. (trans., eds) (Mineola, 1990)

Contemporaneously, illustrations of English country house exteriors and their landscapes such as Bird's eye-views allow us, with our own aesthetic approaches, to confront the seventeenth/eighteenth-century viewer's horizon of perception. Generally, paintings tended to depict views of entire estates that, by necessity of scale, resulted in the absence of minute details such as the intricate designs of wrought ironwork. Yet one unique exception is that of Wimpole Hall, Cambridgeshire in which the design of the entrance gates is clearly identifiable as one of Jean Tijou's wrought iron designs.<sup>27</sup> Bird's-eye views were effective in encouraging prevailing fashions in garden design which incorporated compartmentalised layouts that included generalised, non-specific examples of wrought iron gates and screens at focal points of entry to the estate. The images spread the French penchant for *fêtes galantes* and created a desire for new forms of iron production such as garden arbours.<sup>28</sup> This medium encouraged an aspirational market for wrought ironwork and kept it in vogue for approximately fifty years. Paintings and engravings can be used as collaborative data to establish dates of the creation of ironwork, however one of the problems of this is the curious existence of a limited number of high quality finished paintings that indicate proposals for additions of ironwork rather than documenting historic or factual data, such as at Drayton House (Plate 3).<sup>29</sup> Historic visual imagery of wrought iron in interior locations is even more rarified because this genre was not popular in England until the mid and late seventeenth-century, encouraged by Charles II's acquisition of paintings of this subject by northern European artists during the 1660's.<sup>30</sup> Yet historic paintings of interiors from later dates offer a dependable and useful depiction of seventeenth and eighteenth-century designs because objects in the interiors remain intact and, unlike ironwork located outside, have not corroded away.

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<sup>27</sup> Kip, J., and Knyff, L., *Britannia Illustrata* (London, 1707), Vol. 1, Plate 32; Tijou (1693), Plate 5

<sup>28</sup> Nicholas Lancet, "Le Moulinet", Painting, Oil on Canvas, c. 1670

<sup>29</sup> Harris, J., *The Artist and the Country House: A History of Country House and Garden View Painting in Britain 1540-1870* (London, 1979)

Louis Chéron, Painting, Oil on Canvas, c. 1700 (site visit to Chatsworth to see the ceiling painting in the textile restoration attic room)

<sup>30</sup> Jacobsen, H., "Luxury Consumption, Cultural Politics, and the Career of the Earl of Arlington, 1660-1685", *The Historical Journal*, Vol. 52, No. 2 (2009), p. 311

Another way of thinking about contemporary critical attitudes to decorative wrought ironwork is through the language that was contained in descriptions from diaries or travel notes. These and other texts provide important clues to the period setting and to the effect that ironwork evoked upon visitors. Travel writers, such as Celia Fiennes and Daniel Defoe, occasionally included descriptions of ironwork in their journals.<sup>31</sup> Equally memories of ironwork, whether verbal, written or sketched, created a new pool of verbal and visual resources amongst networks who were party to this information.

Seventeenth and eighteenth-century family papers, letters and accounts have provided some evidence for attributing and dating work. Equally, other accounts and building contracts have been accessed to determine how building works were commissioned and organised, and to investigate the individuals involved with them (the patrons, designers and craftsmen). The William Bentinck papers have been examined to uncover Bentinck's role and correspondence with William III during his time as Superintendent of the Royal Gardens with a view to discovering the likely design sources for the Hampton Court Palace Fountain Garden Screen. The Huguenot Society records have been accessed via the National Archives, Kew to gain a more comprehensive understanding of the social, political and cultural background of the period and to uncover family correspondence relating to Jean Tijou.

From a broader perspective, journals and books of architectural history have included articles and chapters on individual buildings that detail the work of individual architects from the period.<sup>32</sup> These sources are useful in obtaining a more extensive view of both the general and sometimes specific design influences

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<sup>31</sup> Fiennes, C., *Through England on a Side Saddle in the Time of William and Mary, Being the Diary of Ceilia Fiennes* (London, 1888); Defoe, D., *A Tour Through the Whole Island of Great Britain*, ... (Originally published 1724-1727; London, 1962)

<sup>32</sup> Picon, G., *Versailles, A Private Invitation* (Paris, 2011); Saumarez Smith, C., *The Building of Castle Howard* (London, 1990); Musson, J., *The Country Houses of John Vanbrugh* (London, 2008); Tincey, J., and Turner, G., *The Duke of Marlborough's Masterpiece, Blenheim 1704* (London, 2004); Devonshire, D. V. C., *Chatsworth: The House* (London, 2002)

at play, and they allude to the impact of the different forms of patronage during this period.

As regards ongoing debate, the opportunities for cross-fertilisation of ideas and approaches has been encouraged by researchers working in similar fields, such as seventeenth- and eighteenth-century continental influences upon plasterwork, woodcarving and paintings. In comparison to the immense notability enjoyed by some painters, sculptors and architects of the period, relatively little is known about craftsmen of the applied and decorative arts, particularly blacksmiths who remain relatively obscure, unknown figures. This is partially because ironwork was unsigned and the names of these artists was unrecorded. The problem also has much to do with the status of smiths as rough artisans and mechanics. This profile does not fit into the notion of artists as men of genius and rank.<sup>33</sup> Equally the associations of iron with war, agriculture and mining, together with the harsh smithy environment, has resulted in the material suffering from an inferior status. Perceptions had to be overcome before the material became highly sought after in royal palaces. Nevertheless, these expeditions into the territory of others have been influential in developing and shaping the progress of this thesis in terms of approaches relating to the origination and cross-fertilisation of design ideas between craftsmen, diverse methods of thinking about “lost” evidence, and the resources of unpublished and undocumented historic restorations.<sup>34</sup>

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<sup>33</sup> Vasari, G., *Lives of the Most Excellent Painter, Sculptors and Architects*, Maclehose, L. S. (trans.), Brown, G. B. (ed.) (New York, 1960).

<sup>34</sup> Gapper, C., *Plasterers and Plasterwork in City, Court and Country c.1530-c.1660* (Unpublished PhD Thesis, Courtauld Institute of Art, 1998)

Goodwin, J., *The Huguenot Influence on English Furniture 1660-1714* (Unpublished MA Thesis, Birkbeck College, University of London, 2003)

Morrissey, P. N., *An Enquiry into Changes in the Training and Education of Artist Blacksmiths over the Last Twenty Five Years* (Unpublished MA Thesis, Bath Spa University College, 1998)

Prentice, P., *Gates and Screens: The Repair of External Wrought Ironwork* (Unpublished Thesis for Building Conservation Course, Architectural Association, London, 1997)

Stevens, B., *Lost Works of Art: A Critical and Creative Study of Reception and Restitution* (Unpublished PhD Thesis, University of Sussex, 2012)

Tierney, E., *Strategies for Celebrations: Realising the Ideal Celebratory City in London and Paris, 1660-1715* (Unpublished PhD Thesis, University of Sussex/Victoria & Albert Museum, 2009)

Wemyss, C., *A Study of Aspiration and Ambition: The Scottish Treasury Commission and Its Impact Upon the Development of Scottish Country House Architecture 1667–1682* (Unpublished PhD Thesis, University of Dundee, 2008)



The sparsity of information relating particularly to dates, the names of blacksmiths and originators of designs, working techniques, practices and materials available for wrought iron objects dating from 300 years ago, illustrates the absence of complete data. It also highlights the fact that this was a period in which blacksmiths and many ornament print designers did not sign or date their work. Innovation was highly celebrated, so it was the design rather than the craftsman who was applauded during the mid to late seventeenth-century. The emerging status of specific designers/artisans progressed throughout the period and culminated in those with royal patronage being recognised as the artistic *cognoscenti*. Where data is lacking, it has been necessary to state the known data and otherwise, to make informed judgements based on the evidence that is currently available.

Whilst some may see wrought ironwork of the period as a continuation of applied design in baroque arts, or in terms of luxury trades in seventeenth-century England, I have approached this subject from a practical, materials-based view of the subject to demonstrate how remarkably distinctive ironwork of the period is. So alongside historians who work primarily with papers and archive resources, my approach has been practical. I have felt that with this *wrought* material there existed a real need to get into the physical environment of the blacksmith to find out what the possibilities and limitations of the material are, so I attended a two-day Blacksmithing Course held by the Guild of Wrought Ironwork Craftsmen of Wessex in Devon which taught basic practical forging techniques for wrought iron. Attendees saw the sparks hop, and iron glow all the colours of the rainbow to produce a variety of impressionistic results. This essential first-hand experience of the tools and techniques of the blacksmith permits a far better appreciation of the physical properties of the material and the smith's working practices.

Similarly, the majority of blacksmiths and ironwork restorers of seventeenth and eighteenth-century work do not publish their findings and thereby the information, uniquely and collectively, is effectively "lost", so many fruitful hours have been spent in discussion and correspondence with blacksmiths and specialist iron restorers in order to better understand the nature and quality of the materials used and the capabilities and possibilities of it when combined with a high level of

technical expertise. During the period of study, studio/workshop visits have been made to view ironwork undergoing restoration with Chris Topp of Topp and Co, Rupert Harris of Rupert Harris Conservation Limited, Peter Neale of Peter Neal Blacksmiths, Richard Quinnell of Richard Quinnell Ltd, and George James & Sons. Contact with Andrew Harris of Martin Ashley Architects, the metal specialist currently involved in restoring the Hampton Court Palace Fountain Garden screen, has uncovered new metallurgical evidence. Equally important is a metal restoration report commissioned by Historic Royal Palaces which contains data pertaining to iron stamps found during the last restoration of the Fountain Court Screen in 1997. In order to explore the technical knowledge, skills and effects of cast iron methods, contact was made via The Worshipful Company of Founders with Mr Tom Westley, a qualified metallurgist, chartered engineer and past President of The Institute of Cast Metals Engineers. We visited the metalwork department of the Victoria & Albert museum and a discussion about methods of iron production and materials and techniques employed to create seventeenth and eighteenth-century objects was highly informative. The salient points from these meetings are referred to throughout the chapters to imbue the study with up-to-date practical knowledge that helps to keep this historic subject alive.

## THE SIGNIFICANCE OF IRON IN LATE SEVENTEENTH-CENTURY EUROPE

### Houses, Power, Consumption

The period 1660-1720 covers a time of dramatic political, economic, cultural and social change. It witnessed a new era in European politics. The Peace of Westphalia, marked the full recognition of the sovereignty of all the Princes of the Empire, Roman Catholics and Protestants alike in their respective territories, and this brought an end to the Thirty Years' War in 1648. Until then, the two great centralising forces in Europe had been the Empire and the Papacy, however the growth of free thought and the rise of independent nationalities diversified the cultural and economic effects of these unifying bonds. During the last decade of the seventeenth-century, the Nine Years' War with France (1688-97), had a critically negative impact upon the development of the export trade from Britain. There was a trade embargo on the import of French goods which encouraged British manufacturers to provide substitutes, and the Board of Trade was established in 1696 to protect England's trading interests overseas. For foreign craftsmen working in Britain, this meant an increasing flow of profitable business from national and foreign export demands. Shipping was requisitioned to assist with the transport of troops abroad. The engagement of the navy meant that it was not able to assist with the protection of merchant ships. Shipping during this period was further hindered by the activities of French privateers. Numerous financial institutions were established to provide the government with credit, the most notable of which was the Bank of England, established in 1694. The effect of this was that, despite the long and complex military operations required by the War of the Spanish Succession and associated problems with the influx of imports, in contrast, exports rose and the first decade of the eighteenth-century saw a healthy balance of payments which in turn stimulated the rest of the British economy. The Papacy ceased to be a dominant factor in European politics. Ownership of land was the greatest source of power and a significant symbol of that power was a magnificent building, richly furnished with the latest continentally sourced objects which alluded to extensive travel and refined knowledge and taste. Houses were filled with displays of portraits which were a constant reminder of one's social connections. Mark Girouard has noted that by keeping up an impressive establishment you could hope to make people feel it was

“a good thing to come in on your side” and that this show of resources and of the potential support that it could muster resulted in the monarchy providing influential supporters with additional court roles and perks so that income increased further.<sup>35</sup> The main source of power remained at Court where offices and favours were acquired from the monarch (either through political, clerical or military posts).<sup>36</sup> The nobility had much to gain from the honour of service and access to patronage and the royal finances of court. In order to finance a fashionable lifestyle, it was necessary to acquire a lucrative court appointment. These posts were available only from the crown and the supplicant was therefore obliged to take up residence at court where he was subjected to a growing diversity of cultural influences.<sup>37</sup> The monarchy continued to rely on the informal techniques of political management that employed trusted members of the higher nobility throughout the period. Diplomatic solutions were successfully effected by intervention behind the scenes and managed assemblies. Equally, alliances through marriage often led to better jobs, enhanced influence and greater power. In England, although royal power was totally in eclipse during the period of the Commonwealth and was somewhat circumscribed after the Restoration, the later Stuart monarchs established themselves in considerable splendour in the royal palaces of St James’s, Whitehall, Windsor, Holyrood, Hampton Court and Kensington, and the arrangements they made were, for the most part, based on French precepts. The French monarchy set the pattern that other kings strove to emulate and the system was dependent upon elaborate forms of etiquette and hierarchy. During the 1670’s there was a heightened interest in all things French at court, much encouraged by the Earl of Arlington (b.1618-d.1685) Lord Chamberlain to Charles II, and this impacted the development of an English court style thereafter. Yet this was not just a replication of French style, it was an innate belief in the extreme opulence of absolutist consumerism that fostered this taste at court.<sup>38</sup> The new ceremonial arrangements set at Court were in turn imitated by the great aristocratic families and those beneath them according to rank and

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<sup>35</sup> Girouard, M., *The Power Houses*: published as *Life in the English Country House: A Social and Architectural History* (London, 1978)

<sup>36</sup> Wemyss (Unpublished PhD Thesis, 2008)

<sup>37</sup> Thornton, P., *Form & Decoration, Innovation in the Decorative Arts 1470-1870* (London, 1998), pp. 46-47

<sup>38</sup> Jacobsen (2009), p. 313

income. The belief that the moral character of an individual could be judged by forms of behaviour in society, by education and up-bringing, stretches back to Erasmus's writings on tutoring children, *De civilitate morum puerorum*, first editioned in 1530. By the seventeenth-century, the notion that surroundings were treated as the projection of an individual's personality came to represent the newly important aspect of "taste". There was an increasing interest in the concept of a polite society, whose boundaries extended well beyond the court into the gentry, the professions and the higher levels of London merchants. At first, the hierarchy of classes in England took the cultural lead from the Crown but the application of style as a display of wealth was restrained by certain moral scruples. This, more than money *per se*, determined the more solemn style of merchant and gentry patronage. Yet as wealth and spending increased, so too did unease about conspicuous consumption and the feeling that the morals of society were being sapped by luxury and ostentation. Contrary to aristocratic pretensions, wealthy merchants created a luxurious but not extravagant setting for themselves, in keeping with the image they wished to present of sober but successful citizens of London.<sup>39</sup> Early Dutch visual ideas were distinguished by relative modesty which reflected the nation's anti-aristocratic tendencies. Yet the upper-middle class social and political dictatorship came to predominate, formed mainly by the affluent merchant and Protestant elite from the cities, that were strongly opposed to the regal pretension of the House of Orange with whom it feuded throughout the century.<sup>40</sup> As commerce prospered, the new English and Dutch generations came to favour foreign culture and increasingly derived ideals of personal luxury and domestic grandeur from the prevailing modes of French taste. Greater opulence began to pervade towards the end of the seventeenth-century, evidenced in Holland where the primary French influence upon Dutch culture from about 1625 until the end of the century, had mainly been encouraged by the court at The Hague of the Princes of Orange-Nassau (who became hereditary Stadholders of the United Provinces of the Free Netherlands). By 1673 thrifty attitudes had noticeably changed and Sir William Temple wrote that "The old severe and frugal

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<sup>39</sup> Turpin, A., "Furnishing the London Merchant's Town House", *City Merchants and The Arts*, Galinou, M. (ed.) (London, 1999), p. 67

<sup>40</sup> Thornton (1978), p. 40

way of living is now almost out of date in Holland".<sup>41</sup> The repeal of sumptuary legislation in 1604, signalled a change in mentality and an acceptance of a growing market for luxury goods.<sup>42</sup> Extravagant consumption became a mark of distinction and a means of distinguishing oneself, socially and increasingly politically, from others. The gap between appearance and reality was a recurrent theme in baroque art and literature<sup>43</sup>. A new philosophical distinction arose between "primary qualities", things as they are, and "secondary qualities", things as they seem to the human senses. In response, the moderation and restraint common to early Dutch design originating from the period of Charles II's reign, in which ornament in Holland was composed of scrolls, acanthus, festoons, tulips, roses, jonquils (*Narcissus jonquilla*, long, narrow, rushlike leaves with clusters of flowers), gave way to a more lavish, richly decorated "William and Mary" style which evolved thereafter into a more elaborate ornamental vocabulary featuring flutes, gadroons, scrollwork, ornamental masks and shells as well as swags burgeoning with fruit and flowers.<sup>44</sup> The influences of Dutch decorative sources, such as paintings of the sixteenth and seventeenth-centuries, favoured realism particularly in botanical pictures and these ideals were created with highly naturalistic depictions in many mediums. The decisive changes that ultimately altered the whole style and character of large country house architecture came with the rise of the professional architect during the 1620's. Thereafter, publications of architecture became more widely available and in England the treatises and commentaries on architecture of Alberti, Serlio, Scamozzi and Philibert de l'Orme (some of them translated) were matched by the discourse on architecture by Inigo Jones, Christopher Wren and Colen Campbell. With the increased influence of the architect came a more exact control over a wide group of craftsmen of varying abilities.<sup>45</sup> As architects/designers came to control all

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<sup>41</sup> Temple, W., *Observations on the United Provinces* (originally published 1673; Cambridge, 1932)

<sup>42</sup> Peck, L. L., "Luxury and War: Reconsidering Luxury Consumption in Seventeenth Century England", *A Quarterly Journal Concerned with British Studies*, Vol. 34, No. 1 (2002), pp. 1-23

<sup>43</sup> Burke, P., "The Crisis in the Arts of the Seventeenth Century: A Crisis of Representation?", *The Journal of Interdisciplinary History*, Vol. 40, No. 2 (2009), pp. 239-261

<sup>44</sup> Freedberg, D., "The Origins and Rise of Flemish Madonnas in Flower Garlands: Decoration and Devotion", *Münchener Jahrbuch der bildenden Kunst*, Vol. 32 (1981), p. 129

<http://www.nationalgallery.org.uk/dutch-flowers/>. Accessed 08/05/16, National Gallery London, Exhibition, *Dutch Flowers*, 6 April – 29 August 2016

<sup>45</sup> Kostof, E. (ed.), *The Architect, Chapters in the History of the Profession* (New York, 1977)

aspects of design, so craftsmen relinquished their traditional approach to design and production in order to achieve the unified visual results required. The evolution of blacksmith's designs follows this course and arrives at an English style around 1710 onwards.

An important seventeenth-century house might either be the creation of an architect who would provide the ground plan and elevations of the façades or alternatively, a client who was well informed in matters of taste and style and who might steer the undertaking himself, sketching ground plans and details, pointing to designs in pattern-books that appealed to him and vetting sketches submitted to him by a master mason or carpenter. Sir Roger Pratt, one of the most influential of English architects in the middle of the century, advised those wishing to build a house to:

“First resolve with yourself what house will be answerable to your purse and estate, and after you have pitched upon the number of rooms and the dimensions of each, and desire in some measure to make use of whatsoever you have either observed, or heard to be excellent elsewhere, then if you be not able to handsomely contrive it yourself, get some ingenious gentleman who has seen much of that kind abroad and been somewhat versed in the best authors of Architecture: viz. Palladio, Scamozzi, Serlio etc. to do it for you, and to give you a design of it in paper, though but roughly drawn (which will generally fall out better than one which shall be given you by the home-bred Architect for want of his better experience, as is daily seen)”.<sup>46</sup>

#### THE DESIGN PROCESS

By the late seventeenth-century leading architects, faced with an important commission, felt it necessary and desirable to design every decorative detail of exterior and interior schemes. This unifying approach to design extended to ironwork. For the first time in history, ironwork became a focal point upon arrival at a palace or grand country estate. Impressive gates were extended laterally by railings and the focal gate panels became an increasing focus for ornament.

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<sup>46</sup> Gunther, R. T., *The Architecture of Sir Roger Pratt* (Oxford, 1928), p. 60

Innovatory techniques of assemblage of transmutable designs illustrated in ornament prints produced ingenious compositions in metal.

When it came to the interior, a patron or an architect might ask the various contractors to provide suitable designs for the features they were to provide and it was he who regulated the work of all these tradesmen as the project progressed. In England and Holland it was Daniel Marot (1661-1752) who inspired the artistic vision for William III's palaces and their objects. He worked at Het Loo in the Netherlands from 1684 and in England, at Hampton Court Palace from 1694. Important rooms of state became linked together by grand lavishly decorated staircase of wrought iron. The increased significance of the first floor encouraged this fashion to delight the procession of guests from entrance to the main reception and entertaining spaces. Iron balconies were probably introduced into England by Inigo Jones when he remodeled Lord Arundel's town house, as a drawing made in 1619 is inscribed "A newe Italian windowe, the gallerye at arrundell house".<sup>47</sup> By 1661 they were so prevalent that Pepys mentions them in his diary entry for May 19 in describing an incident at Lord Sandwich's house.<sup>48</sup> The first occurrence of an iron stair was Inigo Jones's staircase at Greenwich, London (the existing balustrade dates from 1616-1619 and the decorative tulips were added in 1665). The grander houses of England had almost unanimously opted for wrought iron staircases by the early eighteenth-century. In France, the styles of masonry balconies had been developing towards lighter, more transparent designs, such as Philibert de l'Orme's designs at Château of Anet of 1547-1552 for Diane de Poitiers, the mistress of Henry II of France. The benefits of iron, the material's strength and ability to provide visibility with relative lightness added to the ease and relative good value of adding iron balconies to existing buildings. Similar balconies of iron had been in use in Venice since the fourteenth-century.

By 1700, London's population was 575,000 and it was the largest city in the world. In comparison, Paris was 510,000, Amsterdam, 200,000 and Naples, 216,000. London was the centre of government, the monarch's court, commerce,

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<sup>47</sup> Donnell, E., "Ironwork Designs from the Restoration to the Regency", *The Metropolitan Museum of Art Bulletin*, Vol. 34, No. 3 (1939), pp. 70-72

<sup>48</sup> Wheatley, H. B. (ed.), *The Diary of Samuel Pepys* (London, 1921), vol. II, p. 38



manufacturing and the principal port which accounted for approximately 75% of foreign trade. With a total population of 5.5 to 6 million people in England, the metropolis represented around 10%. London therefore had greater influence over national, cultural, social, political and economic attitudes than other major capitals.

Prior to the seventeenth century, the nobility in England had expressed allegiance to the king by following the architectural models and codes of etiquette/modes of living established by royalty and their estates and gardens. These endeavours could be seen as an expression or general desire amongst most privileged members of the court to contribute to the grandeur of the monarchy. There was always a risk for those who subverted the social order from which they benefited, so emulation lay at the heart of many architectural and landscape designs. However, increasingly emulation was pursued in search of prominence, for unequalled “magnificence” which came to be considered as a sign of princely virtue. Palatial buildings, gardens, villas and parks revealed the tremendous energy poured into self-presentation.<sup>49</sup> Consumption, pageantry and spectacle became integral parts of political and powerful allegiances.<sup>50</sup> An increasing cultural consciousness in attitudes towards classical scholarship fostered a knowledge of antiquity which was seen as a polite accomplishment which distinguished the nobility and the gentry and provided them with models of both literary and architectural styles. Public identity and the demonstration of political influence through continental visual associations was indicative of power. Cultural awareness came to be used as a strategic political tool by courtiers to distinguish themselves from others by a confident display of taste, knowledge and continental travel. The French court of Louis XIII and Louis XIV established new modes of social ceremony and etiquette that directed the function and design of architectural layouts during the period. Baroque culture fostered the allusion of splendour and conspicuous consumption in order to impress and awe the viewer. Grand forecourt screens and gates of iron were emblematic of land ownership and

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<sup>49</sup> Tierney (Unpublished PhD Thesis, 2009); Fraser Jenkins, A. D., “Cosimo de’Medici’s Patronage of Architecture and Theory of Magnificence”, *Journal of the Warburg and Courtauld Institutes*, Vol. 33 (1970), pp. 162-70

<sup>50</sup> Jacobsen (2009), pp. 295-317

power and intended as a clear symbol of the status and importance of the owner. Inside these palaces, glitter, colour and lustre characterized late Stuart taste. An enormous demand for silverplate, a costly status symbol, used in churches, livery halls and private houses arose. By June 1694 the assay office was assaying more than half a million ounces of plate a year and in 1696, Isaac Newton as Master of the Mint was forced to introduce the higher Britannia standard for wrought plate, to reduce the demand from the goldsmiths and protect the coinage.<sup>51</sup> Significant wealth and dominions were implied by exterior representation. Magnificent gilded ironwork in the form of impressive gates and grand staircases, displaying the latest most fashionable designs from the continent, played an important part in this splendour.

Amongst the new forms of architecture and extensive landscapes surrounding palaces and grand country houses, opportunities blossomed for wrought ironwork. Palatial residences were built for show, for entertainment and as evidence of wealth, power and good taste. Surrounded by extensive, high maintenance gardens and studded with enriched decorative ironwork, these carefully controlled settings displayed immense wealth. Novelty and intrigue were an important part of garden designs of the period in Britain and Holland, and to some extent in France, and these characteristics fostered new types of experiences which tended to be more romantic than intellectual.

An essential trait of Baroque culture was the world of representation, of *meraviglia* (wonder) and metamorphosis. The garden became a theatrical, magical world of extravagant fantasy and a place for games, intrigues and dalliances. Upon entrance to *le terroire*, the garden set the entire scene, so the display of novel, fantastical designs of ironwork and effervescent waterworks were critically important to aptly reflect all that was to follow. With the latest scientific discoveries of colourful botanical species lining the routes from house to garden, links were connected between country house and the landscape beyond. The different social functions of garden spaces (for entertaining, games and

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<sup>51</sup> Galinou (2004), p. 21

sports) affected their form, content and colour and the style of visual language that was used to reflect wrought ironwork.

The course taken by the decorative arts in France was strongly influenced by designers of ornament who were usually appointed by the King and employed by the royal manufactories. A number of these designers published books or sheets of designs for use by other craftsmen, many through the “*Bâtiments du Roi*” and the “*Manufacture Royale des Meubles de la Couronne*”, whilst others were enabled by financial support from wealthy patrons.<sup>52</sup> Patronage of print-making and collecting by Louis XIV enhanced the perceived and actual value of the prints and their collectors by providing the “right models of perfection” upon which anyone who aspired to ‘the character of a man of breeding and politeness should form his judgement of the arts.’<sup>53</sup> Yet whilst a general knowledge of ornament and architectural styles was almost obligatory for a gentleman, too great an interest in, or knowledge of the technical details of building was thought somewhat unbecoming, a criticism later to be levelled most notably at Lord Burlington by Lord Chesterfield.

A significant visual element which influenced ideal images were bird’s eye views. By 1576 and 1579, some of the earliest bird’s eye views of royal and private estates, such as engravings by J A du Cerceau’s *Les plus excellents Bastiments de France*, had been published in France. This precedent was taken up in The Northern and Southern Netherlands by owners of landed estates and facilitated by the printmakers of Antwerp and Amsterdam, who commissioned engraved or painted records of property. By 1697, Leonard Knyff had begun his ambitious project of an engraved set of 100 views of England’s great houses. In 1707, 78 of Knyff’s views were published under the title of *Britannia Illustrata* and in 1708, *Nouveau Théâtre de la Grande Bretagne*. The publications represented a visual and propagandistic imagery to the rest of the continent. They created the ideal notion of coherent meaning illustrated by a unified, all-embracing design. The

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<sup>52</sup> Harris, E., *British Architectural Books & Writers 1556–1785* (Cambridge, 1990), pp. 32-37; Starkie Gardner (1911), pp. 130-137; Harris (1960), pp. 1, 4, 8-11

<sup>53</sup> Klein, L. E. (ed.), *Shaftesbury, Characteristics of Men, Manners, Opinions, Times* (Cambridge, 1999), pp. 150-151

house and garden were represented as a display of civilized taste, political power and as an idealised, perfect design that blended the old and the new into one concept. These unified designs concealed the complex processes of change involved in the creation of many English estates, the functions and purposes of which evolved over many hundred years and the buildings and landscapes of which were adapted to suit the changing demands of progressive lifestyles. Paintings and drawings were effective tools of influence shared by the small sphere of wealthy landowners and courtly patrons that encouraged them and the imagery was a persuasive tool in the artistic environment of the time. These documents encompass very different perspectives yet all of them present views unique to the period of their own achievements by the affluent, higher classes of society. During the period, it became increasingly popular for wrought iron to be depicted in engravings and paintings. This handsome and expensive medium could only be afforded by the very wealthiest and intricate ironwork came to be seen as a status symbol of aristocrats and the landed gentry. From 1663 an engraved portrait depicts Hugues Brisville seated at a table by an open window with a piece of paper and holding a compass and chalk holder in his right hand, a view of a balcony, garden and wrought iron gates beyond (VAM: E.6076-1906).<sup>54</sup> The portrait is set within an oval medallion enclosed by an ornamental frame composed of grotesques with masks and the heads of various animals; putti and the figures of Time and Minerva terminating in foliate scrolls.

An influx of foreign craftsmen spurred on developments in designs for wrought iron for in 1685 the Edict of Nantes, which had given protection to French Protestants since 1598, was revoked and the Privy Council held a meeting at Hampton Court on 15 April 1689 at which William III announced his proposal to invite French Protestants to make their home in England. The King instructed Sir Henry Pollexfen, the Attorney General, to prepare a “Declaration to Encourage all Protestants, Subjects of France to come and inhabit in England”, the draft of which was approved at Whitehall on 25 April 1689.<sup>55</sup> The King’s Privy Purse

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<sup>54</sup> <http://collections.vam.ac.uk/item/O843463/diverses-pieces-de-serruriers-print-hugues-brisville/>. Accessed 18/03/15

<sup>55</sup> Heath, G. D., *Hampton Court Palace, The Huguenot Connections* (Unpublished, 1985), p. 26, refers to “1. Private communication with Mr G E Todd”

issued grants between 1690 and 1702 and regular public appeals assisted immigration. “Papers of denization” entitled immigrants to apprenticeship and ultimately the freedom of the city. Huguenots tended to be hardworking and relatively successful, reflected in the popular saying in the eighteenth-century: “that a drop of Huguenot blood in the veins was worth £1,000 a year”.<sup>56</sup> This was probably the result of their Calvinistic ethics which attributed a high value to work.<sup>57</sup> Thousands of Huguenot refugees emigrated from France to Holland. Their presence had a profound effect on the artistic and commercial life in Holland and the other countries in which they settled. Those that came tended to be from the professional or skilled artisan classes. Many of the Huguenots specialised in those trades for which France was well known, such as high quality metalwork and the production of paper and silks. Their artistic focus was upon decorative and applied arts with a functional and practical purpose. These craftsmen brought not only technical expertise but also a knowledge of fashionable French ornament, together with notions of how to collect and shape entire ensembles into ordered displays that enhanced the impressive visual effects. It is estimated that 190,000 Huguenot refugees left France, with 550,000 remaining. Of these, 50-60,000 went to the Dutch Republic, 40,000-50,000 to England (the majority of which settled in London and others in provincial cities, such as Canterbury, Bristol and Plymouth, where they had a virtual monopoly on such industries as papermaking, silk and woollen weaving, stocking and glove-making), 25-30,000 to Germany and 22,000 to Switzerland. Others went to Ireland, America, Denmark and the Cape of Good Hope.

The assumption that all French craftsmen working in London were Huguenots is erroneous. Robin Gwynn, author of many articles on Huguenot immigration, has commented that they provided the best example in history of the successful, peaceful integration of a large immigrant minority.<sup>58</sup> Part of this may have been due to the position whereby they had no realistic future in their homeland and

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<sup>56</sup> Gwynn, R. D., *Huguenots Heritage: The History and Contribution of the Huguenots in Britain* (London, 1985), p. 218

<sup>57</sup> Murdoch (Unpublished PhD Thesis, 1982), p. 7

<sup>58</sup> Gwynn, R. D., “The Number of Huguenot Immigrants in England in the Late Seventeenth Century”, *Journal of Historical Geography*, Vol. 9, No. 4 (1983), pp. 384-395

therefore future plans were based upon the newly found land rather than returning to their origins. They therefore became increasingly anglicized, learning new customs and the language, some inter-marrying British citizens, and within a century of the Revocation, their Englishness was unquestionable. While some of their churches persisted in England, they declined rapidly in overall numbers and of the twenty French Protestant churches in London in 1730, only eight remained by 1800.<sup>59</sup> This data, together with the correlation of Huguenot marriage and burial records which were often entered in the registers of English churches rather than those of the French congregations, suggests that the integration of Huguenots into English society was indeed successful. In terms of religious distribution of Huguenots across Britain, Gwynn has noted that there were no Huguenot refugee churches in the Midlands nor in the North or in Wales which were the areas where British rather than foreign blacksmiths were prominent. Data estimating the sizes of congregations outside London based solely on baptismal records demonstrates that, by 1696-1705, Bristol was the third largest population density for Huguenots, an area in which a series of innovative wrought ironwork was created for churches.<sup>60</sup> Recently historians have questioned religious motivation and the strength of religious affiliation. Emphasis has instead been focussed on other dimensions of people's lives, notably economic and material ones, as the key incentives determining religious choice.<sup>61</sup> New foreign markets offered an escape from domestic continental competition. At the end of the seventeenth-century, Huguenots comprised about 5% of the total population of the capital and as Gwynn has noted, their contribution to the commercial and political transformation was not insignificant.<sup>62</sup> The market encouraged business minded foreigners to come to Britain to work, and in many cases they successfully integrated and stayed.

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<sup>59</sup> Gwynn (1983), pp. 384-395

<sup>60</sup> Gwynn, R. D., "The Distribution of Huguenot Refugees in England", *Proceedings of the Huguenot Society*, Vol. 21 (1969), pp. 404-436

<sup>61</sup> Butler emphasizes the "fleeting character of religious allegiance in early modern Europe": Butler, J., *The Huguenots in America: A Refugee People in New World Society* (Cambridge, Mass., 1983), p. 19; Hanlon, G., *Confession and Community in Seventeenth-Century France: Catholic and Protestant Coexistence in Aquitaine* (Philadelphia, 1993), p. 256

<sup>62</sup> Gwynn (1983), pp. 384-395

The artistic contribution of Huguenots within Britain is perhaps most usefully considered when seen as part of the international network of progress which refugees enabled. Many of the English nobility had found it convenient to absent themselves from England during the Commonwealth period on account of their Royalist sympathies. This movement of Huguenots, nobility and craftsmen had significant influence after the Restoration, for those who returned from their travels had been impressed and enamoured by Continental styles. Similarly, many of the nobility employed Huguenot, French-speaking tutors for their children.<sup>63</sup> Charles II and his court were exiled in Holland and France and were acquainted with the fashions and manners of the Dutch and French courts. For those visiting Holland, the greatest maritime state of Europe, appreciation of the combined effect of style across the arts was the result. Designs were derived from Dutch, French, German and northern continental notions of taste, and this influenced the styles of ironwork being created.

The influx of Continental craftsmen and the latest designs illustrated in ornament prints responded to the increasingly diverse requirements of English patrons who were ever more architecturally aware. Generally, English craftsmen disliked foreign competition partly due to a belief in the superiority of foreign design over English style. There was however a growing acceptance and demand for foreign styles which were illustrated in ornament prints and pattern-books, such that Sir Christopher Wren wrote to the Treasurer of Christ's Hospital in 1694 highlighting the weakness of English "Inventions".

"... our English artists are dull enough at Inventions but when once a foreigne pattern is sett, they imitate soe well that commonly they exceed the originall..."<sup>64</sup>

**NEW MATERIALS AND THE WORSHIPFUL COMPANY OF BLACKSMITHS**  
Technological advancements in iron production increased the purity of materials available from previously isolated geographical areas such as Sweden and Russia. This enabled the creation of a range of different designs due to the increased malleability of the new materials. This, together with the shifting political agenda

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<sup>63</sup> Murdoch (Unpublished PhD Thesis, 1982), p. 13

<sup>64</sup> Wren Society, *Volume XI* (Oxford, 1934), p. 74

encouraged imports and broadened the scope of wrought iron goods. The Worshipful Company of Blacksmiths was increasingly influential in establishing standards and training apprentices and this raised the profile of the Smith's trade. It also discouraged artisans with one set of skills trespassing into the areas of expertise of other Company members. The Blacksmiths' Company received its first Royal Charter from Queen Elizabeth 1 in London in 1571<sup>65</sup>. Subsequent Charters were granted in 1604, 1639 and the fourth Charter of 1685 heralded the beginning of a great new flow in English blacksmithery, encouraged by the surge of building work after the Great Fire in 1666.<sup>66</sup> For artist-blacksmiths, one of the new innovations of the period was the introduction into England of the *repoussé* technique which had, until this date, been more commonly utilized in gold and silver work. The new methods of production and the extent of the effects of this new technique, amongst others, is discussed in chapter one.

An increase in private possessions and other treasured accoutrements, particularly silver plate relating to the ceremonial rituals of church and livery companies, created a greater demand for locks which were increasingly sophisticated in their mechanisms. Travel to the Continent on the Grand Tour also increased the need for portable personalised locks to safeguard packing trunks. Intricate locks secured ornamental wrought iron screens and gates of private chapels and mausoleums and a similar style of decoration was applied to all forms. As early as 1422 the London Guilds had included the 'Lockyers', a traditional trade which required completion of an apprenticeship. "Masterpiece Locks" created from carved, pierced, engraved and chased iron were submitted and judged for membership of the Guild. The diarist John Evelyn recorded in 1654 that a lock with 'rare contrivances' could be viewed as a masterpiece, 'esteem'd a curiositie even among foraine princes'.<sup>67</sup> Elaborately worked locks and keys were objects of high status, owned by the elite. They became symbols of ownership and authority. Iron locks and keys dating back to the Gothic period, French, late fifteenth-century, displayed the use of an architectural vocabulary that resembled masonry

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<sup>65</sup> Hey, D., *The Worshipful Company of Blacksmiths* (Lancaster, 2010), p. 32

<sup>66</sup> Ibid., pp. 41-59

<sup>67</sup> <http://collections.vam.ac.uk/item/O350453/lock-and-key-john-wilkes/>. Accessed 20/02/16



church architecture in pictorial scenes, such as a chiselled Corinthian capital illustrated by the shaft of a steel key dating from c.1630 in the VAM collection (608:1895).<sup>68</sup> During the sixteenth and seventeenth-centuries, locks became exquisitely detailed and due to the engraved nature of their design, they were quick to be influenced by engraved designs from multitudinous sources. This created a great diversity in contemporary designs. The locksmith, designer of ornament and engraver drew upon the skills of three different artisans, any one of which may have introduced a continental influence. Locksmiths generally worked on a range of metals cold at the bench, utilising moderate heat in parts, and this method permitted a high degree of fine detail. The techniques of polished and chiselled steel were predominant in locksmithing and created exquisite, jewel-like objects which came to be made with an intricacy and beauty similar in style and technique to the art of the goldsmith. It could be argued that engravings on metal locks carried ornamental designs long before the broad circulation of prints on paper were popular. Even so, locks were single objects (rarely replicated, although engraved designs were copied upon locks), and their influence was therefore limited to the close circle who saw them. Some of the first ornament prints or iron were for locks, keys and armour and many of their ornaments are later incorporated into styles of wrought ironwork. Some of the basic designs have a long history, refined by new discoveries and the process of application to different projects. The intricate designs were derived from imagery from Roman wall decorations, discovered during excavations of the Golden House of Nero in Rome, begun about 1480 and illustrated in lockmaking, such as the Beddington Lock of c.1539-1547 (V & A Ref: M.397&:1 to 6-1921) possibly the work of the royal lockmaker Henry Romaines (died 1553).<sup>69</sup> The design illustrates Raphaelesque origins of ornament and depicts a border of continuous circles with chevrons inside. A variety of this design had appeared in an Italian grille from around the thirteenth-century.<sup>70</sup> This type of border was later developed by Daniel

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<sup>68</sup> Hoffeld, J. M., "The Art of the Medieval Blacksmith", *The Metropolitan Museum of Art Bulletin*, New Series, Vol. 28, No. 4 (1969), p. 166

Hoeber, O., *A Pictorial Encyclopaedia of Decorative Ironwork, Twelfth through Eighteenth Centuries* (New York, 2001), Plate 43

<sup>69</sup> <http://collections.vam.ac.uk/item/O78576/the-beddington-lock-lock-romaynes-henry/>. Accessed 20/02/16

<sup>70</sup> Geerlings (1929), p. 34

Marot (Campbell suggests Jean Marot) in his design for the gates at Château of Maisons-sur-Seine (gates to the Galerie d'Apollon in the Louvre, c.1642, Plate 4), the production of which is technically close to locksmithing, using materials of polished, chiselled steel.<sup>71</sup> A circular motif is employed by Luchet in the borders of the *cour d'honneur* gates of 1678-9 (Plate 5) originally located at Versailles.

During the sixteenth and seventeenth-century, the level tumbler lock was invented<sup>72</sup>, then the 'Detector' lock (VAM: M.109-1926) which displayed how many times a lock had been opened (1680-1700, probably made by John Wilkes, Birmingham, England).<sup>73</sup> Rim locks were produced so that they could be portable and moved with the owner from house to house. The visual decoration of these objects tended to be more diverse because the objects were seen as examples of beauty in their own right rather than integrated into unified architectural schemes. An early sixteenth-century French example exists at the Metropolitan Museum of Art, New York (37.190.1a,b) of pierced sheet metal depicting a pair of eagle heads and foliage. The relocation of locks may have encouraged the spending of money on security due to the portability of these objects. A German lock (VAM: 2409 to B-1856) dating from 1610 depicts a double-headed eagle emblem of the German Emperor on the key plate with hunting scenes on the sides, angels and foliage on the front plate and mermen on the handle of the top key. Putti, leaves and birds decorate the pierced, engraved mechanism of the lock. It is signed GS, probably the initials of the maker.<sup>74</sup> A French lock from c.1630 survives at VAM detailing ornament motifs of grotesques, eagle heads and menacing monsters of the sea and land created by N Du Feyis (VAM: 290-1900). The inspiration for many decorative motifs that were depicted on early locks arose from designs of Paul Androuet du Cerceau and Hugues Brisville. The designs were further developed by the family of Marot and Paul Decker and illustrated in wrought iron ornament prints. Ciphers and interlaced monograms were often worked into complex, scrolling ornament. A steel key with the cipher of William and Mary

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<sup>71</sup> Campbell, M., *Decorative Ironwork* (London, 2000), p. 21

<sup>72</sup> Pulford, G. W., *High-Security Mechanical Locks: An Encyclopedic Reference* (London, 2007), p. 317

<sup>73</sup> <http://collections.vam.ac.uk/item/O350453/lock-and-key-john-wilkes/>. Accessed 20/02/16

<sup>74</sup> <http://collections.vam.ac.uk/item/O306707/masterpiece-lock-with-unknown/>. Accessed 20/02/16

(VAM: M.201-1912), probably made in London c.1689-1694 in the workshop of the Bickford family, is pierced and engraved with the royal monogram, WR, incorporated into the design (which if it pre-dates Tijou's *New Book of Designs*, then it introduces interlaced monograms into British ironwork designs before Tijou). The designs of ornament prints are most easily and quickly transcribed to locks through the process of engraving/etching. Engraved ornaments illustrated in decorative friezes were quickly assimilated into designs for locks which provided a single plain sheet of metal upon which to apply engraved two-dimensional design. Many of these motifs were later developed by Jean Tijou in three-dimensional designs for the Hampton Court Palace Fountain Garden Screen, such as satyrs, scrolling acanthus leaves. The designs applied to locks in a two-dimensional format predate similar designs which were later applied to iron gates. The designs were produced in wrought ironwork, after an adaptation of existing techniques to create the new three-dimensional forms. Perhaps in part, as a result of the increased stature of iron through use in locks and appreciation of the artistic possibilities of this medium, designs flourished for decorative ironwork gates and screens during the period. Aristocratic patrons were the first to inspire a demand for new styles in metalwork and therefore high status objects represented the first evolutionary pieces in precious mediums.

During the early seventeenth-century, sophisticated iron locks from the continent were imported to England for princely and aristocratic purposes carrying designs that originated from Holland, France or Germany, created with elaborately pierced decoration and arabesques. One such lock is from Windsor Castle, c.1620-80 (RCIN 95057) and depicts a Flemish/German-styled urn with a compact design of naturalistic flowers VAM (57.137.8a, b). The lock is created of steel, brass and wood and depicts jonquils, tulips, thistles and roses. It illustrates an early British example of this design type and is attributed to John Wilkes. The design may derive from tabernacle grilles which were popular throughout Germany and Italy such as the wrought iron grille of c.1650 with ornamental flattened foliage and stylised bunches of grapes possibly from Ottoburg, Tyrol, Italy.<sup>75</sup> The design

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<sup>75</sup> VAM: 796-1904

demonstrates that British lockmakers were quick to recognise and respond to the increasing demand for continental styles.

From the evidence of locks, it appears that pierced work from the early seventeenth-century originates from Germany whereas French work of a similar period incorporates more chiselled, cast work, reminiscent of Gothic origins. English locks exhibit a broad diversity of styles because the designs were independent of unified architectural/decorative schemes. The imagery was therefore very responsive to contemporary demands and able to reflect the latest tastes in fashion. On the other hand, there was a fairly slow absorption of similar motifs into wrought ironwork as the *repoussé* technique, seen as a foreign-based skill, was required to enable creation.

Whilst innovation builds on what has gone before, establishing the first date of origination for ironwork designs is complicated by the nature of the objects themselves which are relatively rare, almost always unsigned, most undocumented and only materially supported by fragmentary evidence of the few original pieces which survive. (A few rare continental exceptions exist where blacksmiths have prominently dated or noted their name upon the work, such as in Spain, at Burgos Cathedral, the Constable's Chapel, Christobal Andino has inscribed his name and date 1523. The German grille at Dresden (Plate 1) is dated 1637 wrought into the upper panels, and at Drayton the smith forged 1699 into the upper left and right panels of his work).

In conclusion, it might be said that all of these motifs appear in Tijou's work. He derives his design motifs from locks created 70 years before, yet the distinctly unique skill that he adds is composition and by the art of arranging. Decorative work had not formed part of the expected repertoire of Master Blacksmiths except in the rare case of decorative locks and escutcheons, the rising demand of which, during the fifteenth-century, saw an increased desire for security and a proliferation of locks responded to the increased private ownership of goods, travel and the need for the church and businesses to protect their treasures. In France, the key had become a symbol of favour or office at court during the sixteenth-century. For the first time in French history, Henri III had published a

set of regulations in 1585 that restricted the movement and privileges of the courtiers, mainly the old nobility, to the extent that the courtiers needed to possess a key to gain access to the inner sanctum. Highly elaborate keys, with delicate, rich embellishments, were made during the last third of the sixteenth-century for French royal courtiers. The exquisite cold chiselled details suggest that these precious iron keys may have been displayed as proudly as gold pendants. Clare Vincent refers to an entry in the account book of Henri III for 1580, that records the payment of seventy crowns for “sixty-six ounces of wide ribbon of silver and silk, of white, orange and dove color, to serve to suspend the keys for the gentils-hommes ordinaires of the King’s Chamber”.<sup>76</sup> By the early seventeenth-century keys of this type were already considered marvels. Many designs survive through depiction in ornament prints such as those by Hugues Brisville, 1662/3 and the continental influences of these upon wrought ironwork are discussed in Chapter 2. The Union of the Crowns, in 1603, opened the way between the royal houses of England and Scotland and it repositioned the previously local procurement process of wrought ironwork. English craftsmen mingled amongst the Scottish and shared a wide repertoire of ideas drawn from Scandinavia, France and the Low Countries. The itinerancy of patrons and craftsmen was illustrated by those who followed in the wake of monarchs and their increasingly elaborate court structures. Important trade routes across the North Sea between Scotland and Sweden increased the exchange of iron and timber.

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<sup>76</sup> Vincent, C., “Ironwork, Precious Objects in Iron, Two Collections of European Smithing”, *Metropolitan Museum of Art*, Vol. 22, No. 8 (1964), pp. 272-286

## CHAPTER 1: BLACKSMITHING & MATERIALS

This chapter explores the physical characteristics of wrought iron to demonstrate how the properties of the material had a critical impact upon the method of assimilation of continental designs into decorative wrought ironwork in Britain during the period 1660-1720. The chapter is essential to understanding the practical, technical and artistic developments of work made during the period. It aims to illuminate dark corners of the blacksmith's workshop practice that have not hitherto been considered.

Chapter one identifies the technological advancements in iron production and finery to discover how developments of new materials were available and the opportunities which this created for a variety of new decorative forms. Whilst the production and use of sheet iron was a major technical innovation that enabled the *repoussé* technique to flourish alongside traditional smithing skills, many renowned British blacksmiths of the period never fully mastered the method. This chapter investigates the potential reasons for that. The possibility of combinations of different metal alloys being employed for a variety of technical and aesthetic effects is explored. Whilst it is generally acknowledged that the addition of gilt bronze mounts to the furniture of André Charles Boulle, cabinet maker to Louis XIV, is a characteristic feature of the work and P J Shears has noted that by the 1690s the greatest of the Huguenots' innovations for silverware generally adopted was the method of casting and chasing separate applied ornaments (enabling them to replace the lobate forms of the earlier Dutch baroque with the bolder and more sculptural details, whether gadrooned, fluted, scalloped, or in cut-card motifs), the suggestion of applied cast forms in ironwork of the period has not previously arisen.<sup>77</sup> Thornton has commented that the design processes of many objects often involved goldsmiths because of their ability to draw. In sixteenth-century France, goldsmiths often owned lead or plaster casts of ornamental details, a mask for instance, from which moulds were taken and applied to their work. Thornton suggests that in Parisian workshops, as at other major centres of trade such as

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<sup>77</sup> <http://collections.vam.ac.uk/item/O72500/table-boulle-andre-charles/>. Accessed 02/02/15  
<http://www.metmuseum.org/art/collection/search/206990>. Accessed 29/01/15; Shears (1959–60)

Nuremberg, the presence of these moulds indicates that a certain amount of series production using casting methods was already established.<sup>78</sup> This raises the question and supports the notion that casting and applied ornament may well have been utilized in decorative ironwork of the period. A comparison is made of the range of sculptural effects achievable by wrought, cast, chased and *repoussé* techniques in a variety of metal alloys in order to proffer the likely contemporaneous processes. The metallurgical evidence is gathered. Workshop organisation and the increasing specialisation of skills is considered alongside the cross-fertilisation of working techniques amongst craftsmen. The latest scientific paint research uncovers a variety of expensive gilt, smalt and cobalt finishes upon ironwork of the period and questions arise regarding the perceived “value” of these objects. An investigation into the origins, meaning and application of iron stamps provides valuable information about the types of imported materials being used during the period and why and how they were necessary. The role of the Worshipful Company of Blacksmiths is examined in relation to the preferment of traditional techniques and the opportunities available for innovatory practices in forging iron. The blacksmith’s extensive training, his place in society and role in the broader context of the building trade, is discussed. Contracts and correspondence are reviewed to analyse the evolution in design making processes during the period.

The practice of using better grade iron (with fewer impurities and greater malleability) unarguably enabled the new designs. Metals were being located and mined in increasing quantities and developments in refining produced a variety of alloys to suit an increasingly diverse range of applications.<sup>79</sup> From the sixteenth-century technological advancements in refinery processes resulted in the production of higher quality wrought iron with fewer impurities. The shifting political agenda encouraged imports from previously isolated geographic areas, such as Sweden and Russia, the materials of which were more malleable and enabled a broader scope and range of decorative wrought ironwork. A detailed account of iron production is summarised in Appendix III. This provides the

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<sup>78</sup> Thornton (1998), pp. 43-44, 64

<sup>79</sup> *Metalworks! The Blacksmith's Tale*, BBC4 (May 2012). Accessed via YouTube 05/04/16

technological context within which the medium responded to the crucial developments in design, fuelled by ideas arriving from the continent in the late seventeenth-century. Evidence from the Dundee Shipping Records office and personal correspondence suggest that there existed a significant amount of migration of resources and craftsmen than previously appreciated.<sup>80</sup> Whilst it is not necessary to deal fully with the geological, chemical properties or methods of production of iron, what follows is a condensed account of the material's early history and techniques of smithing.

## PROPERTIES, TOOLS AND TECHNIQUES

The appearance, malleability and quality of iron is chiefly determined by the proportion of carbon to iron. Iron, the element in its pure state, is rarely found in nature, for ores are composed largely of iron and oxygen. Commercial iron is derived from ores by smelting, whereby the oxygen is driven out and carbon from the coal or charcoal replaces it. Wrought iron consists of on average 99.855 per cent pure iron and 0.1% carbon with the remainder of the composition being the impurities (manganese, phosphorus, sulphur and silicon) present in proportions varying from 0.005 per cent to 0.07 per cent. The alloy elements inherent in wrought iron react in the following ways: silicon and phosphorus each increase fusibility; sulphur and carbon increase hardness; manganese increases malleability; copper increases corrosion resistance and chromium increases tensile strength.<sup>81</sup> In comparison, cast iron varies from 92% to 95% pure iron, from 2.5% to 4.25% carbon, 1-2% silicon, 0.03-0.10% sulphur, 0.25-1% manganese and 0.5–1% phosphorus. The practical properties of wrought iron are that it is comparatively strong in tension and resistant to shocks. Pure wrought iron is never molten and cannot be cast into a mould. The more it is worked, the more dense, hard and brittle it becomes, but it can be brought back to its original state by “annealing” (heating and then slowly cooling). Iron's normal rigidity is temporarily lost under heat. Excessive cold hammering renders it easily breakable and liable to split. Wrought iron is fibrous in structure, light grey in colour and

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<sup>80</sup> Hildeband, K. G., *Swedish Iron in the Seventeenth and Eighteenth Centuries* (Stockholm, 1992), p. 25

<sup>81</sup> Higgins, R. A., *Materials for Engineers and Technicians*, 5th edition (Oxford, 2010), p. 195



when cold or hot can be hammered out, rolled, forged, twisted and stretched. In comparison, the greater quantities of carbon that are present in cast iron, produce a brittle medium that is weak in tension, yet strong in compression. Cast iron cannot be welded or hammered. Cast iron was made from re-melted and refined pig iron, and shaped by casting. First, a permanent timber model of the component was prepared, from which single-use casting moulds could be made in sand. Known as a 'pattern', this model was about one per cent oversize to allow for shrinkage of the iron as it cooled and solidified. The pattern was packed with sand in a wooden box to make a mould, usually in two parts so that all iron surfaces would be enclosed in sand for a uniform finish. With the pattern removed, molten iron was poured into the mould. Vents allowed air to escape as the iron flowed to fill the mould. After cooling, the casting was released from the mould.

A visual aid to distinguishing between the two forms of iron is that cast iron has a 'grainy' surface from the sand mould (although this may be masked by layers of paint), whereas wrought iron, being rolled, has a smoother surface (although this may be affected by corrosion, which roughens the surface). Cast iron was invariably joined by bolting; the hot-driven rivet, the fastener of choice for fabricated wrought iron sections (and later steel), was not suitable for joining cast iron as its contraction while cooling could crack the brittle metal. Cast iron, as its name implies, can be made in any desired shape. This characteristic was widely exploited for decorative work.

The main operations of working with wrought iron are undertaken on small sections at extremely rapid rates, amidst the heat, showers of sparks, glare and deafening hammer strikes. No other craftsman has to make such instantaneous decisions or take such sudden and violent action upon his material. If one visualizes the process of heating about 20cms of metal at a time, manipulating it on the anvil and, with a series of chisels and sundry tools, attempting to approximate the desired profile, then assuming this to be done, it would be no mean task to complete another unit of the same length with an equal and identical profile. The results of the process are perhaps, needless-to-say, naturalistic and organic and a perfectly true edge is difficult to achieve. The method gives an impressionistic view of the intended general effect. The heat of the hearth

encourages modelling at arm's length, yet close-up the results benefit from the personal profusion of tool marks that pit the surface. Perhaps it is these irregular, arbitrary characteristics and the method of working that infuse wrought ironwork with the spontaneity and virility that appeal strongly to the visual sense. Wrought ironwork does not therefore lend itself to symmetrically repeated designs or styles requiring high relief, both of which are better suited to the material capabilities and productivity levels of cast iron.

Iron is generally forged using techniques that have remained in use since the tenth-century. The blacksmith's craft can be identified by numerous traditional forging techniques and a traditional forging will usually incorporate a number of methods. The merit of a piece may therefore be appreciated by the combination of the mix and complexity of methods and the design and proficiency with which the object is forged. Techniques might include iron that is riveted, rolled, turned, planed, chased, hammered, pressed, embossed, stamped, inlaid, polished, sawn, filed, drilled, collared, punched or wrapped. A hearth is needed to heat the iron, a water tank to cool it, and a hammer and anvil to work it. The anvil is the block for hammering and generally has a horned end over which bars are bent, and a blunt end (or heel) for hammer work. Blacksmiths have historically worked from circular iron rods or bars which were heated and hammered into shape. The iron was delivered in bars in varying styles of section (round, square, flat/ribbon) and dimensions. Expensive Lowmoor and charcoal iron were better quality and tended to be fibrous, tough, more malleable and better suited to artistic work. The cheaper variety from the Spanish Netherlands was apt to be granular, brittle and difficult to work.

When heated, iron is softer and more pliable than lead, and in this state small areas can be worked and two or more pieces can be welded together. Iron is the only metal that can be "welded" (separate pieces united by hammering at a relatively low temperature.) If the temperature is too high the metal becomes burnt and useless and if the temperature is too low, uniform welds will not be formed. This technique of forge welding demands great skill. The smith appreciates that any blow made by the hammer on one face of the iron results in the anvil underneath it exerting an equal force on the opposite face. The problem is to coax

the iron, leading the material with the hammer, to displace the molecules in such a way as to strengthen the weak parts and to thin down the parts that are too thick. When a hollow or a relief is desired, then instead of beating the very spot where the desired effect is to be produced, the parts around are worked to drive the material along in order to produce the form. The quality and complexity of a weld produced by this technique gives a good indication of a blacksmith's ability. A fraction of a second's delay (quite literally) in extracting ironwork from the fire and hammering the pieces together on the anvil can mean the failure of a weld. The virtue of a hand-hammered weld is the slight swelling at the juncture and the general irregularities which add a natural, honest charm.

Many tools have been developed to enable these processes. They are typically made from bars of *tool steel*, forged and tempered at the tip. These hardened steel, specialised punches are produced to enable different techniques. The end of the tool which is to be hammered is bevelled to allow for expansion of the metal from repeated hammering. Some of the main styles of tool include liners, planishers, matting, and doming. Liners have thin tips, which are slightly rounded, so as not to cut the metal. They are used in the initial marking out of a design, and in the finishing stages to refine any thin outlines. Planishers have smooth, flat tips which are used for pushing out large, flat areas of metal. Matting tools have patterns cut into them, and provide detail to areas of the design. Doming tools push out rounded areas of metal and can either be round or oval, quite pointed, or almost flat. The small tools are an assortment of tongs necessary in various operations in gripping different shapes of bars, chisels, top and bottom fullers which were particularly useful in "drawing" any material (beating it to increase its length or for making shoulders, grooves and depressions) and punches of various sizes, often forged by blacksmiths or cast in moulds by small foundries. There are several types of hammers for heavy and light work. Long-peined hammers are used for the more delicate work of forming the crinkles of acanthus leaves by gentle, repetitive taps around the margins of the form. The sledge hammer is usually manned by the smith's helper and is employed in welding, straightening, cutting off and heavy work.

Scrolling is perhaps the most practised standard decorative element in smithing with the volutes ending variously, including fish tails (beaten thin and spread), snubbed (rolled or with solid centres), and half-penny scrolls, bolt ends and leaf ribbons or rolled around a bar and produced spirally, or beaten into a flat central disc. Scrolls are made by beating the end of a bar, using a top scroll fork, to work the bar into the inner part of the scroll, hooking it into the end of the starter's inner twist and hammering the bar around the outside curve of the tool. From this stage the embryo scroll graduates to the scroll form. Scrolls are often accompanied by leaves which add a three-dimensional expression. The simplest are cut from sheet metal, waved or crinkled by individual tools used along the edges and welded to the stem. The most elaborate are richly modelled and embossed from sheet iron with the design based upon the classic acanthus leaf. Tufts of bay and other leaves are generally fashioned from rod iron and welded piece by piece to stems, and then to each other, until the bunches are complete.

Twisting is one of the simplest exercises for the smith. For light work it may be done cold, and for the sake of keeping the rod or bar straight, a pipe is usually slipped over it. Cold twisting makes for a uniform yet difficult job. For heavy members, hot twisting is necessary but it is not possible to keep the bar straight by a pipe sleeve, it must be evenly heated worked in small sections of 20cms with the member kept straight by water cooling. Objects such as gates can be accomplished without heat and mainly by the techniques of tenons and rivets and halving and inlaying bars which cross, or pass, one through the other. Whilst hot, holes can be drilled through the heated bars and lateral bars fitted (Plate 6). This slight swelling is characteristic of traditionally forged wrought iron. The same treatment is employed to create a cresting, when the bar penetrates the top horizontal member and flourishes into *fleur-de-lis* or naturalistic sprigs of flowers or spearheads. The method of construction provides clues to the working practices of forged iron objects. On occasion one smith may possess the skills to carry out all aspects of the job, though in many cases collaboration between specialist metalworkers occurred. For larger projects such as the gates to the bridge at Clare College, Cambridge it is likely that a number of smiths worked on elements of the design and the parts were assembled together on site.

## REPOUSSÉ, MOULD-MAKING AND THE IMPORTANCE OF IRON PULPITS

*Repoussé* is a metalwork technique predominantly utilised with solid gold since 3,300BC for important and thoroughly expensive objects such as Tutankhamun's tomb mask. (The majority of the mask was formed from a single sheet of gold *repoussé* whilst the ceremonial beard, Nekhbet vulture and Uraeus, were attached separately). Historically, *repoussé* which has been acknowledged as the key foreign technical influence of the seventeenth-century that enabled the realization of three-dimensional iron motifs in Britain. Whereas the *Repoussé* technique was part of the normal training of apprentices given to leading metalsmiths in France and elsewhere on the continent, it is significant to note that it formed no part of the British smith's training or practice.<sup>82</sup> This may explain why English decorative ironwork demonstrated an absence of the *repoussé* technique before the arrival of Jean Tijou in 1687 and equally after his departure around 1711/12.

This section explores and compares the different effects achievable by techniques such as *repoussé*, chasing and casting. It takes a range of objects made from different metal alloys and it discusses the possibilities and likelihood of different methods being utilised to create the sculptural elements of Tijou's Fountain Court Garden screen. Were these created by *repoussé* or were other methods employed? And how does the answer to that information contribute to our current understanding and perceptions of decorative "wrought iron" from the seventeenth- and eighteenth-centuries? The findings argue that the *repoussé* method has been historically over-rated in terms of use in forged iron (though not in silver or gold and perhaps brass) and in fact, it was other techniques and materials that lead to the most significant depictions of baroque motifs in seventeenth- and eighteenth-century ironwork.

It is generally acknowledged that few British smiths ever came close to matching Tijou's special degree of skill in obtaining highly sculptural motifs. Was this the result of Tijou's workshop organisation and specialised labour skills? The *repoussé* technique is based upon the art of the silversmith and it is ideally suited to metals softer than iron, such as gold and silver, though a variety of metals can

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<sup>82</sup> Hollister-Short, G. J., *Discovering Wrought Iron* (Tring, 1970), p. 54

be used such as silicon bronze, copper, pewter and lead. *Repoussé* derives from the Latin *pulsare* "to push" and translates as "pushed up" (worked from the back). Chasing comes from the French word, *chaser* meaning to drive out or to chase around (working from the front). Both techniques combine to create highly detailed sculptural forms using ductile materials. High quality iron produced in Sweden during the late seventeenth-century was renowned for possessing fewer impurities which made it highly malleable and therefore extremely responsive to attaining an exquisite level of detailed sculptural finish. An early Italian method dating from 1540 demonstrates the desirability of ductile forms of iron, the results of which created a highly ductile material as soft and pliable as lead by "greasing it with oil of bitter almonds, then covering it with wax mixed with asafoetida and some sal alkali, and clothed with lute made of horse dung and crushed glass. It is then put on a fire or well-burning charcoal overnight, or until the fire goes out. Then it is taken out and is found to be soft and malleable".<sup>83</sup>

The *repoussé* method consists of pounding out thinnish plate sheets of iron between top and bottom swages in which the required form is sunk intaglio. The result is an embossed appearance. Thin sheets of valuable and highly ductile metals such as gold or silver or copper can be formed by working the metal cold and mainly for the purposes of jewellery. Yet forging iron is only possible whilst hot; it cannot be worked cold unless it is an iron alloy containing high levels of copper or manganese. *Repoussé* was dependent upon the availability of high quality sheet metal of a consistent gauge, so reliable production methods were key to obtaining the best results. The turning point in the production of sheet metal took place with the introduction of the rolling mill. The first known design of a rolling mill dates back to Leonardo da Vinci who, in 1480 depicted a material passing between two cylindrical rollers with parallel axes to modify its thickness.<sup>84</sup> This system was proposed by Leonardo da Vinci for the cold machining of ductile materials such as lead and tin rather than iron. However, there are reports of two rolling mills in the sixteenth-century: one used to obtain gold sheets with uniform thickness from which to draw coins, the second to cut

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<sup>83</sup> Biringuccio (1990), p. 372

<sup>84</sup> <http://www.metalworkingworldmagazine.com/a-short-sheet-metal-history/>. Accessed 15/02/15

already formed sheets into strips.<sup>85</sup> The first industrial plant in Britain to obtain sheet lead and tin was operational in 1615. Wales was the main continental producer of thin metal sheets until the end of 1700.<sup>86</sup>

For *repoussé* The surface upon which the sheet metal is placed is traditionally chaser's pitch which is usually a composition combining three substances: pure pitch, a *filler* (or stiffener), and an *emollient* (softening medium). The purpose of using pitch is to provide a solid base upon which to work on, whilst allowing the metal to be pushed out and shaped without obstruction. The pitch is best worked on a *pitch bowl* or "pitch board". The pitch bowl is a cast iron bowl which sits on a sandbag or on a rubber ring specifically made for the purpose. This allows for angling and greater stability and rotation. The pitch is heated to soften it because if the pitch is too hard, the metal will be thinned and if it is too soft, there is little control over the form. The sheet metal may vary from light cardboard thickness to perhaps 0.15cm. The initial lines on the metal are created using a "liner" punch with a very thin, slightly rounded end. The liner is hit on the end with a chasing hammer, pushing a thin line of metal into the pitch. The side facing up will consequently be the front of the piece. Once all the lines have been chased the metal is then turned over on the pitch and *repoussé* technique is then applied, using a variety of steel punches/tools to push the metal so that it is raised on the front of the finished piece. Once the design has been raised by *repoussé* the piece is inverted, and the voids are filled with warm pitch to help maintain its shape. The pitch is set in the voids to cool before the piece is turned over and placed back on the pitch. After the piece of metal is turned over and then chased, the details are refined and brought out. The design is worked many times with numerous tools before the final result is achieved. So, for example, to form an acanthus leaf, the outline of a flat pattern is cut out of sheet metal. The flat leaf is then beaten cold with a hammer on an anvil to give the general outline required and the indentations are encouraged to curl the sides of the leaf. The next operation is to form the anatomy of the leaf, which is done by beating up the ribs along the whole and along each part, and to give form and movement by developing the lines and

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<sup>85</sup> <http://www.metalworkingworldmagazine.com/a-short-sheet-metal-history/>. Accessed 15/02/15

<sup>86</sup> Ibid.

accentuating the modelling of the different parts. This is very delicate work requiring experience and dexterity rather than strength. The greater the thickness of the iron the more the need for heat in beating out the design from the back. In comparison, the thinner, higher quality more ductile metals, or the finer in scale the ornament, the more likely it is to be worked when cold or with moderate heat in parts. When decorative wrought iron motifs are thinned to extreme fineness, such as those inspired by French ornament, the delicate forms are apt to break if welded to the stouter ones; they are, therefore, soldered, pinned, riveted, or brazed onto the stems and scrolls. The success of any *repoussé* work depends almost entirely upon the skill of the craftsman executing it. A designer or architect may have the overall design worked out but the interpretation and creation remain uniquely the domain of the smith. There is an element of chance in the technique too because, rather like charcoal sketching, a fortuitous stroke can sometimes strike the most original note.

Perhaps three of the most innovatory practices that have not to date been considered in relation to the continental influence of designs and working practices upon English decorative wrought ironwork are first, the technique of moulding wrought iron over a solid wooden mould, secondly, moulding iron around or over a wooden mould which was then burnt out, such as at the Holy Roman Emperor Maximilian I's tomb (d.1519, tomb completed during the 1590's) now sited in the Hofkirche in Innsbruck. The spindle shaped spirals were created by shaping the round bar around a wooden peg which was afterwards burnt out. Thirdly, the rare yet important examples of iron pulpits across Europe which were constructed entirely around a wooden frame, with the iron applied in sheets and hammered to the wooden shape underneath, the design and carved process of which predated the silver furniture of the Louis XIV style.<sup>87</sup> Further examples of iron pulpits are located at Feldkirch, Vorarlberg, Austria (this example includes painted wooden figures)<sup>88</sup>. In Avila Cathedral, Spain, c.1520 (Plate 7), the pulpit frame is an oak core and tracery ironwork is built up over it in

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<sup>87</sup> Geerlings (1929), p. 84

<sup>88</sup> Zimell (1929), p. 39



successive layers with *repoussé* work.<sup>89</sup> This technique of applying an entirely embossed iron veneer to a moulded wooden core is evidenced in wrought ironwork from c.1400, at the Nuremberg door.<sup>90</sup> The coats-of-arms are those of the city of Nuremberg, the single-headed eagle of the German king and double-tailed lion of the king of Bohemia and they suggest that the door was made for a public building during the reign of Charles IV (r.1346-78) or Wencelas (r.1376-1400) both of whom were King of Germany and Bohemia. This reassuringly expensive effect ensured the viewer's perception of the object and also the benefactor.

From 1510 at Tarragona Cathedral, Spain survives a wooden door covered entirely in iron plate studded with decorative nailheads, a distinctive Spanish style derived from Moorish origins. Another rare example, dating from 1550-1600 and possibly from Milan, Italy (VAM: 176-1885), is evidence of the technique of using sheet iron over a wooden substrate with applied cast elements and hardstones. The iron has been inlaid and overlaid with gold and silver creating a rich and precious effect. Core structures of wood were also used in Renaissance architectural ironwork mouldings which demonstrate that the forms were carved in wood and then the iron moulded over the wood. At San Gil, Burgos, a hexagonal overhanging pulpit survives, dating from the late fifteenth-century, of French/Flemish design, with iron overlaid on a wooden frame.<sup>91</sup> A wrought iron gilt renaissance pulpit exists at Avila Cathedral, Spain incorporating a hexagonal gothic pulpit c.1520 just over 3M high, integrating the arms of the Cathedral surmounted by a crown. The frame is an oak core and the tracery ironwork is built up of successive layers of pierced plates riveted together and applied. The mouldings are backed with wood except the pedestal mouldings which are carved of solid iron.<sup>92</sup> This piece includes a broad range of techniques such as *repoussé* panels, assembled with joints and rivet heads accentuated (so it is not an attempt to appear as a solid carved pulpit).<sup>93</sup> Solid iron modelled figures serve as brackets

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<sup>89</sup> Geerlings (1929), pp. 84-85

<sup>90</sup> Campbell (2000), p. 40

<sup>91</sup> Geerlings (1929), pp. 65-66

<sup>92</sup> Geerlings (1929), p. 84

<sup>93</sup> Hispanic Society of America, *Spanish Ironwork* (New York, 1915), p. 43

with denticular courses. The surface is entirely gilt, thereby appearing as a gold pulpit. This is an important example of an early sixteenth-century pulpit constructed using a variety of metal techniques overlaying a wooden structure which predates the Louis XIV silver furniture (chased, engraved and/or cast) made in France in the 1670's. A late seventeenth-century pulpit exists at San Salvadore, Cortejana, Estremadura, built entirely of iron without a wooden framework and enriched with florid forms.<sup>94</sup> The ardent symbolism and massive strength of an indestructible iron pulpit can hardly pass without note. A similar technique is seen applied at Cuenca Cathedral in a *repoussé* sculptured iron music stand from the first half of the sixteenth-century, made in six distinct sections with elements of the decorative ornament highlighted by the use of red and white paint.

Of particular note is the Church of the Holy Cross in Warsaw, Poland which possesses an iron pulpit of late seventeenth/early eighteenth-century around an oak frame (possibly linden/lime tree), designed and executed by lay brother Mikolaj Tetar/Teter and Jakub Fontana and Johann George Pleisch and either gilt or silvered to represent precious metal.<sup>95</sup> These examples demonstrate the variety of ways in which iron was used as a veneer over wooden sub-strates since the fifteenth-century, utilising the techniques of *repoussé*, moulded forms (taking the shape from the carved wooden mould) and the embossed method and gilded to resemble solid gold or silver objects. Foreign metalworkers were trained in the use of a multitude of metals since the Renaissance and this may have included the production of both cast and wrought forms.<sup>96</sup> Silver was first used on a grand-scale of production for furniture designs since the 1660's when it was cast solid, chased and engraved and veneered to core structures of wood. Often combinations of these techniques were used. For cast elements in iron and silver, it suggests that carved wooden forms preceded those of metal. The evidence may suggest that these methods of casting work were more frequently used in the production of cast elements applied to wrought iron structures than we currently perceive. It is likely that designs were carved in wood and cast in iron.

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<sup>94</sup> Geerlings (1929), p. 69

<sup>95</sup> Wardzyński, M., *Church of the Holy Cross, Poland* (Warsaw, 1995), pp. 122

<sup>96</sup> Grancsay, S. V., "Ironwork, Lucio Piccinino, Master Armorer of the Renaissance", *Metropolitan Museum of Art Bulletin*, Vol. 22, No. 8 (1964)

## THE WORSHIPFUL COMPANY OF BLACKSMITHS, GUILDS, APPRENTICES & JOURNEYMEN

This section explores the power, objectives and aims of the Livery Companies alongside apprentice training methods and the status of blacksmiths. It explores the workings of the Worshipful Company of Blacksmiths and explains how “freedom” was achieved. Did Guild practices prohibit non-traditional methods of working? Or was innovation achieved by a combination of new skills and techniques that were introduced and enabled by foreign craftsmen whose training relied on the continental model of blacksmith apprenticeship? This section investigates the evolving organisation of workshop practices and the opportunity of outsourcing. What methods did blacksmiths use to facilitate the new designs? Most of the ancient trade guilds were dedicated to similar aims, such as the maintenance of standards of work, quality (as they saw it), and the relief of distress caused by sickness or misfortune to members.<sup>97</sup> The guilds were governed by strict rules of conduct and were effectively trade societies designed to reconcile the interests of three distinct groups – employer, workforce and consumers. The freedom to work and trade in the City, the true right of citizenship, could only be obtained through membership of a guild which, in turn, could only be acquired by birth from a Freeman father (patrimony), by purchase (redemption), or by apprenticeship to a Freeman. The Livery Companies and Guilds regulated the rates of pay and the admission of apprentices.<sup>98</sup>

By 1376 six ironworking guilds existed for smiths, ironmongers, cutlers, armourers, spurriers and lorimers. Foundry workers included moulders, founders and probably patternmakers. Qualified provincial craftsmen came to London to buy their freedom by apprenticeship and set up in business but restrictive measures against outsiders were introduced in the mid-fifteenth-century. There were frequent initiatives to improve standards such as the gradual introduction of makers’ marks. By the late fourteenth-century separate guilds were emerging for

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<sup>97</sup> Galinou (2004)

<sup>98</sup> Hey (2010)

carpenters, joiners, turners, coffer-makers yet it was not until a century or more later that charters formally recognised their rights and privileges. The guilds regulated admission to their craft, the numbers of apprentices and journeymen that a master could employ and powers to search out sub-standard workmanship. Aside from such regulation of relations between employer and employee, there existed most stringent rules governing those between the craftsman, his customers and the general public. An example was the interdiction for ironworkers to ply their craft by artificial light (methods of lighting, then confined to candles, lanterns and torches were considered insufficient to insure good quality workmanship). City Guilds were united against the competition of foreign craftsmen and therefore foreigners operated outside the control of the City companies. Under Charles II foundries were established in London at Southwark and Wandsworth. The ironmongers spilled from Ironmonger Lane into Old Jewry and Thames Street. In the Great Fire of London 1666, The Worshipful Company of Blacksmiths lost its Hall and all the leasehold property to the fire and the Company never recovered its former prosperity. It continued heavily in debt for many years. The dismissal of Wardens, Assistants, and Liverymen, as a result of the “Quo Warranto” against the Corporation of London by Charles II in 1683 (in which The King’s Bench adjudged the charter and franchises of the city of London to be forfeited to the Crown) perhaps created opportunities for foreign workmen in London.<sup>99</sup> The judgement was reversed by the Quo Warranto Judgement Reversed Act 1689. However, the unstable short term may explain the involvement of Tijou and other foreign, non-Livery Company craftsmen, in the provision of work for St Paul’s Cathedral and the royal palaces. The Worshipful Company of Blacksmiths received the fourth charter in 1685 and this heralded the beginnings of the great flow in English blacksmithing, encouraged by the rebuilding of London and plans for the fifty city churches.

Apprenticeship was the principle method of instructing craftsmen and the accepted way to enter livery companies. The apprenticeship system, set by statute, allowed Masters to take up to two apprentices for instruction for periods of seven to eight years. This was the typical combination of a master and a couple of

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<sup>99</sup> Hey (2010), pp. 59-60

journeymen or apprentices who were divided into three classes: the Fire-man (who forged the work with a small hammer); the Vice-Man (who filed and finished it); and the Hammer-man with the great hammer who struck by order of the Fire-Man.<sup>100</sup> The Fire-man was a skilled worker, yet it was the Vice-Man who received the highest wage, and the Hammer-man the least. The cost of apprentices varied depending upon the status and location of the blacksmith. The Blacksmiths' Orphans' Book, 1694-1747 shows that large numbers of poor boys who had lost their parents were apprenticed upon receipt of a premium paid for by the overseer of the poor of his parish.<sup>101</sup> In the year beginning 15 December 1694, 101 poor apprentices were bound at an average premium of £6 12s. 6d. Similar numbers entered the trade in succeeding years. In comparison, Edward Saunders has noted from the Register of Apprentices, 1710–1762, that the two apprentices bound to Richard Booth (blacksmith of the fine gates at Clarendon Building, Oxford c.1712-15) were charged at £70 for Joseph Seloonskoy, a Russian who had come to London to learn the trade, and £30 for Thomas Wharton in 1724. Whereas the smith Benjamin Taylor of Warwick charged less than £10 for apprentices.<sup>102</sup> The rates of apprenticeship depended on the stature of the Master and from this it can be surmised that Richard Booth was highly regarded whilst the status and rates for apprenticeship to regional smiths tended to be less.

A London training was preferred by most apprentices and regarded by patrons and peers as the best. During the years of training the apprentice hoped to be taught the Master's trade and also good workmanship. Apprentices assisted on commissions and as they progressed in ability and knowledge in the several branches of their learning, they were entrusted with more specialised tasks. Highly experienced blacksmiths worked on detailed decorative ironwork, whilst apprentices were trained in traditional methods of wrought iron construction. The best quality decorative ironwork is to be found where the viewer was at close quarters. A workshop might combine the skills of metalworkers such as a chaser, engraver, filer and *repoussé* worker. Many apprentices were permitted to measure

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<sup>100</sup> Campbell, R., *The London Tradesman* (London, 1747)

<sup>101</sup> The Worshipful Company of Blacksmiths's records held at Guildhall Library, London, Ref. Code GB 0074 CLC/L/BD

<sup>102</sup> Saunders (2005), p. 268

work, make out accounts and sign receipts against payments made from patrons to their masters. When the apprenticeship had been completed, sample work was presented and examined by representatives of the Livery Company. Then at three successive meetings the apprentice was “called” and if no-one objected to his election, he was sworn in as a member of the Guild. At the end of the training, some apprentices stayed in their Master’s service as journeymen or were employed by other Masters and a few set up as Masters themselves. In this way, traditional methods and techniques were passed from one generation to the next. All members of the Guild were Freemen of London, an important status, as only freemen of the City could hold property therein and Guild members had a monopoly of their craft within the limits of the City of London and increasingly their impact was felt beyond the city walls. This prevented unlimited competition from foreigners and helped to keep wages and working conditions steady in unstable times. In addition, when apprentices or journeymen assisted their Master on a sizeable project, such as at St Paul’s Cathedral, they came into contact with other blacksmiths and craftsmen with whom they exchanged and learnt new ideas (such as Robert Bakewell, who is believed to have learnt the *repoussé* technique whilst an apprentice at St Paul’s Cathedral).<sup>103</sup> A specific result of this was that Bakewell utilised this technique liberally in future commissions including those for Thomas Coke at Melbourne Hall, Derbyshire (see chapter 4). Similarly, when London smiths worked in regional locations, they influenced the work of local blacksmiths such as John Gardom, the estate blacksmith at Chatsworth. Gardom’s apprenticeship was probably with a local smith in Derbyshire around 1678. He later became the estate smith at Chatsworth undertaking unspecified general smith work relating to the buildings, shoeing oxen, and possibly extending to locks, clocks and guns. Gardom was trained in the design and manufacture of French style smithwork by Tijou and his French smith assistants (Raget and Chalet) and the French brass worker Savouret.<sup>104</sup> Whilst Gardom’s work displays a confident handling of traditional blacksmithing skills he learnt to forge designs inspired by the French tradition when working to Tijou’s compositions drawn to scale on pattern boards.<sup>105</sup> However, Gardom’s influence upon the work of other English

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<sup>103</sup> Dunkerley (1988), p. 13

<sup>104</sup> Saunders (2005), p. 289

<sup>105</sup> Ibid. p. 354

smiths of the period was fairly limited due to the isolated geographic location of his work, for it was only local smiths or guests of Chatsworth that had the opportunity to view his work.

In this confined and regulated environment, the wealth, power and prestige of the livery companies grew. Expulsion from a Guild for any reason (usually monetary problems, sharp practice, or failure to maintain work standards) meant that the culprit was deprived of his ability to attract new work and forced to remove himself to a location where tradesmen could work outside the jurisdiction of their former Guild. From these early beginnings in the mid-fourteenth-century, a close relationship arose between the Crown and the Livery Companies. 'Charters' were granted to certain Guilds which not only provided the monarchy with huge revenues but also assured the King of the support of the entire commercial class represented by the Guilds. The economic importance of the numerous livery companies to the growth of the City of London and the Crown was significant partly because monarchs relied upon taxation of trades and professions to finance foreign wars. The monarchy was thereby dependent upon the success, promotion and growth of these organisations which was reflected in the frequency and number of royal charters and other benefits bestowed upon them. The relationship saw the rise of the political and economic power of the City of London. The new eminence and prestige of the guilds occasioned a change in their nature. They began to adopt distinctive gowns and hoods known as "Livery", and to be known generally as livery companies. When the Crown appointed Master blacksmiths and other Master craftsmen, it seemed logical to select the best from the livery companies. In England, Master Blacksmiths were employed by the Crown to work upon the royal palaces and traditionally they were responsible for all iron building/construction work relating to the Royal Works for which they supplied bolts, cramps and ties. However, the appointment of Master Blacksmiths did not prohibit the employment of foreign craftsmen, regardless of whether the job was for the Crown or civic, public buildings, as loopholes to employment of foreigners were facilitated by the Master of the Wardrobe, which permitted foreign craftsmen to work on royal commissions, regardless of their livery status. Foreign craftsmen were permitted to work outside the jurisdiction of the City guilds, for example, in Westminster, Southwark or Blackfriars. Edward Saunders has found

evidence that London craftsmen (English and immigrants) tended to live near each other, generally the east end and the west end and he notes that one such colony was around Hyde Park Corner, where in one terrace, Portugal Row, the rate books indicate the residences of the smiths: Jean Tijou, Thomas Robinson, and Thomas Goff, the sculptors John van Nost and Andries Carpentière and the painter, Louis Laguerre.<sup>106</sup> The close proximity is likely to have encouraged an exchange of new ideas and exposure to the latest decorative designs amongst craftsmen working in a broad range of materials. It may also have enabled the contracting-out of work when specialist skills were required or during busy workshop periods.

Artist-blacksmiths who worked for the Crown and court circle such as Tijou, were highly esteemed and had a status not representative of most blacksmiths. Status was reflected partly on earnings, wages and capitalization and partly on customer-base (high or low profile and scale, prominence and budget of commissions) and the relative cleanliness of the work, or the perceived artistic talent required. Most craftsmen of the age received a fixed price by project rather than an hourly wage. The capital outlay on forge and materials costs (calculated on the weight of iron) are the largest of all trades and this was reflected in the final prices which seem, at first glance, more expensive than other trades. Prices for decorative ironwork are referred to throughout the thesis and the evidence suggests that London blacksmiths were paid more per foot than regional blacksmiths, that smiths who were apprenticed or worked in London commanded higher prices than regional smiths and that renowned blacksmiths such as Jean Tijou were charging at least twice the price of other smiths which suggests that if smiths were in demand, then they could set their own charges.<sup>107</sup> Whilst a comparison of prices paid for work by different smiths provides an outline of the scale of fees, the method is useful in concept though imperfect in detail due to the designs and dimensions being rarely similar or comparable. The Office of Works encouraged an amount of competitive tender (in order to keep prices reasonable) and often employed contractors. Six Master Blacksmiths were appointed by the Crown from 1660-1716 and yet Tijou was still enlisted over and above them to create the Fountain Garden Screen and

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<sup>106</sup> Saunders, E., "Mr Warren and the Wrought Iron Gates at Clandon and Powis", *National Trust Studies* (1979), p. 66

<sup>107</sup> Ayrton and Silcock (1929), p. 119



employed for twenty years on significant work at St Paul's Cathedral. The office of Master Blacksmith was abolished in 1716.

It is significant to note that the major advances in ironwork designs during the period were effected by non-traditional blacksmithing techniques. Such developments were unlikely to have been encouraged by the British Guild background of training which singularly promoted traditional methods which it regarded as "quality". This suggests that during the period, new ideas and production methods issued from craftsmen outside the realms of the London City Guilds. Dr Tessa Murdoch has noted that French artists acquired professional status over a hundred years before the British and that British artistic achievements were raised by the high standard of Huguenot skills.<sup>108</sup> The influence of foreign craftsmen is also a significant illustration of the dwindling power of livery companies towards the end of this period.

## THE COMMISSION: FROM CONTRACT TO PAYMENT

This section discusses how commissions were orchestrated, by whom, and the level of intervention, in terms of design and production by the various parties involved. Workshop practices and the process of contracting-out are considered and together they demonstrate the variety of diverse ways in which the parts became a unified whole.

Blacksmiths were commissioned by patrons of royal, aristocratic and ecclesiastic derivation, by Master Masons and increasingly by the rising merchant class and the new breed of architect. Charles McKean examined the perception of architect to develop our understanding of its definition and use. He described an architect as someone who had the skill to visualize an idea in three dimensions, sketch it out, and supervise the building works.<sup>109</sup> Whilst the position of the architect was of increasing importance, the notion of related responsibilities was still evolving

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<sup>108</sup> Murdoch (Unpublished PhD Thesis, 1982), p. 1

<sup>109</sup> McKean, C., *The Scottish Chateau* (Stroud, 2001), pp. 267-275

and so too was the commissioning process and the architect's level of intervention in the design of crafts. Prior to the mid-seventeenth-century, it had been standard practice for smiths to provide their own designs yet as unified designs were increasingly desirable, architects or Master Masons originated the designs.<sup>110</sup> An example of which was John Webb who provided precise drawings for craftsmen, such as the plasterwork cornice and alcove detailing for King Charles's block at Greenwich, London.<sup>111</sup> It was not uncommon for responsibilities of design, production and installation to be carried out by several different artisans. Some patrons preferred to be more prescriptive about the outcome of projects. For example, in a letter from Lady Dysart to Sir William Bruce, from Ham House on 17th April 1671, she refers to "... the draft of the gate I sent you...".<sup>112</sup> There is also discussion about whether to "... make the Irongate here or in Scotland...". In this instance, it appears that Lady Dysart was the originator of the design for the gates at Ham House and Sir William was the facilitator, who contracted-out the work. The question as to whether to make the gates in London or Scotland is of interest because it suggests that heavy ironwork might be made in Scotland and transported to England. which demonstrates that the cost of making the iron gates in Scotland was more economic than making the same in England, or that the cost of carriage by sea transportation was proportionately negligible, or that the choice was not entirely based upon the quality of work due to the relative simplicity of design. Certainly, the large number of iron producing plants throughout Scotland and the transfer of iron as a ballast material from Sweden to Scotland within the period, might indicate that the economies of ironworking in Scotland were more efficient than in England. Swedish iron was renowned for its purity and high quality. Fewer impurities resulted in less corrosion and a longer lifespan. The transportation of goods and workmen across the country to fulfil specialist building projects is alluded to in correspondence from the Duke of Lauderdale to Sir William Bruce from Whitehall, 3<sup>rd</sup> April 1673 "... for I have agreed with two Dutch men, who are excellent joiners, and have made all my shapies and lyneings

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<sup>110</sup> Howard, D., *Scottish Architecture from the Reformation to the Restoration* (Edinburgh, 1995), p. 213

<sup>111</sup> Saumarez Smith, C., *Eighteenth-century Decoration* (London, 1993), p. 12

<sup>112</sup> Mylne, R. S., *Master Masons to the Crown of Scotland* (Edinburgh, 1893), p. 168

of my rooms at Ham, to goe down, and it maybe they will carry with them a Dutch painter with paterns...”.<sup>113</sup> Even for less specialist projects, Lauderdale refers to sending two German joiners from Ham where they were employed in order to make windows and cabinets at Thirlestane, near Lauder in the Borders of Scotland. He writes from Ham House on 15<sup>th</sup> April 1673 of sending them “...by Sea to New Castle ...” and where “...John Cockburn shall dispatch them to Thirlestane Castle by land”.<sup>114</sup> The exposure to foreign ideas via commissions from a variety of geographically isolated patrons is evidenced by, for example, Pierre Berchet, who began work for Louis XIV in the late 1670’s, came to England in 1682/83, returned to France to decorate Marly, back to England after 1685, worked at Het Loo in the 1690’s and ended up as one of the competitors for work at St Paul’s.<sup>115</sup> It is likely that itinerant craftsmen fuelled the cross-fertilisation of design ideas and disseminated these where they travelled.

Sometimes a patron would arrange for a provincial craftsman to copy a design that had originated or been seen in London in order to produce it less expensively. The ironwork at Magdalen College, Oxford may be the result of such a practice. If it is a copy of the design from Jean Tijou’s *A New Booke of Drawings*, 1693, then it is a very close and successful rendering of the intended style, though the scale is reinterpreted from the original proportion of the printed page, to fit the dimensions of the gate opening.<sup>116</sup> Flemish influence is displayed in the design of the overthrow which incorporates a naturalistic delicacy in the jonquils (a narcissus/daffodil flower native to Spain and Portugal yet now naturalised in many regions) and is forged from round bar, the preferred material in the Low Countries.

The means of determining the general aesthetic of an ironwork depended on a combination of aspects, such as the design sense and knowledge of the patron, experience and skill of the blacksmith, the budget, and the type and level of quality of iron available. Design inspiration could be derived from ornament

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<sup>113</sup> Mylne, R. S., *Crown Masons to Scotland* (Edinburgh, 1893), pp. 184-185

<sup>114</sup> *Ibid.*, p. 186

<sup>115</sup> Baarsen and Cooper-Hewitt Museum (1988), p. 39

<sup>116</sup> Tijou (1693), Plate 7

prints or pattern books, recalled from memory or sketched first-hand, or it could have been fuelled entirely by the imagination. Secondly, pattern books could be used to select a design of the patron's taste or thirdly, the blacksmith could suggest ideas. On receipt of the drawing (if issued by patron or architect), an estimate was provided. The blacksmith would know, at a glance, whether the designer had a knowledge of the smith's working methods and the practical limitations of forging iron. However, it was in the "interpretation" of a design, that the personality and skill of the individual smith came forth. The immediacy with which blacksmiths worked, in the heat and glare of the forge, often meant that detailed decisions of design needed to be made rapidly. A visit by the patron to a smithy was optional, but as interest in aesthetics increased during the period and the vogue for impressive wrought ironwork grew, the stature of ironwork arose and visits became more common. Provenance mattered to connoisseurs who sought undiluted authenticity. There was a distinction associated with patrons who purchased work direct from the artist rather than through the services of an intermediary.<sup>117</sup> Plate 8 depicts a blacksmiths's workshop of the eighteenth-century, Saint Aubin's design for the shop of M. Perier, 1767.

Design briefs were communicated in several ways. A limited number of rare original design drawings for wrought ironwork survive and these provide important clues to understanding the practice of commissioning wrought ironwork. Several of Hawksmoor's drawings exist for ironwork at St Paul's Cathedral, such as WRE/4/1/17, which indicates that Wren's project team conceived ideas for ironwork about the Cathedral yet the designs are not known to have been produced. This suggests that blacksmiths employed at St Paul's were, to a fairly high degree, responsible for their own designs.

The only known drawing attributed to Tijou, by VAM's identification, was found amongst H M Colvin's papers now located at the Department of Prints and Drawings at the Victoria and Albert Museum.<sup>118</sup> It depicts the capital of an iron

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<sup>117</sup> Jacobsen (2009), p. 313

<sup>118</sup> <https://www.architecture.com/image-library/RIBApix/image-information/poster/drawing-of-an-iron-capital-made-for-the-house-of-commons-palace-of-westminster-london/posterid/RIBA39619.html>. Accessed 29/01/16

column intended for the House of Commons (Plate 9). Research by the museum for “The History of the King’s Works” exhibition in the 1970’s revealed the true story behind the column. Sir Christopher Wren introduced galleries into the House of Commons when expanding its capacity in 1692 and Tijou designed the supporting columns and capitals on either side of the entry to the chamber.<sup>119</sup> In 1706-7, after the Acts of Union, there was an influx of Scottish members of Parliament and Wren added later galleries to the House of Commons around 1707 to accommodate them. The larger galleries were supported on iron columns but the capitals were in wood and the accounts make it clear that they were supplied by Grinling Gibbons. Harris assumed that Gibbons was following an engraved pattern made by Tijou 15 years before, not realising that Tijou had supplied two columns and capitals to flank the entrance to the Commons.<sup>120</sup> The choice of wood capitals instead of iron may have been an economic decision, wood being less expensive than iron. Neither iron nor wooden capitals survive at the Palace of Westminster due to the fire of 1834. The design could be a preparatory drawing for the engraving in Tijou’s *A New Booke of Drawings*, (Tijou’s plate reference 13) (Plate 10). The design focuses upon the decorative capital rather than any detail of the column. My research has identified another such column which exists, in singular, at Lord Coke’s Melbourne House, Derbyshire and Saunders notes two further examples for “standard irons to bear up ye gallery” at St Alphege, Greenwich, dating from 1716 and at St Paul’s Deptford from 1717.<sup>121</sup> The question is whether the columns were cast and the decorative capital forged or was the whole wrought? The importance of the use of this combination of metals for practical purposes is whether cast and wrought metals were generic in the smith’s trade during this period. The first depiction of cast and wrought iron in ornament prints appears in D’Aviler’s prints of 1691 (Plate 11), which illustrated the benefits and artistic possibilities of both mediums. Whilst these techniques and mediums were newly depicted in prints, the Romans had used lead casting techniques to construct pipes for water in several standard lengths and diameters,

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<sup>119</sup> <https://www.architecture.com/image-library/RIBApix/image-information/poster/drawing-of-an-iron-capital-made-for-the-house-of-commons-palace-of-westminster-london/posterid/RIBA39619.html>. Accessed 29/01/16

<sup>120</sup> Harris, J., “Cast Iron Columns (1706)”, *Architectural Review*, Vol. 130 (1961), pp. 60-61

<sup>121</sup> Saunders (2005), pp. 342-343

recorded by Sextus Julius Frontinus, Water Commissioner of the City of Rome and corinthian capitals created from wrought iron surmounting pilasters cased in iron have been identified in the Reja of the Royal Chapel, Granada, dating from 1518-23 (Plate 12).<sup>122</sup>

Dunbar's study relating to the organisation of the building industry in Scotland during the seventeenth-century outlines the move towards a contract versus day rate system which, although not standardised, had become the accepted method for organising building operations.<sup>123</sup> A common difficulty arising from fixed price contracts was inaccurate costing by smiths. This may have been partly due to the way in which ironwork was priced. It was usual practice to pay for ironwork by weight (not solely by dimensions and design).<sup>124</sup> Upon receipt of completed wrought iron goods, it was customary to weigh the iron and if it agreed with the weight estimated in the quotation, then the smith would be paid. An example of this is noted by Edward Saunders amongst the archives of Stowe House which refers to a letter from Sir Richard Temple (of Stowe) to his steward, Mr Claridge, dated 12<sup>th</sup> March 1711. It notes that "When Mr. John Montigny brings down the ironwork I desire you will see it weighed and having computed the weight at 10d. a lb., pay him what it amounts to deducting £10 paid to him in London".<sup>125</sup> Another example of payment by weight is noted for the balcony to the Guildhall, London.<sup>126</sup> In comparison, founders who created cast metals could calculate the weight and thicknesses of objects to derive exact results thereby enabling a more reliable and precise quotation process.<sup>127</sup> The design and execution of wrought iron objects therefore relied upon accurate budgeting of materials and time. The designs, whether derived from ornament prints or pattern books, did not specify a weight for each design and, particularly during this period of highly decorative work, the calculation of a finished price by smiths who were

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<sup>122</sup> Hispanic Society of America (1915), Fig. 25; <http://www.waterhistory.org/histories/frontinus/>. Accessed 28/04/16

<sup>123</sup> Dunbar, J. G., and Davies, K. (eds), "Some Late Seventeenth-century Building Contracts", *Scottish History Society, Miscellany XI* (Edinburgh, 1990), pp. 315-6; Airs, M., *The Tudor and Jacobean Country House: The Building History* (Stroud, 1998)

<sup>124</sup> Saunders (2005), p. 293

<sup>125</sup> Ibid., p. 316

<sup>126</sup> Ibid., p. 334

<sup>127</sup> Hadley, G., *Citizens and Founders* (London, 1976), p. 170

inexperienced in forming new, highly decorative compositions is likely to have been problematic. There are several examples that exist, such as the staircase at Craigiehall, Midlothian, Scotland, in which the detail of heavily florid, decorative iron details diminishes drastically towards the upper end of the project which might suggest that a smith had either run out of time or budget, or perhaps both.

Contracts took the form of verbal and written agreements, the details of which were noted by letter (Appendix IV). If the blacksmith originated the design, there were a variety of ways in which blacksmiths presented designs to patrons for approval and they may be summarised by the following methods. A smith might appear before a patron or public authority/board with visual presentations of their proposals. An example of which is Walker (fl. 1684-85) a London smith, who appeared before the Christ's Hospital Committee on 8<sup>th</sup> May 1685 with a "draught made by him... for a Gateway and wall leading to the Tabernacle of Christ Church". £5 was allowed for this by the Committee.<sup>128</sup> The draft was agreed and located at Sir Christopher Wren's Christ's Hospital, Newgate Street, London. Clues to Tijou's methods of working are provided by a payment to Charles Hopson in 1696 for "Time spent on gluing of boards for Mr. Tijoue to draw ye Iron Screen upon". From this Edward Saunders has concluded that whilst Wren may have dictated the dimensions and scale of wrought ironwork, the detailed designs were left to Tijou.<sup>129</sup> Similar methods were employed by Richard Philpot (fl. 1700-11), responsible for the decorative ironwork such as the balustrade leading to the front door at Burley-on-the-Hill, Rutland. "Mr Philpot of Oakham... according to ye patern wch he brought this day (22 November 1700)".<sup>130</sup> The estimate was accompanied by a pencil sketch of the iron bars and rails. In connection with Great Park House, Ampthill, Bedfordshire, built for the 1<sup>st</sup> Lord Ashburnham with plans by John Lumley of Harlestone, Northamptonshire dating from 1704-5, there is a letter dated June 1706 from Ashburnham to Brian Fairfax which notes "it will be necessary to speake with Tissue, the french worker of iron, near Hide Park & know of him his rates for

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<sup>128</sup> Wren Society, *Volume XI* (1934), p. 71

<sup>129</sup> Saunders (2005), p. 354

<sup>130</sup> Saunders (2005), pp. 334, 329

ironwork in gates and balusters of iron, for I desire to employ him if he will be reasonable, and would willingly see some of his drawings for gates and balusters”. The last reference to this work is dated 8<sup>th</sup> November 1712: “P’d Mrs. Tijou in full for the iron rails and balusters for the staircase made by her husband, £109”.<sup>131</sup> The payment to Mrs Tijou in 1712 suggests that Jean Tijou was not available to collect the payment himself. This coincides with his absence from England and possible return to France.

If a workshop was too busy, or had run out of material or simply did not have the skills to undertake the new designs, then it was common practice to subcontract work out. Whilst metalworkers shared a similar range of skills, some specialised in specific techniques and types of objects. This division of labour was encouraged by the demands for increasingly decorative effects. In a workshop of several people, individuals could possess unique skills that they alone performed. The process of sub-contracting was not always a happy one, as referred to in a disgruntled note from the Duchess of Marlborough who complained to her counsel after the death of the blacksmith John Silver (d.1719), that he had subcontracted the work in the Queen’s time to make an iron rail for £3 a yard, agreed with Vanbrugh to finish at £2 5s a yard and finally, “when assured that Sir John was turned off”, signed another contract to do it for £1 18s.<sup>132</sup> Silver had sub-contracted the smithing work in part to Elizabeth and Valentine Bennett who had their forge in the ruins of Woodstock Manor in the grounds of the Marlboroughs’ estate at Blenheim Palace, Oxfordshire.

## IRON STAMPS

It was Karl Gustaf Hildebrand’s book entitled *Swedish Iron in the Seventeenth and Eighteenth Centuries* which brought my attention to iron stamps of the period. It noted that “Swedish iron was used in the frames of several turret clocks in Oxfordshire, which were constructed from bars of iron which carry Swedish stamps”.<sup>133</sup> So far, the study of iron stamps has been largely ignored, probably due

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<sup>131</sup> Saunders (2005), p. 356

<sup>132</sup> Ibid., p. 246

<sup>133</sup> Hildebrand (1992), p. 81



to the stamps being difficult to identify when heavily covered by paint. Even when the paint is removed the marks are problematic to decipher. Equally, there is little available comparative data because those who have uncovered the stamps, such as blacksmiths and restorers, have tended not to publish their findings. The study of iron stamps offers a potentially valuable tool in the dating of decorative ironwork, if used in tandem with other evidence. It may also uncover a broader understanding of trade routes, commerce, and the exchange of new ideas, aesthetic and ideological tracks. Foundry stamps are most frequently found on iron bars. They were used in three main ways: by the supplier of iron to denote the commercial source by branding, by the authorities, to denote the quality of iron product and very occasionally, they were used by the smith as a “signature”. Hollister-Short refers to an iron stamp found in two ironworks (denoting a “W” with a dot centrally located beneath it) which he suggests is Warren’s mark (Plate 13), uncovered during restoration of the gates to Clare College, Cambridge and to Powis Castle.<sup>134</sup> Ayrton & Silcock have noted an iron mark with the initials “RB” (Plate 13), discovered during restoration on a bar of the gates of the old Derby Silk Mill and which they have suggested is the stamp of Robert Bakewell.<sup>135</sup> In search of further iron stamps, my research has accessed unpublished records and a report commissioned by Historic Royal Palaces, from Adam Watróbski, in connection with the 1997 restoration of Hampton Court Palace Fountain Garden screens.<sup>136</sup> 64 stamps were uncovered and recorded. During the study covering a period of fourteen months, ten iron stamps of Swedish origin were identified. The outlines of these stamps have been traced and included (Plates 14-16). 54 stamps remained unidentified but were believed by Watróbski to also be of Swedish origin. These are traced and included (Plates 17-18). A summary of the unidentified stamps was circulated with correspondence to nineteen BABA accredited English blacksmiths and restorers of seventeenth- and eighteenth-century wrought ironwork in order to gather further information about the origins, frequency and use of ironwork stamps. All of the smiths who had seen these types

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<sup>134</sup> Hollister-Short (1970), p. 62

<sup>135</sup> Ayrton and Silcock (1929), pp. 131, 140

<sup>136</sup> Watróbski, A., *Ironstamps*, Research Report commissioned by Historic Royal Palaces (London, 1997); Hampton Court Palace, Site Visit and Meeting with Ms Suzanne Groom, 16/6/12

of stamps understood them to be mill stamps which were provided from iron-producing sites. Several smiths returned copies of rubbings from stamps collected during restoration and are illustrated on Plates 19-20. X-radiography can also locate iron stamps which if identified in groups would be of significant importance to our understanding the iron trade and its commercial organisation.<sup>137</sup> Whilst few records exist of the historic use of iron stamps within the iron industry during this early period of its evolution. Watróbski has noted that the Swedish iron industry is better recorded than others due to regulatory authorities being in control of exports from the seventeenth-century onwards. At a meeting of the Swedish parliament in 1604, it was resolved that all towns should appoint official iron controllers, an obligation which mostly applied to the ports of export. The increasing export trade introduced a greater need for quality control and a system was founded of universally recognisable identifications. The marks were stamped onto the bar-iron during forging and were used as a rapid means of identification by the export authorities. Branding created a means to establish reputations of the more successful producers and therefore may have helped increase market share. In Sweden, controls had existed from medieval times to ensure that all iron was checked and weighed before sale. Prior to export from Sweden, a sample of iron bar was bent into a semi-circle and, if it fractured, it was *vragt* (discarded) and could not be sold. Russian bars were tested by hammering on an anvil, which similarly tested the ductility of the iron and thus the material's quality could be ascertained as a measure of its fitness for purpose and export. A system of fines was in operation to penalise anyone found selling inferior quality material. All Swedish stamps were registered and compiled in stamp books, the oldest of which is still in existence dating from 1711, and held in Sweden by Jarnvrakereit, yet many older Swedish stamps will have existed dating from the 1637 regulations. Similarly, there are many stamps that only appeared for a short time in the records, reflecting the fluctuating fortunes of iron producers during this period of dynamic, technological change. The majority of the stamps on iron for export represent estates with high rates of production (approx. 267 tons and over), whereas many Swedish iron estates were small and supplied iron for local demand

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<sup>137</sup> Scott, B. G., "Both A Note on the Application of X-Radiography in the Conservation and Study of Archaeological Ironwork", *Irish Archaeological Research Forum*, Vol. 3, No. 1 (1976), p. 7

rather than for export purposes and this may be the primary reason why many stamps from Sweden remain unidentified because they derive from small iron producers who were not exporters and were therefore not subject to the same branding process. .<sup>138</sup> Watróbski's interpretation of the ten stamps confirmed the use of exported iron from particular geographic sources and the precise origin and nature of the material.

The operating periods of forges producing iron for export tended to be long and, as transport, shipping and distribution were relatively slow, so the date of production and date of usage may be some way apart. However, if the dates of these stamps were used in conjunction with additional information, such as metallurgical testing and paint analysis, the combined information may contribute to a more comprehensive understanding of the iron trade, the distribution of metals and the corresponding dates.

## METALLURGICAL TESTING

This section explores the metallurgical evidence to support the conjecture that most of the highly decorative ironwork of the period that we currently perceive and classify as "wrought iron" is in fact a mixture of cast iron (the highly sculptural, three-dimensional elements) and forged iron (the scrollwork and structural elements). This section builds upon the research under "*Repoussé*, Mouldmaking and the Importance of Iron Pulpits".

Simulation of expensive metals occurred as early as the mid-twelfth-century when church ornaments and liturgical possessions came to be made of silver-gilt or copper gilt, probably for reasons of economy, whereas in the tenth and eleventh-century religious objects had been made from solid gold such as the Gertrudis portable altar and crosses of mid-eleventh-century.<sup>139</sup> Since medieval times artists have simulated precious materials with common ones, by changing the rigid and coarse into the plastic and delicate, and the reverse.<sup>140</sup> The Stuart court's desire for

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<sup>138</sup> Watróbski (1997)

<sup>139</sup> Milliken, W. M., "The Art of the Goldsmith", *The Journal of Aesthetics and Art Criticism*, Vol. 6, No. 4 (1948), pp. 311-322

<sup>140</sup> Hoffeld (1969), pp. 161-173

opulence enticed the simulation of a range of precious materials across the arts, not least metal that was gilt to represent gold.

During Charles II's reign, the new fashion and emphasis on display created new forms for silver and gold such as: the large quantity of ceremonial and decorative plate made for Sir Robert Vyner's coronation as mayor of London; the church ordered communion plate and ceremonial wares for the altar; the livery companies of the City of London ordered loving cups and other plate to demonstrate their wealth. Only the richest nobles could possess these items in solid silver or gold and they were considered a reliable investment. Ordinarily such objects were made in brass or copper.<sup>141</sup> An economic boom accompanied the formation of the joint stock companies in the 1690s and early 1700s and many of the landowners who benefited invested the extra capital they earned in silver. Silverware of the period far exceeded anything created before or since, most of which, during the late Stuart period showed marked Dutch influence, illustrated by the frequent use of tulips, anemones, acanthus leaves, fruit, animals and amorini, all embossed in bold relief or finely engraved. The techniques of embossing, chasing, engraving and casting were increasingly used to create the most ostentatious, expensive silver furniture which was either cast solid silver or entirely veneered by it. Commenting upon the abundance of silverplate, John Evelyn when visiting the Duchess of Portsmouth (Charles II's French mistress, Louise de Kerouaille) in 1683, was amazed by the "huge Vasas of wrought plate, Tables, Stands, Chimny furniture, Sconces, branches, Braseras &c they were all of massive silver & without number".<sup>142</sup> The Royal Collection, curator of Her Majesty's art collections, has noted that in some rare cases gilded wooden surfaces suggested an attempt to simulate the decorative effect of gilded metal.<sup>143</sup> During this era designs were being created in a variety of diverse materials to effect more expensive media, such as the gigantic carved wooden escutcheon at Holme Lacey with 14 foot swags either side, created in oak (rather than stone) by Grinling

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<sup>141</sup> Starkie Gardner, J., "Silver Plate at Belvoir Castle. Part II (Conclusion)", *The Burlington Magazine for Connoisseurs*, Vol. 9, No. 37 (1906), pp. 30-31, 33-35, 37

<sup>142</sup> Baarsen and Cooper-Hewitt Museum (1988), p. 55

<sup>143</sup> <https://www.royalcollection.org.uk/collection/search#/1/collection/1031/side-table>. Accessed 12/01/15

Gibbons, preserved at Kentchurch Court.<sup>144</sup> An integral part of these achievements was the careful assemblage of numbers of extremely delicate carved parts.

The period under study witnessed dramatic technical developments in metal production and refining which created new metal alloys resulting in purer and more consistent supplies of metal which could be applied to a diverse range of new forms of production. In 1540 Biringuccio, the sixteenth-century metallurgist, visited Milan and noted a shop where eight masters were working on brass castings, creating moulds for small objects using lute. The patterns were of tin and some of brass, accurately made, filed and well finished. The process is described and provides evidence of the methods of early brass casting.<sup>145</sup>

Descriptions of mould-making using plaster of Paris are explained and related to leafwork, scenes in bas-relief and medallion portraits.<sup>146</sup> The first description of brass making in English was in a translation of Neri, *The Art of Glass* (London, 1662), in the notes by Dr Merrett. Those that followed were by Galon (1764) and Diderot (1751-2).<sup>147</sup> An ornament print of Charles-Augustin D'Aviler dating from 1691 (Plate 11) is the first to identify the use of different metals in a printed format (cast iron, “*fer fondu*” and wrought iron) for different visual and practical purposes. This identification marks an important turning point in the development of decorative metalwork. Both cast and wrought iron were being recognised for their distinct characteristics and, if a design dictated, then both forms of production were being simultaneously employed. Cast iron was cheaper than wrought iron and economies of scale, made possible by the production of large numbers of multiples from a single mould, could be significant. Abraham Darby I introduced smelting iron ore with coke in 1709 and also the technique of true green sand-moulding in boxes which enabled thinner castings than had previously been formed. In 1722 Réamur (1683-1757), a French foundryman, published a book on making cast iron malleable in which small cast iron objects were formed

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<sup>144</sup> Esterly (1998), p. 74

<sup>145</sup> Biringuccio (1990), p. 73

<sup>146</sup> Biringuccio (1990), pp. 330-331

<sup>147</sup> Ibid., p. 71

by the use of moulding boxes.<sup>148</sup> By this date Réamur had originated a malleable cast iron which satisfied the need for an iron that can be cast and bent.<sup>149</sup> By January 1727, the widespread use of mixed metals in conjunction with wrought iron sub-structures is referred to in the *Journal de Verdun*: “Whereas ordinary balconies have only added ornaments of wrought iron, embossed sheet iron or brass, the new cast iron balconies are made in one piece and are enriched with anything of which a wooden sculpture can be made: animal figures, festoons, flowers; and those superb balconies cost less in iron than they would cost in wood”.<sup>150</sup> Publications such as this distributed knowledge of casting techniques.

The new creative vision resulted in a considerable methodological and technological revolution. Unified designs prevailed following the precepts of classical architectural theory emerging in Italy from around 1570. The latest artistic styles were depicted in ornament prints with the first dating from the fifteenth-century. The fashionable design motifs were applied to ironwork and the smith was obliged to look beyond their traditional skillset to the inspiration of other metalworkers and craftsmen to inspire new methods and processes and to exploit newly available metal alloys in the quest to create the most desirable and fashionable motifs of the time. Patterns increasingly suited production methods using molten, more malleable substances such as cast iron. In the seventeenth-and eighteenth-centuries, workshops tended to gather in collaborative groupings and these locations encouraged multi-disciplinary cross-fertilisation of ideas to resolve the practicalities of designing and making objects. The main purpose of metallurgical testing for this study is to identify if different types of metal/collaborations occurred and, if so, with what frequency and combinations.

Examples of the use of different metals can be proved with a magnet. Cast and wrought iron will both effect a “pull” of varying strengths (which can be felt without the need to touch the object) and copper, brass and a variety of other metal alloys will not attract a magnet. That is to say that the ferrous (iron) content of objects can be tested by this simple means. X-radiography and other metal-

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<sup>148</sup> Hadley (1976), p. 171

<sup>149</sup> Ibid., p. 173

<sup>150</sup> Robertson, E. G., and Robertson, J., *Cast Iron Decoration* (London, 1977), p. 32

testing techniques enable more detailed outcomes relating to the identification of specific alloys.

Appendix V outlines the chemical properties and benefits and disadvantages of different metal types in relation to the creative opportunities for casting, chiselling, *repoussé*, carving. Exterior wrought iron was usually painted and gilded in parts. The uniformity of a painted colour blends the assemblage of parts (similar, in concept, to bird's eye-views, in presenting a unified vision of creation that defies the piecemeal reality of the process of commissioning). The increasing preference for painted surfaces therefore provided an opportunity to use a variety of metals to achieve different effects. The benefits of this are twofold, aesthetics and economy. The visual impact from high-relief, fine castings replicates precise sculptural definition and creates dramatic effects of light and shadow. The benefits of economy are achieved by the use of one mould to create multiple cast forms.

The critical question is whether the combination of *repoussé* technique and iron had the physical properties, a high degree of malleability, to create the high relief sculptural elements illustrated by the grotesque masks of the Hampton Court Palace, Fountain Garden Screen? I have compared a range of pierced, chased, *repoussé* and cast objects created in different materials to understand the level of relief possible in each material and technique in order to answer this question.

Amongst the VAM metalwork collection are preserved three selected objects which illustrate the different techniques. A rare copper grille, gilt (VAM: 5806-1860) from Venice dating from 1500-1600, created by pierced, chased, *repoussé* techniques. The total depth measures 0.5cm-1cm. The design of this piece is of particular interest because it has copied the style of a traditionally forged iron panel, yet it has done so using the *repoussé* technique, therefore the effect is technically unnecessary. The forged effect must have been visually desirable. An ironwork balustrade (VAM: 5966-1857) of Italian, possibly Venitian origin is recorded as dating from c.1600-1650 and measures 200cm (high) x 240cm (wide) x 10cm deep. The piece provides an example of high relief figurative modelling depicted by the cherubs and ebullient foliage. This effect is likely to have been

created using cast metals rather than forged iron. A similar comparison might be made with the Bailey railing, Hemony, 1656-1657 preserved at the Rijksmuseum, Amsterdam (Plate 21).<sup>151</sup> In 1656, Quellinus was paid for making a model of a railing with scrolled foliage to be cast in bronze. The panel measures 28.3cm (H) x 224.5cm (W) x 3.8-1.3cms (with a varying depth of relief) and is made of brass. The high relief of varying depths indicates that the panel was cast. Whilst the use of high quality copper sheet could achieve similar levels of relief, I suggest that a similar design and form in wrought iron is more likely to have been cast than wrought. A balcony dating from c.1700 (VAM: M.56:16-1921) the design of which is attributed to Tijou (though production may be of a later date), is formed of scrollwork and applied motifs, such as a cloth-of-estate, a mask and bird heads. The relief of these pieces varies from 1-3cms whilst the structures and scrollwork are forged, from the visual evidence the applied elements appear to be cast. The evidence of the interlaced initials (cast in two sections, front and back, and joined together), would support this notion.

From the examples discussed, the evidence suggests that the *repoussé* technique in iron facilitates a depth of up to approximately 1cm (using sheet metal) and that designs possessing greater depth than that suggest that either a more ductile metal alloy had been used or the object has been cast. Yet, it is not just the depth that gives clues to the method of making, it is also a combination of several other indicators, such as the granular/sandy finish to the reverse side (suggesting the use of sand casting), the edges of the objects (either slightly uneven and brittle which indicate sand casting or with a slight lip around the edge which might suggest the lost wax casting process). In summary, cast iron designs from wooden moulds, achieve a greater degree of relief than *repoussé* panels of wrought iron because cast iron in a molten state is more ductile than iron forged in the hearth. When considering concurrent artist practices at the time, this similar methodological approach concurs with Claire Gapper's evidence for plasterwork created during the sixteenth and seventeenth-centuries which noted that carved wooden moulds were used to create transmutable designs in plaster that appeared in wood before

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<sup>151</sup> <https://www.rijksmuseum.nl/en/explore-the-collection/works-of-art/copper,-bronze,-pewter,-lead-and-iron-base-metals-metalwork/objects#/BK-AM-47,6>. Accessed 02/02/15



they were formed in plaster.<sup>152</sup> Application of the same methodological approach to iron seems feasible and likely.

## THE PRECEDENTS FOR CAST METALS

The use of combinations of forged and cast metals in ironwork of the seventeenth- and eighteenth-centuries has been noted by Clare Vincent. A confessional grille, Metropolitan Museum of Arts, dated c.1629, illustrates “the repeated cherub heads that hover between the spindles of the Francisco Gonzales grill, indicating a seventeenth-century date, for they have been cast in bronze and gilded rather than individually embossed in iron, as they almost certainly would have been in a fine example of the preceding century”.<sup>153</sup>

Contemporaneously, other crafts employed a selection of different materials to create new effects, for example, the Italian cabinet in the Basilewski collection, with techniques of damascened gold upon plates of iron and columns, capitals and termini of bronze, and copper scrollwork enriching the frame.<sup>154</sup> Two Italian seventeenth-century wrought ironworks at the Victoria & Albert Collection incorporate brass as the decorative elements to their designs, such as a screen (VAM: 231-1890), with cast finials and collaring in parts and a staircase railing and a stair balustrade (660-1888) from Siena, Italy with brass corkscrew twists fixed to a wrought iron structure. In both of these pieces, when brass has been used as applied decorative elements, the natural colour of the material is retained as a decorative feature rather than painted to resemble the rest of the structure.

Weaver has noted that all the English examples of lead statuary seem to have been cast in lead in contrast to medieval France where the lead was beaten out on a model of carved wood.<sup>155</sup> Jan van Nost, frequently provided lead sculpture for the famous duo London and Wise, the garden designers and nurserymen, that created

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<sup>152</sup> Gapper (Unpublished PhD Thesis, 1998)

<sup>153</sup> Vincent (1964), p. 275

<sup>154</sup> Anon., “Some Sixteenth-century Decoration”, *The Art Amateur*, Vol. 13, No. 4 (1885), p. 78

<sup>155</sup> Weaver, L., *English Leadwork: Its Art and History* (London, 1909), p. x

grand garden schemes for aristocratic patrons throughout England. Van Nost was a neighbour of Jean Tijou at Portugal Row, London. Could it be that van Nost was making Tijou's cast elements? Tijou was known to have worked with Savouret, a French brass maker at Chatsworth, probably for the brass finials to railings and the staircase.<sup>156</sup> The precedence for applied decorative elements such as finials and/or *repoussé* brass or copper balls, attached to a wrought iron staircase balustrade is illustrated at the Lycée Charlemagne, Paris.<sup>157</sup>

Robert Bird's copper weathervanes for Wren's city churches suggest solid cast materials yet were created using copper sheet over a wooden mould, such as at St Michael, Queenhithe (built 1676-87), a weathervane depicting a ship in full sail (now located at St Nicholas, Cole Abbey) and others at St Anne & St Agnes; St Peter, Cornhill; St Antholin, Watling Street; St Mildred, Bread Street, London.<sup>158</sup> Bird's weathervanes demonstrate that sculptural metal forms were being made from copper overlaid upon wooden moulds rather than from wrought or cast iron.

Metal casting processes had been known for thousands of years, and widely used for sculpture, especially in bronze, precious metals for jewellery, and weapons and tools. The casting of copper-based alloys had been well advanced since the Middle Ages.<sup>159</sup> The technique of casting was often utilised for making complex shapes that were difficult or uneconomical to make by other methods. Traditional casting techniques include the lost-wax method, plaster mould casting and sand casting. Shell moulding with shell cores produces a very good surface finish with accurate dimensions.<sup>160</sup> For important castings the most immaculate detail is obtained by the lost wax method. The use of wooden moulds for the production of sand cast iron firebacks had been prevalent since the thirteenth-century.<sup>161</sup> The demand increased for mass-produced utilitarian and decorative cast objects and by 1532 the Worshipful Company of Founders established its first hall in London.

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<sup>156</sup> Saunders (2005), p. 289

<sup>157</sup> Lecoq, R., *Classic French Wrought Iron* (New York, 2005), p. 87

<sup>158</sup> Saunders (2005), p. 267

<sup>159</sup> Bronze is an alloy of copper and tin. Brass is an alloy of copper and zinc. Pewter is a tin alloy and has been cast in metallic moulds since Roman times.

<sup>160</sup> Hadley (1976), p. 175

<sup>161</sup> "Exhibition of Wealden Iron Industry", Anne of Cleves Museum (Lewes, 2005)

Peter Thornton has illustrated a rare example of a cherrywood model preseved in the Germanisches Nationalmuseum, Nürnberg and created by an Augsburg goldsmith around 1525-1530 for a cast gold bracelet which indicates the level of detail achievable in full Renaissance style.<sup>162</sup> By 1548, the first use of an entire wooden pattern for a cast iron fireback is exhibited at Anne of Cleves Museum, Lewes, Sussex. A version of the same design is located at the Victoria & Albert Museum (M.499-1926). Pattern-makers infrequently signed their work so it has rarely been possible to identify the craftsmen.<sup>163</sup> The Victoria and Albert Museum metalwork collection possesses a seventeenth-century fireback from the Netherlands which appears, from the unity of design, to have been cast from one mould (VAM: 41-1896). The fireback features ornaments in the form of dolphins, a vase of flowers within a border of fruits, flowers and foliage. This is significant because the fireback illustrates that these motifs and the composition of arranging them were being carved in wood before being cast in iron and it was only in the late seventeenth-century that these design motifs started to appear in wrought iron designs.

In 1614, the Founders' Company received a Royal Charter which covered "all Melters and Workers of Molten Brasses and Copper Metals" in the City, with the exception of members of the Pewterers' Company who worked in copper or brass for their own trade.<sup>164</sup> In 1615 New Ordinances supplementing the Charter confirmed that everyone working copper or brass wares within the three-mile limit was to identify themselves with a maker's mark. Founders originally cast brass and copper objects but later they extended their interests to cast iron, objects of which could be made at a fraction of the cost of individually wrought pieces. Artistry and craftsmanship were required in designing and carving the wooden patterns to enable a good and smooth casting. Individual pieces were created and riveted together whilst cold. By the early seventeenth-century, the casting of unique, precious and expensive objects was common.

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<sup>162</sup> Thornton (1998), p. 64

<sup>163</sup> Hodgkinson, J., "A Seventeenth-century Sussex Woodcarver: The Evidence of Cast Ironwork", *Regional Furniture*, Vol. 28 (2014).<sup>164</sup> Hadley (1976), p. 73

<sup>164</sup> Hadley (1976), p. 73

Research has uncovered a type of iron high in phosphorus that when molten becomes highly ductile and extremely accurate at attaining intricate levels of detail when cast into refined moulds. Iron high in phosphorus is much less viscous when molten and the improved fluidity enables much better definition and intricate levels of detail when cast into refined moulds.<sup>165</sup> Discussions with Tom Westley, a qualified metallurgist, chartered engineer and past President of The Institute of Cast Metals Engineers, have suggested that cast iron with levels of phosphorus near 1%, would form precise, sharp definition castings. If the level of phosphorus was reduced to say between 0.5-under 1%, then the material becomes less fluid and the more mediocre the level of detail from the casting. With the addition of small amounts of manganese and silicon, iron is also made more ductile and, with moderate heat, produces forms with high definition and thereby enables a broad scope of design and application. The casting process was reliant upon wooden patterns to create moulds.

The use of more ductile irons enabled greater opportunities for casting three-dimensional modelling and detail. When the ensemble was painted and gilded the mixture of metals would have gone unnoticed and yet the dramatic sculptural effects were unprecedented and highly regarded. So, whilst *repoussé*, chasing and pierced techniques were key factors in the developments of decorative ironwork of the seventeenth- and eighteenth-century, it was the addition of cast elements and the assemblage of the ornaments onto a wrought iron sub-structure which enabled the diverse visual outcomes. The use of the *repoussé* technique with wrought iron has perhaps been over-rated.

#### CHASED WORK

An example of the level of detail that can be achieved by the techniques of chasing and engraving is illustrated in the silver Mildenhall Great Dish (British Museum, 1946, 1007.1) (Plate 22) dating from the fourth-century. The relief measures no more than 0.5cm using silver, a highly ductile metal. Solid silver pieces became the height of royal fashion with the commissioning of unique sets that comprised of a table and stand and sometimes accompanied by a mirror,

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<sup>165</sup> Higgins (2010), p. 195

placed between the windows of an apartment or gallery. It is significant that the great silver table and looking glass mirror frame at Windsor, presented to William III, are “almost entirely of solid metal”.<sup>166</sup> The influence for this fashion came predominantly from Louis XIV and the majority of designs for silver furniture originated from Paris. French silver of the period is now very rare as the greater part was melted down in 1689, 1701 and again in 1709 to finance Louis XIV's war effort. Pieces which survived these events were then subject to a further melting of silver in 1759 during the reign of Louis XV. The silver furniture made at the Gobelins for Louis XIV was solid silver, rather than gilded tin or wood.<sup>167</sup> Charles le Brun was behind the designs of much of the silver furniture created for Louis XIV and it was Claude Ballin, a designer, who personally oversaw the creation of 167 pieces of furniture. A recent exhibition at Château de Versailles re-created the sight and impression of silver furniture. Her Majesty the Queen of Denmark lent a substantial part of the Danish silver collection from Rosenborg Castle, Copenhagen (a royal residence for Danish regents from 1610 until around 1710, the end of the reign of Frederik IV). Upon investigation into the Rosenborg early silver collection located at Rosenborg Castle I have found two silver chafing dishes with King Christian V's and Queen Charlotte Amalie's monograms created by Jean Henri de Moor from Copenhagen in 1690. This is an important example of the early application of the cast technique to produce silver furniture. The effect is a very flat, two-dimensional rendering of a 270 degree “corner”. This is the only example of this type of construction that the author is aware of. A similar method of construction is evidenced in the pair of cast brass andirons by Stephen Pilcherd and Anthony Hatch, dating probably from 1660-80, London, which are partly enamelled and applied to a wrought iron frame.<sup>168</sup> The andirons depict the arms of the Stuart monarchs and it is probable that they were made for Barbara Villiers, Duchess of Cleveland (1640-1709), mistress of King Charles II (1630-1685).<sup>169</sup>

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<sup>166</sup> Baarsen. and Cooper-Hewitt Museum (1988), p. 55

<sup>167</sup> <http://thisisversaillesmadame.blogspot.co.uk/2014/09/silver-furniture-of-louis-xiv.html>. Accessed 30/03/15

<sup>168</sup> Metropolitan Museum of Art, Accession Number: 64.101.1611,1612

<sup>169</sup> <http://www.metmuseum.org/art/collection/search/204001>. Accessed 13/05/12

Perhaps as a result of the diminished treasury, a less expensive option for simulation of solid or cast gold/silver metal statuary arrived in the form of cast lead in the late seventeenth-century. Lead was a substance that was formed as a by-product of extensive silver smelting. Situated at the Château de Versailles, Île-de-France, on the landing of the Escalier de la Reine (the Queen's staircase) is a unique and innovative gilded lead sculpture of 1680 which celebrates the marriage of Louis XIV and Marie-Thérèse of Austria, 1660 (Plate 23). The French artist, Benoît Masson (also known as Massou) (1627-84), was the creator of many of the lead sculptures for the Versailles fountains. Benoit Massou can be traced as a "fellow" at the Villa Medici, Academie de France a Rome.<sup>170</sup> By association with this type of training, it might not be unreasonable to suggest that designs of Italian derivation are absorbed. The Academy was founded at the Palazzo Capranica in 1666 by Louis XIV under the direction of Jean-Baptiste Colbert, Charles Le Brun and Gian Lorenzo Bernini. From the 17th to 19th centuries the Academie was the culmination of study for select French artists who, having won the prestigious *Prix de Rome* (Rome Prize), were honoured with a 3, 4 or 5-year scholarship (depending on the art discipline they followed) for the purpose of the study of art and architecture. Admission dates for Massou are given as 1699-1702. The sculpture depicts an escutcheon with interlaced initials of the king and queen supported by cherubs carrying quivers filled with the arrows of Cupid, surmounted by two doves and torches symbolising the flames of love.

Historically lead sculpture had been painted to resemble the more expensive, classical materials of stone or bronze. Lead is a highly malleable material at room temperature which can be moulded over different forms or heated at a low melting point and cast into a variety of shapes. Lead is too soft for chiselling or carving though it can be chased and hammered. Decorative leadwork had been created in England as early as 1589 at Windsor Castle where lead pipe heads were adorned with the Tudor rose and letters E. R. This was followed at Knole with decorative leadwork created by Thomas Sackville about 1600 illustrating winged figures such as those depicted in an engraving by Hieronymous Hopfer (b.c.1500-

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<sup>170</sup> <http://www.villamedici.it/en/residencies/fellows-from-1666/m/massou-benoît/>. Accessed 09/03/12

d.1563), after Albrecht Altdorfer (1480-1538) and similar motifs are employed in a silver escutcheon, dating from c.1625, from Italy or southern Holland (VAM: M. 48-1954), which suggest that these motifs were derived from continental influences.<sup>171</sup> At Hatfield House William Cecil created richly delicate, pierced work of rainwater heads, interlaced with crests, dates, heraldic arms, initials and complex patterns of chequers, chevrons, strapwork and stars with several examples dating from around 1600.<sup>172</sup> In 1635 the last important commission for decorative leadwork enabled by Archbishop Laud, the patron of St John's College, Oxford, who commissioned highly decorative rainwater heads and painted pipes for Canterbury Quadrangle.<sup>173</sup> So the technique of casting decorative lead had been in existence in England since 1589.

During the period, the term "whitesmith" came into greater circulation reflecting the dynamically evolving state of metals during the period. It referred to a person who makes objects out of tin, pewter and other ductile metals which can be worked cold. A similar term had been in use since 942 at The Guild of Marzeri, Venetian Republic, which was composed of eight trades that included "the tinsmiths, the scale-workers, the iron workers and the lead workers".<sup>174</sup> By the 1630's in London, Crooked Lane Wares was producing tinware.

In England three major sets of silver mounted furniture survive: two at the Royal Collection in Windsor Castle, which belonged to Charles II and William III respectively, and the collection at Knole. The precursor to these designs is perhaps found at Rosenborg Castle, Stockholm, the form created in a carved wooden table with two guéridons and a mirror of blue painted wood with Queen Charlotte Amalie's monogram in silver filigree ornaments.<sup>175</sup> The set which dates

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<sup>171</sup> [http://www.gutenberg.org/files/41544/41544-h/41544-h.htm#Page\\_139](http://www.gutenberg.org/files/41544/41544-h/41544-h.htm#Page_139). Accessed 14/02/17; Clifford, T., *Designs of Desire, Architectural and Ornament Prints and Drawings 1500-1850* (Edinburgh, 1999), p. 49

<sup>172</sup> <http://www.buildingconservation.com/articles/churchleadwork/churchleadwork.htm>. Accessed 09/03/12

<sup>173</sup> Rumley, P., "The Conservation of Decorated Lead", *Metalwork Conference, Geffrye Museum* (London, 2009)

<sup>174</sup> Zimelli and Vergerio (1969), p. 40

<sup>175</sup> <http://www.kongernessamling.dk/en/rosenborg/object/furniture/>. Accessed 08/04/15

from 1669 was made in France and originally painted black and incorporated the monogram of Frederik III. At Knole survives a highly ornate Charles II pier glass with rectangular cushion frame, overlaid with sheet silver richly chased with garlands of fruits and flowers. The cresting bears an earl's coronet and cypher, flanked by putti. The mirror plate is modern, and no hallmark has been identified. The frame dates from around 1676 and comes ensuite with a pair of torchères, dated 1676, which are cased in silver, with baluster and tripod supports. Both are chased with acanthus foliage, masks and on the centre knop are festoons of fruits. The circular tops are chased in high relief with similar decoration, bearing Frances Sackville's cypher surmounted by a Countess's coronet, and a pier table made by Gerrit Jensen (fl. 1667 – London 1715), dated 1680-1. The pieces are presumed to have been acquired by Frances Sackville, Countess of Dorset. At Windsor Castle, located in the Queen's Ballroom is a wooden (pine) table covered with individual silver sheets, embossed and chased with the crowned cypher of Charles II, tulips and scrolling acanthus leaves before being pinned in position.<sup>176</sup> The table is thought to have been supplied to Charles II around 1670.<sup>177</sup> The depth of relief of the chased tabletop is notable for its delicacy. If the object were cast, the depth is likely to have been of higher relief. Similarly, part of a suite of furnishings commissioned by William III for Kensington Palace in 1698 and delivered in 1699, is a silver table also located at the Queen's Ballroom, Windsor Castle.<sup>178</sup> The chased and engraved tabletop of thick silver sheets overlaid upon an oak table top are supported by solid cast silver legs, bearing the mark of Andrew Moore (1640–1706) a silversmith from Bridewell in the City of London. The table is thought to have been made to a design by Daniel Marot (1661–1752). These are important examples of silver chased and engraved designs, mounted to a wooden core using a combination of techniques that co-exist alongside cast elements. A mixture of metal techniques is employed to create these decorative effects and the practical and structural requirements necessary for utility. Examples of sheet iron mounted over a wooden core exist alongside examples of

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<sup>176</sup> <https://www.royalcollection.org.uk/collection/search#/1/collection/35299/side-table>. Accessed 02/01/16

<sup>177</sup> Laking, G. F., *The Furniture of Windsor Castle* (London, 1905), p. 19

<sup>178</sup> <https://www.royalcollection.org.uk/collection/search#/1/collection/35301/side-table>. Accessed 02/02/16



iron hammered over wooden cores/architectural mouldings. Wood is used to provide structural support and also, in some cases, to provide a mould over which decorative designs in metal are created.

#### THE METAL EVIDENCE FROM RESTORATIONS

During the 1997 restoration of Hampton Court Palace, Fountain Garden Screen, elements were found to be made of copper (such as the cloth-of-estate) and more recently in 2012 Hall Conservation have also discovered the use of copper in the crowns to the Screen.<sup>179</sup> For highly decorative, sculptural elements, copper is a very useful/dependable alternative to iron but to maintain the same strength it would need to be of wider gauge. So the comparative thickness of the material is a good indicator of the combinations of metal types. A box of metal pieces collected from various restorations of Hampton Court Palace contains cast bronze and brass elements, including leaves, which may predate the 1860 restoration. Much of the decoration and finess of the original embossed leafwork, masks and other focal features have been lost due to corrosion and previous restorations which utilised gas welding. When considering the use of combinations of metals on exterior wrought iron screens, it is important to mention one of the greatest hazards for longevity in metalwork, that of galvanic or bimetallic corrosion, the electrochemical reaction between two dissimilar metals.<sup>180</sup> Moisture is a catalyst to oxidation, rust and deterioration. If water containing dissolved copper is passed over iron the process of rust corrosion of iron (not copper) is accelerated.

On July 1<sup>st</sup> 1676, Robert Hooke, Curator of the Royal Society, notes in his diary that he met Mr Montague who ordered copper gilt balls and iron work for the pavilion chimneys at Montagu House.<sup>181</sup> The blacksmiths Bird, Lever and Hayes are referred to in this regard. This suggests that the destructive combination of alloys was not at that time appreciated. It raises the question as to whether these combinations of materials were being widely utilised for their aesthetic values rather than physical properties.

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<sup>179</sup> <http://www.hallconservation.com/?portfolio=replacement-crown-tijou-screen-hampton-court-palace>. Accessed 25/04/16

<sup>180</sup> <http://corrosion-doctors.org/Corrosion-History/Lessons.htm>. Accessed 21/04/16

<sup>181</sup> <http://www.roberthooke.org.uk/batten6.htm>. Accessed 03/06/15

Yet it is an unhappy coincidence that the uniquely decorative sculptural elements which are highly characteristic and most prevalent and unique to this period (including masks, birds's heads, grotesques, fruit and flowers), are the most unresistant to weathering due to their generous, three-dimensional shapes which collect water and thereby create ideal circumstances for corrosive deterioration. "The seemingly random penetration of corrosion may also be governed, amongst other things, by the segregation of certain elements in the metal itself. Bloomery iron can be extremely inhomogeneous, and significant variations in element distributions, and segregations are common occurrences".<sup>182</sup>

During restoration of historic decorative ironwork, such as ironwork at Okeover Hall, Eaton Hall, Grimsthorpe Castle, Drayton House and the Lion Gates at Hampton Court Palace, a variety of materials were discovered including cast iron, lead, copper, bronze and even fibre glass.

The specialist historic metalwork restorer Chris Topp, of Topp and Co. (Thirsk, Yorkshire) commented that the use of different materials such as at Grimsthorpe Castle (where the overthrow was restored by his workshop during the first decade of 2000) had figures of wood located either side of the heraldic crest instead of wrought iron *repoussé* work which may have resulted from a later, poor restoration.<sup>183</sup> Alternatively, the loss of traditional skills or a lack of budget may be such that the work could no longer be economically replaced by a local smith.

The combined use of wrought iron and cast iron is evidenced during the period at Chirk Castle by the Robert Davies (1719). The iron balusters with the effect of "wood turned bars" were rare when they were made.<sup>184</sup> The gates and screens to Tewkesbury Abbey and Elmore Court both feature cast iron elements and are attributed to William Edney. The success of cast elements depended upon two

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<sup>182</sup> Scott (1976); Arrhenius, O., "Ore, Iron, Artifacts and Corrosion", *Sveriges Geologiska Undersökning*, Vol. 61, No. 11 (1967)

<sup>183</sup> Chris Topp & Co, Thirsk, Metal Restorer of Seventeenth and Eighteenth-century ironwork

<sup>184</sup> Edwards, I., *Decorative Cast-Ironwork in Wales* (Llandysul, 1989), p. 20

factors, mainly the skill of the carved wooden moulds, and the quality of casting iron, which needed to be highly ductile to achieve a fine quality casting.

In summary, metallurgical evidence provides data that supports the use of combinations of metals, such as cast iron, brass, lead and copper, in what have previously been perceived as works of “wrought iron”. The viewer is looking at an assemblage of elements of different metal alloys and metalwork techniques, not simply forged iron. The designs were carved in wood and then cast in iron or other metal alloys. This evidences the relative cheapness of wood carving and also the likelihood of *repoussé* work being utilised predominantly during the period. The application of paint to scrollwork and/or gilding to highlights visually united the parts into a unified whole and obscured the different finishes. For ironwork located in exterior sites, restorations uncover a smorgasbord of previous repairs with dates spanning up to 350 years. Sparse data from original objects remain in these locations. Correlation of restoration reports of interior ironwork could provide a more consistent outcome across a range of iron objects, due to the comparative infrequency of the need for restorations of objects situated in these locations.

On a smaller scale, when considering Jean Tijou’s highly three-dimensional sculptural work, in particular the masks, flower garlands and insignia (Plates 24-27), at Hampton Court Palace, Fountain Screen, the practical and logical suggestion is threefold: that either flower festoons and masks were moulded around a carved wooden form and then the form burnt out afterwards (perhaps leaving a blue-ish tint to the metal, caused by intense heat); or that more malleable metals were moulded over wooden moulds and removed when complete; or that the objects were cast.

One aspect of Tijou’s designs and production methods is irrefutable. Ironwork never attained the same level of skill and effect after Tijou’s departure from England around 1711. Clearly there were very able blacksmiths in this country, many of whom were working on ironwork for interiors for the fifty City churches. It is acknowledged that woodcarvers provided moulds for copper weathervanes for city churches. So I suggest that the evidence indicates that perhaps Tijou’s

skill lay in the combination of techniques and materials that he uniquely coordinated. That scrollwork was accomplished using wrought iron and a combination of traditional and carpentry techniques of assemblage and that carved wooden moulds were used to cast the highly sculptural shapes of the masks using an iron alloy that was high in phosphorus (up to 1%) which achieved a high definition/high relief casting.<sup>185</sup> The wooden moulds for casting would have required refined detail, yet this was clearly achievable from the best wood carvers as Grinling Gibbons (1648-1721), the greatest of decorative woodcarvers, was creating carvings in limewood of just over 3mm thickness. It is equally possible that the sculptural elements were created from softer metals, such as lead, copper or brass, and fixed to a wrought iron framework. There were many precursors to the use of combinations of metal to create decorative effects.

## PAINT FINISHES AND SCIENTIFIC ANALYSIS

Uncovering the latest scientific paint research methods, this section aims to clarify the nature and effects of original finishes upon decorative wrought iron of the seventeenth- and eighteenth-centuries. Special finishes such as smalt may reasonably be regarded as an indication of the esteem with which certain works of art were held and this suggests a reassessment of the value of these objects. The evidence provides a more accurate picture of the appearance of wrought iron during the period 1660-1720 and the perceived value and status of the objects. Microscopic comparative paint and colour analysis is an essential part of the investigation into historic metalwork. It helps contribute to our understanding of how these objects were viewed contemporaneously. This section is a summary of meetings, discussions and correspondence with historic paint specialists researching and restoring historic items within the Royal Palaces and private grand country homes. Reference is also made to primary laboratory research published by the Tate Gallery, commissioned from their honorary scientific adviser, Professor Jaap J. Boon.<sup>186</sup> I met with Patrick Baty (British Historian of Paint and Colour and a Consultant to Royal Historic Palaces), Lisa Oestricher

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<sup>185</sup> Higgins (2010), p. 195

<sup>186</sup> [http://www.tate.org.uk/about/projects/changing-properties-smalt-over-time#footnote4\\_c1uwm52](http://www.tate.org.uk/about/projects/changing-properties-smalt-over-time#footnote4_c1uwm52). Accessed 18/03/15

(Architectural Paint Historian whose projects have included research and analysis for the Victoria & Albert Museum, English Heritage and National Trust), and Rupert Harris of Rupert Harris Conservation Ltd (Metalwork Conservation Adviser to National Trust and Architectural Metalwork Consultant to English Heritage).

During the Stuart period, colour was increasingly used to create spectacularly grand effects which were harnessed to inspire awe amongst guests. The most impressive, memorable entrances and processional routes throughout palatial residences, such as the grand staircases at Hampton Court Palace and Kensington Palace, connected the house to the landscape, from where water gardens and canals were best viewed. Funds were lavished upon ironwork. Iron was the only medium with the durability and ductility for finesse that was able to fulfil this multi-functional, utilitarian and aesthetic role in exterior and interior locations.

It has long been acknowledged that a coating of some type is necessary to protect ironwork from corrosion. The architect of Coleshill, in what is believed to be a paint specification prepared for Kingston Lacey in the 1660s, wrote: “All ironwork to be painted so soon as made, to keep it from rusting”.<sup>187</sup> Sometimes, this resulted in imitation of other materials to create maximum effect, yet also with one eye on economy. This study has evidenced the widespread use of a variety of metal alloys in the creation of seventeenth- and eighteenth-century metal designs. Gilded decorative finishes were increasingly applied to iron and these other relatively inexpensive base materials (lead, copper, brass) in order to create a particularly sumptuous and rich effect. Gilding of gates was commonly thought to relieve the sombreness of iron yet was generally confined to the ornamental aspects of the design.

Forgings made for external use were generally painted and sometimes included gilded details. The finish of wrought ironwork for interior spaces tended to be burnished or semi-burnished, protected by wax polish or linseed oil. Increasingly during the period sumptuous finishes were applied such as smalt or gilding. Iron-

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<sup>187</sup> Gunther (1928), p. 282

based alloys can attain naturally created colours during the heat process known as “tempering” which can also be used to increase the toughness of these alloys. Metals which have been freshly ground or polished will form oxide layers when heated.<sup>188</sup> At a specific temperature, iron oxide forms a layer with a very particular thickness, causing thin-film interference. This causes colours to appear on the surface of the metal. As the temperature is increased, the iron oxide layer grows in thickness, resulting in a change in colour. These colours, known as “tempering colours”, have been used for centuries to gauge the temperature of metal. At around 176°C iron will start to take on a very light, yellowish hue. At 204°C, the metal becomes a light-straw colour, and at 226°C, dark-straw in colour. At 260°C, it will turn brown, while at 282°C it turns purple, at 310°C it turns a very deep blue, and at 337°C it becomes a light blue colour.<sup>189</sup> An example of the blueing of armour survives from c.1515, created by the Royal Almain Armoury, Greenwich, London, formed under Henry VIII in 1511.<sup>190</sup>

In order to uncover the material evidence of paint finishes, historic paint analysis uses a variety of microscopic and occasional chemical and ultra-violet bleaching techniques to analyze, determine and evaluate the original colour and nature of historic surface coatings on a variety of materials such as metal, wood, plaster and masonry. Eighteenth-century paints are too thin or degraded to be discerned by the naked eye or even with a handheld magnifier (5X to 8X). Micro-analysis is necessary with a high quality binocular stereo zoom microscope (10X to 70X). A typical sample may provide analysis of the number and layers of coatings (prime and finish coats); the approximate dates or period of each layer; the original colours; the distribution of main colour(s) and evidence of decorative painting (highlights of colour or gilding upon key decorative elements), physical characteristics (such as texture or gloss); types of paint (oil or water based varnishes, stains, glazes).<sup>191</sup> In order to achieve an even sampling and to prevent

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<sup>188</sup> Baty, P., “The Use of Colour on Architectural Ironwork, 1660-1960”, *From Foundry and Forge, International Ironwork Symposium, Victoria & Albert Museum* (London, 1994)

<sup>189</sup> Andrews, J., *New Edge of the Anvil: A Resource Book for the Blacksmith* (London, 1991), pp. 98–99

<sup>190</sup> *Metalworks! The Knight's Tale*, BBC4 (May 2012). Accessed 05/04/16

<sup>191</sup> Welsh, F. S., “Paint Analysis”, *Bulletin of the Association for Preservation Technology*, Vol. 14, No. 4, Historic Structure Reports (1982), pp. 29-30

an isolated context, different layers are taken from several areas of the object (plain surfaces, crevices, undersides, etc). These samples are studied in comparison with the parts of original (unrestored) object.

At Hampton Court Palace, Patrick Baty has analysed paint samples from the King's Staircase balustrade (Plate 28). Smalt has been identified in the samples, in the form of grey shards of glass with a purply tinge. The larger particles have retained the blue colour and there is also microscopic evidence of gilding on decorative areas.<sup>192</sup> Andrew Harris of Martin Ashley Architects, advising on the 2016 conservation of Hampton Court Palace, Fountain Garden Screen, has observed the lack of paint found on the reverse/underside on the interior staircases of the King's and Queen's staircase at Hampton Court Palace suggesting that these areas were not painted.<sup>193</sup> If a similar method was applied to objects located in exterior settings such as the Fountain Garden Screen, then the iron will not have been protected from corrosion. In the instances of large scale exterior objects which were transported in parts, assembled on site and then painted, the highly sculptural shapes (which were densely packed into the design) may have prohibited application of paint to both sides of the leaves.

At Hampton Court Palace is a highly decorative wrought iron balcony bracket (and another, single, decorative bracket) illustrated on Plate 29. The balcony is decorated with heavy flower garlands, scrolls and acanthus leaves and the latter addition of dragons's heads terminating the swags. Baty's analysis of paint samples from these objects indicated traces of an intensely coloured rich, electric blue (known as "Azuré bis") as the original colour. This corresponds with a reference from Wren that stated (of a balcony) that "It was blew and gilded".<sup>194</sup> The rich profusion of heavily modelled flower festoons re-call the designs of the Fountain Garden Screen at Hampton Court, illustrated in *A New Booke of Drawings*, 1693. The extraordinary naturalism of the ribbon (the centre of the

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<sup>192</sup> Baty (1994)

<sup>193</sup> Telephone and email correspondence dated 26/04/16

<sup>194</sup> Law, E. P. A., *The History of Hampton Court Palace in Tudor Times... Vol II, Stuart Times* (London, 1888), p. 209; Works 3/2; 5/3, p. 53

composition) are reminiscent of concurrent continental designs (such as illustrated in ornament prints of jewellery pendants, VAM: E.884-1912, 1581). The contemporaneous author of *The Art of Painting in Oil* described smalt, a cobalt glass pigment, as the most “glorious colour in the world”.<sup>195</sup> It was two to three times more expensive than the commonly used colours of lead or stone. Smalt derives its colour from cobalt and therefore does not increase corrosion of ironwork.<sup>196</sup> Not only was the material expensive but the method of application was very labour intensive. The surface was first painted with white lead and while still tacky dusted over with the blue before being stroked with a goose quill to make the glassy particles lie down. It produced an uneven result and was therefore best seen from afar and on uneven surfaces. Knowledge of the exquisite and expensive blue paint and gilded surface of the balcony suggest that this wrought iron object was highly prized and possibly formed the original balcony to the Thames Gallery for Queen Mary. The prominence of its location in the overall scheme of the gardens and the sumptuous finish certainly indicate the owner’s perceived value of it.

From an early age, blue has been a colour associated with ironwork. It has been suggested by Baty that the frequent use of blue was “probably an extension and exaggeration of the blue effect achieved by heating iron to a heat of about 550° Fahrenheit” (287°C) at which temperature the “ironwork assumes a bluish tint”.<sup>197</sup> Similarly, Stephen V. Grancsay, Curator Emeritus of Arms and Armor at The Metropolitan Museum of Art, has noted that metals were “mercury-gilded or chemically blued to create contrasts of metal colour”.<sup>198</sup> In the seventeenth- and eighteenth-centuries, the colour of blue (with its origins in ultramarine and smalt) was recognised as an expensive and prestigious colour which was highly sought after. Frequent references in literature to the use of blue and gold finishes for gates and railings were noted by writers of travel and architecture. Starkie Gardner

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<sup>195</sup> Smith, J., *The Art of Painting in Oil* (London, 1676), p. 20

<sup>196</sup> [http://www.tate.org.uk/about/projects/changing-properties-smalt-over-time#footnote4\\_c1uwm52](http://www.tate.org.uk/about/projects/changing-properties-smalt-over-time#footnote4_c1uwm52). Accessed 18/03/15

<sup>197</sup> Baty (1994)

<sup>198</sup> Grancsay (1964)



refers to the “Blue and Gilt Balcony” of a house in Hatton Street, London, in 1673.<sup>199</sup> Colours were used to identify buildings in a city without house numbers at the time. After visiting Lord Northampton’s seat in 1688, Evelyn commented on the ironwork gates “which indeed was very good work, wrought in flowers and painted with blue and gilded”.<sup>200</sup> Celia Fiennes, the travel writer, makes frequent references to “Iron Barres and spikes, painted blew with gold tops” at Broadlands, Ilchester, Hants, at Chatsworth; near Epsome, Hampton Court and Windsor, the house of M<sup>r</sup> Ruths who married Lady Dennagall; and in Rippon, at S<sup>r</sup> Edw<sup>d</sup> Blackets house, where both blue and gold rails are noted along with “a Large Iron Barr-gate painted Green and gold tops and Carv’d in Severall places”.<sup>201</sup> Reference is also made by Charles Perrault (b. 1628-1703, french author and member of the Académie Française) of “façades ornamented with gilded balconies”.<sup>202</sup>

Ongoing research into lead paints by Patrick Baty and other paint historians, demonstrates that the surface of lead paint had a tendency to “chalk off” after a few years. This gives the wrong impression to succeeding generations that a matt finish was “desired”, whereas in practise it was simply the effect of weathered lead paint. Blacksmiths and patrons of the following generation may have simulated these lighter colours (such as the gates and screen to Chirk Castle and Leeswood, Mold) whereas such colours were never originally intended or authentic. Baty refers to an account of 1774 that revealed “the third year the gloss is gone, in the fourth if you rub the painting with your finger, it will come off like so much dust”.<sup>203</sup> At Hampton Court Palace in 1702, the use of “lead colour” had been noted in the accounts of the painting carried out on the ironwork. It is noted that “Some 527 yards of “ye espalia... at the bottom of the Privy Garden” were painted “lead colour”.<sup>204</sup> Baty has noted that the simplest recipe would have been the addition of black to white lead to produce a grey colour. The increasing

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<sup>199</sup> Starkie Gardner (1911), p. 254

<sup>200</sup> Ibid., p. 33

<sup>201</sup> Fiennes (1888), pp. 45, 156, 38

<sup>202</sup> Ziegler, G., *The Court of Versailles in the reign of Louis XIV*, Taylor, S. W. (trans.) (London, 1966), p. 28

<sup>203</sup> Baty, P., “Palette of the Past”, *Country Life*, Vol. 186 (1992), p. 45

<sup>204</sup> Wren Society, *Volume V* (Oxford, 1938), p. 52 (orig ref: March 1702, WORK 5/52)

preference for the natural colour of iron was enabled by some early recipes for clear coatings, which usually involved a film of oil which was neither resistant to weather nor ideal to handle. A layer of oil was often applied at the foundry, sometimes thickened with an inert material such as barytes (a mineral consisting of barium sulfate), yet it had the negative effect of slowly drying underneath any later additions of paint, resulting in cracking.<sup>205</sup> John Smith 1676 published one of the first paint manuals and gave a recipe for the making of a lead colour with indigo "... a very dark Blew, and seldom used without a mixture of White...".<sup>206</sup> He suggested that in order to obtain a brighter blue, he recommended the use of the pigment smalt.<sup>207</sup>

Research by Dr Ian Bristow has discovered that the Tulip Staircase (Plate 30) located at the Queen's House, Greenwich, London was originally painted in smalt, possibly originating from cobalt mines bordering the Netherlands and Saxony.<sup>208</sup> Surviving documents reveal that the initial lead colour was painted over with a blue in 1695.<sup>209</sup> At Kensington Palace, on the King's Stair, in the fourth scheme dating from 1722, Baty has located the first known use of Prussian Blue in Britain.

At the National Museum of Sweden survive five original drawings by Pierre Lepautre (1660-1744) and/or the workshop of, for wrought ironwork balconies at Château de Marly each coloured to denote the areas of blue and gold (NMH THC 2642-5 and NMH THC 2648). They illustrate in a contemporary hand, the locations for paint colour and gilding. The wrought iron structure was coloured in light blue with the applied *repoussé* leafwork, the top rail and the stanchions, all gilt or painted gold. The effects were intended to delight and impress guests by the simulation of rich, solid gold. These original drawings represent a different arrangement of gilt parts to that which has commonly been perceived.

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<sup>205</sup> Baty (1994)

<sup>206</sup> Smith (1676): 5th edition, 1723, p. 20

<sup>207</sup> Ibid., p. 26

<sup>208</sup> Rutherford, J. G., and Stout, G. L., *Painting Materials: A Short Encyclopaedia* (New York, 1966), p. 158

<sup>209</sup> Bristow, I. C., "[The Queen's House, Greenwich] Research into and Reconstruction of the Historic Paint Colours", *ASCHB Transactions*, Vol. 14 (1989), pp. 68-73

In conjunction with considering the use of combinations of metals in baroque wrought iron designs, it is perhaps important to note that whilst the gilding process of iron was stable and safe, in contrast, the gilding of cast brass (motifs created in brass and applied to wrought iron) was a highly dangerous process, which involved mixing a paste of gold powder and mercury, and painting this mixture onto brass, then burning off the mercury, the fumes of which were highly toxic. Over time, this may have acted as a deterrent to this type of finish.

To summarise, practical historic paint analysis of the seventeenth- and eighteenth-century ironwork has for the first time provided evidence-based data to identify the use of smalt and gilding on focal decorative parts of ironwork located at royal palaces. The popularity of blue, smalt, and gilt ironwork is evidence of the expense lavished upon metalwork and proof of the high esteem in which these objects were held. An understanding of the ageing effects of lead paint when exposed to exterior conditions offers a more comprehensive understanding of authentic wrought iron finishes of the period. Up until now the subject has, in the main, been predominantly conjecture. The data suggests a re-examination of the place of these metal objects in architectural history.

## BLACKSMITH'S DESIGNS: A FUSION OF PRACTICAL & AESTHETIC

One of the first questions that arises when considering wrought ironwork of this period is the level of responsibility that the architect and/or blacksmith held for the design. Until this period, blacksmiths had predominantly been designers of their own work and the architect and/or builder had concerned themselves with materials that they were conversant with, such as stone, brick and timber. The optimum harmony of function and form for objects of wrought iron had traditionally been decided instinctively by the smith's understanding of the material's physical properties. Historically, the essence of good design in iron was assimilated through the teaching of traditional methods. It aimed at composing structural members in such relative positions and proportions that they, in themselves, created the functional and decorative harmony. The production of any object for practical use had reflected certain structural and design rules, which centred around the fitness for purpose (of design to use), utility (how the object was to be used and designed accordingly), and "truth to material". Gottfried Semper (1803-79), the nineteenth-century theorist, commented in his *Theory of Transmaterialization* that objects do not require language to express the abstraction. Instead the relationship of material and process is conveyed through the senses and thereby "form should result from the material, from the technique and from the final purpose".<sup>210</sup> Similarly, it has been suggested that wrought iron ought "neither to be suggestive of any material unsuitable to the original medium".<sup>211</sup> Ornamentation and traditional ironwork was therefore part of the overall design and structure rather than characterized by applied forms. In this way, the mediaeval smith gloried in the simplicity of his work and the very words "ornament" and "decoration" described something fitting, suitable and dignified. A smith's work demanded the judgement of an artist and the capacity of a craftsman. "The acquisition of craft knowledge entails learning rules and imitating other people's work. To learn a craft entails, for a while at least, working in the fashion of one's teachers and mentors. In reality this is not, or need not be, a hindrance to individual creativity though the assumption that craft knowledge is

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<sup>210</sup> Zimelli and Vergerio (1969), p. 48

<sup>211</sup> Anon., "Ironwork", *Bulletin of the Pennsylvania Museum*, Vol. 20, No. 90 (1924), pp. 42-47

“other people’s rules” and that these are an infringement of self expression is strong”.<sup>212</sup> However, with the arrival of continental designs, applied indiscriminately to a wide variety of materials, an increasing desire emerged to produce the new continental styles communicated through ornament prints, sketches, word-of-mouth descriptions and first-hand exposure to foreign styles.

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<sup>212</sup> Dormer, P., *The Art of the Maker* (London, 1994), p. 26

## CHAPTER 1 SUMMARY

Designs for grand-scale ironwork projects were ignited by high profile commissions from the crown and nobility with extravagant budgets and an unstoppable quest for novelty. Architectural interventions created new forms of production which emerged with exquisite, intricately detailed transmutable designs. The circulation of ornament prints evoked a dramatic increase in the use of applied motifs to the ironwork with a two-fold effect. First, traditionally trained British blacksmiths upheld the Worshipful Company of Blacksmiths' conventional training practices of forging iron at the smithy with anvil and hammer. Secondly, highly skilled foreign craftsmen emigrated from France and settled in Britain, following the revocation of the Edict of Nantes, and they achieved the latest continental designs by utilizing a variety of metalworking techniques and processes. The techniques of silversmiths, goldsmiths, armourers, woodcarvers and masons were increasingly used in the production of many forms of wrought iron. During rare restorations of seventeenth and eighteenth-century ironwork, a range of metal alloys such as copper and brass has been uncovered and it seems reasonable to suggest that the majority of highly decorative "wrought iron" of the period is a combination of cast iron elements applied to forged iron scrollwork. Innovations and collaborations were facilitated by out-sourcing to artisans catering for niche operations and an increasing specialisation of workshop skills. Technological advancements in refining iron and increased imports of high-grade iron with low levels of impurities (mainly from Sweden, evidenced by ironstamps) resulted in increased malleability and a broadened capacity for design. Whilst admittedly the period witnessed major technical innovations in the production of sheet iron upon which the *repoussé* technique depended, the material evidence suggests that use of *repoussé* has been significantly overstated in terms of its historic contribution to iron during this period. Instead it was the production of fine castings during this period using a metal with 0.7-1% phosphorus (which made the iron slightly more fluid when molten and cast into metal chill moulds) that produced the celebrated effects of the period. This innovative technique using the latest refined metals predated, by over 100 years, the production of intricate cast iron jewellery from the Royal Berlin Foundry (Königliche Eisengiesserei bei Berlin) the demand for which reached a zenith

around 1815 when the Prussian royal family urged all citizens to contribute towards funding the War of Liberation against Napoleon by donating their gold and silver jewellery to support the cause.<sup>213</sup> In return iron jewellery was given often with the inscription *Gold gab ich für Eisen* (I gave gold for iron), or *Für das Wohl des Vaterlands* (For the welfare of our country / fatherland), or with a portrait of Frederick William III of Prussia. This symbol of patriotism became immensely sort after. So the precious cast iron decorative additions of Tijou's designs were extremely advanced during the period.

The increasing influence of transmutable designs from the second half of the seventeenth-century, and the application of these fashionable forms to iron, raised the profile and status of wrought ironwork. The latest scientific paint research has provided evidence that the most important iron objects were painted with rare and precious finishes such as smalt and gold. This demonstrates the considerable value accorded to these iron objects and it suggests a reassessment of the viewer's object perception and the preciousness of these creations. In turn this affected the rising social status of some blacksmiths, reflected in increased rates of pay and a rise in costs of apprenticeships in London. Having said this, "gentlemanly status" appears to have been reserved only for designer/iron contractor Jean Tijou whose son-in-law, Louis Laguerre, was Louis XIV's godson. If compared to other crafts such as carvers of wood or stone, plasterers or precious metalworkers then blacksmiths rarely attained the status accorded to the forebearers, perhaps due to the harsh and unsociable conditions of the smithy.

Chapter two discusses the impact of continental decorative ornament prints upon British ironwork with the majority of prints of iron stemming from the 1680s.

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<sup>213</sup>Clifford Herbert, A., *Cut-Steel and Berlin Iron Jewellery* (Bath, 1971), p. 26

## CHAPTER 2: ORNAMENT PRINTS & PATTERN BOOKS

### THE CONTINENTAL INFLUENCES FROM 1660 TO 1720

Chapter Two identifies, illustrates and describes the key ornament prints of iron of the seventeenth- and eighteenth-century. It provides a comparative analysis of the rare, engraved designs of ironwork by designers such as Charles-Augustin D'Aviler, Gilles de Bellin, the family of Jean Berains (the elder and the younger), Jean le Blond, Robert Davesne, Pierre Gautier, Nicholas Guérard the younger, Michel Hasté, Antoine Pierretz le Jeune, Jean and Daniel Marot, Jean le Pautre, Jean Tijou and others. Published designs of iron are compared to realized designs in iron, whether still extant or surviving through detailed depiction in paintings or country house views. The range of influences and diversity of effects are analysed.

For the first time, a catalogue of continental prints of iron created during 1660-1720 by designers, architects, engravers and publishers, has been collated and is included in Appendix I.<sup>214</sup> The dissemination of ideas illustrated within ornament prints was fuelled by affluent patrons returning from the Grand Tour. It could be argued that the quest for refinement of taste was encouraged and propelled by the circulation of decorative prints, for the artistic cognoscenti and those who travelled abroad in political and religious exile, developed a desire for exotic and curious styles of art. Yet whilst the importance and significance of ornament prints has long been recognised in the development of other materials it has, to date, received scant attention in relation to designs of forged iron, perhaps due to the relative rarity of ornament prints of iron. In an endeavour to redress the imbalance I have researched the visual records of ornament prints at international libraries to uncover a selection of designs of iron that have not previously been referred to in literature on the subject. (The sources include: from London, the Prints and Drawings Collections at Victoria & Albert Museum, the National Art

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<sup>214</sup> These have been sourced primarily from the great public collections (in London, the Prints and Drawings Collections at the Victoria & Albert Museum, the British Library, and the RIBA Library; from Paris, the École des Beaux-Arts and the Bibliothèque Nationale de France; from New York, the Metropolitan Museum; Amsterdam, the Rijksmuseum and in Stockholm, the National Museum of Sweden) together with sources in private ownership



Library, the RIBA Library; from Paris, the École des Beaux-Arts and BNF; New York, Metropolitan Museum; Rijksmuseum, Amsterdam; National Museum of Sweden, Stockholm) together with sources from the grand seventeenth-century country houses in private and public ownership and from the public records offices. Many of the prints have been identified in correlation with those listed in Désiré Guilmard's 1880's publication entitled *Les Maîtres Ornemanistes, Dessinateurs, Peintres, Architectes, Sculpteurs Et Graveurs: École Française, Italienne, Allemande, et Des Pays-Bas (Flamande & Hollandaise)*.<sup>215</sup> In some cases, I have identified the original ornament print, hitherto dormant, in connection with late seventeenth and eighteenth-century ironwork. The evidence suggests that it is possible, if not probable, to uncover individual tracks of circulation of new ideas disseminated by these prints and via the subscription lists printed at the forefront of architectural and garden treatises. Reference is made to prints in this chapter using the following reference systems. For the Victoria & Albert Museum (VAM: code), for École des Beaux-Arts (ESTLEScore), for RIBA (RIBACode), for St Paul's Cathedral (SPCCode) and for the Wren Office Drawings (WRE/Code).

This chapter considers the extent of "influence" of ornament prints, an intangible yet important assessment which might be defined by a number of different criteria such as the number of prints of iron produced by an artist and thereby the circulation of the ideas. Or it could be defined by the status of the designer conferred by royal patronage. Popularity encouraged copies and reprints of favoured designs and the numbers of reprints can be a useful guide to levels of influence. Whilst cases of direct borrowing from prints are often irrefutable proof of "influence" there is a danger that individual instances of similar types of borrowing command disproportionate attention due to the effect that tradition and conservatism can have on the desire to replicate designs of an earlier generation. The following questions arise. What type of information did the print contain? Was the print often republished or copied and, if so, how many times? Was the print published in different countries and intended for different languages? Where

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<sup>215</sup> Guilmard (1880)

was the print sold and to what market? Was the print intended for royal/elite patronage or popular use? To what extent were the ideas “new”?

Taste was significantly influenced by foreign merchants trading in exotic goods. The map of continental trade routes illustrated by Peter Thornton in *Form and Decoration* (Plate 2) indicates the influence of merchandise, people and ideas travelling across the continent.<sup>216</sup> From Italy to Northern Europe, the Alps were only passable at predetermined locations, so the quickest route to Sweden was from Verona, via Augsburg or Munich to Hamburg, Copenhagen north. The importance of this is that the route did not cross France, so ideas and goods were not mixed with French influence in a direct manner. Indirectly they may have been influenced *en route* by exposure to other travellers and merchants. Similarly trade routes, established in the late seventeenth-century for the importation of iron from Swedish ironmasters into Scotland, affected designs of decorative wrought iron in Scotland with notably Swedish/Danish effect. Often designs embraced the Germanic preference for naturalistic effects created using round bars, suggest the influence of the low countries and coherent with the trade routes that Thornton notes. Similar geographic and logistical influences are referred to in this chapter.

The generalised nature of ornament designs by a limited number of arbiters of taste such as Du Cerceau, Le Pautre and the family of Jean Berain and of Jean Marot led to a dynamic cross-fertilisation of design motifs across different media.

Whilst Jean and Daniel Marot’s designs have generally been considered to be highly influential during the second half of the seventeenth and the first decades of the eighteenth-century, this study provides evidence that suggests that there were other more influential designers such as Le Blond, Le Pautre and the Du Cerceau family whose ideas have proved to be more important in originating ideas for designs of wrought ironwork in England. The chapter concludes by explaining how a combination of commercial and artistic concerns led to the establishment of an English style of wrought ironwork towards the end of the first quarter of the eighteenth-century.

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<sup>216</sup> Thornton (1998), p. 7

### ARTISTIC BACKGROUND/CONDITIONS

It might be said that the arts in this age aspired to the condition of the theatre, where mass and movement became a primary focus.<sup>217</sup> Innovative, imaginative and exuberant, English decorative wrought ironwork of the seventeenth and eighteenth-century illustrates the most original achievement in this material, such as at Hampton Court Palace, the Fountain Court Screen. Whilst the traditional expertise of the smith gave the movement its base, the technical skills and unconventional approach introduced by highly skilled continental smiths facilitated it. The increasing availability and circulation of ornament prints and pattern books highlighted a shift in the focus of design towards applied designs and away from traditional forged techniques. A productive tension arose between innovation (following new taste and fashion) and convention (traditional craft techniques that had proved their value). New designs were introduced into England in a variety of ways including Continental ornament prints and pattern books, the circulation of which became popular in England from around 1650. Designs were also transferred by itinerant smiths who introduced new styles of ironwork into Britain. Whilst printed material depicting ironwork in France can be dated back to 1627 (Mathurin Jousse's treatise and Portier's one print of iron depicting a highly ornate decorative sign bracket in 1631) almost all decorative prints of iron originated from 1662 onwards with the majority dating from the relatively brief heyday of production between 1680-1723.<sup>218</sup> A synopsis of the period leading up until this moment uncovers the variety of design sources that influenced the content of ornament prints.

In the sixteenth-century, Italy was at the forefront of print publishing. Since 1544 Antonio Lafrery (1512-1577) had been selling individual prints of Roman buildings and monuments. In 1569, Bolognino Zaltieri in Venice included a title page to a large number of portraits published in 1569 titled *Imagines quorundam principum et illustrium virorum/Ritratti di alucuni prencipi, et huomini illustri*.<sup>219</sup> Title pages and/or a dedication were important because sometimes they included a

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<sup>217</sup> Burke (2009), pp. 239-261

<sup>218</sup> Jousse, M., *La fidèle ouverture de l'art de Serrurier* (Paris, 1627)

<sup>219</sup> Van der Sman, G. J., "Book Review: *The Print in Italy 1550-1620* by Michael Bury", *Simiolus: Netherlands Quarterly for the History of Art*, Vol. 30, No. 1/2 (2003), p. 123

publication date. The status and significance of dedications played a major role in the financing of print productions, though they may equally have been an attempt to catch the eye of prominent people.<sup>220</sup> Between 1573-1577 Lafrery began to offer his customers a title page that could be bound in at the front of a personal selection of prints.<sup>221</sup> Prints might be organised into subjects, such as a book of grotesques, of masks, geography, antiquity, books of friezes and foliage or they could be an eclectic, personal selection bound together. Copies of prints by other competitor publishers in Rome were also available through Lafrery and could be included in the collection. During the late seventeenth-century in France, prints of forged iron were often created and published in suites of six plates. The rarity with which they can now be seen in complete sets is perhaps due to the “recollection” of prints that commercial services such as Lafrery provided. Decorative engravings were quickly recognised for their beauty and technical quality by collectors throughout Europe and they formed part of the first collections of prints created during the sixteenth-century.<sup>222</sup> Prints circulated as luxury goods within collectors’ and dealers’ circles and they formed a unique part of social, intellectual and commercial networks. Whilst distribution of prints across the Continent could be geographically broad, at the same time, the scope was limited by availability as market forces increased the demand and prices for rare prints. Michel de Marolles (1600-1681), who formed a significant collection of prints that was bought by Jean-Baptiste Colbert in 1667 for Louis XIV, commented that “Prints, well selected and well ordered, will conveniently supply information, not only about all the sciences and all the fine arts, but about everything imaginable”.<sup>223</sup> A number of specialist printmakers aimed at niche markets of collectors through employing more expensive materials and techniques

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<sup>220</sup> Bury, M., *The Print in Italy 1550-1620* (London, 2001), p. 78

<sup>221</sup> Miller, E., “Sixteenth-century Italian Ornament Prints”, Prints, Drawings and Paintings Department, Temporary Display, 27 October 1998 - 6 June 1999, Henry Cole Wing (Ref: NJ. 99. 0059), V & A Leaflet (London, 1998)

<sup>222</sup> <http://www.vam.ac.uk/b/blog/engraved-ornament-project/ornament-presentation-and-collection>. Accessed 21/11/15. Two early collections that survive almost intact are that of Archduke Ferdinand of Tyrol (1529-1595), housed at the Schloss Ambras, near Innsbruck, Austria and that of his cousin King Philip II of Spain (1527-1598), housed in the Royal Library at El Escorial in Spain.

<sup>223</sup> Evans Dee, E., *Courts and Colonies: The William and Mary Style in Holland, England, and America* (New York, 1988), p. 85

such as copperplate engraving which was introduced at Antwerp by Plantin from Paris in 1549 enabling fine lines, richness of details and soft contrasts.<sup>224</sup> A design on copperplate might reasonably produce several hundred prints and the relative scarcity of imagery was reflected in the frequency of re-engraved copies of desirable prints that were in high demand.

During the reigns of Louis XIII and Louis XIV, French artists were encouraged to travel to Rome and other parts of Italy to study painting, sculpture and architecture. Many French artists derived significant design inspiration from Italy, notably designers such as Jean Le Pautre and the Du Cerceau family, yet antiquity had no precedence for ironwork and it was significant that Italy produced not a single printed design for ironwork throughout the period 1660-1720. In France, the organisation of the arts was established with the system of Academies which had been introduced from Italy into France in previous regimes. In Italy the mechanical arts were handled by the Guilds and the Academies dealt with the liberal arts. The principle that art should be taught on a theoretical basis, rather than just by practice (like the manual crafts) was fundamental to the Academies. The underlying theory was that the arts could be learnt by taking thought. The rationalist belief was that art could be understood by the application of certain precepts, discovered by a process of rational analysis and expressed exactly in words. It was from France that the majority of prints of iron were conceived in the eighteenth-century. French engravings were available from print sellers in London and Amsterdam but the widest choice, which included the latest engravings, were available in Paris and so for those who visited Paris there was greater exposure to French taste in ornament, than from Italy or the Low Countries. The enormous output of decorative engravings in Paris evolved and interest in the style of Louis XIV grew. Wren's visit to Paris in 1665 led him to write, "I have purchas'd a great deal of Taille-douce that I might give our countrymen examples of Ornaments and Grotesks, in which the Italians

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<sup>224</sup> Bartlett-Rawlings, B., *Ornamentation for Presentation and Collection* (London, 2012), <http://www.vam.ac.uk/b/blog/engraved-ornament-project/ornament-presentation-and-collection>. Accessed 21/11/15 ; Dudley, L. H., "Histoire de la gravure dans les anciens Pays-Bas et dans les provinces Belges des origines jusqu'à la fin du", *American Journal of Archaeology*, Vol. 42, No. 2 (1938), pp. 321-323

themselves confess the French to excel. I hope I shall give you a very good account of all the best Artists of France, my business now is to pry into Trades and Arts”.<sup>225</sup>

Ornament prints and pattern books evolved primarily as design objects to fire the imagination of craftsmen and patrons. They transmitted new design ideas across Europe and became sought-after, costly status symbols which formed an indispensable part of print and book collections. The evolution of ornament prints began at the end of the fifteenth-century, linked to developments in printmaking. Often designs were published without a title page, text, date or signature. Many have become detached from the original series that they formed part of. Printers often copied, lent or sold blocks to each other and it was a common practice for artists or engravers to make drawings of the originating source and then “improve” the design with alterations. For example, many of Du Cerceau’s prints were copied from engravings by Eneo Vico and Agostino Veneziano.<sup>226</sup> At the time this was not considered an unusual practice. Whilst many pattern books claimed to be new they frequently represented work that had been designed a considerable time before. Many designs were copied by engravers who either imitated the work in their own style or in the hand of the originating style. The new work was either signed as if originated by the old hand, or sometimes signed as if created by the new engraver or otherwise left unsigned. Early prints celebrated the designs not the artist of the designs. Later in the eighteenth-century, it became increasingly common to include the name of the designer and/or maker, though the original is sometimes still difficult to trace with surety particularly when similar prints are found at not dissimilar time periods, with some copies signed by either a new publisher, designer, or engraver and other copies unsigned. The complexity and chronology of attributions is further increased by the similar styles of design and engraving fostered by the training process of designers and engravers and their ongoing working relationships. Often sons engraved father’s work, as was the case with the families of Berain, Marot, Le Pautre and Vallée. Similarly, those under instruction learnt the style of

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<sup>225</sup> Wren, C., *Parentalia* (London, 1750), pp. 261-2

<sup>226</sup> Byrne, J. S., “Du Cerceau Drawings”, *Master Drawings*, Vol. 15, No. 2 (1977), pp. 147-161, 197-205

a teacher/designer such as Du Cerceau who engraved Charmeton's designs, Jean Berain and Jean Marot engraved Hugues Brisville designs. Research has uncovered that Le Pautre's work was engraved by Berain, yet after Jean Marot attained a royal appointment his designs were engraved by others. This would suggest that during the period, engravers learnt their skill whilst engraving the designs of masters and when they became established designers in their own right then their designs were then engraved by those in training or under instruction. Increasingly prints were copied for publication at a later date than the originating period of innovation. The names of the designers and dates of many prints remain unidentified, their work compiled in incomplete sets, or gathered in subject-themed scrapbooks of ironwork designs from the seventeenth and eighteenth-centuries.

The quest for unified designs galvanised the disparate skills of foreign and national craftsmen in the production of prints that crafted the identity of Louis XIV for the world to see. The training of French craftsmen and workshop organisation is summarised below in order to demonstrate working practices during the period. In 1635 the Académie Française had been established by Cardinal Richelieu (chief minister to Louis XIII) to encourage literature, and in 1648 the *Académie de peinture et de sculpture* was founded by Cardinal Mazarin (1602–1661), Prime Minister and godfather to Louis XIV. The French Academy in Rome was founded in 1666 under the directorship of Charles Errard and academies for the other Arts were also established: for dance (1661), for science (1666), for music (1669) and architecture (1671). In 1661 Colbert was appointed Vice-Protector and ordered to restructure and direct the intellectual and artistic life of the kingdom. He put into motion one of the most efficient administrative structures that the country had ever seen and all important projects were highly dependent upon his goodwill. More than 150 edicts were issued to regulate the French guilds. Le Brun was appointed *Premier Peintre du Roi* in 1662, and made *Directeur de la Manufacture Royale des Meubles de la Couronne*, the sprawling complex of artists' workshops that were gathered at the Hôtel des Gobelins on the left bank of the Seine in Paris. Le Brun's versatile talents as a painter, draughtsman and his instinct for decoration, ensured that he remained the principal creator and orchestrator of the court style of the Sun King for the next

twenty-five years, and it was this style borne from absolutist ideals that powerfully crafted the French Court style that pervaded the majority of architectural and ornament prints that emanated from this rich, entirely unique source during the seventeenth and eighteenth-centuries. It was fair to say that as *Mercure Galant* “all the Arts are carried on under him” and that there was “no aspect that he is not concerned with”.<sup>227</sup> Prints formed a persuasive and significant representation of the monarchy in image and ritual. Colbert was well aware that prints were a means of conveying to the world the splendours of Louis XIV’s enterprises as well as recording them for future generations. Colbert issued the following instructions on behalf of the king, “It is necessary to set down in engraving for posterity... the emblems and medals for the King, the busts and statues of S. M., the pictures, the carrousels, tapestries, royal houses and generally everything else of the same nature...”.<sup>228</sup> Colbert’s intention was to assemble the prints every ten or twelve years into volumes by subject, under the title “*Cabinet du Roi*”. The designs of the arts were captured in ornament prints and widely distributed to garner international applause, the prints thereby acting as *agents diplomatiques*. For an artist to be commissioned to engrave prints for inclusion in the volumes was a high accolade and one that created an important influence. The albums were intended to be exquisitely decorative. All artists connected with the Gobelins were exempt from the demands of the guilds and they enjoyed the same social position and freedom as the artists who had lodgings in the Louvre and were directly employed by the King.<sup>229</sup> There were some 250 of the elite of continental craftsmen (from France, Italy and The Netherlands) working together, many of whom were already specialists in their fields bringing together a broad range of new aesthetic and technical ideas and combining these with innovative approaches. Wolf Burchard, Curator of Furniture, National Trust, has commented upon Le Brun’s endless recollection of motifs and images which were applied indiscriminately to a variety of different media.<sup>230</sup> Despite religious differences,

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<sup>227</sup> Weigert, W. A., *Catalogue of the exhibition Louis XIV: Faste et Decors, Musée des Arts Decoratifs* (Paris, 1960), introduction, p. xviii

<sup>228</sup> Evans Dee. E. (1988), p. 80

<sup>229</sup> Blunt (1953), p. 227

<sup>230</sup> Burchard, W., “The Kings Brand: Charles Le Brun and the Making of the Style Louis Quatorze”, *Lambrequins and Luxury: Ornament in the Time of Louis XIV and Beyond, Victoria & Albert Museum Conference* (London, 2015)



links between craftsmen in these workshops encouraged the circulation of transmutable designs. It might be said that in an environment that was increasingly hospitable to new knowledge, revisionist religious beliefs were more readily tolerable. There were examples of familial integrations through marriage, such as Jean Tijou's daughter and Louis Laguerre (Tijou was believed to be a protestant and the latter had trained as a catholic priest).

In most cases the designer and engraver provided separate functions. Occasionally, the designer and the engraver were the same person, such as Robert Pricke and his son who became the pioneer London publisher of architectural pattern books in the 1670's. Pricke brought together French and other continental material which he copied and engraved himself. He published Alexandre Francine's *New Book of Architecture Wherein is Represented Fourty Figures of Gates and Arches Triumphant* in 1669 (which illustrates one print incorporating an iron gate, for Wilton House, which strictly speaking is an architectural print, rather than a design for iron, and is therefore not included in Appendix I, Catalogue of Prints of Iron) and J. Barber's *New Book of Architecture* of 1670, *The Architect's Store House* of 1674, *The Ornaments of Architecture* of 1674 and compilations of prints by Jacques Le Pautre, Jean Barbet and others. As the engraver and printer he was able to sell publications at a price that craftsmen could afford. Thus the content, appeal, circulation and influence of these prints may have been greater than that of specialist ornament prints or architect's books which were initially aimed at an elite audience and considerably more expensive. Many of these prints or books were regularly employed in workshops and prone to be drawn upon, cut-up, soiled, reassembled and discarded.<sup>231</sup> Engravers generally worked directly for publishers and unless the prints were signed, the engravers were not named. As a result, many documented prints are only known by title, having appeared in contemporary booksellers' lists. The difficulty with adopting a chronological approach to analysing and assessing the impact of continental ornament prints on designs of English wrought iron is that the majority of prints of iron are not dated. Where single prints have been separated from their original

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<sup>231</sup> Friedman, T. F., "Two Eighteenth-century Catalogues of Ornamental Pattern Books", *Furniture History*, Vol. 11 (1975), pp. 66-75

series and associated title plate, the dates are not evidenced. It was not uncommon for prints to be published as a first edition long after the artist had designed them or was deceased. The status of books at this time was high and publishing designs and/or text raised the profile of the author. Publishing prints was often seen as a method of self-promotion which gained momentum as the seventeenth-century progressed. The cost of such productions was extremely expensive. The financing of a book was often supported by a wealthy patron or a successful commercial book dealer whose economic support and vote of confidence increased the artist's status. Designers with royal patronage were less reliant upon sales of ornament prints as a method of income or self-promotion and so their prints tended to be published late in their life or after their death, such as Gilles-Marie Oppenord and Jean Marot, at a time when fashions had steadily advanced. The dates between design origination and publication are more immediate for commercial engravers/publishers because they benefitted directly from the process. It might be concluded that the influence of designers with predominantly royal patronage had greater notability and influence through links of status whereas commercial designers produced designs for the populous that were more readily accessible, cheaper and contained designs that were more readily obtainable and achievable.

Print dealers and engravers were constantly alert to new opportunities for ornament prints and books and this interdependent relationship encouraged an ever broader range of prints.<sup>232</sup> On one hand the subjects of ornament prints became more generalized and applicable to all trades and yet, on the other hand, designs became more specialised and rare to satisfy connoisseurs, catering to a broad variety of objects and available in a selection of the latest exotic foreign styles, such as chinoiserie.<sup>233</sup> By 1693, detailed designs for ironwork were published in England by Jean Tijou, entitled *New Booke of Drawings*.<sup>234</sup> For gold and silver metals, M P Mouton of Lyons produced *Livre de desseins pour toute sorte d'ouvrages d'orfèvrerie* and Masson designed *Nouveaux dessins pour*

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<sup>232</sup> Bury (2001), p. 10

<sup>233</sup> Wick, P. A., "A New Book of Grotesques by Christoph Jamnitzer", *Bulletin of the Museum of Fine Arts*, Vol. 60, No. 321 (1962), pp. 83-104

<sup>234</sup> Tijou (1693)

*graver sur d'orfèvrerie*.<sup>235</sup> Some of the pattern books were editioned in the first half of the seventeenth-century, such as *La fidèle ouverture de l'art de Serrurier* by Mathurin Jousse, yet the main impetus was driven by the books published from 1667 onwards.<sup>236</sup>

Most prints are almost entirely devoid of descriptive text and dates other than that which was occasionally embedded in the plates. This suggests that the decorative ideas were being celebrated rather than the artist. As the print market evolved, the artist's signature was increasingly applied to the engraved plate and the public profile and popularity of the artist rose. Research has uncovered that prints depicting ironwork are divisible by two categories: those that record designs for ironwork that had been completed and installed, by designers such as De Mortin, Nicolas Guérard, Gilles de Bellin and Jean Le Blond and Jean Tijou and those that were creating speculative designs and inspiration for new work, usually entitled "*Nouveau Livre de Serrurerie*". Novelty, and the value that contemporaneous viewers bestowed upon this attribute, cannot be overestimated. In the late seventeenth-century, revolutionary developments in scientific, mathematical and philosophical theories engendered a high level of innovation. Ingenuity, in aesthetic and technical terms, was feverishly sought after and visual representations of this quality were hotly pursued.

Several types of engravers existed, usually divided into two classes: engravers who relied entirely upon incising precious silver objects and engraver-illustrators who designed and engraved ornament prints, decorative functional objects and also occasionally decorated important silverware.<sup>237</sup> Books of engraved design which were intended for practical purposes, such as pattern books, tended to be more instructional and less decorative in their layout and style because the layout of the page was arranged to offer a comprehensive three-dimensional view, or series of views and details, of the same object.<sup>238</sup> By this method the craftsman

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<sup>235</sup> Mouton, M. P., *Livre de desseins pour toute sorte d'ouvrages d'orfèvrerie*

<sup>236</sup> Jousse (1627)

<sup>237</sup> Hartop, C., *The Huguenot Legacy, English Silver 1680-1760* (London, 1996), p. 70

<sup>238</sup> de Moelder, C., *Proper Ornaments to be Engrav'd on Plate*, dedicated to Richard Jones, 1<sup>st</sup> Earl of Ranelagh (1641-1712)

could visualise the entire design and decoration of the object and, if required, reproduce it precisely. The process of translating designs into etched prints for publication was not always an easy one. Often when a drawing was translated into an engraving, changes to the original design were made. Engravers frequently revised the proportions of the designs in order to “fill the page” in a more aesthetically pleasing way. Some designers/architects such as Philibert de l’Orme complained bitterly about the way the printmaker distorted his drawings.<sup>239</sup> In some cases, the alteration of the composition affected the impact of the whole. Some detailed designs were simplified and others became more decorative and embellished and some were resized, such as the pen ink and wash drawing by Jean Marot (VAM: E.2526-1929) for the “Porte de fer du vestibule du Chateau de Maisons” compared to the finished print (E.1159-1908). Yet the most significant “translations” evolved during the process of reinterpreting an ornament print design for production in iron, whereby practical, technical and economic issues arose. Designs for iron were rarely slavishly copied, instead they tended to adapt to the practical requirements of site or budget.

Compositions of the late seventeenth-century frequently displayed two alternative designs arranged equally on either side of the centre vertical line. The process of splitting designs with a centre line originated from an unidentified designer called the Master of 1573 “... because he wrote 1573 on almost every drawing...” and “provided his clients with choices by splitting his designs with a center line and on each side of the median changing details or rearranging their order”.<sup>240</sup> This design format had originated in the sixteenth-century but became more common in the eighteenth-century. Designs based on the centre-line format could be viewed in their entirety with the use of a mirror placed vertically along the centre line, thus creating a symmetrically harmonious whole. Le Blond frequently used this method, as did Nicolas Guérard, Daniel Marot, Charles Augustin D’Aviler, Michel Hasté and Jean le Pautre.<sup>241</sup> Earlier designers such as Jean Marot

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<sup>239</sup> Byrne, J. S., *Renaissance Ornament Prints and Drawings* (New York, 1981), pp. 12-13

<sup>240</sup> *Ibid.*, p 12-13

<sup>241</sup> Blanc, L., *Le Fer Forge en France aux XVI<sup>e</sup> et XVII<sup>e</sup> Siecles* (Paris/Bruxelles, 1928), pp. 91, 94, 96, 55-56, 45-47, 30, 34-35, 8-12

preferred to entirely represent the design with symmetrical illustrations of both parts of gates to create the full effect.<sup>242</sup>

The “*art de disposer*” (the art of arranging) was identified as the most subtle of artistic qualities, as it allowed the elements of an artwork to be grouped in such a way that the observer perceived a unity.<sup>243</sup> Arrangements of this type paved the way for new artistic conceptions that required innovatory technical practices to create them. Trimming around a design aided the transfer of motifs for the decoration of an object and it facilitated the creation of new visual objects which reflected and encouraged the creativity of a patron and/or designer. Sarah Grant, Curator of Engraved Ornament at Victoria & Albert Museum, has noted that “...For the early collectors of both manuscripts and prints the practice of selecting and extracting details through cutting out was a common one”.<sup>244</sup> As ornament prints were intended to fire the imagination, this encouraged patrons and designers to be interactive and to cut-out the parts and the skill lay in judiciously arranging the elements into a unique and original ensemble, the object value of which could be measured by the discernment exhibited by the creator. Prints offered aspiring designers and enthusiastic patrons of ironwork a relatively inexpensive way in which to express ideas for grand designs, regardless of whether they were practical, economically feasible or desirable. It is rare that a print of iron was slavishly copied, more often parts were derived from it and used to create a new design. Occasionally a whole print was used, though more often a composite approach was adopted utilising a figure from one print and a motif from another. For largescale ironwork, such as the majestic gates and screen to Wimpole Hall, Cambridgeshire, the level of detailed design illustrated in Tijou’s ornament print (Plate 31) which measured approximately 25 x 40cm was miniscule, so a detailed replication of design was extremely difficult and unlikely.<sup>245</sup> So the influence of

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<sup>242</sup> Blanc, L., *Le Fer Forge en France aux XVI<sup>e</sup> et XVII<sup>e</sup> Siecles* (Paris/Bruxelles, 1928), pp. 14-16

<sup>243</sup> In a study of the principle of symmetry as a characteristic of display, based largely on conchological illustrations from France and the Netherlands, Emma Spary discusses Montesquieu’s *Discourse on Taste* (Paris, 1757) and the illustrations in the collection of the Dutch collector Levinus Vincent (Haarlem, 1719) in an account of commonplace definitions of taste. See Spary, E., “Scientific Symmetries”, *History of Science*, Vol. 42, Part 1, No. 135 (2004), pp. 1-46

<sup>244</sup> <http://www.vam.ac.uk/blog/engraved-ornament-project/cutting-colouring-and-inscribing-part-1-extracting-ornament-cutting>. Accessed 15/03/15

<sup>245</sup> VAM: 29394.1

prints of iron was more conceptual than exact. As a medium, ironwork was unusual in the high level of eclectic recomposition that predominated during the period. The practical aspects of utility objects that required structural stability for their purpose meant that the massing of linear units and the proportion and composition of the whole were of primary importance. Of equal importance were financial constraints, the ability of local smiths and the scale of intended space for ironwork. These practical necessities did not always concur with a paper design.

Designs for decorative prints of iron begin with the publication of architectural treatises and engravings drawn from the decorative arts. The demand for specialist architectural publications in England increased after the Restoration and the Great Fire of London in 1666, although as early as 1663, the pamphlet “*England’s Interest and Improvement*” by Samuel Fortrey (“a Gentlemen of His Majesties most honourable Privey Chamber”), had highlighted the new modes and tastes that had been introduced into England by French craftsmen.<sup>246</sup> Eileen Harris has noted that from 1660-1820, almost one hundred textbooks by craftsmen and instruction manuals were published many of which, in the case of ironwork designs, were copies from preceeding years, such as Louis Fordrin’s *Nouveau Livre de Serrurerie* of 1723, a copy of Jean Tijou’s *New Booke of Drawings*, 1693.<sup>247</sup> Literacy rates were still relatively low during this period and there was a predominance of images rather than text. Pattern books generally took one or two forms. Some were a record of completed work of a particular architect or designer and others were a collection of ideal and speculative designs. These books were compiled with the sole purpose of assisting and enabling architects and craftsmen with design choices for new work, so variety was essential. Most eighteenth-century pattern books were portable, pocket-sized and intended to be cheap enough for workmen in rural areas. There was a greater need for pattern books in the countryside due to a lack of accessibility to new original sources of design. Prints were the only medium through which a larger number of people could be informed about the existence of new ideas. Smiths bought pattern books

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<sup>246</sup> Fortrey, S., *England’s Interest and Improvement* (Cambridge, 1663)

<sup>247</sup> Harris (1990), pp. 32-37; Fordrin, L., *Nouveau Livre de Serrurerie* (Paris, 1723) ; Langley, B., *Ancient Masonry* (London, 1736); Langley, B., *The City and Country Builder’s and Workman’s Treasury of Designs* (London, 1740); Pricke, R., *The Architects Store House* (London, 1674) ; Pricke, R., *The Ornaments of Architecture* (London, 1674)

from which to derive the latest continental designs. Increased circulation of prints and books broadened the potential for influence. Newly available translations of architectural source books and cheaper republications of earlier versions, enabled a wider distribution and circulation of foreign designs. Sometimes the ideas and images originated and depicted a previous period of style which lengthened the period of influence. One such example is Serlio's *Architettura* which was published in Antwerp in 1542 and within five years of the original publication of Book IV, Flemish, German and French versions were available and later a Dutch version was printed in Amsterdam in 1606, followed by an English translation in 1611 published by Robert Pricke.<sup>248</sup> Other books were translated into English editions, such as Jean Le Pautre's *New Book of Fries Work* and Jean Mussard's *A Book of Divers Ornaments....* enabled broader distribution and circulation of images. The standard architectural Continental source books during the seventeenth-century, were Palladio, Serlio, Scamozzi and Vredeman de Vries. By this stage many were in their second and third editions. Architectural and design publications began to originate from London, as did the engraved prints for precious metals such as gold and silver by de Moelder and Simon Gribelin. These transmutable designs were increasingly applied across a range of craft media and the cross-fertilisation of ideas generated more interest and influence in foreign designs. An example of the generalistic approach of the intended audience is alluded to in the title of Sebastiano Serlio's *Architettura, Book IV* (1537) which is subtitled *A Booke of Sundry Draughtes, Principally serving for Glasiers: And not impertinent for Plasterers, and Gardiners: besides sundry other professions*. Later these designs and motifs were applied to a still broader range of different media for example *Booke of Five Collumnes of Architecture* by the German artist Hans Blum, translated into English and published by Robert Peake's son, *For the benefit of Free-Masons, Carpenters, Goldsmiths, Painters, Carvers, In-layers, Anticke-cutters, and all others that delight to practice with the Compasse and Square*. The application and arrangement of classical ornaments were also the subject of Hans Vredeman de Vries's *Architectura, de oorden Thuschana...*, but

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<sup>248</sup> Hart, V., and Hicks, P., *Tutte l'Opere d'architettura e prospettive*, Vol 1, Books 1-V, trans. (London, 1996), pp. xxxii-xxxiii, 470

the builder was left to his own devices with the suggestion from de Vries that he “Arrange them to his contentment according to the opportunity of the work”.<sup>249</sup>

There are three types of metalwork prints which are distinguished ordinarily, though not consistently throughout the period, by a trio of terms which relate to materials and methods of working. “*Serrurerie*” refers to forged iron which is traditionally worked hot at the anvil (producing gates, balconies, balustrades, railings and parts of locks and keys). “*Ferronnerie*” was the term applied to metals which were usually worked cold or with moderate localised heat at the work bench such as locks and keys, formed from a variety of brass, copper, tin, pewter, lead. “*Orfèvrerie*” referred to gold and silver, worked cold by carving and chiselling (the metal being pure enough to be highly ductile) and sometimes cast. During the period a language of design and techniques developed that transmuted these different materials and methods of working.

For the first time, a summary of prints of iron produced during 1660-1720 has been collated within the geographic regions of France, Italy, Germany, England, Holland and Belgium. The number of designers (artists, engravers, architects and print publishers) are totalled and an assessment of the contributions from each region is proffered. The catalogue in Appendix I has been compiled with reference to the index of Désiré Guilmard who, in 1880, published *Les Maîtres Ornemanistes, Dessinateurs, Peintres, Architectes, Sculpteurs Et Graveurs: École Française, Italienne, Allemande, et Des Pays-Bas (Flamande & Hollandaise)*.<sup>250</sup> Whilst the method identifies decorative prints of iron of the late seventeenth and early eighteenth-century, the summary is partly complicated by the inconsistent use of the french terms *serrurerie*, *ferronnerie*, *orfèvrerie* during the period.

As a visual record, the table below identifies and enumerates the foreign originators of ornament prints of iron during the period. The increased level of interest and growth of output of prints of iron can be considered in relation to the

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<sup>249</sup> de Vries, H. V., *Architectura De oorden tuschana, in tvveen ghedeylt in XII. Stucken, bequaem en nutteliick voor alle ingenieuse bouwvers, als metsers, steenhouvvers ende andere liefhebbers der antiquer Architecturen. Gheinventeert ende ghemaect naer de leeringhe Vitruuij* (Antwerp, 1578)

<sup>250</sup> Guilmard (1880)



contemporaneous plethora of ornament prints detailing cartouches, furnishings, jewellery, wall panelling, many of which carried popular, transmutable motifs which are depicted in prints of iron.

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**Numbers of designers, architects, engravers and publishers involved in the making of prints of iron during the seventeenth and eighteenth-centuries**

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Country	16 <sup>th</sup> Century	17 <sup>th</sup> Century	Early/Mid 18 <sup>th</sup> Century Louis XIV/Louis XV
Germany	0	1	3 (excluding Rococo prints)
France	1	8	21      12
Italy	0	0	0
Holland, Belgium	1	2	0
England	0	1	0

From the above summary, it is clearly demonstrated that ornament prints detailing designs for forged iron were extremely rare. Prints of iron published by Holland and Belgium were scarce. England's contribution to decorative prints of iron during the seventeenth and eighteenth-centuries was limited to designs by Jean Tijou whose *New Booke of Drawings* containing 20 plates was published in 1693. By the eighteenth-century Germany was the second largest creator of prints of iron, after France (if one excludes prints of Rococo design, which generally post-date the period under study by some 10-20 years). Italy produced no prints of iron during the period. The overwhelming abundance of ironwork ornament prints or iron were issued from France during the seventeenth and eighteenth-centuries and this ensured that French ideas were widely circulated and became the predominant influence upon English designs. The influence of these prints will be discussed chronologically in the next section.

Having identified the geographic and, to some extent, cultural vicinity within which these ornament prints were created and printed, we now look to the prints

themselves. As innovation usually builds on what has gone before, though not necessarily, I have adopted a chronological approach and in the absence of complete dates it has been necessary to postulate.

Compilations of prints published as books, rather than a selection of single sheets later assembled, were aimed at serious *aficionados*. Most prints of iron tended to be produced in sets of six designs with the title page including not only a design but also a dedication. The purchase of this number of prints of intricately designed ironwork was likely to have been considerably more expensive than the purchase of single prints. The influence of these tomes, was therefore likely to have been limited by the print production run of the books. The costly price of these rare books could only be afforded by rich aristocratic patrons whose ownership of the very latest trends in rarified design objects was seen as a reflection of their connoisseurship. For prints that were republished, the extent of influence was increased by enlarged circulation. An example of this is Pierretz le Jeune's (fl. 1664-6) designs for iron which were sold in sets of six, the first page of which included a dedication signed by "Mic. Haste M. Blacksmith from Paris" (fl. 1676-93).<sup>251</sup> The remaining five prints are not signed by Haste, though F Poilly is noted on all designs.<sup>252</sup> The designs of Tijou, compiled in a book of twenty plates, are only known to have been printed twice with the original 1693 copy and in 1723 by Louis Fordrin who published *Livre de Serrurerie de composition Angloise* in Paris under the name of Louis Fordrin yet with the designs of Jean Tijou.<sup>253</sup> The publisher was Jean François Daumont (fl. 1750). The plates are all copies of Tijou's with the same engravers. This means that the hard copies of Tijou's original engraved plates must have returned to Paris to be reprinted (or perhaps all minutely copied from the original prints) yet each retaining the same engraver's signature. It might be reasonable to suggest that the sale of Fordrin's book of Jean Tijou's English designs preceeded Fordrin's second book or new designs for ironwork as the frontispiece of the latter (published in 1723) refers to the sale of the former title (VAM: E1635-1977). If copperplate engravings produce a few hundred good quality prints, then there may have been 200-300 prints of each

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<sup>251</sup> [http://primo.getty.edu/GRI:GETTY\\_ALMA21116364070001551](http://primo.getty.edu/GRI:GETTY_ALMA21116364070001551) Accessed 10/05/16

<sup>252</sup> Guilmar (1880), p. 95

<sup>253</sup> Metropolitan Museum of Art, New York, Accession No. 37.18.1

plate (20 plates in total, including the frontisplate) by Tijou in circulation. If the prints were issued as single prints, then this could have enabled a broad distribution of up to 4,000-6,000 prints, yet the book was issued as a set of 20 plates and this would have restricted the total number of book owners to 200-300. Whilst influence was limited by the substantive cost of books of prints, the nature of such patronage held an increased influence due to the social and economic hierarchy that the prints were circulated within. Provenance was important and artistic links with the monarchy were highly persuasive methods of advancing oneself, politically, economically and socially.

Prior to the introduction of printed design, it might be summarised that inspiration for visual ideas, designs and goods was circulated by first-hand exposure to foreign objects and styles through travel, by itinerant craftsmen and merchants, and word-of-mouth descriptions perhaps accompanied by sketches. Thornton's map of continental trade routes (Plate 2), illustrates the paths that merchants and travellers most often used.<sup>254</sup> For example, travelling north from Italy, the Alps were passable in only six locations, two leading into Germany and the remainder through France. The German routes travelled north to Stockholm or to Antwerp and England. Those travelling through France headed to Paris and possibly on to London. The importance of these routes helps to understand the mixture of designs that evolved, reflecting, in varying degrees, the ideas collected along the way either by intent or osmosis. These "fusion styles" are perhaps best described by multiple illustration (rather than description) so that an understanding of the styles of the objects can be visually appreciated.

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<sup>254</sup> Thornton (1998), p. 7

## THE IMPACT OF CONTINENTAL ORNAMENT PRINTS ON DESIGNS OF IRON, 1660-1720

The origins of decorative ornament prints dated from around 1425 when the business of printing sprouted and the circulation of woodcut images, depicting popular small religious scenes and playing cards, began. In the mid-fifteenth-century text, composed of moveable type, was added to the imagery. This foresaw the way to a dramatic increase in print production of books and the specialisation of ornament prints on paper. Around 1470, the “*all antico*” style of decoration, which originated from the principle cities of Italy, came into favour with artists. The style had been assimilated and adapted from Raphaelesque grotesque ornament, itself derived from the vaults of the Golden House of Nero and adapted for the stucco decorations of the Vatican Logge. The renewed and fashionable interest in this style was much stimulated by the availability and portability of engraved ornament prints, the designs of which were applied to a diverse range of media. The decorative and inspirational qualities of these designs led a famous eighteenth-century printseller to comment upon the engravings of Jean Le Pautre, “ce qu’il mettoit au jour étoit moins receu comme des modèles que comme des idées propres à échauffer le genie” (the things that he published were taken up less as (direct) models than as ideas gauged to fire the imagination).<sup>255</sup> The family names of Du Cerceau, Le Pautre, Marot and Berain became synonymous with the transmutable designs that fuelled the development of decorative arts during the period under study. Characteristic of these designs were a range of motifs that included scrolling acanthus leaves, putti, birds, animals, arabesques, cartouches, winged amorini, laurel leaves, ebullient satyrs, grotesques, shells and crowns and lavish flower garlands.<sup>256</sup> The politically inert qualities of flowers and leaves resulted in them being abundantly employed, although symbolism had attached itself to some varieties, such as the *fleur-de-lis* and Louis XIII. During Charles II’s reign, plasterers such as Edward Goudge, Robert Bradbury and James Pettifer were ornamenting the ceilings of country houses with lavish garlands of fruit and

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<sup>255</sup> Thornton (1978), p. 29

<sup>256</sup> VAM: 27918:2; VAM: 24871:1; VAM: E.752-1937 and VAM: 23106:7; VAM: 27918:2

flowers, palm branches and cartouches with an emphasis on the world of fantasy.<sup>257</sup>

Examples of popular imagery that inspired designs of iron originated from Italian ornament prints of the 1530s-1550s such as Sebastiano Serlio's design (VAM: 16802) (Plate 32) engraved by Agostino Veneziano and published by Antonio Salamanca which illustrate a frieze with heavy rolling leaves and spiralling tendrils. Abundant scrolling foliage is also depicted in two engraved friezes published by Antonio Lafrery in Italy in 1561 (VAM: 13249:1). During the same year a design was published of heavy rolling foliage which morphs into a male torso figure and grotesque animals are depicted by Giovanni Battista Pittoni, the Elder and Nicolás Vlegio. VAM: 27441A depicts scrolling foliage, amorini and metamorphic and anthropomorphic figures and animals. Masks of bearded men had appeared in engravings from 1554 by Balthazar Sylvius (b.1518 - d.1580) (VAM: E.475-1991) and probably originated from Antwerp, Belgium. Ornamental designs with rich acanthus foliage sprouting from the lower body half of a faun, and incorporated within the design grotesque masks, were printed in 1552 and originated from Soest in Germany by Heinrich Aldegrever. (VAM: 24933). These designs provide evidence of the derivation of Tijou's style from ideas that were published long before. In 1636, prints of grotesques were published in Amsterdam, the Netherlands, such as an engraving after Polifilio Giancarli (also known as Zancarli), depicting a satyr ravishing a nymph. A similar style was created in c.1650 by Stefano della Bella (1610 – 1664) illustrating strong and rhythmic forms that created a feeling of lively movement which became characteristic of Baroque style in the seventeenth-century. This plate was part of the set "Ornamenti di Fregi et Fogliami", Italy dating from around 1650 by della Bella (VAM: 28190:9). Whilst established motifs underwent revision there are clearly visible continuities yet the conceptual ideas emerge with a variety of different visual outcomes. This section identifies and illustrates the key continental effects upon designs for British ironwork.

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<sup>257</sup> Thornton (1998), p. 20

The very first ornament print of iron was published in 1627 when Mathurin Jousse penned an extensive treatise on French locksmithing entitled *La Fidelle Ouverture de l'Art de Serrurier*. It illustrated four highly decorative keys of office depicting intricate designs with winged figures, exquisitely sinewy dolphins and amorphic forms. Jousse's designs included an early set of iron wellheads. Together the images clearly depict that, at this early stage, these new forms of production were being created using a variety of chiselled iron for keys (carved whilst cold to achieve intricate levels of exquisite rarity) and forged iron for wellheads (which retained the impulsive hand of the smith working amongst the sparks and flames). French smiths were trained in both methods of working whereas British blacksmiths were conversant with traditional forged techniques alone. This is an important differentiation because it dramatically affected the forms that could be achieved in iron. Similar decorative motifs were taken up by Jean Marot in his designs for arched overthrows which suggest a knowledge of Jousse's work. In 1631 Jean Portier published a design of iron depicting a richly decorated sign bracket with rolling acanthus leaves spiralling into jonquils and roses and terminating in an eagle's head and beak. Sign brackets were particularly popular as trade boards in times when street/house numbering was not yet common in London and on the continent. This well-liked utility object became the focus for early designs of iron by Jean Le Pautre, Jean Tijou and G./S. Vallée (Plates 33-35). The early forms by Le Pautre depicted classical winged figures morphing into rolling acanthus leaves. Tijou's designs depict the transmutable motifs popular from 1660 and the later designs by Vallée integrate highly structured compositions, derivative of cartouche designs. Conceptually both designers draw influence from a design for ironwork by Michel Faigay (called Michel le Rochellois), dating from 1600-1610, E.148-1937. The design recalls the style of Italian cast bronze doors illustrated by a drawing by Cosimo Fanzago (1591-1678) for a bronze and brass grille (Plate 36).<sup>258</sup> Another early design by Marot is entitled *Porte du fer du vestibule du Chasteau de Maisons* and depicts the splendid wrought iron and silver doors of c.1650 originally from the Château de Maisons and now located at the Galerie d'Apollon, Louvre, Départements des

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<sup>258</sup> Courtauld Institute of Art, D.1984.AB.109

Objets d'Art, Paris (Plate 4).<sup>259</sup> Equally lavish designs for highly decorative doors composed of full-length decorative vertical panels are illustrated in the prints of Nicolas Guérard (Plate 37) and in Tijou's design for the gates to Burghley House (Plate 38), which illustrate a style derived from the Louis XIII period (with the addition of a horizontal scrollwork band at the dog rail). The design by Marot is contained within a compact border of entwined double circles, a *guilloche*. A similar visual effect was achieved using a simplified form by Luchet in his design for iron gates at Versailles dating from 1678-9 (Plate 5) and later by Daniel Marot in his design for Het Loo (Plates 39-40). This style of border was utilised by Jean Le Blond in his design for the gate to the grand stair at Versailles. The motif had a precedence in designs for locksmiths. In England, the motif first appeared in the ornament prints of Jean Tijou's in the border to a staircase balustrade and Tijou's design at Chatsworth House, Derbyshire (Plate 41-42), and in the balconies overlooking the west gardens. Of a similar date at Drayton House, the location of several works by Tijou, is the stair to the great hall which depicts two vertical bands of circles.

Gradually as the fear of self-protection and the demand for security decreased, palaces and grand houses became less defensive in appearance and gates became more transparent, evolving into elegant screens. Through this *clairvoyée* the viewer was permitted a vista of the house and formal gardens beyond. French smiths put their best work into the *grille d'honneur* which assumed huge proportions, especially those surrounding the great *cour d'honneur* of châteaux and hôtels which they served to enclose, protect and embellish. Louis XIII (reigned 1610-1643) was an enthusiastic exponent of forged iron. He installed blacksmiths at many of his properties such as Francois Toisonnier at Saint-Germain; Poyard, then later Rossignol and his descendants until 1789 at Fontainebleau; Daniel Gittard at Château Saint-Maur; Jules Hardouin Mansart designed a screen at Château Clagny in 1678 and at Meudon; Jean Girard at Saint Cloud, notably a screen of 1680; Robert de Cotte at Nôtre Dame. Louis XIII's enthusiasm set a precedent that continued long after his reign. At Versailles and the Trianon, the Sun King continued this interest in the effects of smithing by

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<sup>259</sup> VAM: E2526-1929

commissioning work by Delobel, Baron, Etienne Boudet, Fordrin the elder, Legrand, Potelet, and Godignon. It was during Louis XIII's reign that the fashion emerged for ironwork with increasingly three-dimensional foliated gates, balconies, balustrades and railings, composed of scrolls and curves, clad in sumptuous *repoussé* acanthus leaves, such as the *Porte de la Nymphée*, Châteaux de Wideville (Plate 43). The designs were symmetrical about a vertical access, and repeated horizontally. Design characteristics include widely spaced, light gauge round or square iron bars, loosely curved. The style originates from Italian work, depicted by the balustrade to sides of the gate, Augsburg Cathedral sixteenth-century (Plate 44) and a Chapel grille, Arona, Lago Maggiore (Plate 45) probably of mid-seventeenth-century. At first the effect was playful and light, with loose, spacious compositions in which iron bars form the pattern and *repoussé* leaves create focal points upon the surface. Later there became a distinction between designs of iron for public-interfacing areas and those that are for private and informal entertainment purposes. The versatility of the language of ironwork reflects the variety of these different pursuits. For example if a comparison is made between Luchet's strict linear designs for the *cours d'honneur* at Versailles with the sensuality of ironwork embellishing the *Porte de la Nymphées*, Châteaux de Wideville then the variety becomes clear. The wrought iron designs that present the public face are formal, linear, restrained and severe, with decoration contained within the overthrow and focussed upon a shield.

During the late seventeenth-century gates, balconies and stair balustrades were interpreted as belonging architecturally to the façade and were harmonized with the buildings. The first floor balconies of Versailles were influential in introducing this new form of production from the French Court style to Chatsworth House, Derbyshire. The French tendency, with its fondness for designs of classical origin, was to compose the decorative elements within boxed compartments, preferring stately, symmetrical compositions with the focus of design on the ornamental overthrow which centred and surmounted the whole. Gates such as this were centred on the main axis and framed an impressive view of the dominant architectural façade. If located on the garden axis, an idyllic view of the pleasure gardens was glimpsed through an intricate iron veil. Despite the luxuriant and opulent effects of French overthrows the dominant and stately



vertical effect illustrated by Luchet and Le Blond's designs was maintained at Versailles. Designs for balconies and balustrades for interior and exterior purposes developed into wider panels that were symmetrical about the vertical axis, some of which incorporated a strapwork design that linked the sides to the centre. Increasingly lavish decorative leaves were applied to the scrollwork to embellish and accentuate the visual movement of the curves. Designs published by Robert Davesne, Nicolas Langlois and François Poilly illustrate the styles, yet it was probably the work of Jean le Blond from Versailles depicting the French court style of the late seventeenth-century, that was most influential upon the designs of Tijou's balconies and balustrades. The epiphany of this French style of balcony arrived in the form of exterior and interior balconies at Chatsworth, the intricate jewel-like quality of which was never again surpassed in England. Palatial façades such as this required a series of balconies applied to focal architectural points at first floor level. Tijou's composition for the Chatsworth balconies may derive from Le Blond's work at Versailles (which could suggest that he was apprenticed there or nearby) and similarly to Paul Androuet's design published by François de Poilly (b.1622 – d.1693) which is very similar in layout to the square balcony designs at Chatsworth (Plate 46). The print notes "Inventée by Charmeton and Gravé by Ducerceau". The designs illustrated in Tijou's book for balconies depict compositions that were densely packed, focussed around a central design motif such as a cloth-of-estate and/or interlaced monograms surmounted by a crown, and included grotesque masks and abundant scrolling acanthus leaves. Yet whilst a likeness of motifs and composition can be seen in the prints of Le Blond, Langlois and Poilly, the engravings are far less detailed than Tijou's.

Perhaps one of the most influential aspects of Le Blond's designs for iron was the extent to which the imagery became a visual representation of the king's ambitions. The ironwork formed part of the architectural context of Louis XIV's work, these forms were used visually to control the identity of the ruler. Power and status were paramount. A similar example of visual representation of military leader in architecture is illustrated at Blenheim Palace, Oxfordshire, designed by John Vanbrugh for the Duke and Duchess of Marlborough and financed by the monarchy, to commemorate the highly successful military career of the Duke. The designs created a unified, contemporary vision of heraldic and military symbols.

The integration of heraldic symbols into designs for wrought ironwork is discussed in Chapter 4.

During the period, designs for iron were dynamically evolving and source material was derived from architectural treatises as well as decorative ornament prints. Hans Vredeman de Vries (b.1527-c.1607), a Dutch Renaissance architect, painter and engineer, published many books on garden design (1583), ornaments (1565) and perspective (1604).<sup>260</sup> He could be considered as the Dutch Du Cerceau and he designed a pattern book for craftsmen in which the style of the five orders of architecture (Doric, Ionic, Corinthian, Composite and Tuscan) are depicted.<sup>261</sup> Le Blond was likely to have been familiar with the popular designs of de Vries. A unique aspect of Le Blond's designs for iron is the pilasters, which frame a central panel, and are composed of lyre shapes inspired perhaps by the architectural features of caryatids and terms, familiar in Roman architectural sculpture. Historically, these caryatids (female) and atlantes (male) were slaves condemned to hold up heavy weights and they were often located either side of entrances. The book was intended for "stonecutters, cabinetworkers, glasspainters and all handworkers in the arts", which itself indicates the widespread application of these forms.

Le Blond's influence upon Tijou is evidenced in the design for the Hampton Court Palace Fountain Garden Screen in which Tijou introduces into England a similar yet revised form of lyre shaped pilaster (Plate 47). Similar pilaster designs are depicted in gates at Trinity College, Oxford (attributed to Thomas Robinson) and later, Dulwich College (attributed to George Buncker). Whilst there are similarities in the use of some motifs from Versailles in Jean Tijou's designs (such as the railings with lanceheads and tassels depicted on the frontispiece of Tijou's *New Booke of Drawings*, and the use of cloth-of-estates and sunbursts), many of those motifs were popular, symbolic references to Louis XIV and, to some extent,

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<sup>260</sup> [https://en.wikipedia.org/wiki/Hans\\_Vredeman\\_de\\_Vries](https://en.wikipedia.org/wiki/Hans_Vredeman_de_Vries). Accessed 22/03/15

<sup>261</sup> Vredeman de Vries, H., *Joannis Vredemanni Frisii architectorum sui seculi facile principis Architectura: continens quinque ornamenta architecturae, scilicet Atticum, Ionicum, Doricum, Corinthium, & compositum: item regulas, demonstrationes ac figuras perfectissimas: opus mathematicis, architectis, pictoribus ac lapicidis perutile ac necessarium / studio atque opera summi mathematici Samuelis Marolois recognitum atque illustratum* (Amsterdam, 1647)

the success of their overexposure was limited by these associations. So whilst Tijou derived influences from the work of Le Blond, Du Cerceau and Le Pautre, he re-imagined, recollected and reassembled the design sources to create a variety of different visual outcomes. The designs were produced for the monarchy and aristocrats and could therefore be seen to magnify and glorify these echelons of life.

Following the Great Fire of London, prudence encouraged a high demand for inflammable building materials. Ornament prints of iron staircase balustrades responded to the demand for this requirement of new forms of production. Early designs, dating from Louis XIII's period and illustrated at Fontainebleau, relied upon traditional smithing techniques and were quickly assimilated into the blacksmith's repertoire. Early designs are illustrated in the prints of Hugues Brisville, Pierre Gautier, Jean Marot and Pierretz le Jeune (Plates 48-51). The earliest patterns depict scrollwork with a minimal use of applied leaves. Designs were created by inverted repetitions using flat and/or round bars with joints bound together by collars. Stamped pistils and seeds sprout into the gaps inbetween. The designs were predominantly vertical and symmetrical about one axis. Later, designs evolved into compositions symmetrical about the vertical and horizontal axis. Some patterns were bordered by vertical bars which formed a framework within which the design was contained. In England, these continental designs influenced the King and Queen's staircase at Hampton Court Palace and at Kensington Palace the design for the main staircase, at Drayton House, the stair from the drawing room to the formal garden, the stair from the paved court to the great hall and the stair from the great hall to the King's dining room. Similar yet simpler designs are illustrated at the hall to Seaton Delaval and the stair to the west entrance at Burley-on-the-Hill, Rutland. A rare and unique example of an early staircase derived from Italian influence is located at Caroline Park, Midlothian (Plates 52-53). The stair is composed of heavy rolling acanthus leaves illustrating the influence of Le Pautre's designs inspired by painted and stuccoed ensembles of Pietro da Cortona (1596–1669). The designer's sumptuous scrolling, foliated friezes are likely to have fired the imagination and development of heavily ornate staircases formed of wood and iron and clad in generous leaves that engulfed the structures. Similar transmutable designs were created in wood by

artists such as Grinling Gibbons at Sudbury Hall, Derbyshire, Edward Pearce (attributed) at Crakemarsh Hall, Staffordshire, and Dunster Castle, Somerset (Plates 54-55)<sup>262</sup>. Sir William Bruce, Scottish architect, possibly assisted with architectural work at Caroline Park and it may be to him that the Italian origins of this design derive.<sup>263</sup>

Tijou was following a custom in vogue amongst the upper echelons of artists and prima-craftsmen in France to publish a book of designs. Without this book the extent of Tijou's *oeuvre* and status may have been limited to accounts ledgers. The question is whether the prints of iron represent completed work or whether they are intended as inspiration for future work? When considering the purpose of pattern books detailing designs for iron, Starkie Gardner and Ayrton & Silcock suggest that Tijou's book was intended as a set of idealised designs and proposals for future work, rather than a record of completed work. The book is formed of 20 plates, including the frontispiece which was designed by Louis Laguerre, a pupil of Verrio and son-in-law to Tijou (Plates 56 – 75). 19 plates follow, all designed and signed by Tijou and engraved in the best style of contemporary engraving by well-known foreign artists settled in London. Tijou's plates are depicted in Plates 56-75. (The plate numbers referred to below correspond with Tijou's original plate numbers). The plates were exemplary of French court style during the late seventeenth-century. The following discoveries have arisen. The frontispiece is designed by Louis Laguerre and is French in spirit. Plate 2 depicts two central ornaments which are studies for the Hampton Court Palace Fountain Court screen. Plate 3 illustrates a balustrade with royal crown and monogram, composed of a central panel very similar to designs of ironwork at Chatsworth. The staircase balustrade illustrated in Tijou's book is reminiscent of the early cast effects depicted by Jean Marot and Le Pautre. It depicts a composition densely packed with effusive flower garlands, eagle heads and serpents. Potential sources of these designs may derive from Paul Androuet du Cerceau's ornament prints depicting swags of husks, fruit and flowers published around 1670-90, such as VAM: E.752-1937 and VAM: E.747-1937. The staircase is not known to have been

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<sup>262</sup> <http://www.architectural-heritage.co.uk/stock/d/the-crakemarsh-hall-stair/106068>. Accessed 12/02/16

<sup>263</sup> <http://www.scottish-places.info/features/featurefirst3917.html>. Accessed 12/01/14

created, though it may have been a design for one of the royal palaces, such as Kensington or Hampton Court (all of which integrate ironwork by Tijou) or for Chatsworth House where the current stair replaces two earlier designs. So it was the motifs of this design that were eclectically recollected and developed in English ironwork, rather than this specific staircase design. Plate 4 details one pair of gates with different designs on each panel. The centre gate at Hampton Court Palace is similar to the right-hand panel of Tijou's design. These gates were executed in a modified form at Hampton Court. Plate 5 depicts an iron screen which is illustrated in Kip's engraving of Wimpole Hall in an unusually high level of detail which connects it irrefutably to this design. The extravagant bunches of flowers bursting forth from several urns atop the gates illustrate a distinct similarity to Italian ornament prints for lace making by Bartolomeo Danieli, active Bologna & Siena, 1610-1643, published by Agostino Parisini & Giovanni Battista Negroponte in Bologna, 1639.<sup>264</sup> Plate 6 demonstrates a similar balustrade to that forged for Chatsworth, with the exception of the linking garlands of husks. Plate 7 is identified as the gates to Magdalen College, Oxford, the gates and piers to the President's garden are arguably an exact replica, with the exception of the overthrow which is an entirely novel design and perhaps a replacement of the original. The unusual dog bars of Tijou's Plate 7 are noted at St Mary Redcliffe in Bristol (attributed to Edney). Plates 8, 9 and 14 illustrate designs for very ornate sign brackets. Plate 10 shows a stairway, the second one, that is similar in design to the central panel of the exterior balustrades at Chatsworth and derives influence from the compositions of Le Blond's ironwork balconies at Versailles. Plate 11 depicts elements of design which are used, in a simplified format, at the entrance gates to St Mary the Virgin, Oxford. For example, the looped scroll ends to the verticals. Plate 12 is as yet unidentified but the balustrade is very similar in conception to the work located at 37 Charles Street, London. The two masks resemble studies for the Fountain Court screen. Plate 13 illustrates a decorative capital from the Houses of Parliament. The design of Plate 15 depicts a gate in the late Louis XIV style. It may be influenced by Marot who was working at Hampton Court Palace contemporaneously with Tijou. Plate 16 illustrates a design for a square fleur-de-lis panel as part of the Hampton Court Palace screen. Plate

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<sup>264</sup> Metropolitan Museum of Art, New York, 37. 47. 2 (1-13)

17 depicts the gates at Burghley illustrating an intricate overthrow depicting a delicate wheatsheaf (a symbol of love and charity) and regal lion supporters of a monogram.<sup>265</sup> The gate has been reproduced in fairly accurate scale and detail to Tijou's design. Tijou favoured the horizontality of classical designs and the design perhaps appears diminished by a lack of height. Plate 18 depicts an upper stair baluster, executed at the library of Trinity College, Cambridge. The lower design is suggestive of the Queen's stair-rail at Hampton Court Palace. Plate 19 illustrates the design for the Lion Gates situated in the Long Walk at Hampton Court yet this design was executed with more lofty proportions. It is possible that the original design was condensed to fit the page. Plate 20 depicts the design for the Hampton Court Palace Fountain Garden screen. Perhaps the most influential print upon Tijou's design for the Hampton Court Palace Fountain Garden screen might be the square composition and massing of the decorative elements illustrated by Paul Androuet du Cerceau in the *Panneau D'ornement Servant aux Peintres Sculpteurs Orpheurs et autres* (Plate 76) published c.1670-85.<sup>266</sup> In summary, the evidence suggests that the book represents the work that Tijou had completed in England albeit with relatively minor modifications of design and/or scale. Contrary to previous writers on the subject, the author would suggest that the material evidence demonstrates that Tijou's book was intended first and foremost as a record of work completed. Eileen Harris has commented in "British Architectural Books & Writers 1556 - 1785" that design books specific to an architect, craftsman or building were most probably initiated & subsidized by their patrons "as a compliment to the genius of the architect and the munificence of the patron".<sup>267</sup>

The Hampton Court Palace Fountain Garden Screen by Tijou derive design sources from architecture, *broderie*, *parterre*, lacemaking and jewellery, each of which illustrate the revival and reinvention of the grotesque with a new imaginative style which redirects the genre along innovative ornamental paths. Whilst many of the motifs that are depicted in Tijou's plates are predated by

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<sup>265</sup> <http://www.biblemeanings.info/Words/Plant/Wheat>. Accessed 12/05/11

<sup>266</sup> VAM: 23106:9. <http://collections.vam.ac.uk/item/O643907/panneau-dornement-servant-aux-peintres-print-paul-androuet-du/>. Accessed 12/01/15

<sup>267</sup> Harris (1990)

earlier productions in iron (such as the generous bulbous chains of husks that feature predominantly in Tijou's Fountain Garden screen are similar in concept to the tulip shapes located at the Chancel Grille (left of the nave) at Orvieto Cathedral, Conte di Lello da Siena, 1337) Tijou creates the forms in an entirely new highly sculptural, three-dimensional manner that responds to the baroque desire for dramatic effects.<sup>268</sup> Whilst historically his work has commonly been considered to rely upon the *repoussé* technique, the findings of this research suggest that he relied upon the technique of casting, which instead indicates the uprising of foundrymen. Perceptions of objects produced by cast processes during the period were linked to craftsmen working with precious metals such as gold and silver. Associations were thereby dissimilar to today's perceptions about cast objects which often assume, though not always accurately, that mass produced work contains a diminished level of intricate detail and is of lower quality than original/unique work. The rich, complex designs of Tijou illustrate an eclectic composition and a desire to delight, fascinate and impress the viewer. The ironwork displays the extraordinary craftsmanship of Tijou's workshop and it provided a dynamic influence on the artistic trajectory of iron for future smiths and foundrymen,

Examples of motifs being reused in different ways are the flower garland festoons, a symbol of power, honour, allegiance and dedication, on the Hampton Court Palace Fountain Court Screen (Plate 77). They are joined by the naturalistic rendering of a feathery eagle head which has been identified in ironwork at St Paul's Cathedral in an early balustrade railing attributed to Tijou (Plate X). In the latter example, the depiction of bird heads resemble a phoenix rising from the ashes (a symbolic reference to St Paul's). Similar motifs are occasionally seen in overthrows, neatly connecting the lateral design to the central vertical axis, such as at York Minster, York (early eighteenth-century) and Erdigg, Wrexham by the Davies Brothers, 1720-24.<sup>269</sup> Equally, a balustrade at the Victoria & Albert Museum depicts two heads of birds connecting the scrollwork to the central design and dating from the early eighteenth-century.<sup>270</sup> These examples from a

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<sup>268</sup> Geerlings (1929), p. 36

<sup>269</sup> Milner-White, E., *Wrought Iron Work in York Minster* (York, 1945)

<sup>270</sup> VAM: M.56:16-1921. Maker unknown

diverse range of locations illustrate the popular use of transmutable designs depicted in ornament prints and applied to ironwork with a variety of different effects.

Daniel Marot's designs for iron derive details from Jean Marot's style, the combination of which was instrumental in introducing the fully developed French court style of Louis XIV to Holland and the English style, which is loosely referred to as "the William and Mary style", owed much to his manner. Jean Marot's designs predate Tijou's *New Booke of Drawings* by around twenty-five years. Whilst Daniel Marot could be remembered for inspiring the artistic vision of the period, the broader influence of his style was not spread through printed ornament designs in the late seventeenth-century because his prints were published towards the end of his life, after William III's death. His influence through ornament prints was therefore relatively restricted in England, and similarly in Holland, to the court circle who saw his work first-hand. So in terms of "influence", the date of publication of designs was important in relation to the timing and level of influence. It was only later that a broader circulation was entailed, and this was some twenty years after the designs had originated. Daniel Marot's designs were created for palatial settings and combined with native forms in the development of many decorative arts. Marot transposed the designs common to many of his published plates into compositions for wrought iron. He himself derived sources from early designs by artists such as Jacques Boyceau (b. 1562 – d. 1633) whose prints of *parterres* and *broderie* (Plate 78) were published between 1640-1660.<sup>271</sup> These influences were developed by Jean Tijou in designs for ironwork such as the square panels located under the lock rail and depicted in his *New Booke of Drawings* (Plates 59 and 70). Similar panels of square scrolled ornament are illustrated in the designs of Hugues Brisville 1662/3, Robert Davesne 1676, and the late seventeenth-century prints of Jean le Pautre and Pierretz le Jeune. At Hampton Court Palace in the east front vestibule (Plates 79-80) survive three pairs of gates by Tijou (1694-98) all of which depict square panels of scrollwork beneath the lockrail, the design of which is symmetrical in four sections. However, these rare designs were not taken up by other smiths until

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<sup>271</sup> VAM: E.1098-1908



the early eighteenth-century by smiths such as William Edney, the panels beneath the lockrail for the gates to St Mary Redcliff, Bristol dating from 1710 for which a payment of £110 was made.<sup>272</sup> In 1715 Richard Booth created the gates to the Clarendon Building, Oxford which are reminiscent of Tijou's earlier patterns. Booth was paid £250 (Plate 81).<sup>273</sup> Thomas Robinson's gate of 1711, located at New College, Oxford in the garden screen (Plate 82) contains one square panel similar in design to the gates at the Clarendon Building.<sup>274</sup> As designs for ironwork became unified with architecture, the vocabulary of architecture was transposed onto ironwork. Marot's use of architectural elements, such as gadrooning is influential upon numerous designs such as the overthrow at The Lion Gate, Hampton Court (Tijou); gates to the Old Silk Mill, Derby (Bakewell); Gates to the Durdans, near Epsom (removed from "Canons", Edgware, and probably made by William Edney); Leeswood Hall, Near Mold, Flintshire (Brothers Davies, Robert and John); gates to Clandon Park, near Guildford, and in varied, simplified formats at: Eaton Hall, near Chester (Brothers Davies); and Newnham Paddox, Leicestershire (larger gates by Brothers Davies and smaller gate by Bakewell); and the entrance gates in screen to Carshalton Park, Surrey (Thomas Robinson).<sup>275</sup> Marot created designs for numerous semi-circular fanlights of a highly ornate character, incorporating heraldic shields, torsos of armour, laurel wreaths, acanthus clad-mermen, urns, lion masks, shells, grotesques, feathery birds, scrollwork and heavy balusters. Marot can be seen to derive ideas from Du Cerceau in his use of figures within fanlights. Byrne has noted that "the central human figures are based on the many versions of Jacopo Caraglio's engravings of gods in niches, a series of twenty prints made after Rosso in 1526 and adapted more than once by Du Cerceau for ornamental purposes".<sup>276</sup> The plethora of fanlights created in Lucca and Venice, Italy during the seventeenth-century may have inspired Marot. In England, decorative fanlights were created within architectural stone arches, such as at Drayton House, the entrance to the Bowling Green (Plate 83); at All Soul's College, Oxford, the

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<sup>272</sup> Ayrton and Silcock (1929), p. 119

<sup>273</sup> Saunders (2005), p. 267

<sup>274</sup> Saunders (2005), p. 267

<sup>275</sup> Stamper, P. A., *Historic Parks and Gardens of Shropshire* (Shrewsbury, 1996), pp. 28-9

<sup>276</sup> Byrne (1981), p. 111

gate to the cloister has a similar scrollwork fanlight centred around a heraldic shield and fitted amongst the exterior stone arch. The design to the Clarendon Building, gate to the archway illustrates a similar design, and incorporates rich acanthus leaves, terminating in bird heads, supporting two single lines of festooned husks. During the late seventeenth-century Le Blond's designs at the *porte du grand Escalier du Château de Versailles* suggest he derives influence from Marot by use of a similar central heraldic motif, surmounted by a crown within the fanlight. Simpler versions are depicted at Emmanuel College (screen to dining room, features a later fanlight of scrollwork which fills the area between the top of the gate and the stone arch surmounting it), Queen's College, Cambridge, gate in the screen to the Dining Hall (which illustrates a similar gate and a simplified scrolled fanlight) and at Clare College, Cambridge, a lunette panel is located above the central gate panel and beneath the horizontal band under the overthrow, the purpose of which is to highlight the central panel. Yet in the gates on the bridge at Clare College, Warren's wrought iron gates dating from 1713 illustrate no trace of an architectural vocabulary being applied to his designs of iron, which suggests that he retained control of the design process (Plate 84).

As unified designs prevailed the architect became increasingly focussed upon every feature of design. For craftsmen this resulted in the separation of design from the creative process and a productive tension arose between the desire for the very latest transmutable designs and the ability to produce them in iron. New techniques and methods of working were evolved to respond to the demand. The method of drawing a design on board enabled an artistic vision to be communicated by the designer to the blacksmith which, in some cases, encouraged collaborative workshop practices, outsourcing and contracting.

In search of ornamental prints of iron, one architectural print depicting the lattice, figure-of-eight, threaded round bar design illustrated in *Sacellum Corporis S Norberti Pragae, Questenberg, Strahoven, Abbatia* (Plate 85).<sup>277</sup> The design is typical of a precious and exquisite seventeenth-century German wrought iron

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<sup>277</sup> Ornament print at École des Beaux-Arts, Paris, reference: ESTLES116, Plate 64

screen that survives intact from Nuremburg, c.1690 (Plate 86-87).<sup>278</sup> The design derives from late sixteenth-century “figure-of-eight” latticework created by threading round bars through each other at right angles, became a popular pattern. The style originated from North of the Alps, illustrated by artists such as Martin Schongauer and Albrecht Dürer, and had influenced the handicraft guilds for a long time. Curves and spirals were common with a preference for linear motifs which prevailed. Designs incorporated incredible, naturalistic forms of flowers and vegetation which were executed in minute detail with highly three-dimensional results. Conspicuous in Dürer’s work is the peculiar alternating influence exercised by Late Gothic and Renaissance, both characteristics were reflected in German art throughout the sixteenth-century. Maximilian’s tomb in the Hofkirche in Innsbruck (Plate 88) is an example of the influence of two style epochs. The iron railings around the tomb, created from round bar and completed in 1570, are characteristic of Late Gothic spirit in the north, illustrated by the linear designs enriched by crocket ornaments. The curved motifs developed from the figure-of-eight latticework (formed by means of interpenetrated round bars which fill the panels of the railings), are reminiscent of calligraphic flourishes. The scroll motif with foliage, vine, and other leaves display supreme artistic skill. The ironwork is accompanied by the bronze figures of Italian Renaissance style by Peter Vischer (c.1455-1529), the German sculptor. The spindle-shaped spirals may be regarded as an attempt to treat the linear round bars sculpturally. Germany and nearly all of the continental countries produced masterpieces that stressed curvi-linear wrought iron ornament, the creation of which was enabled by the preference and use of the round bar (rather than a square section). Smiths continued to employ elaborate late Gothic designs in the Germanic regions until long past the middle of the sixteenth-century. The complexity of the workmanship in the Nuremburg example demonstrates outstanding technical skill. Nuremburg was, from medieval times, one of the most important centres in Germany for the production of metalwork, facilitated by easy access to iron ore in the locality. The panels are filled with a series of intricate, interlaced geometrical patterns combined with leafy fronds and foliage. The two central panels are surmounted by an elaborate crest of scrolling leafy tendrils and stylised winged cherubs are

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<sup>278</sup> [www.nicholasgiffordmeadgardenornaments.co.uk](http://www.nicholasgiffordmeadgardenornaments.co.uk). Accessed 10/03/16

flanked by foliated and spiral pinnacles. The style is highly reminiscent of the composition and techniques depicted in the gates to the East Avenue at Drayton House, Northamptonshire (Plate 89) where Tijou's employment was recorded. The date of production, 1699, is included in the design of the upper right panel. The style might indicate that Tijou employed a German/Austrian blacksmith for this project. The date correlates with Tijou's work at St Paul's Cathedral which also depicts designs of a German/Austrian origin. Whilst this interlaced style of ironwork is not represented in pattern books or evidenced elsewhere in Britain before or during this period, the print demonstrates that the predominant influence of lattice designs is likely to have been introduced into Britain by foreign, itinerant blacksmiths.

In the regions, designs for ironwork were evolving with a variety of diverse effects. In Wales where land prices were relatively low largescale commissions for wrought iron were rare with the exception of opportunities provided by local landowners towards the end of the period, made recently wealthy after discoveries of lead or other mined resources in their land, such as at Powis or at Leeswood near Mold where Sir George Wynne was mining at Halkin Mountain. The most significant ironwork from Wales within the period was the impressive screen for Chirk Castle created for a location at some distance to the property and finished by 1719, by the brothers Davies, Robert (1675-1748) and John (1682-1755). The composition is unprecedented in terms of the massive scale and the juxtaposition of the parts cannot fail to excite, delight and impress the beholder with the exotic and the extraordinarily imaginative profusion of flowers, foliage and masks. Robert understood the combination of techniques required to create the latest sculptural forms in iron and he lavishly decorated the composition with applied motifs formed of cast iron elements, illustrated by the balusters and vine clusters. The design derives inspiration from the motifs illustrated in Tijou's *New Booke of Drawings*, such as eagle heads, husks, cloths-of-estates, flower garlands and fruit infused throughout the design. The Davies brothers were paid £190 for their work on the Chirk Castle gates.<sup>279</sup> In comparison, Bakewell was paid £126 for the "Birdcage". Yet the influence of the Chirk Castle screen upon other designs was

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<sup>279</sup> Hollister-Short (1970), p. 63

minimal, not least because it heralded (and to some extent was complicit with) the beginnings of the flow of cast iron. It could be concluded that a less elaborate, piecemeal approach to the adoption of Tijou's style persisted for longer in Wales than the period of his influence in London.

Christopher Hussey has commented that "The humanising influence of Latin civilisation that began to transform English Architecture after 1500 did not reach Scotland with perceptible effect till the middle of the seventeenth-century".<sup>280</sup> This situation permitted a broader diversity of styles and composition of ironwork designs, illustrating high levels of originality and individuality, in comparison to those of a similar date in England. Whilst examples of Scottish ironwork in country houses from the early eighteenth-century are referred to in brief travel descriptions and in bird's eye views which illustrate the presence of ornamental gates and formal garden layouts, it is perhaps the abandoned architectural forms of stone piers and crumbling archways which most suggest the ghostly reminiscences of wrought iron once evident from this period, such as those at Yester House, East Lothian, Pitmedden Garden in Aberdeenshire and Kinross House, Kinrosshire (the latter with a stone archway, now incorporating a new gate, leading to a view overlooking Loch Leven and the stone tower in which Mary Queen of Scots was incarcerated in 1567). Kinross House was the residence of Sir William Bruce, the cousin of Elizabeth 2<sup>nd</sup> Countess of Dysart and wife of Lauderdale at Ham House, London. Bruce's marriage to Mary Halket, daughter of Sir James Halket of Pitfirrane, in c.1660, extended his circle of friends and relationships and the couple formed influential alliances with the Hopes of Craighall and the Leslie Earls of Rothes.<sup>281</sup> Sir William obtained a series of lucrative political appointments including the office of Surveyor-General of the Royal Works in Scotland which he held from 1671-1678. Sir William was entrusted to bring a sense of "tastefulness" to the palaces. Following the Civil War and the Restoration of Charles II in 1660, John Maitland was released from prison and took up his friendship with the King, whom he had loyally served at the Battle of Worcester. He was appointed Secretary for Scotland and in 1672 was conferred

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<sup>280</sup> Hussey, C., *Country Life*, July (1928), p. 132

<sup>281</sup> Scottish Arts Council Exhibition, 1970: Dunbar, J., *Sir William Bruce, c 1630-1710* (Edinburgh, 1970)

the title of the Duke of Lauderdale. Lauderdale set about remodelling Ham House, London and employed Sir William Bruce (c.1630–1710), a Royalist, as architect in London and at Thirlestane Castle, Berwickshire and for the Crown at Holyroodhouse. The majority of Scottish ironwork was influenced by Flemish/German designs and this suggests that foreign tradesmen entered Scotland via Sweden. It might be said that all of the ironwork produced in Scotland between 1670 and the 1690's was created in the immediate circle of Sir William Bruce, the proponents of which were all major influencers of post-Restoration society such as the Duke of Lauderdale and Earl of Rothes, who had political careers which brought them into close contact with the culturally stimulating atmosphere of the English court. During the period the role of the architect was developing to unify all building design elements to the extent that the architect would agree the scope of work, and increasingly the precise details of that work, with every artist/craftsman/designer who worked at the palaces. So it is not unreasonable to think that Sir William himself commissioned the majority of artists and craftsmen on the projects which he oversaw. Scottish ironwork of the period demonstrates strong tendencies of German/Flemish designs in the use of round bar scrollwork combined with highly naturalistic floral arrangements depicted in the thistle, rose, oak leaf and tulip at: Traquair Castle, the gateway to the forecourt, and railing to the avenue; Craigiehall, main stair; gates created for Gogar House; Caroline Park main stair and staircase to the south wing; Donibristle House, the gateway. The design of these ironworks is characteristic of the early period 1660-1690 whereby the style appears to have been left to the blacksmith who has created extremely original and individual conceptions whilst still maintaining a consistent style throughout his *oeuvre*.

In addition to designers of iron that derived significant source materials from ornament prints created by the arbiters of taste, there are also a number of rare and significant commissions of ironwork still in existence in England which illustrate design sources that occurred entirely independently of ideas depicted in ornament prints. For these examples, it is suggested that continental influences arrived in Britain in the form of skilled labour. Whilst the examples of this work are

scattered geographically across England, identification of the style with a close circle of patronage (linking the royal palace of Hampton Court and the grand country houses of Chatsworth, Drayton and St Paul's Cathedral), suggests that an early and significant member of Tijou's workshop originated from German/Austrian descent. The quality of workmanship is distinctive and when the designs are viewed as a group, whilst they demonstrate dynamic design versatility, they are all highly illustrative of their genesis. For example, Austrian influence is conceived, in part, in the work of William Edney at the Gates to the West Entrance to the nave at St Mary Redcliffe Church, Bristol (Plate 92). In the upper panels of the gates there are terminals that finish vertically downwards with a bulb and tail at the end forming an inverted nodule. The design is reminiscent of the strapwork depicted in prints of pendants, the edges of which terminate in inverted nodules.<sup>282</sup> This was a design popular in the ironwork of the West of England smiths (possibly William Edney) working in and around Bristol. Examples are in evidence at the gates to Temple Church, Bristol and St Nicholas' Church, Bristol. The design is also depicted in an elegant sword rest at St Nicholas'. The style may have origination from Dresden (Plate 1) or Austria where I have identified this motif in the screen of Graz Cathedral (Plate 93) dating from the early eighteenth-century. A similar style is depicted in the panels of the St Paul's Cathedral altar rail (Plate 94), attributed to Tijou. At Hampton Court Palace the upper panels of the centre gate display a similar nodule and at the Clarendon Gates, Oxford a variation on this style, in the form of an inverted stirrup shape, was created by Richard Booth (fl. 1712-28) who, in 1715, had worked with Tijou and from whom significant design influences were derived for Clarendon gates. An early example of German/Austrian origin is perhaps illustrated at Drayton House, Northamptonshire in the design for the gates to the east avenue (Plate 89) dating from 1699 which feature an interlaced, figure-of-eight style, made of rod iron in the central panels, a design which was popular in Nuremberg during the last quarter of the seventeenth-century and had origins in German/Austrian regions.

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<sup>282</sup> Thornton (1998), p. 58

## CHAPTER 2 SUMMARY

Conventional interpretations of stylistic change generally assume that new styles replace old. The evidence in this chapter demonstrates an increased diversity of designs of iron between 1660-1720. A high degree of liberalism exerted itself in the creation and composition of new designs. Cultural elitism fostered the quest for authenticity and provenance which encouraged increasing involvement from patrons in the search for designs of innovation and ingenuity. The influence of patrons in the design process reflected their new engagement with architecture, landscape and interior styles. Designers with royal patronage were significantly more influential than those without. There was a greater itinerancy of craftsmen during the period and increased exposure to foreign ideas via commissions from well-travelled and knowledgeable patrons yet some blacksmiths, particularly those in the regions, retained control over their own designs which enabled considerable diversity. The timely arrival of ornament prints responded to this demand and encouraged the process of eclectic recomposition enabled by the cutting-out process.

The pre-eminent design objects of this period, such as solid cast silver furniture and gold plate, amplify the exorbitant values placed upon the most rare and expensive, ingenious and innovative inventions of the day and as demand grew for fashionable objects, so supply increased alongside the engorged influence of designs/designers. If influence is defined in terms of royal patronage then the designers of Du Cerceau and the families of Marot and Berain may be seen, amongst others, as pre-eminent for it was predominantly the arbiters of taste and style with royal patronage who inspired innovation and fired the imagination for new designs of iron. Creators such as Le Pautre, Vredeman de Vries, Oppenord, de l'Orme and the Marot and Berain families will be remembered as highly significant throughout the period.

If however influence was defined in terms of popularity and accounted for in terms of the number and frequency of reprints of a design then the suite of twelve designs for friezes by Edward Pierce (1598-1658) (the first plates of sophisticated ornament design by an English-born designer) published in England in 1640 and



reprinted three times within forty years, can be identified as significantly influential. However, supply and demand played their roles. Yet at the very same time, engorgement for designers impelled retrenchment by connoisseurs and trendsetters as the values associated popularity greatly diminished the values of rarity and innovation. Nevertheless, without the multifarious links of designers and the commercial chain, printmaking would never have flourished without the combination of many affluent patrons, celebrated artists, engravers and publishers.<sup>283</sup>

An integral part of creating new forms of production, which illustrated the latest transmutable designs, was the ability of smiths to invent and adapt. It could be said that the medium of iron was treated during this period as if it were wood, stone or liquid, for the skills of the carpenter (using the saw, file, drill and chisel) and the founder (reliant upon the carpenter to make the wooden mould ready to receive the molten iron for casting) became necessary to achieve the aspired aesthetic effects.<sup>284</sup> To some extent this model of creative output suppressed the individualism of craftsmen. Certainly, for a period, authorship of design and thereby the ideological creator/designer became more important than the artisan. Yet equally this was a period of immense collaboration between craftsmen, designers and highly skilled foreign labour (spurred on by the the influx of foreign craftsmen following the revocation of the Edict of Nantes and inspired by the visual ideals of Louis XIV expressed by the *Manufacture des Gobelins*) and this enabled the production of new ideas, materials and techniques. However, there was a timelag for ironwork as new skills were developed. Transmutable designs were more commonly and immediately created in materials with a higher degree of malleability such as wood, plaster or stone using established techniques of carving or casting whereas iron, which had been traditionally forged, needed to develop and assimilate new techniques before they were applied. Highly fashionable designs were rapidly absorbed into the most expensive gold and silver objects, initially by engraved, two-dimensional methods and then by the addition of intricate cast lobate elements. If a comparison is made between the dates of

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<sup>283</sup> Bury (2001), p. 10

<sup>284</sup> Gapper (Unpublished PhD Thesis, 1998)

designs depicted in ornament prints being engraved on silverware and forged or cast in iron, then a timelag is clearly distinguishable because blacksmiths needed to evolve innovatory casting and assemblage practices to create the newest designs for application to utility objects. So whilst France regained leadership of the arts from the mid/late-seventeenth century, a significant French influence upon designs of iron was not evidenced in Britain until around 20-30 years later.<sup>285</sup>

Yet the attraction to the latest designs created in iron was immense because the Great Fire of London had taken a vast toll on the city, its dwellers, businesses and families and the disaster became a defining moment in the history, and rebirth, of London. Iron became highly desirable on account of its inflammability and durability. Today, generally speaking, many cast objects are considered to be a product of high volume, low cost production techniques creating inferior quality goods. Yet the intricate castings used in the late seventeenth/early eighteenth-century were intended to produce precious, unique objects, the techniques of which were derived from goldsmiths rather than blacksmiths. Low production rates ensured rarity, a highly-prized attribute during the period and these princely, highly ornate, designs were aimed exclusively at the financially elite. Only the monarchy and rich aristocratic patrons could rise to the expense of it.

The primary influence of continental sources upon English decorative wrought ironwork between c.1680-1710 was through the influx of foreign blacksmiths and designers such as Jean Tijou who was responsible for the majority of important ironwork created in England from 1687 to around 1711. It was Tijou's *New Booke of Drawings* dating from 1693, compiled of twenty plates of designs for iron, which raised the profile not just of the man but of the medium. His designs derived sources from Italian styles pre-1650 and thereafter from France when it regained artistic pre-eminence.<sup>286</sup> The practical evidence suggests that Tijou's workshop included a team of skilled and unskilled labour alongside Savouret, the French brass worker, and at least one significant foreign smith of German/Austrian descent.<sup>287</sup> Tijou's exquisite designs were extremely expensive

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<sup>285</sup> Miller, E., and Young, H. (eds), *The Arts of Living: Europe 1600-1815* (London, 2016)

<sup>286</sup> Miller, E., and Young, H. (eds), *The Arts of Living: Europe 1600-1815* (London, 2016)

<sup>287</sup> Saunders (2005), p. 289

to create and the direct influence of his designs was limited by this. Whilst ornament prints of ironwork inspired specific projects, they were rarely slavishly copied, and it was in parts that they were drawn from. In nearly all cases, the work carried out differs in a variety of degrees of scale and proportion and structure. Instead, parred down derivative versions are illustrated across Britain. It might be said that Bakewell's simplified versions of Tijou's French designs were eminently more practical and affordable and thereby more influential in the circulation of this style than any other source. Yet the fashion for Tijou's designs was conspicuously continued by Montigny who reproduced the style and composition of Tijou's designs originating from twenty years earlier, such as at Canons. This enabled the spark ignited by Tijou's style to burn brightly in distinguished quarters even after his absence from Britain.

## CHAPTER 3: IRONWORK AT ST PAUL'S CATHEDRAL

Chapter Three identifies and traces the progress and diversity of Jean Tijou's ironwork at St Paul's Cathedral. This section provides the most comprehensive study of Tijou's work at the Cathedral to date. By 1690 Tijou had commenced work at St Paul's Cathedral where his involvement continued for 21 years of his 25-year residency in England from around 1687-1712. Ironwork at the Cathedral therefore forms the most continuous *corpus* of Tijou's work in Britain and yet analysis of the variety and development of styles of the work are hardly documented.

I visited St Paul's Cathedral to view and explore the ironwork and met Simon Carter, the Head of Collections, and Sarah Radford, the Archivist. This study identifies, illustrates and describes the different forms of ironwork at St Paul's, and analyses the continental influences via ornament prints of transmutable designs and the influx of highly skilled foreign labour. Many significant pieces of ironwork have been relocated since installation. This section uncovers the original locations and revisits the first intended concepts. Plate 95 summarises and illustrates the locations of the ironwork. During the course of exploring this precious collection of ironwork, reference is made to the rare ornament prints of ironwork designed specifically for churches and produced during the period by French designers such as Nicolas Guérard, Gilles de Bellin, Robert Davesne, G Vallée. The prints are identifiable as designs for religious edifices by inscriptions relating to the location of the object and/or the inclusion of sacred iconography. The designs of Nicolas Guérard and Gilles de Bellin are unique in their representation of work ascribed to particular churches, such as Guérard at "Grille des côtez du coeur de Nôtre Dame de Paris", "*Grille de la façade de l'église de St Denis*" and "*Fermeture de Coeur de St Sulpice de Paris*" and Bellin for a "...*balustrade que est placé dans l'église de Ste Anne leur College, Située rue haute-feuille près les Cordeliers a Paris*". The range of design for religious objects spans objects such as grilles, gates, choir screens and church lecterns. This was a period of rapid evolution in liturgical practices reflected in new architectural forms. The decision-making processes of Sir Christopher Wren

(1632-1723) and the design team are considered and the organisation of Tijou's workshop is explored.

Post-Reformation, the choir became the focal point for liturgical practice and it was there that Tijou was commissioned alongside Grinling Gibbons (1648-1721), the Dutch-English sculptor widely regarded as the finest wood carver working in England during the period, to produce a significant body of wrought ironwork for the new carved oak choir and organ case. The highlights include Tijou's Sanctuary Screens, Candelabra Gates, the gates to the south portico, the altar rail and the ironwork to the staircase, southwest tower (all on public display) and also a glimpse at some of the contemporaneous ironwork objects in the stored collection of St Paul's Cathedral.

## WREN AND THE DESIGN TEAM AT ST PAUL'S CATHEDRAL

Between 1675 and 1710 Sir Christopher Wren, the brilliant scientist, mathematician and up-and-coming architect, was hired to rebuild St Paul's Cathedral, its predecessor having been destroyed by the Great Fire of London in 1666.<sup>288</sup> The Cathedral was the first to be built after the English Reformation in the sixteenth-century when Henry VIII removed the Church of England from the jurisdiction of the Pope and the Crown took control of the church. It was at least the fourth edifice to have stood on the site. Whilst the design originated from classical, Italian sources there was an increasing reluctance to support what were seen as "popist" designs. Wren created many designs and plans for the Cathedral before the final design was arrived at. The new Cathedral provided a symbol for the Church of England and for the thriving Protestant community in London, the renewed capital city. In 1675, construction had commenced and it evolved in phases which were largely dependent on funding and materials. Many highly skilled national and foreign craftsmen and draughtsmen were employed in the process. The building accounts and numerous drawings, contracts and records of

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<sup>288</sup> Keene, D., Burns, A., and Saint, A. (eds), *St Paul's: The Cathedral Church of London, 604-2004* (London, 2004); Saunders, A., *St Paul's Cathedral: 1,400 Years at the Heart of London* (London, 2012); Campbell, J. W. P., *Building St Paul's* (London, 2007); Hart, V., *St Paul's Cathedral: Sir Christopher Wren* (London, 1995)

the rebuilding survive and are held in the Cathedral's deposited collections at London Metropolitan Archives. These records provide evidence of the working relationships at St Paul's and with the artists commissioned to embellish the Cathedral. The identification and progress of Tijou's work can be traced in the official accounts, summarised in the Wren Society volumes, in which he is referred to as "John Tijoue, smith".<sup>289</sup> A summary of these payments to Tijou at St Paul's is noted in Appendix VII. The payments totalled £8,275 19s. 6d.<sup>290</sup> Two important and precious signed contracts exist for parts of Tijou's work at St Paul's, the earliest dated June 30<sup>th</sup> 1691 for windows (Appendix VIII) and in September 7<sup>th</sup> 1695 for choir screens and gates.

The following section identifies and describes the diverse variety of ironwork and this is followed by an analysis of the continental sources.

## JEAN TIJOU AND HIS WORKSHOP AT ST PAUL'S CATHEDRAL

In comparison to the high level of consistency of Tijou's lavish designs for ironwork at royal palaces and grand country houses perhaps the most unexpected observation about ironwork at St Paul's is the diversity of styles that are evident throughout the Cathedral, the highlights of which include the classical panels of iron illustrating an Italian Renaissance style located in the choir, co-existing nearby are the hooded figures amongst the altar rail, of German/Flemish descent (Plates 96-98), and close by is the sumptuous leafwork of the Sanctuary screens which clearly derives from ironwork of Louis XIII's style (Plate 99). Tijou's ironwork is identified below with reference to the building accounts. The continental styles are analysed.

In 1690 two round windows were forged for the west door. In August 1691, a contract was agreed for the first window at the east end of the choir, an immense window with circular and chevron borders (a pattern frequently illustrated in the engraved borders of locks) for which Tijou was paid £67 1s. 6d. Between

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<sup>289</sup>Wren Society, *Volume XV* (Oxford, 1938), p. xxxiii

<sup>290</sup> Wren Society, *Volume XVI* (Oxford, 1939), p. 141

November 1691 and November 1692 a further eighteen windows were commissioned from Tijou for the east end of the Choir. In November 1693 Tijou was paid £135 8s. for three upper windows at the east end of the Choir and this was followed in March 1693/4 by an order for six upper windows in the Choir for £252 4s. The total fee for twenty-eight windows to the east end of the choir created between August 1691 and March 1693/4 came to £1567 6s. 6d. In October 1694 rails for two staircases were commissioned at £40 total along with two “Wds in same”, a total of £60. The following year provided the first opportunity for decorative wrought ironwork at the Cathedral and it is not insignificant to note that this sizeable body of work was intended for the new focal point of liturgical practice, the choir.

During March 1695/6 thirty-six panels were created for the choir and oak screens to aisles for which Tijou was paid £354 3s. 4d (Plate 96). The designs are composed of square and rectangular panels of scrollwork and applied leafwork. Whilst each panel is forged in wrought iron to a template design, the individuality of the smith is depicted in the individualistic finishing details such as the organic, irregular seed-pods which sprout into the spaces between the scrollwork. These iron panels retain a refreshing degree of intimacy amongst the vastness of the oak choir and the immense surrounding stone edifice. This style of ironwork panel was predated by the intricate grilles of Venetian merchant warehouses aside the canals, produced between 1500-1600, consisting of ornamental strapwork and scrolls in which the separate elements were joined by collars and rivets (VAM: 146-1889).<sup>291</sup> Venetian styles of ironwork tended to possess a festive aesthetic that was independent of the use and application of the design, such that screens in ecclesiastical buildings possessed a similar visual effect to grilles, balustrades and balconies in palaces. Continental precedents for Tijou’s panels at St Paul’s Cathedral are illustrated in designs by Hugues Brisville and Jean Le Pautre for iron gates in which square panels beneath the lock rail often depict designs similar to the layout of *broderie* and *parterres*.<sup>292</sup> The purpose of these panels was to provide security and a degree of privacy. It is possible that the design derived

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<sup>291</sup> VAM: 5806-1860, Venice, c.1500-1600

<sup>292</sup> Blanc (1928), pp. 26, 9

influence from Jean Le Blond's set of six designs for confessionals printed in Paris in 1688 entitled "*Plan et elevation des plus belles beaux confessionaux de Paris tres fidèlement mesuré*" which illustrate two panels of rectangular decorative design for iron. Tijou can also be seen to derive influence from a print by Jean Marot depicting a rectangular symmetrical design.<sup>293</sup> Early styles by Michel Hasté, Nicolas Guérard and Vallée produced designs for square panels the compositions of which tended generally, though not without exception, to be symmetrical about the vertical axis.<sup>294</sup> This feature was a popular characteristic of styles around 1670 which provided the designs with an identifiable top and bottom. Whilst many fine examples of grilles survive at St Paul's Cathedral and are ascribed to Tijou, only one design for a grille is depicted in his *New Booke of Drawings*.<sup>295</sup> Amongst the Wren Office Drawings for St Paul's is a sketch by Hawksmoor illustrating a decorative iron rectangular gate panel dating from c.1693-4 (Plate 100).<sup>296</sup> This indicates that Wren's project team conceived designs for ironwork about the Cathedral yet these ideas are not known to have been produced. The influence of an architect in designs for ironwork is also suggested by the work of William Partridge (d.1715), the smith who created the grille and gate to Trinity College Library, Cambridge dating from 1691/2 (Plate 100) where Wren was at work.

A simple rail measuring 4 yards was added to the stair in the west end in May 1696, the fee amounting to £4. It is likely that Tijou's workshop included skilled and unskilled labour and apprentices whose skills were trained whilst working on these simpler tasks. In August 1696, an entry records: "To John Tijoue Smith ffor Y<sup>e</sup> Iron Screen under y<sup>e</sup> Organ case in y<sup>e</sup> Choire containing 221 foot superficiall at 40<sup>sh</sup>. p. foot by Contract... 442 00 00".<sup>297</sup> The origins of the design for iron relates to the new organ case. From the middle of 1693 until 1697, Wren and his assistants were occupied on the design, construction and decoration of St Paul's

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<sup>293</sup> Blanc (1928), p. 17

<sup>294</sup> Ibid., pp. 35, 58, 84

<sup>295</sup> Tijou (1693), Plate 16

<sup>296</sup> WRE/4/1/17

<sup>297</sup> Ayrton and Silcock (1929), p. 86



choir enclosure and sanctuary.<sup>298</sup> Amongst the London Metropolitan Archives is preserved a drawing which illustrates retrospectively the initial concept for the choir and wrought ironwork in the east-west section of the east end of the choir to the centre of the first full bay, drawn by Simon Gribelin and datable to 1694 (WRE/3/1/15).<sup>299</sup> Integral to this space was the design of the organ case which was located traditionally upon an ornate stand. The drawing illustrates the aperture for the ironwork but the design of iron is not highly detailed on account on the scale of the drawing. This might suggest that whilst the architectural apertures for ironwork would have been specified by Wren's design team, it seems that the detailed designs for iron were left to Tijou and his workshop. Edward Saunders provides evidence of Tijou's direct involvement in the design process by reference to the payment made to Charles Hopson in 1696 for "Time spent on gluing of boards for Mr. Tijoue to draw ye Iron Screen upon".<sup>300</sup> On 19<sup>th</sup> December 1694, a contract was signed with the eminent organ builder from Germany, Bernard Smith, to supply an organ for the new cathedral. A drawing by Hawksmoor dating from 1693–94 depicts the proposed elevation (WRE/4/2/6[D180]) (Plate 101) which illustrates a prominent circular shape at the top of the organ case which was to be carved by Grinling Gibbons.<sup>301</sup> Directly underneath the carved wooden circle is situated the iron gates with a central circular motif. The circular iron motif was derived from the design for the carved wooden organ case. Flanking the main panel were two screens which incorporated oval shapes, the circles "squeezed" inwards to fit the narrower space. There was no precedence for this design in ornament prints at this period. This is the first use of circular and oval designs in designs of wrought iron. By about 1860, the arrangement of the choir was altered by the stalls moving one bay west. At this time, the original organ or choir screen was removed and in 1890 the present screens, consisting of the original parts joined to new brass and ironwork including cast panels, were divided and repositioned in the north and south sanctuary and came to be known as the Golden Gates (Plate 102). Pevsner notes

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<sup>298</sup> <http://www.stpauls.co.uk/Cathedral-History/The-Collections/Architectural-Archive/4-The-Choir-and-Morning-Prayer-Chapel-169397>. Accessed 02/02/15

<sup>299</sup> SC/GL/WRE/066, London Metropolitan Archives

<sup>300</sup> Saunders (2005), p. 354

<sup>301</sup> WRE/4/1/1 and 2

that Tijou's former sanctuary screens are now located in the east bays of the choir arcades and that broader iron screens in the next bay to the west incorporate Tijou's gates formerly of the west choir entrance.<sup>302</sup> The influence of these designs for iron upon ornament prints is illustrated by Louis Fordrin's who, in 1723, published a second book *Nouveau Livre de Serrurerie* (VAM:1640-1977) which circulated a similar oval design for iron which suggests its derivation from Tijou. It is clear that Fordrin was familiar with Tijou's designs because earlier in 1723 Fordrin had republished Tijou's *New Booke of Drawings* in Paris under his own name. (The order of publication can be established by Fordrin's reference in his second book, *Nouveau Livre de Serrurerie*, to the prior publication of Tijou's designs also dated 1723). So a motif that had been created in response to an architect-led design (a collaboration of form and function) developed a new ornament print and the style of ironwork evolved in multifarious variations throughout England in the following 10-15 years. Examples of the oval and circular designs are depicted in iron gates and screens from 1725 at Eaton Hall and Newnham Paddox (Plate 103) and, to a lesser extent, at Scraftoft Hall, near Leicester.

Between July to September 1698, Tijou was paid £1614 10s for the "Choir Gates N & S at E End". Between April to Jan 1699 a pair of gates with wickets at the west side of the south portico were ordered at £160. In April 1699, the Building Accounts record the payment: "To John Tijou Smith ffor two Desks for y<sup>e</sup> Choristers 9 foot long each containing 26 pannills 16 inches square by agreement ... £265 - 00 - 00". These twenty-six panels are not currently in evidence about the Cathedral, yet stored amongst the St Paul's Collection are a series of twenty-two metal panels of two designs each measuring around 15 x 16.5 inches (approximately 38.5 x 42.5cms) (Plates 105-106). The panels take two forms: twelve repetitions of figurative forms (of German/Flemish origin) and ten panels of floral, strapwork design, which leaves four of the original twenty-six panels unaccounted for. Upon visual inspection, the reverse side of the panels possess clues to the method of making. The grainy surface and lipped edges both suggest that these objects have been cast. Additionally, the level of detail and material

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<sup>302</sup> Bradley, S. and Pevsner, N., *London I: The City of London* (London, 1999), p. 176

quality differ between the panels. For example, SPC9094 possesses a high level of minute cast detail (illustrated by the clarity of the lion's head, Plate 105) whereas other panels are less crisp in detail and the surfaces have been lightly chiselled from the front to sharpen and enhance the shapes. The visual evidence suggests that the designs were carved in wood and cast in iron and that the panels appear to be formed of different types of iron (the colours, finishes, weights and levels of details are noticeably dissimilar between the objects). It is possible that some of the panels date from a later period or the material evidence may indicate the use of a different iron alloy. Equally, the dissimilarities of the panels might indicate the outsourcing of sets of panels to different workshops possibly during different timescales. In a similar style and cast technique to the square panels noted above are three triangular shaped scrolls each incorporating a figurehead. Object Numbers: SPC9098, 39.3 (H) x 34.5 (W) x 2(D) cm; 9299, 38 x 27.2 x 2.5cm; 9300, 38 x 31 x 2cm. (Plate 107). The irregular cast shapes suggest that these may have been infill panels for corners possibly for the oval panels to the original organ case? These objects are not otherwise identified in the accounts.

Between January to March 1699/1700 8 windows totalling £525 4s. 6d were forged with "Scrolls & c complete". An iron balcony to the Dome was produced during March 1703/4 for £823, characteristic of the early styles of French ironwork depicted in prints of iron railings by Pierretz le Jeune (VAM: E.1198-1908) dating from c.1660-1666 and by Pierre Gautier in 1685. The designs illustrate a basic form repeated and/or alternated with the same form inverted, with few applied leaves and decoration formed by the pattern of banded collars, and stamped pistils and seeds, such as the Escalier Royal to the Galerie d'Henri III at Fontainebleau and the Palais Royal and Bibliothèque by Antoine Lemaître.<sup>303</sup> These linear designs developed with the addition of sumptuous scrolling acanthus leaves, as depicted in a grille at the Minimes church in Tours, France, the leafwork of which was applied using rivets with pronounced heads.<sup>304</sup>

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<sup>303</sup> Lecoq (2005), p. 85

<sup>304</sup> Ibid., pp. 54, 24-5

In March 1705/6 an iron girdle/chain around the dome was wrought at a cost of £274 16s. 8d. In 1705 Tijou received £540 in June for the “Side Isles Choir Gates”. By June 1706 Tijou had completed the ironwork for the Dean’s staircase, a broad stone spiral built in the southwest tower (Plate 113) at a fee of £303 12s. 9d.<sup>305</sup> This “Geometrical Stair” leads from the cathedral floor to the triforium level. A gate and terminal at the first landing of the geometrical stair are created from traditional forged scrollwork, applied acanthus leaves and rosettes in a pyramidal shape (similar in smithing style to the oval panels of the organ screen) and topped with cast iron finials and rosettes which evidences the involvement of a foundryman or an outsourced specialist. The unified design of the masonry and ironwork suggest that the style emanated from one hand. The ironwork is attributed to Tijou.

By 31 December 1706 Jean Tijou’s wrought-iron rail was illustrated in Robert Trevitt’s “Engraving of the Thanksgiving Service attended by Queen Anne on 31<sup>st</sup> December 1706” published in 1710 (Plate 114).<sup>306</sup> By June 1707 an altar rail was paid for at £260. During the same period a balcony at the west end was forged for £408 15s. Bradley and Pevsner describe the altar rail as “Across the choir low communion rail, with brass rail, and wrought iron foliage with busts below”.<sup>307</sup> The position of the altar rail illustrated in Robert Trevitt’s view in 1706 has since been moved to the new choir entrance beneath the crossing arch. The design clearly identifies a smith of German/Austrian/Flemish origin. In 1860 the Communicants’ rail was removed from the east end and stored in the crypt. Later it was resurrected and replaced the Choir Screen which consisted of inferior modern brass railings. This was predated by a drawing by Nicholas Hawksmoor for an altar rail and gate (WRE/4/1/17), c.1693-94 depicts a balustrade that was later created in wood during the first quarter of 1699, when the joiner John Smallwell was paid for ‘41 ft of Raile and Ballister before the Altar with Scrowles at each end’. It was painted white to resemble marble and had two doors with

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<sup>305</sup> <http://www.telegraph.co.uk/travel/destinations/europe/uk/london/8780323/The-glory-of-St.-Pauls-Cathedral-is-being-revealed-anew.html>. Accessed 22/04/16

<sup>306</sup> [https://www.stpauls.co.uk/SM4/Mutable/Uploads/sm3\\_emu\\_main\\_image/Wren's%20quire](https://www.stpauls.co.uk/SM4/Mutable/Uploads/sm3_emu_main_image/Wren's%20quire). Accessed 14/04/16

<sup>307</sup> Bradley and Pevsner (London, 1999), p. 175

carved panels in the centre. The design is composed of a series of duplicated panels incorporating scrolls, acanthus leaves, strapwork with the ends terminating downwards in nodules and central to each panel is a characterful hooded figure (a bust) in side profile, cast in iron and affixed to the front and back sides of the railing (Plates 97-98). The style may refer to “the dripping quality” referred to of Mignot’s late work which is first identified in an Austrian ironwork gate at Graz Cathedral, Graz. The first occurrence of a wrought iron grille made in Germany in 1637 (Plate 1) and since located at the Kunstgewerbe Museum, Dresden.<sup>308</sup> Whilst Jean le Blond illustrated one figurehead in the roundel of a balcony design, the design details were distinctly French and as the figure wears a crown it perhaps refers to Louis XIV whereas the hooded figures of the altar rail are likely to have originated from German/Flemish designs.<sup>309</sup> During the period, Germany encompassed 300 states and free cities that were politically fragmented yet felt themselves to be German. This perhaps goes some way to explaining why no single centre in Germany was dominant within the period.<sup>310</sup> It may also begin to explain why the styles of ironwork are diverse yet embody some commonalities. At St Paul’s Cathedral, the relief of the figures and the finish of their detailing suggest that they are cast elements, affixed to the wrought railings. The interesting thing about this design though, is that the smith has kept the designs all different on one side (even though they are cast and lend themselves to being easily duplicated). Uniqueness was a highly-prized quality in the period and in order to achieve the effect in iron, the objects were probably carved in wood and cast in iron (similar to the effects of cast bronze and brass additions to Italian and French ironwork). The smith received full payment for his work in June 1707.<sup>311</sup> Similar hooded figures have been identified on a sixteenth-century door with iron mounting from Pressburg, Austria (Plate 115) and in the gate to the overthrow at Frederiksborg Castle, Hillerod, Denmark dating from the seventeenth-century (Plate 116).<sup>312</sup> This example suggests that the skilled labour to carve these small elements in wood and cast them in iron was a sufficiently inexpensive method to

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<sup>308</sup> Thornton (1998), p. 72

<sup>309</sup> Blanc (1928), p. 94

<sup>310</sup> Thornton (1998), p. 63

<sup>311</sup> Wren Society, *Volume XV* (Oxford, 1938); Wren Society, *Volume XIV* (1937), pl.18, p.152

<sup>312</sup> Saunders (2005), p. 268

enable a variety of designs at affordable prices. The visual appetite for heavy cast work is likely to have derived from Italian bronze castings of the mid-fifteenth century. This style responded to the baroque appreciation of dramatic contrasts of light and shadow created from heavily modelled forms and enhanced by gilding and light reflections. Tijou's work demonstrates, time and time again, that it was the technique of casting, rather than *repoussé*, that he utilised to create solid, durable iron elements that were still unique.<sup>313</sup> Finally in the St Paul's accounts of 1707, confirmation is given to this notion by the record of £275 11s paid to Tijou for the prominent cast gilded copper pineapple finial for the north-west tower. The model of which was provided by Francis Bird, who studied under Grinling Gibbons and Caius Gabriel Cibber, were completed in July 1708<sup>314</sup>. This small yet important detail indicates that Tijou was employed at this important edifice to provide cast objects of the highest quality.

Tijou's final work at St Paul's was secured for him by Wren, a fence around the Queen's statue at the west end for which a payment of £385 13s. 9d. was issued in June 1711.<sup>315</sup> Wren proposed a plan for railings of 'hammered or cast & turned Ironwork' by the St Paul's ironsmith Thomas Robinson. On 5 April 1709, the Building Committee met to consider the proposals along with an alternative scheme for cast-iron railings by the outside contractor Richard Jones, which Wren did not favour.<sup>316</sup> A decision was deferred until the Commissioners next met on 28 January 1710. Jones's cast railings were erected between September 1710 and June 1714. Entries in the rate books confirm that Tijou continued to live at Portugal Row until 1712 after which he is believed to have returned to France<sup>317</sup>.

Amongst the collection of St Paul's are two iron objects in storage illustrating sumptuous scrolling foliage of a distinctly French design, probably by Tijou (Plate

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<sup>313</sup> Vincent (1964), p. 275

<sup>314</sup> [https://en.wikisource.org/wiki/Bird,\\_Francis\\_\(DNB00\)](https://en.wikisource.org/wiki/Bird,_Francis_(DNB00)). Accessed 13/02/15;  
<https://www.stpauls.co.uk/history-collections/the-collections/architectural-archive/wren-office-drawings/6-the-western-towers-c16851710>. Accessed 15/04/16

<sup>315</sup> Wren Society, *Volume XVI* (Oxford, 1938), p. 142

<sup>316</sup> Wren Society, *Volume XVI* (Oxford, 1938), p. 107-108

<sup>317</sup> Murdoch (Unpublished PhD Thesis, 1982), p. 25. Reference is made to "Mr. Tishue Iron gates etc £64" in the building accounts of Cain Hill House, c. 1716

99). There is a small floral iron chancery railing (SPC3307) measuring just 16cm high x 25cm wide and a larger decorative panel (SPC9297) of 190cm wide x 70cm high (described as a section of the chancel rail dating from 1706).<sup>318</sup> Both display the influence of popular designs for iron dating from Louis XIII's period. This corroborates the notion (put forward by Historic Royal Palaces) that Tijou was possibly trained at Versailles.<sup>319</sup>

A similar miscellany amongst the St Paul's Collection are two altar rails (Plate 109) recorded as having been relocated from St Augustin, Watling Street, London illustrating an Austrian/Flemish style.<sup>320</sup> The Wren Society notes Thomas Hodgkins as the smith at St Augustin and at six other City Churches, the connecting link of which may be Edward Strong, who was the Mason to five of these churches.<sup>321</sup> The ironwork suggests that foreign smiths were working in collaboration with Thomas Hodgkins. It is possible that the proximity of St Paul's and St Augustin's enabled the smiths employed at each to be cognisant of each others' work.

The variety of styles of ironwork over a twenty-year period suggest that Tijou's workshop employed a range of national, foreign, skilled and unskilled labour. This notion is further supported by consideration of the volume of contemporaneous commissions undertaken by Tijou during the last quarter of the seventeenth-century at the most prominent palaces and aristocratic residences of the period. His workshop organisation (similar to Renaissance models of artist's studios which were supported by apprentices, locums and the practice of outsourcing) probably enabled this extensive volume of work. A broad variety of different wrought and cast techniques were employed to create multifarious designs. The material evidence supports the notion of Tijou as iron contractor and designer (of some yet not all iron objects) at St Paul's, probably a directing master with skilled artisans working for him, rather than a blacksmith. Tijou's *New*

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<sup>318</sup> <http://spc.adlibhosting.com/detail.aspx?parentpreref=#3307>. Accessed 15/03/15.  
<http://spc.adlibhosting.com/detail.aspx?parentpreref=#9297>. Accessed 14/06/15.

<sup>319</sup> <http://www.hrp.org.uk/hampton-court-palace/history-and-stories/palace-people/jean-tijou/#gs.Dmi4gqs>. Accessed 14/06/15

<sup>320</sup> SPC661 and SPC662

<sup>321</sup> Wren Society, *Volume X* (Oxford, 1932-33), p. 46

*Booke of Drawings* celebrates the elaborate ironwork commissioned in England and yet the designs for iron at St Paul's are not depicted amongst the twenty plates, which could indicate that he did not design them or that they were not of significant status, "value" or artistic importance to include within the book. This might also support the notion that the book was financed by the monarch rather than a commercial print dealer.

Previous historians, such as Starkie Gardner and Harris, have suggested that Wren and the design team were likely to have exercised a restraining hand upon Tijou's designs. However, recent research into the management and administrative processes of Wren's project team has uncovered a process of design that was deeply collaborative. For example, analysis of the Wren Office Drawings demonstrates that Wren revised the design for the Cathedral stage by stage in conjunction with his team, as work evolved from one part of the building to the next.<sup>322</sup> Previously it had been thought that Wren finalised the whole design of the Cathedral before work began on the foundations in June 1675. During the first phase up to 1685, Wren planned the Cathedral with equal-length nave and choir arms and single-storey aisle walls. However, soon after the accession of James II in 1685, funding for the Cathedral was increased and Wren widened the west end and added height to the upper aisle walls to create an all-round two-storey elevation beneath a more richly modelled dome. The 'Revised design' of c.1685–87 was partly inspired by Jules Hardouin-Mansart (1646-1708) the French architect, a favourite of Louis XIV's and generally considered to be the apex of French Baroque architecture, whose domed church of Les Invalides in Paris was begun in 1677 and which Wren knew from drawings and engravings.<sup>323</sup> The Wren Office Drawings provide evidence of the working processes of the project team. Amongst the project team were the master-masons Edward Strong (1652-1724) and Edward Pearce (Pierce) the younger (bc.1635-1695), the surveyors Edward Woodroffe (c.1622-1675) and William Dickinson (1671-1725), the engraver Simon Gribelin (1661-1733), the sculptors Grinling Gibbons (of Dutch-English

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<sup>322</sup> <https://www.stpauls.co.uk/history-collections/the-collections/architectural-archive/wren-office-drawings>. Accessed 14/04/16

<sup>323</sup> <http://www.thehistoryoflondon.co.uk/in-brief-plague-and-fire/4/>. Accessed 16/04/16;  
<https://www.stpauls.co.uk/history-collections/the-collections/architectural-archive/wren-office-drawings>. Accessed 14/04/16



descent) and Caius Gabriel Cibber (of Danish origin) (1630-1700), and the architect, and Wren's most prolific and gifted draughtsman, Nicholas Hawksmoor (probably 1661-1736). The Wren Office Drawings illustrate the multiplicity of hands active on the working drawings and this alludes to the close collaborative nature of the creative process. Whereas an architect's office might usually employ a hierarchy to divide work between the master's concept sketch and assistants to prepare finished drawings, not even Wren had a monopoly over the paper designs.<sup>324</sup> Instead the team worked in pairs to produce alternative and/or finished schemes for Wren's approval.

Conventionally, it has been thought that the important blacksmith work and design origination was given to Tijou and the less important, less visible work, given to Thomas Robinson and other members.<sup>325</sup> Yet the material evidence suggests that specialisation of skills, such as fine iron castings and elements of applied *repoussé*, may indicate outsourcing of work by Tijou to different workshops in which a variety of materials and techniques were used to attain a design. Equally, many of the designs are so diverse and aesthetically independent of each other that they suggest that one or several established members of the workshop were, to a degree, responsible for aspects of design. Technically, the designs integrate new and non-traditional smithing methods yet the other smiths at work on St Paul's Cathedral were all members of the Worshipful Company of Blacksmith's (Ann Slater, Richard Hows, Thomas Colbourne, Richard Jones and Thomas Robinson of Fetter Lane) and the British apprenticeship training emphasised the sole use of traditional smithing methods. Neither do the designs follow any ornament print of the day. Chapter three draws attention to the output of ornament prints from a variety of continental sources. During the sixteenth and seventeenth-centuries the production from Germany/Austria was limited to one print, suggesting that there was minimal precedence in these regions for following patterns of designs for iron. The visual effects combined with the above data suggest that within Tijou's team existed a highly skilled German/Austrian smith of longstanding service. The notion that other smiths developed the designs of

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<sup>324</sup> <https://www.stpauls.co.uk/history-collections/the-collections/architectural-archive/wren-office-drawings/wren-and-his-draughtsmen>. Accessed 14/04/16

<sup>325</sup> Starkie Gardener (1911), p. 81

ironwork at St Paul's Cathedral could raise the question of Tijou's religious affiliations and whether his church was perhaps not the Church of England. He is considered to be a French Huguenot fleeing France after the revocation of the Edict of Nantes, yet his close relative and son-in-law was Louis Laguerre who trained as a Catholic priest and was godson to Louis XIV. Recently historians have questioned the religious motivation of foreign and Huguenot refugees and have instead focussed on other dimensions of people's lives, notably economic and material ones, as the key incentives determining religious choice.<sup>326</sup>

It could be suggested that commissions for the church, by their very nature, fostered sobriety in design yet if a comparison is made between the designs of Grinling Gibbons carved work at the Cathedral and those at palaces and grand country houses, the evidence illustrates that the designs were affected in only one visual way. Whereas Gibbons' work at Holme Lacey, Herefordshire, Cassiobury Park, Hertfordshire and Windsor Castle, Berkshire carved around 1675, focuses almost entirely on the intensely realistic vocabulary of sumptuous fruit, flowers, seashells and game birds, his work at St Paul's was notable in that it extended to include human forms such as winged *putti* in the choir and full-length angels upon the organ case. These designs reflected the Italian origins of Edward Pearce's series of twelve friezes published in 1640 rather than the highly naturalistic Dutch style that Gibbons had introduced into England.<sup>327</sup> Regardless of the iconography, the style of Gibbons work is no less lavish or restrained at this religious edifice than it appears at the homes of the aristocracy. So for Gibbons the application of his work to a religious edifice did not effect itself by a restraining hand, in fact it increased the scope of his *oeuvre*. In view of this and the collaborative nature of Wren's project team it seems likely that Tijou was permitted a high degree of freedom in the creation of his designs of iron at St Paul's.<sup>328</sup>

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<sup>326</sup> Butler emphasises the "fleeting character of religious allegiance in early modern Europe". Butler (1983), p. 19; Hanlon (1993), p. 256

<sup>327</sup> VAM: E2106-1908

<sup>328</sup> <https://www.stpauls.co.uk/history-collections/the-collections/architectural-archive/wren-office-drawings/wren-and-his-draughtsmen>. Accessed 14/04/16

The material evidence illustrates that the influence of ornament prints on designs for iron at St Paul's is negligible and this raises the question of alternative sources of influence. Whilst researching a wide variety of continental origins of design, dramatic developments have been uncovered in ironwork from Switzerland, Germany and Augsburg which focusses interest in the science of optics and perspective. Historic attempts to systematise perspective were made during the fifteenth-century as part of a developing interest in illusionism, allied to theatrical scenery. In 1568 a treatise was published by Jamnitzer on perspective.<sup>329</sup> The first published prints illustrating single point perspective originated in Holland and the Netherlands in the sixteenth-century by Hans Vredeman de Vries (b.1527), painter, architect and celebrated designer (who might be thought of as the Du Cerceau of Holland).<sup>330</sup> A suite of twenty plates was published which illustrate perspective images of palaces, gardens, fountains and magnificent decorations. In Paris, by 1642, Jean Dubreuil had published a practical guide to perspective.<sup>331</sup> In Italy, Pozzo (Le Pèpe André) (b.1642 – d.1709) (known as De Puis in France and Putei or Puteus in latin) produced two volumes of prints of architecture.<sup>332</sup> Other Italian eighteenth-century prints with single point perspective were created by Ferdinand Galli Bibiena (b.1657-1743) and his son, Joseph Galli (b.1696-1756). Zamperini has commented that "Such decorative schemes have a centripetal gravitation: it is not by accident that the climate in which these artists found themselves was the same in which the centralist principles of Louis XIV were being reinforced".<sup>333</sup> There was no precedence for designs incorporating perspective in prints of ironwork or architectural prints including ironwork. Yet the theory of perspective was applied to a variety of materials such as the early wood carving of Grinling Gibbons depicting "The Stoning of St Stephen" carved c. 1690-1710. Esterly has noted that the main figures appear to derive from

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<sup>329</sup> Thornton (1998), p. 70

<sup>330</sup> Guilmar (1880); *Artis perspectivae plurium generum elegantissimae formulae, multigenis fontibus, nonnullisq., etc., etc. Inventor Ioan. Fridmamius Frisius. Liber Primus. Excudebat Antuerpiae Gerardus de Jode Neomagensis. A\* 1578. Joannes a Duetecum, Lucas a Duetecum fecerunt, 1578*

<sup>331</sup> Dubreuil, J., *La perspective pratique: necessaire a tous peintres, graveurs, sculpteurs, architectes, orfeures, brodeurs, tapissiers, & autres se seruans du dessein* (Paris, 1642)

<sup>332</sup> Pozzo, A., *Perspectiva pictorum et architectorum Andrae Putei e societate Jesu, Rome* (Italy, 1693)

<sup>333</sup> Zamperini, A., *Ornament and the Grotesques* (London, 2008), p. 216

Georgio Vasari's "The Martyrdom of St Stephen" altarpiece at Santo Stefano dei Cavalieri, Pisa, 1571 suggesting the influence of continental paintings upon designs for wood.<sup>334</sup> The first evidence of perspective being tentatively illustrated in a design is at Augsburg Cathedral in a choir gate dating from the sixteenth-century (Plate 117). In Germany, Meister Johann Reifell of Constance (c.1640's) introduced perspective into iron church grilles, screens and balustrades (Plates 118-122). The two most characteristic features of perspective are that objects are smaller as the distance between the object and the viewer increases. They are thereby subject to foreshortening, whereby the object's dimensions along the line of sight are shorter than its dimensions across the line of sight. Perspective was applied to ironwork to frame and project a specific view. The example at Augsburg Cathedral uses perspective to draw the viewer's eye up to the centre of the screen's design and directly onto the altar beyond. The effect is to swiftly connect the foreground with the altar by foreshortening the distance between and the result is to bring the viewer closer to the sacred focal altar making the experience more intimate and yet at the same time preserving the sanctity of the altar and its chattles. The use of perspective was unique to these regions of Austria, Switzerland and Prague. The effects were created by piercing sheet iron to the outline forms of receding columns. Surviving examples exist in Klosterkirche, Einsiedeln, Switzerland and in Augsburg, Germany at St Ulrich's and St Afra's. In other locations in Germany, sometimes the bars are placed in such a manner as to improve the perspective, such as the panels of the railings at Weingarten Monastery, as well as at Swiefalten, and in the shrine of Maria Einsiedeln in Switzerland. The central piece of the choir screen at Zwiefalten is constructed in such a manner that Mary the Virgin and Jesus, who are completely surrounded by a golden halo, appear to be set in the niches of an altar.<sup>335</sup> The main iron screen at Lucerne Cathedral, Switzerland dates from the seventeenth-century and illustrates two forms of perspective design. The main screen is centripetal and yet the side screens are highly unusual in depicting an oblique perspective, such as the right-hand gate to the Crucifix Screen (Plate 121). The theme of perspective is developed with a different vocabulary in the screen to St Ulrich's, Augsburg and

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<sup>334</sup> Esterly (1998), pp. 48-51

<sup>335</sup> Hoever, O., *An Encyclopaedia of Ironwork: Examples of Hand Wrought Ironwork from the Middle Ages to the End of the eighteenth Century* (London, 1927), p. XXIX

at Constance Cathedral, southwest Germany. Two further examples from the second half of the seventeenth-century exist in Prague, using a combination of round and square bars (rather than pierced metal), in two gates at Collegium Clementinum. The designs illustrate that perspective was being utilized in churches with the same centripetal focus on religious iconography. However, notwithstanding the ambitious post-Reformation intentions of St Paul's Cathedral and the inclusion of the latest foreign ideas and aesthetics, perspective (the science of optics) was not incorporated into styles of ironwork. This suggests that the ideas had not yet transferred to Britain.<sup>336</sup>

The completion of Tijou's ironwork at St Paul's in 1711 provided opportunities for experienced smiths to work on large scale commissions at the colleges of Oxford and Cambridge, such as Thomas Robinson (of Hyde Park) at New College, Cambridge. The designs and compositions of work from around 1710 onwards evolved into linear, lofty designs with distinctly vertical lines. The early French designs of Louis XIV's period, such as those by Luchet which had inherited the Italian "spirit" of restrained classicism illustrated by the dignified linear compositions of the gates and railings to the *cour d'honneur* at Versailles (1678-9). It could be said that from this point onwards, that the tide in British history of ironwork had turned and whilst elements of Tijou's style were broadly imitated the flow was towards more vertical emphasis and away from the more horizontal lines of classical architecture preferred by Tijou. It could be said that the precursor to these great college gates and screens was conceived when in 1708 Tijou and Jean Montigny (d. 1757) were employed at Felbrigg Hall, Norfolk to create the iron gates. Later, between 1704-14 Montigny's design for the gates and railings enclosing the forecourt at Wotton House, Buckinghamshire provided an early example of a vertical lofty linear composition. In 1711 a fine wrought iron staircase balustrade was added to the interior by Montigny.<sup>337</sup>

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<sup>336</sup> A gate depicting perspective dating from around 1775 currently exists at Powerscourt Estate, County Wicklow, Ireland, originating from Bamberg Cathedral in Germany

<sup>337</sup> <http://www.britishlistedbuildings.co.uk/101124221-wotton-house-with-walls-to-pavilions-wotton-underwood#.WPuo8IWcFjo>. Attribution suggests Jean Tijou as the creator. Accessed 21/02/15

## GATES TO THE COLLEGES OF OXFORD & CAMBRIDGE

Arguably the epitome of English style, created towards the end of this dynamic period of designs for forged and cast ironwork, is the gates to the university colleges of Oxford and Cambridge dating from around 1710 onwards produced by several independent smiths. This rare collection of ironwork is not represented in museums because the objects are still *in situ*, most in their original locations. It is the subtle power of the massing and proportions of these designs, together with the preference for traditional blacksmithing techniques which combine to create a unique, pared down English style. This section identifies the pre-eminent designs of iron at the colleges and reference is made to the styles of four contemporaneous examples situated at aristocratic country houses in England. The continental influences are summarised. The important smiths commissioned upon work at the colleges (or to whom work has been attributed) include: Thomas Robinson (of Hyde Park), Thomas Warren, Richard Booth, William Partridge. Chiefly, the work centres around the following sites: in Cambridge, at the colleges of Jesus, Clare, St John's and Trinity, and in Oxford at the colleges of Trinity, Magdalen and New College. Thomas Robinson and Richard Booth worked at the Oxford colleges with the remainder working at the Cambridge colleges.

The perception of what may be referred to as the "English Style" is perhaps most strikingly illustrated by comparison and contrast with continental contemporaneous styles dating from around 1720 such as the gates to Wurzburg Castle, Bavaria or the gates and screen at Place Stanislaw, Nancy or the gates to the Belvedere Palace, Austria, or the gates at Parish Church, Ingolstadt, Bavaria, Germany (Plates 93-4). Common to all of these designs was the fact that the structures were all located at a significant distance from the main building and so these impressive entrance gateways developed a style which was entirely independent of the architecture. In contrast to the massive scale yet intricately decorated surfaces, the English style relies for its effect upon the balance and composition of linear bars, with the decorative and applied elements contained within the overthrow.

The work of two key blacksmiths illustrates the style, namely Thomas Robinson (of Hyde Park) (d. 1723) and Thomas Warren (1675-1735). Robinsons' work can be studied only by the two remaining gates located at New College dating from 1711 and at Trinity College, the gates towards Parks Road of 1714.<sup>338</sup> At New College Robinson's designs illustrate splendid linear rhythms of the railings and side panels, whilst the central panels are decorated in scrollwork that is reminiscent of continental ornament print designs for *broderie and parterres* (Plate 78). The earliest origin of this design in Britain may be by William Partridge (d.1715) who created ironwork for Trinity College Library, Cambridge where Wren was employed. Between March 1691 and February 1692 two payments are recorded in the account books of the College totalling £400 for the "three Iron Gates in the Cloyster & Iron Railes in the Stair Café" (Plate 100)<sup>339</sup>. The gates were located in the arcade, constructed of three iron panels, one of which forms the gate. Whilst the workmanship is of extremely high quality the design suggests intervention by an architect, perhaps Wren himself. Similar designs exist at Hampton Court Palace, the east vestibule (Plate 80), at St Paul's Cathedral in the Candelabra Gates (Plate 104) and later at the Clarendon Building, Oxford (Plate 81), designed by Nicholas Hawksmoor. Reliance is placed upon the pattern and silhouette created by the forged bars rather than the application of applied acanthus ornament. Between the gate and overthrow was a decorative horizontal panel which supported the overthrow. Emphasis is focussed upon the rich scrollwork that pushes upward to erupt into an effervescent overthrow balancing the Bishop's Mitre like a fountain spout. A rich and complex effect is achieved by the organisation and clarity of the parts.

Warren's achievements can be studied by the gates in Cambridge on the bridge at Clare College of 1713, the avenue gates at Trinity College c.1720, presented to the College in 1733 and St John's College dating from around 1715 (Plates 84,

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<sup>338</sup> The current screen is understood by Jackson-Stops to be an exact replica of the original and created before 1897 by Wm. Lucy and Co. of Oxford

<sup>339</sup> Lister (1970), p. 114

123, 124)<sup>340</sup>. The design at Trinity College dating from around 1720 typifies the work of Warren. It is the linearity which is notable. A decorative horizontal panel above the gates, formed of scrollwork, supports a highly ornate overthrow which is accompanied either side by silhouetted finials, the scrollwork of which is reminiscent of the design of iron finials for the Dean's Staircase at St Paul's Cathedral (Plate 113). Motifs that were popular in Warren's work were the leaves and berries in the overthrows of Clare College, Cambridge and St Michael Haselbech, Northamptonshire. Similar delicate, naturalistic leaves and berries were depicted the Dutch carved wood designs of Grinling Gibbons and can be identified in a French ornament print of 1700-1725 (VAM: E.1196-1936). Simplicity and clarity of design are perhaps the best way to describe Warren's work.

In comparison, four examples from aristocratic houses of the period around 1710-1720 are illustrated in Plates 125-129. These include Leeswood Hall, Mold, Wales (the White Screen and the Black Screen), Kirkleatham Hospital, Redcar, Clandon Park, near Guildford and Penshurst Place, Kent, Wotton House, Buckinghamshire. The origins of these gates may be seen to derive from Luchets' designs for iron at Versailles (Plate 5) and introduced into Britain and developed by Tijou at Drayton House via the design for the iron gateway to the Gravel Court (Plate 130). However, the initial concept of these designs was developed in France and in Britain in uniquely different ways. The French style developed using an architectural vocabulary in which a pediment was employed atop the gates to support the overthrow, composed of heavy cast architectural mouldings and/or gadrooning. Lavish applied leafwork and a variety of other transmutable designs were applied to a wrought iron structure. The pediments became increasingly arched upwards and the overthrows became increasingly grand and decorative. In comparison, the overthrows of the college gates were supported by a horizontal panel decorated by traditional scrollwork and the overthrow was more restrained

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<sup>340</sup> Pevsner, N., *Derbyshire*, (Harmondsworth, 1979). Pevsner notes that the wrought iron gates from Horseheath Hall, Cambridgeshire were relocated here and to the rectory at Cheveley, Cambridgeshire



and less heavily decorative. This style could be seen as a continuation and development of the early designs of 1660.

Whilst the designs embody a synthesis of French and English styles, at the colleges there was a distinct lack of French-inspired architectural, moulded pediments or derivative motifs such as gadrooning. Whilst many applied motifs made popular by Tijou were, to a small degree, embraced in the designs for iron at the colleges of Oxford and Cambridge (such as miniature versions of cloth-of-estates, acanthus leaves and heads of birds) the overall effect of these compositions was sparse and attention was instead drawn to the verticality of the iron bars and the patterns created by traditional scrollwork rather than applied ornament. Pilasters were decorated with elegantly extended lyre forms and patterns of symmetrical scrollwork with little or no applied leaves. Adjoining railings and screens tended to be simple, linear bars with tapered tops. It could be concluded that the designs of iron at the colleges were a continuation of traditional blacksmith designs and techniques, the underswell of which had existing throughout the period 1660-1720 and beyond at properties such as Wotton, Buckinghamshire, Bulwick Hall, Northamptonshire, Carshalton Park, Surrey and Aldermaston Hall, Berkshire.

In summary, the process of exchange and reception between the continent and Britain encouraged and enabled a variety of diverse visual outcomes. New forms of production were created with a multiplicity of expressions which provided opportunities for baroque designs of iron to flourish contemporaneously with designs that developed traditional styles and techniques. The latter evolved into the tectonic designs of iron at the colleges of Oxford and Cambridge. It was the innovation of French designs of the period which drove them to the forefront of consciousness, rather than a sparsity of other contemporaneous designs.

## CHAPTER 3 SUMMARY

The ironwork at St Paul's is unique for the diversity of designs, particularly in comparison to Tijou's designs for the monarch and nobility, during his residency in Britain. Whilst it might be thought that commissions for religious buildings, by their very virtue, might seek to encourage sobriety in decoration, a comparison between Grinling Gibbons' carved wood designs at the Cathedral and those at magnificent palaces and grand country houses illustrates that ecclesiastical patronage encouraged and increased the scope of Gibbons' *oeuvre* rather than limited it. Yet previous historians have suggested that Wren and the design team exercised a restraining hand upon Tijou's designs at the Cathedral, recent research into the management and administrative processes of Wren's project team has uncovered a process of design that was deeply collaborative. Equally Tijou's direct involvement in drawing designs upon boards suggests that he retained control of designs during employment at St Paul's. Tijou's workshop includes a substantive German/Austrian member, probably of longstanding service and who may have worked at Drayton House for Tijou in 1699 and who exercised some degree of control over aspects of designs of iron at the Cathedral. The Germanic/Austrian flavour is potent.

Technically, the designs integrate both traditional and innovative smithing skills, the latter methods had been established in French blacksmith apprenticeship training nearly one hundred years beforehand. The material evidence suggests that specialisation of skills was required to achieve the latest transmutable designs, such as fine iron castings and in some cases elements of applied *repoussé*, and these may have been outsourced by Tijou to niche workshops in which a variety of avant-garde metal alloys and advanced techniques were utilised.

Analysis of published prints of iron provides evidence that the influence of continental ornament prints played a negligible effect upon ironwork at St Paul's. As architects sought to unify entire schemes of architecture and gardens ironwork designs evolved into tectonic compositions. A sense of proportion and dignity was communicated by the rhythmic solidity of linearity which led to the most enduring effect upon the succeeding period in the development of decorative English

wrought ironwork which might be summarised as a continuation of traditional techniques of blacksmithing creating a stately yet dignified effect by limited use of chasing, chiselling, cast or *repoussé* techniques. Whilst elements of Tijou's style were broadly imitated in the 10-15 years that followed, the drive was towards more perpendicular lines, with limited use of applied decorative motifs carefully contained and arranged in the overthrow, and away from the more horizontal lines of classical architecture that were preferred by Tijou. This led the way for the emergence of an English style which is represented at the colleges of Oxford and Cambridge.

In a broader sense, if influence is considered in terms of the opportunity that St Paul's provided for craftsmen of multi-disciplines to share knowledge, skills and techniques then Tijou's workshop and associated outsourced specialists became highly influential to craftsmen across Britain. Important contacts were established between members of the Royal Works, master masons, architects, draughtsman and artisans and it was this exposure to, and connection with, the next generation of patrons and artists that fostered new commissions and artistic developments across the capital city and throughout the rest of the country.

## CHAPTER 4: IRONWORK: PATRONS AND NEW FORMS OF PRODUCTION

This chapter explores the complex networks of aristocratic patronage to uncover some of the continental influences upon new forms of iron production and their designs in England between 1660-1720. Together the case studies demonstrate how a variety of commissions from the monarch and private, ecclesiastical and public patrons created new languages of expression in decorative wrought iron. In the early eighteenth-century, the aristocracy represented 0.02% of the population but controlled government and owned 20% of England's land value.<sup>341</sup> New forms of production sought to control and skilfully craft a domestic political identity that raised the status of the owner by association with the monarch. Provenance and authenticity were important aspects of commissioning artists and the most desirable associations were those that highlighted a royal connection and thereby distinguished unique courtiers from the rest. These visual links reinforced the powerful, influential and distinguished image of the landed gentry. Heraldic displays confirmed the nobility's cultural, social and financial wealth. The development of ideas about "polite society", reflected in the leisured classes, encouraged a greater interest in entertainment, games and celebrations, all of which were seen as ways to surprise, delight and (awe)inspire guests. Impressive entrance gates and screens created commanding symbolic focal features to Britain's palaces and grand country houses, the exterior facades of which were punctuated with intricate, precious gilt balconies. Inside, lavish and elaborate iron staircases led to the important rooms of state. Objects of wrought iron formed an important part of the conspicuous consumption and the social ceremony which was employed to exalt the monarch and impress foreign ambassadors. The nobility engaged in cultural elitism to distinguish themselves from the populous with visual representations that denoted high status. The rare and innovative designs of ingeniously created ironwork objects displayed wealth and power to all who saw them.

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<sup>341</sup> *Metalworks! The Golden Age of Silver*, BBC4 (May 2012). Accessed 05/04/16

Court life was a defining institution and every monarch had a household which reflected his *gloire*, power and influence. Ministers were courtiers kept in place by factions and their bureaux were often in close proximity to the court, if not in the same building. To survive as bureaucrats they had to operate within a realm dominated by the king and his *aides*, many of whom had posts giving them access to the royal ear. Maintaining a role within the web of power at court was crucial to the higher nobility as loyalty to the crown was rewarded with gifts of land, title, and goods. William III, who had been invited to the British throne by the leading men of both Whigs and Tories (Danby, Devonshire, Delamere, Halifax, Goldolphin, Nottingham), was obliged to choose his Ministers from both parties. This tolerance and latitude was reflected in the diversity of courtiers' attitudes and tastes and resulted in their patronage of a broad range of national and continental artists. Elias, author of *The Court Society*, made an invaluable point about rulers preserving equilibrium because they could never entirely dominate their courts and they therefore adopted a policy of maintaining a balance between rival factions.<sup>342</sup> These were times when county was linked to county through family possession and marriage and, with many of the ducal territories, the power structure extended still further. A feature of eighteenth-century life was the strength of kinship ties, land, family and property. Loyalties were attached to the country house, the county regiment, and the regional hunt and these loyalties extended to communities centred around the parish church, the village green and the local inn. Heredity counted for as much as zeal in Parliament or eloquence in the Law Courts or the Church. Equally, a newly emerging strata of merchants was becoming increasingly wealthy. London bustled with trade and grew rapidly. There were tensions between the old landed gentry and the new classes, such as noble civil servants working for the State and attached to the royal court. Many desired the peace, quiet, amusement and relaxation of the countryside which was one of the motives reflected in many Dutch country house names: Sorghvliet (Care flies), Hofwijck (Evade Court), Buitenzorg (Without Care). Other motives

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<sup>342</sup> Elias, N., *The Court Society* (London, 1983), p. 38

were investment in property, cattle and social mobility.<sup>343</sup> Large-scale building projects of great country houses developed, encouraged by evolving ideas about architecture and the arts guided by increasingly knowledgeable connoisseurs and patrons.

Characteristic of this complex network of influences is Sir Balthazar Gerbier (1591?-1667), painter, diplomat, architect and adventurer. Born in Holland of French émigré parents, Sir Balthazar was for a while the English ambassador to Brussels and was therefore well connected with everyone and everything in France, Holland and England.<sup>344</sup> In 1616, he came to England with the Dutch ambassador and entered the service of the Duke of Buckingham. He became a key figure in the “Whitehall Group” of connoisseurs, a small circle of art connoisseurs, collectors, and patrons, closely associated with King Charles I, who introduced into England a taste for the Italian old masters and steered style in the early seventeenth-century.<sup>345</sup> Following his ambassadorial role in Brussels, he was created Master of Ceremonies at court and this role brought influence within the royal household. In the 1660’s he worked for the Earl of Craven, who had also spent much time in Holland and who built a large house at Hamstead Marshall, Berkshire (1662-1688) and a hunting-lodge at Ashdown, both of which echo the Franco-Dutch style of the 1640’s. It was at Hamstead that William Craven planned a “miniature Heidelberg” for his wife Elizabeth of Bohemia, The Winter Queen. The intention was to model this mansion on the Palatine palace lost during the 30 Years War, though after the death of Elizabeth in 1662 the design evolved in a different direction which ceased to resemble Heidelberg. For Hamstead Marshall, Sir Balthazar designed a pair of iron gates, perhaps the earliest known in England, illustrated in a coloured drawing located at the Bodleian Library, Oxford (Plate 131).<sup>346</sup> The style is heavy, florid, almost entirely devoid of scrollwork, and

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<sup>343</sup> Hooke (1976); Summerson (1953); Ede, M., *Arts and Society in England under William and Mary* (London, c.1979); Hanson, C. A., *The English Virtuoso Art, Medicine, and Antiquarianism in the Age of Empiricism* (London, 2009)

de Jong (2001)

<sup>344</sup> Thornton (1978), p. 47

<sup>345</sup> Brown, J., *Kings and Connoisseurs: Collecting Art in Seventeenth-Century Europe* (London, 1995)

<sup>346</sup> Bodleian Library, Oxford, MS. Gough Drawings a. 2, fol. 24 verso - 25 recto

similar to an iron ornament print by Robert Davesne (Plate 131) located at the École des Beaux-Arts, Paris. There is commonality in the concept, the density of design (reminiscent of Italian cast designs) and the vertical and horizontal proportions of overthrow to gate 1:2. The style of overthrow is naturalistic and reminiscent of the Flemish ironwork in Ely Cathedral's arch dating from c.1540. Sir Balthazar was markedly aware of the latest fashions in building and decoration in Belgium, Holland and Paris in the early seventeenth-century. His sympathies lay with the Netherlandish tradition which was itself being shaped by the French influence at the time. Marital alliances resulted in the exchange of aesthetic ideas between France and Florence via the House of Valois and Navarre and the Medici.<sup>347</sup> In England, during the middle decades of the seventeenth-century a combination of the Italian Renaissance (via France) and the Mannerist tradition were still influential and Dutch classicism evolved under Italian and French influence, then later gradually came to impact English tastes.<sup>348</sup> Highly influential was the role of Keeper of the Great Wardrobe, responsible for furnishing the royal palaces and thereby creating the royal image. The Great Wardrobe was a significant loophole for foreign craftsmen as it permitted them to avoid the restrictions of the City of London's guild system, the main purpose of which was to secure a monopoly of its craft and protect it from outside competition. Gervase Jackson-Stops refers to a document of 1671 among the Sackville papers that notes the "power... given to the Keeper of the Great Wardrobe to let the houses, ships, tenements, cellars, etc. thereunto belonging, to any artificer or tradesman native or foreign, and [these are]... exempted from paying all taxes and duties".<sup>349</sup> Ralph, the 1<sup>st</sup> Duke of Montagu, 1638-1709 was appointed Master of the Great Wardrobe in 1671. Jackson-Stops has suggested that Tijou, Laguerre and other French craftsmen who were later employed at Hampton Court Palace may have been brought to England by Montagu.<sup>350</sup> Ralph had lived through four reigns of kings and queens: Charles II (1660-1685); James II (1685-1688); William III (1688-1702) and Mary (1688-1694); Queen Anne (1702-1714) and served in many royal

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<sup>347</sup> Clifford (1999), p. 119

<sup>348</sup> Ibid., p. 113

<sup>349</sup> Baarsen and Cooper-Hewitt Museum (1988), p. 38

<sup>350</sup> Jackson-Stops, G., "The Sources of Tijou's Designs", *Country Life*, Vol. 149 (1971), p. 183

positions. His experiences as a diplomat provided him with the knowledge, experience and access to the latest French artists and fashions. He followed in Edward, his elder brother's footsteps by being appointed Master of the Horse to Queen Catherine and Ambassador to Louis XIV in 1666.<sup>351</sup> He then served again in the same post between 1669-72, 1676, 1677-78. With his strong Protestant opinions he spent many years abroad sometimes in self-imposed exile. He played a major role in opposing James II. During this time he cultivated and patronised many English, Dutch, French, and Huguenot artists and craftsmen including Daniel Marot.

Montagu possessed impeccable connections at court and amongst the great British landowning families. This close circle of taste-formers relied upon the introduction of new artists and fashions, some of which arrived through diplomatic relations and most of which were French in style. Architects and surveyors formed part of Montagu's professional network and he fostered employment for artists of all disciplines through his connections with the nobility. Tijou is known to have worked at many of the houses in which William Talman was architect such as Kiveton, Drayton, Burghley and Chatsworth. At Hampton Court and Chatsworth were Talman, Tijou, London and Wise, John van Nost, Grinling Gibbons and Louis Laguerre. This team worked together, and sometimes in smaller groups, on many of the most prestigious private and public projects of the seventeenth and eighteenth-century including Bretby in Derbyshire, Easton Neston, Northamptonshire and Blenheim Palace, Oxfordshire. Yet the precise means of Tijou's introduction into England is still unknown. When Tijou's style of ironwork was introduced it was regarded as new and flamboyant and from 1687 he was commissioned to produce work at Chatsworth where Louis Laguerre, his son-in-law, was engaged in largescale murals. Laguerre was much favoured by William III who provided him with apartments at Hampton Court Palace where the artist was employed to paint in chiaroscuro 'The Labours of Hercules' in the Fountain Court.<sup>352</sup> It is likely that this influence or another form of interfamilial patronage introduced Jean Tijou to John Cecil, the 5<sup>th</sup> Earl of Exeter who had

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<sup>351</sup> [http://www.montaguemillennium.com/familyresearch/h\\_1709\\_ralph.htm](http://www.montaguemillennium.com/familyresearch/h_1709_ralph.htm). Accessed 16/02/14

<sup>352</sup> [https://en.wikisource.org/wiki/Laguerre,\\_Louis\\_\(DNB00\)](https://en.wikisource.org/wiki/Laguerre,_Louis_(DNB00)). Accessed 01/03/14



married Lady Anne, daughter of William Cavendish, the 3<sup>rd</sup> Earl of Devonshire, in 1670, who resided at Chatsworth House.<sup>353</sup> At Hampton Court Tijou created the Fountain Court garden screen in iron and at Burghley House, where Laguerre was engaged in significant painting projects, Tijou created the gate on the west front in 1693, the design of which is included within Tijou's *New Booke of Drawings* (Plate 72).<sup>354</sup>

Summerson has noted that the period from 1702 until Vanbrugh's death in 1726 represented the last phase in which the Royal Works occupied the centre of the architectural stage.<sup>355</sup> The artist and craftsman thereafter sought patronage wherever it could be found and from whatever political power held the reins in England for the next hundred years. Yet whilst private patronage increased but so too did the fragility of a growing commercial and merchant environment. During the period, entrepreneurial forms of speculation such as international trade, mining activities and slave trading, resulted in fluctuating family fortunes and bankruptcy was a frequent occurrence among those involved in new markets.<sup>356</sup> It was not uncommon during the period for entire collections of art to be sold in the "Desolate Boedelkamer" (the bankruptcy chamber) or the "Orphan Chamber" auctions in Amsterdam, at which the possessions of deceased citizens were sold in order to provide for the upbringing of underage heirs.<sup>357</sup> The distribution of prints, either by entire personal collections or parts of, was thereby promulgated by the instabilities of an emerging economy. An example of which was the South Sea Company, a British joint-stock company founded in 1711, created as a public-private partnership to consolidate and reduce the cost of national debt. It became a speculation mania that by 1720 had ruined many prominent politicians and aristocrats who owned significant holdings in the company including Lord Stanhope, the Duke of Sunderland, the Earl of Halifax and Robert Harley, Earl of Oxford. This example illustrates the volatile atmosphere within which major private housebuilding projects were planned and the fragility of personal

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<sup>353</sup> John Culverhouse, Burghley House, Archivist. Discussion. 13/4/16

<sup>354</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1000359>. Accessed 01/05/16

<sup>355</sup> Summerson (1953), p. 179

<sup>356</sup> Jardine, L., *Going Dutch, How England Plundered Holland's Glory* (London, 2008), p. 122

<sup>357</sup> *Ibid.*, p. 122

investments. By 1720, the national economy was greatly reduced as a result of monetary failure and this diminished the number and type of grandiose commissions for iron from private and wealthy landowners. It may also have quelled the desire for outward demonstrations of lavish expenditure. At the same time, the towns and cities were growing with commerce encouraging an increase in town dwellers, many of who favoured Georgian terraced houses whose main entrance were located around a central garden square and the vistas viewed from iron balconies. Cast iron production became ever more efficient and relatively inexpensive for mass production in these rows of terraced houses.

This chapter discusses four case studies from a variety of private and public sources in order to identify the origins of new forms of wrought iron production to illustrate the diversity of the latest languages of expression during the period.

William Bentinck's artistic responsibilities at Hampton Court Palace gardens are examined to uncover the decision-making processes that originated the design for the Fountain Garden screen (3.1). Was Daniel Marot likely to have been the source of design of the iron screens as an extension of his role as designer of the *broderies* and *parterres* or was Jean Tijou tasked with the design and production? The patronage of blacksmith Bakewell by Thomas Coke and his social network illustrates how aristocratic networks operated and demonstrates the effects upon decorative ironwork in Derbyshire and the surrounding counties. At Chatsworth an example of aristocratic patronage by the Duke of Devonshire of Jean Tijou assesses the continental influences in relation to exterior and interior ironwork designed by Talman/Archer. The final section explores the rare and unprecedented iron gates with armorial bearings (shields with standard bearers), a new form of production encouraged by Vanbrugh who was appointed was appointed Herald Extraordinary in 1703, and Clarenceux King of Arms a year later.<sup>358</sup>

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<sup>358</sup> Summerson (1953), p. 165

## WILLIAM BENTINCK, HAMPTON COURT PALACE & THE *EXEDRA*

This section explores the cultural inspiration behind the creative decision-making processes at Hampton Court Palace to discover the variety of continental influences impacting the design of the Fountain Garden screen which is arguably the most innovative, decorative and technically challenging ironwork of the seventeenth and eighteenth-centuries in Britain. It is the most important piece of surviving ironwork of this period. The screen was intended as a magnificent and princely display at the monarch's principal, out-of-London residence and in terms of influence, it was a bold and unprecedented departure for the history of blacksmithing in England and one that was to have far-reaching effects for many generations that followed.

In 1689, King William III and Queen Mary succeeded to the throne. They settled at Hampton Court Palace and immediately enlisted Sir Christopher Wren (who retained the appointment of Surveyor-General of Works) to start work on a new wing. William and Mary shared a passion for gardens and their arrival in Britain heralded a dramatic evolution in landscape design. During the years 1689 to 1699, Tijou worked at the palace producing the screen and gates to the Fountain Garden (now in the Privy Garden), plus a variety of other ironwork including the wrought-iron staircases leading to the King's and Queen's apartments, the balcony to the Water Gallery and the Lion gates. In 1701 the Fountain Court screen was finally installed. Whereas French designs focussed with consummate zeal upon conspicuous display which dominated the landscape with sweeping vistas as far as the eye could see, Dutch garden schemes were designed as private spaces, smaller in scale, more inward looking, domestic and perhaps better suited to English taste. Water was utilised for irrigation canals, boating and fishing rather than for fountains, perhaps on account of the relatively flat Dutch landscape and the engineering difficulties in pumping water to attain sufficient pressure for the water jets. The growing knowledge and fascination, particularly in Holland, with rare plant species brought back from expeditions abroad via increasingly international trade routes, plus the obsession with tulip flowers, "Tulipmania", resulted in lavish expenditure on planting. Gardens came to be seen as a continuation of the house connecting it to the landscape beyond. The layout and

content (botanic and artistic) were seen as a reflection of the owner's distinguished knowledge and taste. This rich display of ownership was designed to be admired from elaborate gilt wrought iron balconies located at the *première étage* of palaces and grand country houses.

The new garden design layout at Hampton Court Palace set a precedent in England. Many of the ideas were derived from French and Swedish gardens of the period that were numerous illustrated in ornament prints. Mollet had recorded many of the gardens he created in *Jardin de Plaisir*, published in Stockholm in 1651. The ideas had never been seen in England before, such as at Drottningholm Palace, Sweden, an engraving of c.1700 one of the most notable features of this garden was a Dutch feature, the *exedra* created in stone to one end of the pleasure boating lake.<sup>359</sup> In Holland, most gardens were generally on the banks of canals and moated about on the other sides with deep ditches, but these conditions were not readily replicated in Britain and perhaps this indicates the status with which William and Mary afforded the Hampton Court Palace garden which was bordered on one side by the river.<sup>360</sup> For the first time, an *exedra* was formed entirely of iron, designed for the gardens at Hampton Court Palace. André Mollet had set out the existing framework of the *exedra* and *patte d'oie* in 1661-2, which George London and Henry Wise (partners in London and Wise, 1689-1714) completed and extended with further lime avenues to the bowling green 1700-01. Tijou created twelve panels each just over three metres high and wide, separated by stately pilasters surmounted by royal crowns and buttressed by scroll-work supports. The compositions are densely packed with an abundance of ornament detailing flower festoons, comprised of the very latest exotic flowers and shells that collectors were avidly amassing at the time, along with grotesques, birds and swirling acanthus leaves. In the centre of each panel are the symbolic depictions of England, Wales, Scotland, Ireland, the Crown (in the forms of a rose, thistle, lily/fleur-de-lis, harp, the shamrock) and the interlaced monograms of William III and Mary, supported by elaborate acanthus and scroll-work designs, intricately detailed and harmoniously arranged. The acanthus designs and arabesques were in

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<sup>359</sup> <https://commons.wikimedia.org/w/index.php?curid=245476>. Accessed 28/12/15

<sup>360</sup> Anon., *A Description of Holland* (London, 1743)

the most florid taste of Louis XIV, with pilasters composed of linear lyre designs. How was the design arrived at and what were the continental influences at play? Could the 12 panels have been a reference to “The twelve Ambassadors, of the Emperor meeting the Elector”, depicted in Jan van Vianen Beudeker’s print (Plate 132) and “The room where all the diplomatic representatives of the Allies met”.<sup>361</sup> The screen is located at the water’s edge and is reminiscent of the Dutch *exedra* form, a focal point to the main axis, with a screen terminating in a curved shape and providing an architectural and aesthetically satisfying enclosure to the garden.<sup>362</sup> Erik de Jong has noted the frequent use of the curved *exedra* as an enclosure to the Dutch gardens of Cleves, Zorgvliet, Zeist, Het Loo, De Voorst, Duinrell and Heemstede.<sup>363</sup> Plates 133-134 illustrate engravings of the *exedras* at Sorgvliet, Clingendaal, Voorst and Konincklycke. The origins of this layout were from the ancient past, the architecture of the Roman theatre, and later the form was recreated in Italian gardens. The form influenced designs of ironwork in British gardens to varying degrees. Typically, *exedras* in Holland were cited along the banks of a canal. In Britain, the conditions of geography did not lend themselves to this consistency of location and alternative solutions are evidenced at three locations: Hampton Court Palace, Middlesex; at Stansted, Sussex (a residence of Lord Scarborough, one of William III’s favourite courtiers, where the garden was to one side of the house and at a distance, surrounded by trees rather than water); and at Donibristle House, Fife (Plates 135-137) (where the design terminates at the flat, rather than arched, shoreline of this sea location). The first castle on this site, to the north of the present remains was destroyed by fire in 1592. Its successor, also burnt, was replaced by a house built around 1720 for the Earl of Moray.<sup>364</sup> This house was burned in 1858 and only the two front service wings, still inhabited, survive, with a connecting subterranean passage. It has been suggested by Bailey Murphy in 1904 that the extensive wrought iron gateway and arch to Donibristle House were of Flemish origin and a gift from William III to Anne, second wife of Charles Stuart, sixth Earl of Moray.<sup>365</sup> The monogram of the

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<sup>361</sup> van Vianen Beudeker, J., *Dutch Gardens, Netherlands Atlas Beudeker* (1718-1748), p. 55

<sup>362</sup> Olausson, M., “National or International Style? From Nicodemus Tessin the Younger to Fredrik Magnus Piper”, *Journal of Garden History*, Vol. 17, No. 4 (1997), pp. 267-77

<sup>363</sup> de Jong (2000)

<sup>364</sup> <https://canmore.org.uk/site/50893/donibristle-house#711345>. Accessed 18/02/17

<sup>365</sup> Murphy, B. S., *English and Scottish Wrought Ironwork* (London, 1904), p. 14

Countess is worked into the central panel forming the balcony over the Grotto. The oak leaf motif forms a continuous border beneath the main arch and is reminiscent of stone carved designs. The double striking plate on the meeting stiles of the gate is uncommon and the half checking of the balusters and rails is very labour intensive. Both elements may indicate that the design was by an architect/designer rather than a blacksmith and that considerable expense was lavished on this gateway.

In 1690, Tijou was been paid for twelve panels of ornament and two large and two small gates for the Fountain Garden (the two small gates no longer survive).<sup>366</sup> In 1698 the Fountain Garden was redesigned and enlarged by Daniel Marot, and in 1699 the work was complete. Tijou received £2160 for “ii pair of great Iron Gates, with ii other little Gates on each side thereof, for viii sq Pillars of Ornaments, xii panels for the Circle of the ffountaine Garden at Hampton Court with Ornaments... and for x Pilasters between xii Pannells”.<sup>367</sup> Colvin has noted the transportation of 12 panels by Tijou for the circle of the parterre are noted by 1695 in the Works 5/52, garden account, for Stacey’s bill in April 1701 and for South’s bill in May for “transporting ‘6 large Pannells of wrought iron from Tijou’s shop on the Green to the Privy Garden” and “6 less Pannells from the same place”.<sup>368</sup> Colvin also notes that the enclosure of the great terrace and the Fountain Garden was completed during 1700 for which Tijou supplied iron railings, piers and pedestals for the return walls flanking the circle of the parterre and for the semi-circular wall which terminated the terrace to the Thames at a cost of £1,315.<sup>369</sup> Payment had previously been made in 1700 to Thomas Highmore for “painting all the rich Iron Work that was made for the Circle of the Fountaine garden before the front of the house, it containing 12 large panels and pilasters”. In total, Tijou received c.£5,603 for his work at Hampton Court gardens between 1690 and 1699.<sup>370</sup> The death of Queen Mary 1694 from smallpox was an untimely blow for Tijou who had won her esteem. The book was published in 1693. Might the

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<sup>366</sup> Hollister-Short (1970), p. 54

<sup>367</sup> Colvin, H. M, *History of the King’s Works*, Vol. V (London, 1976), p. 171

<sup>368</sup> Ibid., p. 173

<sup>369</sup> Ibid., p. 172

<sup>370</sup> Hollister-Short (1970), p. 54

patronage for this book have been provided by Queen Mary? The final plate (Tijou's Plate Ref. 20) illustrates the Fountain Garden Screen and is engraved by the Frenchman Blaise Gentot, arguably the most accomplished engraver of the seventeenth-century, employed by the British and Irish aristocracy since around 1677 and who engraved a silver tabletop for the Duke of Devonshire around 1700.<sup>371</sup> Tijou and Gentot both worked for the Duke at Chatsworth and both derived significant stimulus from the French influence. Similarly, the gardens of Hampton Court represent an adaptation of the French style to suit Dutch taste. Contemporary descriptions from the period, reveal a number of responses to the ironwork and gardens. Celia Fiennes' diary notes: "The Gardens were designed to be very fine, Great fountains and Grass plots and gravell walkes... There was fine Carving in the Iron Gates in the Gardens with all sorts of figures, and Iron spikes Round on a breast wall and severall Rows of trees".<sup>372</sup> Ralph Thoresby, the topographer of Leeds, visited Hampton Court in 1712 and noted that "these curious iron balustrades" were "painted and gilt (in parts)".<sup>373</sup>

Hans William Bentinck (20 July 1649 - 23 November 1709) was a Dutch and English nobleman, a favourite of William III from childhood, a companion on the battleground and in the hunting-field.<sup>374</sup> Two of William III's passions were "chasse et voir des jardinages que vous saves ester dues de mes passions".<sup>375</sup> Bentinck shared these passions for hunting and gardening. Together William III and Bentinck spent 30 years in collaboration.<sup>376</sup> In April 1689 he was created Baron Cirencester, Viscount Woodstock and, in its second creation, Earl of Portland. Bentinck's primary role was of a diplomatic nature. Whenever and wherever important, delicate negotiations were to be carried out, they were entrusted to Bentinck. In June 1689, William Bentinck was appointed

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<sup>371</sup> <http://collections.vam.ac.uk/item/O156643/dish-harrison-william/> Accessed 05/04/16;  
<https://www.antiquesandthearts.com/the-devonshire-inheritance-five-centuries-of-collecting-at-chatsworth/> Accessed 05/04/17

<sup>372</sup> Fiennes (1888), p. 47

<sup>373</sup> Thoresby, R., *The Diary of Ralph Thoresby, FRS, Author of the Topography of Leeds (1677-1724)* (London, 1830), 2 vols.

<sup>374</sup> Grew, M. E., *William Bentinck and William III* (London, 1924)

<sup>375</sup> Conan, M. (ed.), *Baroque Garden Cultures: Emulation, Sublimation, Subversion* (Washington, 2005), p. 37

<sup>376</sup> Grew (1924), p. 59

superintendent of the Royal Gardens and shortly after the Hampton Court Palace gardens were redesigned under his direction. In 1698 he became the ambassador to Paris for six months in which he opened negotiations with Louis XIV for a partition of the Spanish monarchy and signed the two partition treaties. It is likely that he was familiar with the latest design developments at the palace and gardens of Versailles. The ambassadorial role of Bentinck was influential in the dissemination of foreign Continental styles within Britain. Diplomats returned from abroad, some with broadened horizons and by their invitation followed foreign artists and craftsmen who were eagerly enlisted in the latest architectural and garden schemes. Yet the suspicion of Catholocism on the one hand and trade rivalry on the other resulted, for some, in a resistance to foreign imports and ideas.

In order to uncover the significance of the decision-making processes for the design of the Hampton Court Fountain Garden Screen, it is necessary to outline the management and administrative roles of the Royal Works are explored to discover how and why few detailed accounts survive. In 1689, William III appointed the Earl of Portland to the post of “Superintendent of all the King’s Gardens” with an establishment consisting of a Comptroller (£140 per annum), a Paymaster (£100 per annum) and a Clerk of Works.<sup>377</sup> According to the Superintendent’s first account, covering the period 1689-1696, senior appointments were issued to George London as Deputy Superintendent, William Talman, as Comptroller and C F Henning, the Paymaster and William Deeplove, the Clerk of Works. The position was independent of the Office of Works and accounted direct to the Exchequer so they were remunerated by the Office, with payments being recorded in the Paymaster’s accounts, but much of their work was agreed annually by Contract with the Treasury, so it was only very occasionally that the royal gardens required the Board’s attention. Howard Colvin has noted that the Office of Works did not exercise the same degree of control over royal gardens as it did over the fabric of the royal palaces due to the fact that the superintendence of the gardens was, theoretically, the responsibility of an independent keeper or surveyor, and the master-gardeners who came under his

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<sup>377</sup> Colvin (1976), p. 457



jurisdiction were established professionals who required little direction. It was this organisation that created the new gardens at Hampton Court Palace that cost approximately £44,000.<sup>378</sup> Between mid-1699 to March 1702, a total of £40,714 13s, 6¼d. had been spent on the gardens and parks.<sup>379</sup> Tijou's fee of some £5,603 between 1690-1699 represented a significant part of this expenditure. The detailed accounts for the earlier period which cover the period 1 May 1689 to 25 March 1696, do not survive. A summary figure (without further details) is entered as the declared account.<sup>380</sup> By 1699 Bentinck had resigned all of his offices in the royal household, due to the rising influence of another Dutchman, Arnold van Keppel, with the exception of his role in maintaining the principal royal gardens at a salary of £4,800 per year.<sup>381</sup>

During the building works at Hampton Court Palace, the Water Gallery (or Thames Gallery) was included a balcony from which the garden could be viewed, however there are no visual records of the design of iron. A description penned by Celia Fiennes records the layout of the rooms on the principal floor and the gallery with the portraits at the riverside end of the building which "opened into a balcony to the water...".<sup>382</sup> In 1689, Tijou rendered a bill for six iron vanes "finely wrought in Leaves and Scroll worke" amounting to £80, and also for an iron balcony for the Water Gallery. A visit to Hampton Court Palace has uncovered a balcony, which is currently without provenance, but by the style and dimensions it may well be the balcony to the Thames Gallery. William Bache (d.1699) Master Blacksmith in the King's Work from 1680, was paid for "rails and scrolls to the Water Gallery" in 1690.<sup>383</sup> The style of scrollwork is dissimilar to the flower garlands that are almost identical to those on the Fountain Court

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<sup>378</sup> Wren Society, *Volume IV* (Oxford, 1938), pp. 29-36, AO I/2482/298

<sup>379</sup> Colvin (1976), p. 170

<sup>380</sup> Wren Society, *Volume IV* (1938), pp. 29-36, AO I/2482/298

<sup>381</sup> The Welbeck Collection, Pw A 2862. Note on the subject of the contract for the maintenance of the royal gardens; n. d. [c. 1702]. States that the privy seal is in the name of William, Earl of Portland and dated 30 April 1696; it mentions a contract for £4,800 per annum between the earl and William III for taking care of the royal gardens; states when the money was paid; notes that there is one year due to Christmas 1700. The document is not dated; the date provided is based on that of related papers [Pw A 2861]. Papers removed from the Welbeck Collection. [http://www.nottingham.ac.uk/manuscripts/collections/online-mss-catalogues/cats/port\\_1stearl13cat.Html](http://www.nottingham.ac.uk/manuscripts/collections/online-mss-catalogues/cats/port_1stearl13cat.Html). Accessed 12/03/12

<sup>382</sup> Fiennes (1888)

<sup>383</sup> Saunders (2005), p. 251

Screen. This perhaps suggests that the scrollwork and structure were forged by Bache and the intricate decorative created by Tijou. Patrick Baty, historic paint specialist and consultant to Historic Royal Palaces has conducted research on the object and has noted that it was painted and gilt (with crushed glass/possibly smalt), which would have reflected and sparkled in the light of the riverside location.

A Comparison of the Hampton Court Palace, Fountain Court Screen and a table commissioned by Queen Mary II for the Water Gallery at Hampton Court Palace (now at Compton Verney) makes an interesting comparison in terms of the origins of continental influences. Peter Fuhring has discovered and illustrated an ornament print in a private collection in Paris with a design for a console table by Gilles-Marie Oppenord (1672-1742), son of the *ébéniste* Alexandre-Jean Oppenordt, who since 1684 occupied a studio in the palace of the Louvre and to which Gilles-Marie had access.<sup>384</sup> Whilst the details of the design differ, there is similarity in the genre, particularly the shape of the console legs and the composition of the object. A similar example of table leg is illustrated in the triad of table, glass and candlestands at Ham House in Charles Wemyss' *Study of Aspiration and Ambition* which refers to the table being manufactured by English cabinetmakers.<sup>385</sup> If compared with a Dutch stand of c.1670 (Royal Collection Reference: RCIN 35298) (Plate 138) then the shape of the legs of the console table is similar. A unique aspect of the design of the table is the pierced, carved apron which is reminiscent of embroidery designs depicted by Daniel Marot in ornament prints (VAM: E.844-1939) (Plate 139).<sup>386</sup> Amongst the first illustrated manuals, were pattern books for embroiderers, the earliest of which were published in Venice with one exception from Augsburg in 1524 (Plate 139). Similarly, early sixteenth-century Italian ironwork in which a pattern of trelliswork incorporates miniture applied rosettes atop the joining bars, such as Palazzo Dell'Arte Della Lana, Florence, wrought iron grille (Plate 140). Several

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<sup>384</sup> Fuhring, P., "Designs For and After Boulle Furniture", *The Burlington Magazine*, Vol. 134. No. 1071 (1992), pp. 350-362; <http://www.getty.edu/art/collection/artists/3800/gilles-marie-oppenord-french-1672-1742/>. Accessed 21/12/15

<sup>385</sup> Wemyss (Unpublished PhD Thesis, 2008), p. 159, Fig. 77

<sup>386</sup> Marot, D., *Nouveaux Livre de Housses, en Broderié et en Gallons* (1703-1712)

of Jean Berain's ornament prints of iron illustrate similar patterns.<sup>387</sup> The criss-cross pattern became fashionable in ironwork from the mid-eighteenth century and tended to be associated with the rococo style. The evidence suggests that the table design was influenced by a combination of Dutch and French styles.

At a similar date William III, Bentinck and Marot were at work on transforming the gardens of Het Loo (in two phases between 1684-1699). A comparison of the organisation of works is investigated to provide clues to the design origination of the Fountain Court screen. New evidence discovered by Erik de Jong shows that Het Loo was the outcome of a process of different forms of expertise, of assemblage, of modelling and remodelling and not of a unified design by one artist, let alone of "French influence". Figures such as Bentinck, Daniel Desmarets (1634-1714), expert in botanical matters, and Romeyn de Hooghe (1645-1708), propagandist for William III, were more instrumental in the laying out of these gardens than Marot himself, whose activity focused primarily on ornamental design and *parterres*.<sup>388</sup> My research has also found evidence of the design at Het Loo emanating from Desgots, André le Nôtre's nephew.<sup>389</sup> The old castle of Het Loo and gardens are illustrated during the 1690s by Isaac de Moucheron.<sup>390</sup> The main garden was extended during the second phase of development in which the addition of statues and fountains were designed to proclaim the virtues of the Stadtholder and his wife. The main garden is entered from the ground floor to the rear of the property through a highly ornate, precious,

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<sup>387</sup> Blanc (1928), pp. 23, 25

<sup>388</sup> Beudeker, C., *The Theatre of Dutch Pleasure Gardens. First Part displaying the royal palace of Loo and Dieren, Voorst, Rosendael and the celebrated Zorgvliet outside The Hague 1718*. These records of Dutch royal palaces, country houses and gardens form three volumes of an atlas devoted to the Netherlands. It was put together between 1718 and 1748 from the best available maps, views, portraits and plans by a wealthy Amsterdam businessman and landowner, Christoffel Beudeker (1675-1756); de Jong (2001), Part II, Chapter 3

<sup>389</sup> de Neufville, F. Letter in French from François de Neufville, Duc de Villeroi, to William Bentinck, 1st Earl of Portland (Paris, 29 Nov. 1698): "le petit Desgauts' [Desgots] will bring him the plan for the house and gardens at Loo in the morning, adding that they are working ceaselessly on the plans they have promised him" (University of Nottingham, Nottingham Pw A 964/1-2). <http://mss-cat.nottingham.ac.uk/DServe/Record.aspx?src=CalmView.Catalog&id=PwA%2f964&pos=1>. Accessed 12/06/14

<sup>390</sup> de Moucheron, I., *General view in perspective of the mansion or royal pleasure house of his Majesty the King of Great Britain etc. at Loo* [engraved by Cornelis Danckaerts] (Amsterdam, 1698), Maps C. 9. e. 7 (2).

gilt wrought iron gate. Research at the École des Beaux-Arts has identified the ornament print of this design by Daniel Marot (Plate 39).<sup>391</sup> The design demonstrates that Marot's responsibilities extended to the ironwork. The evidence suggests that whilst Marot was employed at both these palaces, his influence on exterior effects may have been limited to the ornamental *broderies* and *parterres*, for which Queen Mary had a particular fondness, and at Het Loo he designed the wrought ironwork.

An analysis of the origins of the Fountain Garden Screen has uncovered an ornament print by Paul Androuet du Cerceau (VAM: 23106:9), published c.1670-85, which illustrates a similar square composition with the decoration arranged within a structure of forged scrolls and square panels.<sup>392</sup> Many of the motifs are shared between the print and the screen including masks, flames/darts in the lower border, grotesques, garlands, scrolls terminating with a bird head, shells. The rich, densely ornate sculptural surface demonstrates the influence of Italian cast foundry bronze styles of the sixteenth-century using fashionable motifs revived during the Renaissance.<sup>393</sup> This demonstrates Tijou's style, in similarity with Daniel Marot, which was derived from Italian sources and filtered through French and Dutch media. Both designers illustrated the same tendency towards elaborate and florid designs, with a wealth of acanthus leaves, scrollwork, draperies, rosettes, masks, heads of eagle and cock, heraldic emblems and symbolic figures. Tijou can be seen to derive influence from Jean Marot in the use of delicate interlaced monograms and ciphers in place of heavy, solid shields. It is from these dense and imaginative Italian designs of the sixteenth-century that Tijou derives many of his design motifs, and his sense of compositional "weight". Tijou's designs re-collect the fantastical Italian designs into new, richly packed creations with a strong, lively sense of rhythm. To these designs he adds a lightness of touch and playfulness of spirit and combines these with the intricate iron details that give his work a jewel-like quality, all characteristics common to a goldsmiths's work.

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<sup>391</sup> Blanc (1928), p. 45

<sup>392</sup> Du Cerceau, P. A., *Panneau D'ornement Servant aux Peintres Sculpteurs Orpheurs et autres* (Paris, c.1670-1685)

<sup>393</sup> VAM: 25675:5

In terms of decorative language, perhaps the most dominant motifs, the abundant flower garlands of Tijou's screens, are represented in a carved, wooden, gilt stand (RCIN 2675) to support a cabinet made by Melchior Baumgartner (1621-86), from Augsburg. The date of the stand is c.1690, probably indicative of when the cabinet arrived in this country. The stand is unattributed except for the gilder, in the style of Cornelius Gole, yet the heavy swags and shape of the legs is highly reminiscent of a carved, wood, gilt table (RCIN 1031) by Jean Pelletier (active c.1681 - d.1705) which illustrates a rectangular carved gilt-wood table with a white marble top on S-scroll legs joined by a scrolled X-frame stretcher, the centre of which arises into a small hexagonal platform. The Pelletier family of carvers and gilders left France in the early 1680's probably to escape persecution as Huguenots, and settled in Amsterdam. By 1682, Jean Pelletier was active in London and by 1700 his two sons had joined him (René and Thomas) both active until 1712. The patronage of Ralph Montagu had introduced their services, and many other Huguenot craftsmen, at court.<sup>394</sup> The Pelletiers' French origin drew heavily upon the designs of Jean Le Pautre (1618-82) and his son Pierre (1660-1744). The family are known for introducing many refinements in the finishing of carved surfaces and the Royal Collection has noted that in the rare cases where gilded surfaces survive, such innovations suggest an attempt to simulate the decorative effect of gilded metal.<sup>395</sup> This is significant because it suggests and supports the notion that ironwork was more highly prized than wood. In terms of costs, the table (RCIN 1031) formed part of an important commission from Ralph Montagu to furnish William III's State Apartments at Hampton Court Palace. Between 1699 - 1702 £600 was paid to the workshop for furniture. Pelletier also supplied a pair of gilded table frames costing £35 each for the "New Gallery" (the Queen's Gallery) at Hampton Court. The tables are illustrated *in situ* over a century later by Pyne.<sup>396</sup> The different styles of these three tables indicate the range of different influences and designs being brought to bear upon a variety of

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<sup>394</sup> Murdoch, T. V., "Jean, René and Thomas Pelletier, a Huguenot Family of Carvers and Gilders in England 1682-1726. Part I", *The Burlington Magazine*, Vol. 139, No. 1136 (1997), p. 733

<sup>395</sup> <https://www.royalcollection.org.uk/collection/search#/1/collection/1031/side-table>. Accessed 12/01/15

<sup>396</sup> Pyne, W. H., *Royal Palaces* (London, 1819)

crafts created in England during the period. The application of motifs from ornament prints to carved furniture and wrought ironwork demonstrate the transmutability of the designs. Yet in comparison, the cost of the Fountain Garden Screen was nearly £4,500. The status of the ironwork was reflected by its value and the high material cost which was evaluated by weight. To summarise, both objects (the carved table and iron screen) illustrate Dutch and French influences yet whilst the table illustrates the angular shapes derived from Dutch/German strapwork and a hint of restraint in the style, the Tijou screen demonstrates an opulence and imaginative decadence that is more reminiscent of the French court style of Louis XIV, yet with a forensic scientific naturalism in the depiction of tulip garlands that is more Netherlandish (similar in source to Grinling Gibbons though different in expression of style) than French.

First and foremost, it was Tijou's designs and elaborate cast figurative work that was so innovatory and sought after. Many of the motifs were sourced from the ornament prints of Jean le Pautre, and the families of Du Cerceau and Marot and reassembled into new compositions for ironwork.<sup>397</sup> Tijou utilized a wide variety of materials and techniques to enable his exquisite designs. His ingenious methods of technical adaptation and versatility helped him to overcome practical difficulties. The designs challenged the medium in extreme and Tijou's designs could be said to dominate the material that he had chosen, rather than working with it. The outcome was a complex, florid and extravagant use of symbolism, employed to celebrate and reference the monarchs' tenure by motifs such as the thistle, rose, fleur-de-lis. The work demonstrates a tendency to forego traditional techniques in preference for "assemblage" of ironwork elements. The application of the new continental designs to ironwork heralded the beginnings of an increasing specialisation of labour.

So whilst the evidence suggests that continental influences upon architectural design in England from 1680-1700 were predominantly from France and Italy, the significant impact upon garden design was fostered by ideas from Holland and

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<sup>397</sup> Marot (1727)

Bérain, J., *Diverses Pièces de Serruriers* (Originally published in Paris, 1663; London, 1888)

France. In the case of the Fountain Garden Screen, it was predominantly Dutch influences that designed and motivated the changes concerning the physical setting, the form of production and the content of design. The new monarchs, William and Mary, had enabled an unprecedented exposé in England of the possibilities of ironwork. Crown patronage had raised the profile of wrought iron to the highest point it had seen in England since Gothic times. This created a new market for decorative ironwork, not just in the style of Tijou, but for the craft as a whole and it was this renaissance of interest that propelled wrought ironwork into an entirely new phase of artistic development, spurred on by the nobility engaged feverishly in country house building projects. The astute observed the new possibilities of decorative wrought ironwork and began to commission work for their own estates.

Colonel Thomas Coke was one such patron. Appointed Vice-Chamberlain of the Household in 1706, this new role strengthened his ties to the Court and yet provided him with plausible absences which the role engendered. Described as ‘An able, assiduous, and highly versatile vice-chamberlain’, he was awarded £1,000 out of the privy purse owing to his ‘constant waiting and attendance’ on the Queen.<sup>398</sup> It was this proximity to the court and foreign diplomats that inspired Coke’s architectural and gardening visions for Melbourne Hall, his family home in Derbyshire and the location where blacksmith Bakewell’s work flourished.

The next section considers the interplay of influences between Colonel Thomas Coke, the Vice-Chamberlain of the Household and blacksmith Robert Bakewell.

### COLONEL THOMAS COKE, ROBERT BAKEWELL & THE “BIRDCAGE”

Coke, of Melbourne Hall in Derbyshire, was appointed Vice-Chamberlain of the Household in 1706 by Queen Anne (1702-1714), a role he continued until his death in 1727. He was a keen amateur architect and garden designer and had studied both subjects in France. He was highly esteemed at Court on account of

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<sup>398</sup> <http://www.historyofparliamentonline.org/volume/1690-1715/member/coke-thomas-1674-1727>. Accessed 16/03/15

his knowledge and enthusiasm for the arts and his opinions were often sought. His diplomatic and artistic contacts abroad ensured he was well-placed to recommend skilled artists and craftsmen to the court network and familial, social acquaintances.

This section traces the circulation of new visual ideas amongst the aristocratic network of Colonel Thomas Coke in order to identify the continental influences upon new designs and forms of production of ironwork. The case study explores the patronage of blacksmith Robert Bakewell, a master of scale and proportion. Almost all of Bakewell's work was geographically centred in Derbyshire and the surrounding counties. Bakewell's work, as an artist/maker, is the best preserved of all the English blacksmiths and it is partly because of this that an assessment of the development of his style through the continuity of his designs is possible.

In 1696 Coke inherited Melbourne Hall and he immediately started to develop the garden. His choice of renowned London gardeners, London and Wise, may be seen as evidence of his Francophile taste. Their ideas were derived for the most part from Mollet, the pioneering garden designer, whose ideas prefigure André le Nôtre.<sup>399</sup> His widely circulated book *Le Jardin de Plaisir* (1651) was illustrated with lavish plans for *parterres de broderie*, with elaborate swirling arabesques of clipped plants. It was this book that first introduced into England the *patte d'oie*/“goose foot” arrangement of avenues converging on the house. Emphasis was placed on the dominance of the house over the surrounding landscape in which a series of interconnecting exterior spaces were linked to the house by numerous avenues and gateways. These pathways provided new opportunities for new forms of production and expressions of wrought iron amongst exquisitely manicured gardens designed for entertainment and gaiety for the leisured classes.

London and Wise's first major project in 1682 was the result of an informal partnership that they had with the architect William Talman, who helped secure work for them at Burghley House, Lincolnshire and Longleat in Wiltshire for

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<sup>399</sup> Taylor, P., *Period Gardens* (London, 1991), p. 23



Viscount Weymouth in the style of Versailles.<sup>400</sup> London and Wise followed current fashions in garden design and offered technical expertise rather than innovation *per se*. The duo's work proved irresistible and they continued a highly successful partnership until London's death in 1714. George London's success was highlighted in the late 1690's by Stephen Switzer (1682-1745) who worked for Brompton Park Nursery (London and Wise's plant nursery in London),

"It will perhaps be hardly believed, in Time to come, that this one Person actually saw and gave Directions, once or twice a Year, in most of the Noblemens and Gentlemens Gardens In England..." and "...most times twice a Year, visiting all the Country-Seats, conversing with Gentlemen, and forwarding the Business of Gard'ning in such a degree as is almost impossible to describe".<sup>401</sup>

This extremely powerful and influential network was formed by a significant part of the British aristocracy and it enabled the transfer of ideas of garden fashions, wrought ironwork and lead garden statuary across the country via this means. London & Wise's projects included the majority of important garden designs for grand seventeenth and eighteenth-century country house of the period such as: Chatsworth, Cassiobury, Grimsthorpe, Canons and Bretby. In 1698 Coke had contracted a marriage to the eldest daughter of the Earl of Chesterfield, whose family seat was at Bretby. This strengthened Coke's interest when in 1698 he stood for knight of the shire in the July election.<sup>402</sup> Coke's father had been the lieutenant-colonel of the regiment raised in 1688 by the Duke of Devonshire (William Cavendish), so the families of Melbourne, Chatsworth and Bretby were inextricably linked. It was amongst these interfamilial, court and social circles that the taste for wrought ironwork flourished.

At Melbourne Hall, it was Coke who provided the general instructions to George London for laying out the gardens and in 1698, Brompton Park Nursery (the plant

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<sup>400</sup> Anon., "Great British Garden Makers: George London and Henry Wise", *Country Life*, 31 July (2010)

<sup>401</sup> Jacques, D., and van der Horst, A. J., *The Gardens of William and Mary* (London, 1988), p. 30

<sup>402</sup> <http://www.historyofparliamentonline.org/volume/1690-1715/member/coke-thomas-1674-1727>. Accessed 16/03/15

centre for London & Wise's operations) sent Coke two alternative layouts for the gardens, from which he chose the one "to suit with Versailles".<sup>403</sup> Expense was lavished upon Melbourne Hall's garden which was created by many of the most prominent artists of the day such as the innovative lead sculptor Jan Van Nost and the renowned blacksmith, Robert Bakewell. In November 1699 Brompton Park supplied 1,000 small Dutch elms at threepence each, 600 large limes at a shilling each and 2,000 hornbeams plus vast numbers of bulbs and bushes. The garden is L-shaped, the main axis running from west to east. A network of straight paths hedged with lime and hornbeam radiate through groves of trees, linking rond-points where fountains splashed into pools of numerous shapes and each vista was completed with a stone urn or statue. The garden descends with terraces from the house down to the "Great Basin", a generous expanse of water, beyond which the vista is terminated by the magnificent ironwork arbour, known as the "Birdcage", and made by blacksmith Robert Bakewell who was paid £126.00 for the arbour.<sup>404</sup> Either side of the arbour were "Perseus" and "Andromeda", two lead statues in the latest fashion, facing the fish pond and painted white. The use of lead sculpture and vases as focal points in gardens had origins in mid-sixteenth-century Italian gardens, such as the Boboli Gardens, Florence.<sup>405</sup> Accounts show the sculptures costing £25 and £20 respectively. The sculpture came from John Van Nost's workshop in Piccadilly, London. A neighbour of Tijou at Portugal Row, Van Nost also provided the lead sculpture for Cholmondeley Castle where George London was supervising the garden layout.

My investigations have uncovered that the origins of the Birdcage are likely to derive from the French fashion for wooden trellised garden pavilions illustrated by Nicholas Lancet's (c.1690 - c.1743) painting *Le Moulinet* (Plate 141). In France, a record of an elaborate aviary at Versailles, constructed of copper wire, is referred to in 1664 by Sebastiano Locatelli, a Bolognese priest visiting France, who described "An aviary constructed of copper wire contains, I think, examples of every bird known to man. Indeed, I have seen more than forty species which I

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<sup>403</sup> Anon., *Guide to Melbourne Hall Gardens* (Derby, 1984), p. 2

<sup>404</sup> Dunkerley (1988), p. 18

<sup>405</sup> Dixon Hunt, J., *The Italian Garden: Art Design and Culture* (Cambridge, 1996), p. 160

had never yet seen or even heard of<sup>406</sup>. Records exist in the Fort Album of a similar wooden garden structure at Hampton Court Palace, which was oiled and painted an iron colour by Thomas Highmore and decorated on the inside with paintings by Louis Laguerre.<sup>407</sup> Similarly, a reference is made by H M Colvin to a domed wooden garden arbour at Hampton Court Palace.<sup>408</sup> Marot's engravings illustrate the popularity of elaborate wooden treillages in Holland at De Voorst and Roosendaal.<sup>409</sup> A popular book at the time was Dézallier d'Argenville's *The Theory and Practice of Gardening*... in which garden arbours were created from wooden trellis work to assist with garden pruning.<sup>410</sup> The circulation of these ideas and prints is recorded by the "Names of Subscribers" which included The Right Honourable Thomas Coke Esq; Vice Chamberlain. So whilst Coke was cogniscent of these designs for wooden structures, instead he commissioned an unprecedented new form, forged entirely of iron. Dézallier had commented on the significant cost yet beauty of these garden constructions: "Of Porticos, Bowers, and Cabinets of Arbor-work, Figures, and other Ornaments, serving to the Decoration and Embellishment of Gardens", "The Charges I am now going to speak of, demand a Royal Purse, and are to be undertaken only by Princes, Ministers of State, and Persons of the highest Quality", "Tis not so much the Fashion at present, to make Porticos, Arbors, and Cabinets of \*Lattice-work (\*Treillage), in Gardens, yet they ought still to be made in some Places; and 'tis certin, these Pieces of Architecture, well disposed, have something in them very beautiful and magnificent; they raise and improve the natural Beauty of Gardens extremely; but as they are very chargeable to make and keep up, and continually liable to decay, most People are out of Conceit with them". "There have been Works of this Kind done in some Gardens formerly, that cost at least twenty thousand Crowns, which are now almost entirely ruin'd, there being nothing but the Abundance of Iron that can keep them up any considerable Time," and

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<sup>406</sup> Ziegler (1966), p. 25

<sup>407</sup> Jacques and van der Horst (1988), pp. 136-137

<sup>408</sup> Colvin (1976), p. 171

<sup>409</sup> Drawings in the Tessin collection, now housed at the Nationalmuseum Stockholm, belonging to *Les Plaisirs de la Paix* (1715)

<sup>410</sup> Dézallier d'Argenville, A.-J., *The Theory and Practice of Gardening*... (Originally published in Paris, 1709; London, 1712), Plate E, pp. 70-71

“Above all, a Portico, or Arbor of Lattice-work, should have a handsome Frontispiece at Top, that Part being the most remarkable...”.<sup>411</sup>

This garden design was contemporaneous with the creation of Hampton Court Palace gardens. It depicted the very latest French fashions in gardening, statuary and planting. The ironwork and lead statuary were a clear display of the classical knowledge of the patron and the expense lavished on this scheme.

Bakewell was believed to have been apprenticed to one of the groups of smiths working for Tijou at St Paul’s Cathedral in 1696, though Bakewell is not noted in the account, perhaps because Tijou was the ironwork contractor and payments were awarded to him and thereafter distributed.<sup>412</sup> The choice of wrought iron forged by Bakewell for the focal point to the Melbourne Hall scheme is justification of the perceived value of this decorative object. The design of the arbour (Plates 142-143) is of particular interest because it features a significant amount of figurative work which, as an unhappy coincidence, Bakewell did not excel at. In his hands, it was best when limited to the beautiful swirling acanthus leaves and his distinctive hart’s tongue fern or water leaves. It is likely that the design of this object signals two aspects of Coke and Bakewell’s design and commission process. First, that the design was probably heavily influenced by Coke who is likely to have seen Tijou’s work at Hampton Court and who was part of the court circle and circulated continental ornament prints. Secondly, it highlights the fact that figurative new designs were a new skill and “specialist” activity amongst English smiths. Whilst many smiths, especially those working in proximity to Tijou, had a working knowledge of the processes required to create these new forms, many clearly never mastered them. The Birdcage commission created an opportunity and challenged Bakewell to diversify his repertoire of traditional skills, using techniques learnt during his London apprenticeship. The garden arbour created a new form in wrought ironwork, the origins of which were predated by French designs in wood.

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<sup>411</sup> Dézallier d’Argenville, A.-J., *The Theory and Practice of Gardening...* (Originally published in Paris, 1709; London, 1712), Plate E, p. 72

<sup>412</sup> Dunkerley (1988), p. 13

Undeterred by Bakewell's figurative work which lacked technical dexterity and vigour, the arbour was seen as a great success by those who saw it. Coke's family ties, friends and neighbours were mustered to provide further work for Bakewell who was introduced to Lord Ferrers (formerly the Shirley family of Staunton Harold Hall), Lord Chesterfield (of Bretby) and Lord Gore (Gower of Trentham, evidenced by Elizabeth Coke who refers to all three patrons in a letter to her brother, Thomas Coke, dated 1708 or 1711.<sup>413</sup>

The following summary of case studies together present a picture of high aristocratic patronage in an otherwise geographically isolated area. For Lord Ferrers, Bakewell created the magnificent staircase at Staunton Harold Hall, Leicestershire with linked balusters. The staircase design is identical to that at Okeover Hall.<sup>414</sup> Both works are attributed to Bakewell and the repetition of the same design might suggest that a design originating from a pattern book had been used. At St Anne's, Manchester, the communion rails are attributed to Bakewell, dating from c.1712 (though as yet there is no real proof that these are Bakewell's work, they may have been the result of pattern book designs being used by a local smith). For Lord Chesterfield, Bakewell made four splendid iron grilles for the main hall of Beninborough Hall, near York. These were similar in design to St Anne's communion rail but using slightly different proportions and with alternative designs for the end panels. The use of interior "balconies" was a new departure from the exterior balconies (decreed following the Great Fire) that had become so fashionable at the time in London. A branch of the Coke family lived in Norfolk and they purchased Longford Hall as a residence for their younger sons. Bakewell was introduced to provide the gates. Nearby at Foremark Hall the Burdett family, who were cousins of Coke, commissioned an altar rail and exterior gates and rails. The communion rails at St Saviours Church, Derby were forged by Bakewell and finished in light blue and gold. Gilding was expensive and limited to highly elaborate motifs which merited special treatment such as scrolls and shields. This treatment reflects the status and value accorded to these iron objects. An avenue links St Saviours Church to Foremark Hall with beautiful

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<sup>413</sup> Ayrton and Silcock (1929), p. 130

<sup>414</sup> Dunkerley (1988), p. 20

and delicate gates that are similar in proportion to the overthrow of the gates of St Mary the Virgin at Oxford and both incorporated gilt cloths of estate. The interior and exterior works maintain an artistic cohesion by the presence of thunder and lightning bars (a wavy line between two straight bars) which was a common motif of Bakewell's work, often used with darts/*Montans* at the dog rail or lock rail, and suggesting the influence of Tijou (Pl X). Dunkerley has identified Bakewell as the smith who introduced the wavy bar line employed horizontally and/or vertically into Britain. However, this design feature was preceded by the French designs of Le Pautre and Pierretz le Jeune dating from the 1680's which provide countless examples of this motif long before they appear in Bakewell's work. Similarly, designs by Michel Hasté (c.1680-90s) also illustrated this motif albeit in shortage. A similar design is depicted at Azay-le-Rideau in a protective grille of the seventeenth-century, linking the lock rail with the ground rail and incorporating a swaged pistil and seeds, sheathed in a waterleaf.<sup>415</sup> Bakewell employs the design in work at Longford Hall, Ashbourne Church, Okeover Hall and Cholmondeley Castle (Plate 144). Overall, Bakewell's designs and compositions are light, handsome, dignified and demonstrate a more linear restrained style than that of Tijou. Bakewell used the wavy motif to "fill space" (the design of which was a great deal cheaper and less time consuming than a series of linked scrollwork). This might suggest that Bakewell was either under time pressure or that his wrought ironwork commissions were price sensitive and therefore simplified design was necessary.

The first Cholmondeley Castle, Cheshire was begun in 1694 for the 1<sup>st</sup> Earl. George London designed the gardens. In 1695 Jean Tijou was paid £100 for the "iron gates at the end of the garden" probably for the new grotto.<sup>416</sup> Between 1704-13, the house was remodelled for the 1<sup>st</sup> Earl by William Smith. Around 1709 Bakewell was engaged to make three pairs of iron gates and an iron railing for the bridge. (These gates are thought to have been since relocated or lost). In 1714, the iron rails for the great stair and the hall were forged by Bakewell for

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<sup>415</sup> Lecoq (2005), p. 70

<sup>416</sup> Saunders (2005), p. 257; <https://historicismengland.org.uk/listing/the-list/list-entry/1000638>. Accessed 18/06/14

which he was paid £110. These have since been relocated to the Silver Garden.<sup>417</sup> Saunders states that the main gate screen to the north front of the Old Hall “the finest ironwork still surviving at Cholmondeley” was wrought by Bakewell yet, since his time, it has been relocated in the park and considerably modified. Bakewell’s bill for this was dated 10<sup>th</sup> August 1722.<sup>418</sup> The screen was originally bow shaped with five bays either side of the central gate, perhaps reflecting the composition of the exedra shape of the Hampton Court Palace Fountain Court screen. It now presents itself in a straight line with the gate removed and the side screens reduced to two bays’ wide.

During the years 1711-1722, Bakewell provided ironwork for Lord Cholmondeley at Cholmondeley Hall. The designs indicate more clearly than elsewhere the significant influence of Tijou upon Bakewell. The intricate designs and skilful production methods of Tijou’s work meant that only the wealthiest could afford the expense of employing him. The chameleon-like influence of Tijou’s designs upon Bakewell at Cholmondeley Hall might indicate the patron’s desire to transpose a fashionable style with which he was familiar from London onto a “local” craftsman who probably offered cheaper prices. Tijou had provided large iron gates and palisades, erected at Cholmondeley by 1695.<sup>419</sup> Nearby, Mr Charles Benskin, a local wealthy benefactor, knew of Bakewell’s work from St Saviour’s, Foremark, Derbyshire and on account of this he commissioned a magnificent and unusual font cover of wrought iron from Bakewell for St Werburgh’s, Derby. The font cover was a masterpiece of embossing and is entirely of iron. Delighted with the result, he is recorded as having donated a wrought iron reredos integrating the form of an angel c.1718 to St Michael’s, Alvaston, Derby which Pevsner refers to in *Buildings of England, Derbyshire* as “...an extremely pretty, if somewhat rustic, piece of wrought iron with a figure of an angel and lambrequins and scrollwork...”.<sup>420</sup> An agreement written by Bakewell (Appendix VI) and signed by Lord Cholmondeley’s steward clarifies

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<sup>417</sup> <https://historicensland.org.uk/listing/the-list/list-entry/1000638>. Accessed 18/06/14. Accessed 18/06/14

<sup>418</sup> Saunders (2005), p. 257

<sup>419</sup> Edwards, I., “Ironwork at Cholmondeley: New Light on George London, Henry Wise and Jean Tijou”, *Apollon*, Vol. 101 (1975), pp. 22-25

<sup>420</sup> Pevsner, N., *Derbyshire* (Harmondsworth, 1979), p. 190

the commissioning process. It details the authorship of the draft designs; the nature of the relationship between Bakewell, the patron and the steward; and the method of transporting the work. The work on the stairway and the landing are exact copies of motifs designed by Tijou. On the exterior gates and screens, the dog bars are derivative of Tijou designs and not dissimilar to those at Carden Hall, near Malpas. The double tulip garlands are illustrated in Tijou's *New Booke of Drawings* published 1693 (Plate 75).

Shortly afterwards, in c.1720, Bakewell's work at Derby Cathedral introduced him to Francis Smith of Warwick, the builder. The working relationship that Bakewell established with Smith increased the influence of Bakewell's circle as Smith employed Bakewell to provide wrought ironwork at Wingerworth Hall, his new residence, in 1726 and also enlisted him on other projects such as Osmaston Hall, Derby. Through this relationship, Bakewell was introduced to Edward Osborne, a generous benefactor, who donated a screen by Bakewell to All Saints (now Derby Cathedral) in 1725. Osborne also commissioned Bakewell to make gates for his residence at Osborne House, Derby. The ironwork was originally sited at the main entrance on a raised foundation and featured the Bakewell roundel and balustrading. The ironwork has since been relocated to Barton Hall, Church Broughton, near Sudbury.<sup>421</sup> The designs are an entirely new departure from all that preceeded. The likely origins for this oval motif may be derived from Tijou's redesign of the church organ stand at St Paul's Cathedral or Louis Fordrin's second book *Nouveau Livre de Serrurerie*, 1723 from which the design was copied (VAM: E1640-1977).

Another form of local extended network was enhanced by Bakewell's marriage to the Mayor of Derby's daughter from whom commissions resulted.<sup>422</sup> These projects provided Bakewell with the opportunity to develop a series of personal motifs that were recurrent throughout his work. The combination of these personal motifs together with the reduced use of figurative work (the production of which Bakewell was often eclipsed) indicate that from the 1720's Bakewell

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<sup>421</sup> Dunkerley (1988), p. 62

<sup>422</sup> Saunders (2005), p. 240



was increasingly responsible for his own designs. Through Coke's network of patronage his style spread throughout the country from London, to Derbyshire, to Norfolk and possibly as far west as Cheshire. After Bakewell's death, his design influence continued through the work of Benjamin Yates, his apprentice of twenty years.<sup>423</sup>

The effect of Coke's patronage is multitudinous. First, Coke and his social circle were well-exposed to continental styles through overseas visits and access to ornament prints and pattern books. The French ornament prints of Du Cerceau and Le Pautre inspired endless new designs created by the re-assemblage of innumerable motifs and this melting pot of propositions encouraged a new language of expression. The continental influences that motivated these changes were predominantly those of French architecture and garden design. The fashion for compartmentalised gardens created new spaces for unprecedented forms of wrought iron production including garden arbours, ornate railings to boating lakes and bowling greens. Coke's patronage offered new, wealthy, knowledgeable patrons who, by their wide business and social networks of friends, family and court acquaintances, were able to recommend Bakewell.

In Bakewell's work a departure from the baroque designs that had been prominent in the preceding period can be identified. The change is a fundamental one, a change in feeling, a renewed interest in the intrinsic material qualities of iron as a dynamic medium and the mass, proportion and rhythm of iron bars as opposed to the extrinsic creation of form by applied design. It is the carefully articulated relationships of mass, silhouette and the skilful unity of elements within the whole which becomes the character of the English Style. Whilst elements of applied figurative motifs were retained reflecting the originating source (Tijou), Bakewell's work may be thought of as a transitional style. The simple compositions that evolved became enormously powerful. One might say that two creative personalities were at the helm of Bakewell's designs and their relative contributions are not always easy to determine. There is a clear progression of

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<sup>423</sup> Similar decorative motifs are used by Benjamin Yates, depicted at the Okeover Hall gates by the wavy "thunder and lightning bar" motif and a profusion of ellipses, both favoured by Bakewell

work from the earliest at Melbourne which was rich in figurative masks, cloths-of-estate and scrolling acanthus leaves derived from Tijou's work, to the later work which was more linear, simplified, sparse and elegant in which enrichment was almost entirely confined to the overthrow. So, it could be said that it was Bakewell who assisted more than anyone else in propagating the style of Tijou. His influence was significant partly because of his flexibility in producing designs that reflected client's taste and evolved in response to predominant attitudes of the age. In the end, Bakewell's designs exuded moderation and a balanced combination of the use, beauty and practicality of ironwork. In truth, his style resisted too much enthusiasm and fancy and it demonstrated a return to traditional techniques.

### TALMAN/ARCHER, CHATSWORTH BALCONIES

This section explores the origins of ironwork balconies in Britain and it identifies the continental precedents and discusses the evolution of this new form of production in ironwork. Following the Great Fire of London (1666) new building regulations decreed that "all houses to be erected in the high and principal streets" are to have "balconies four feet broad with rails and bars of iron extending two-thirds of the frontage...".<sup>424</sup> The best of the period is the Town Hall balcony, High Street, Guildford (Plate 145) c.1680. It is composed of alternating plain and twisted bars, cressets over the heavy angle standards, and a central panel of two horizontal bars terminating in large thistle heads, crossed diagonally by bars ending in scrolls and spirals, with a small bird-like head between tulip leaves. Iron balconies were useful for house identification in London by their gilding or colouring, particularly before the system of numbering houses became general.<sup>425</sup> In an English translation of Sebastien Le Clerc's *A Treatise of Architecture with Remarks and Observations*, 1723, he observed that "Balconies of Iron will do much better than those of stone, as being lighter and less subject to Decay: If they be gilt, they will be exceedingly magnificent, and a proper Ornament for a

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<sup>424</sup> Starkie Gardner (1911), p. 255

<sup>425</sup> Geerlings (1929), p. 117

Palace”.<sup>426</sup> The Rules of Building after the Great Fire of London resulted in large numbers of London houses integrating balconies on the facades.<sup>427</sup> It was Inigo Jones who in c.1618 introduced the balcony from Italy to fashionable London. Balconies afforded a grandeur and splendour to the predominant façade of impressive edifices. They denoted the importance given to the *première étage* and might arguably be seen as an outward expression of the new internal organisation of buildings that reflected new forms of social conduct and etiquette at the time. As part of the grand unified design schemes of architecture and gardens, an increasing number of decorative wrought iron viewing balconies were created at first and second floor levels overlooking the formal gardens with bold, confident avenues, woods and rides radiating out from the house and designed to multiply the perspectives under which the whole was seen, such as those illustrated by bird’s eye views in “*Britannia Illustrata*”.<sup>428</sup> These images depict the extraordinary extent and complexity of grand gardens, and the dominance of the palace and grand country house over the landscape.<sup>429</sup>

The first design by Jones featured an ironwork balcony for Sir Edward Cecil (Plate 146) which consisted of plain and twisted uprights with small ball finials, the design of which survives as a drawing in the RIBA collection.<sup>430</sup> The original balcony was destroyed by fire in 1628. Edward Saunders refers to a similar contemporary balcony completed about 1621, designed by John Smythson for Sir Charles Cavendish and installed at “Little Castle”, Bolsover Castle, Derbyshire which is the earliest known remaining wrought iron balustrade of its type in Britain.<sup>431</sup> Examples of seventeenth and eighteenth-century iron balconies survive in England at Hampton Court Palace, Middlesex, Chatsworth House, Derbyshire and in Scotland at Drumlanrig Castle, Dumfries and Galloway and Caroline Park,

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<sup>426</sup> Le Clerc, S., *A Treatise of Architecture with Remarks and Observations*, Chambers, W. (trans.) (London, 1723)

<sup>427</sup> <http://www.buildinghistory.org/regulations.shtml>. Accessed 03/11/14

<sup>428</sup> Kip, J., *English Houses and Gardens in the seventeenth and eighteenth centuries, a series of bird’s eye views* (London, 1707)

<sup>429</sup> Sabatier, G., *Versailles ou la figure du Roi* (Paris, 1999), p. 47

<sup>430</sup> <https://www.architecture.com/image-library/ribapix/image-information/poster/design-for-an-entrance-with-pergola-for-sir-edward-cecils-house-in-the-strand-london/posterid/RIBA12960.html>. Accessed 09/03/15

<sup>431</sup> Saunders (2005), p. 238

Midlothian. Chatsworth house was an important and influential building in the development of English Baroque country house architecture. The 4<sup>th</sup> Earl of Devonshire, who was to become the 1<sup>st</sup> Duke in 1694, was an advanced Whig who retired to Chatsworth during the reign of James II. This coincided with significant remodelling of the house, the main block of which was rebuilt between 1687 and 1707. The south and east fronts were built under William Talman (Comptroller of the King's Works in the French court style) and were completed by 1696. The west and north fronts may have been the work of Thomas Archer, possibly in collaboration with the Duke. The north façade was the last to be built. The west front is composed of nine wide bays with a central pediment supported by four columns and pilasters. A significant enrichment to this façade is the decorative ironwork balconies expensively finished in gilt and paint. The precedence for these designs is likely to have been of French origin, specifically the gilt balconies at Versailles located in the *cour d'honneur* (Plate 147). The similarities in scale, composition and style of motifs, namely the gilt central royal emblem surmounted by the crown and supported upon a cloth of estate, is strikingly equal to those at Chatsworth. Two designs by Le Blond, both entitled *balcon du premier etage du Chateau de Versailles*, are illustrated by Louis Blanc.<sup>432</sup> The composition at Versailles amalgamates elements from both designs, yet the proportions are altered to complement the scale of the architectural façade. Nine repetitions of the central gilt panels mark the exterior of the *Chambre du Roi*. A repeated design such as this might indicate the use of a casting technique to maintain visual equality for each of the elements. A painting by Louis Chéron of the west front of Chatsworth (Plate 148) depicts the wrought ironwork.<sup>433</sup> It is located on the ceiling in the private theatre within the house. Whilst the generalised level of detail in the picture permits a limited view of the ironwork's decorative details, the image clearly illustrates a dissimilar ironwork design to the work which currently exists at Chatsworth. The painting may therefore be a rare example of an artist treating a proposed design as though it were a view. In the longer term, these types of paintings provided an enduring yet indirect stimulant for the desirability and romance of wrought ironwork.

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<sup>432</sup> Blanc (1928), p. 93

<sup>433</sup> Louis Chéron, Painting, Oil on Canvas, c. 1700

The designs of Jean Tijou, detailed in *New Booke of Drawings* illustrate a variety of balcony styles derived from designers such as Paul Androuet Du Cerceau (See Biography in Appendix I).<sup>434</sup> Notably, there is one print of iron published before 1693 which resembles the appearance and may be the precursor of the square balcony designs at Chatsworth. The print states “Inventée by Charmeton and Gravé by Ducerceau”. Equally, one print of iron published by François de Poilly (See Biography in Appendix I) shows a striking similarity in composition and arrangement of the motifs of the square balcony designs at Chatsworth (Plate 149). Research has identified that the designs for these balconies at Chatsworth are depicted in Plate 6 of Tijou’s designs (Plate 61), albeit that the proportion of the completed ironwork appears taller and more elegant in the finished work. Designs were often adapted to fit the printed page. The balcony to the West Gardens bears a striking resemblance by two features, namely the central decorative panel and the vertical linking circular motifs. In the corners of the balustrade to the panel sit the double-knotted snake, the personal emblem of the owner, the Duke of Devonshire, their family motto being *Cavendo Tutus*: Safe through Caution. The central composition is very similar detailing the coat of arms and crown and the rolling, acanthus foliage is used to full effect in filling the surrounding panel. At Chatsworth, decorative motifs such as *guilloches* appear in a variety of mediums such as the ornamental border of ironwork balconies and the plasterwork ceiling to the dining room. Craftsmen were applying the fashionable motifs of ornament prints to all the creative fields.

In conclusion, the continental influences that encouraged this new form of expression in wrought ironwork were classically inspired from Italy and brought to England by Inigo Jones. Yet whilst the form itself was Italian in origin, the language of expression depicted in the balconies at Chatsworth is entirely French, being derived from ornament prints from around 1690. The jewel-like intricacy of the Chatsworth balconies demonstrates the designs and influence of French

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<sup>434</sup> Tijou (1693), Plates. 2-20

goldsmiths and it suggests a knowledge of the balconies at Versailles which were depicted in ironwork ornament prints by Le Blond (1635?-1709).<sup>435</sup>

It was Montagu who returned from Paris in 1672 with the painter Antonio Verrio (1639-1707) and who later harnessed a band of French artists to decorate Montagu House, the grandest private residence in London, constructed during the last two decades of the seventeenth-century in Great Russell Street, Bloomsbury. Louis Laguerre and Louis Chéron, renowned pupils of the Academy of Painting and Sculpture in Paris, followed Verrio to England and together they brought the classical baroque style of Le Brun to English palaces and grand country houses. This cross-fertilization of design ideas across a diverse range of mediums significantly assisted in advancing the popularity and progress of continental styles.

## SIR JOHN VANBRUGH & HERALDRY

This new form of production has been conspicuously overlooked in literature and its political significance underestimated. The forms and material evidence suggest that a combination of cast and wrought iron techniques were utilised to produce these designs.

Correspondence from Robinson (Hyde Park) to John Erskine, 11<sup>th</sup> Earl of Mar, dated 11<sup>th</sup> September 1707 states that:

“I shall proceed with y’r rails with all expedition I possibly can, which will be in good forwardness for the beginning of next month, according y’r desire I shall freely refer ye price thereof to my lord Renelaw (i.e., Ranelagh), but if yo’r Hon’r pleases, I would make one panel w’th yo’r Lor’ps Coat of Arms in it as you gave me in Wax w’th the ornaments about it, that when you come to Town yo’r Hon’r may see how you approve of it”.<sup>436</sup> This suggests that a casting from the wax form would be made in metal. If so, this is the first record of the casting process being assimilated into wrought iron designs via heraldry. Robinson’s work was probably

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<sup>435</sup> Blanc (1928), pp. 93-94

<sup>436</sup> Saunders (2005), p. 336

intended for the official London residence of Erskine, appointed as one of the two Secretaries of State for Scotland in 1705.

Since antiquity, armorial bearings have effectively conveyed man's symbolic ownership, status and power. Heraldry was a product of the feudal system of land-tenure whereby a man held his land in return for military service and was bound by personal allegiance to his lord under whom he served in war. The use of colour and design as expressions of individuality in the most ostentatious styles, communicated a bold impression which the owner wished to display. An early form of heraldry is evidenced during the sixteenth-century at the Cathedrals of Toledo (Plate 150-151), Barcelona and Seville (1530's) (Plate 152) which both possessed immense Spanish *rejas* with highly ornamented balusters. At the same time as Spanish architecture was being influenced by the Italian Renaissance, wide crestings of modelled panels were filled with heraldry, portraits and extensive use of human figures of both pagan and Christian origin. The context provided the inspiration for this form. The use of figurative decoration was a reaction against the ban put upon it by the Moors.<sup>437</sup> Sir John Vanbrugh, a former soldier, architect and keen playwright, showed an interest in the use of military insignia and the opportunities for word associations in his applications of heraldry. Vanbrugh was responsible for the design of royal heraldry in his role as one of the Kings of Arms.<sup>438</sup> In 1679, such was the popularity of emblems that John Logan published the fifth edition of *A Display of Heraldrie* by John Guillim in London (VAM: E.2098-1960). Continental influences are illustrated in the heraldic designs of ornament prints such as Charles de Moelder, *Proper Ornament to be Engrav'd on Plate*, c. 1694.<sup>439</sup> Charles Mavelot (worked 1680 – 1742) published *Nouveaux Desseins pour la pratique de l'Art Héraldique*, in France in 1696, with 52 Plates (VAM: E.662-713-1939). Dürer (1471-1528), Nuremberg (Department of Prints and Drawings, Victoria and Albert Museum, VAM: 13219). The symbolic popularity of heraldry encouraged the new production of these symbols in forged and cast iron. During the period, new royal charters for the

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<sup>437</sup> Hispanic Society of America (1915), p. 74

<sup>438</sup> Hart, V., *Sir John Vanbrugh: Storyteller in Stone* (London, 2008), p. 70

<sup>439</sup> <http://collections.vam.ac.uk/item/O900951/proper-ornaments-to-be-engravd-design-for-silver-charles-de-moelder/>. Accessed 09/02/15

livery companies of London also encouraged the new production of heraldic shields with royal seals, the emblems of livery companies. The Coat of Arms of the Right Worshipful Company of Haberdashers is an example of such, dating from 1701 (VAM: E.4846-1923). These new forms created the centrepiece of overthrows and were viewed at a distance and therefore created strong impressive silhouettes reminiscent of the Spanish *rejas* of the sixteenth centuries. The forms were enabled by the assemblage of traditional techniques and innovatory casting processes which were skilfully combined in ironwork designs at properties where Vanbrugh was employed as architect such as Grimsthorpe Castle, and indirectly through patrons, such as Lord Carlisle (of Castle Howard), with whom he shared his interest in ciphers and badges of identity and who possessed amongst his private papers a manuscript title-page by Carlisle *A Book of Coates & Crests*, dated 1699.<sup>440</sup> It was Vanbrugh who fostered the use of armorial bearings, a development of iconography (coats of arms with standard bearers, in this context, not simply shields alone) into English ironwork. Since the seventeenth-century, embossed iron in preference to carved wood had been utilized to create coats of arms and shields incorporating family insignia to mark gateways and staircases (Plate 153) (Musée le Secq des Tournelles, Rouen, LS 4543) such as the embossed oval and curved shield depicting the coat-of-arms of the family of Johanne Lacarre, Marquis of Saumery in Béarn. A similar effect had been achieved in Spanish *rejas* since 1376, by the double-sided *repoussé* figures that surmounted the friezes (pg. X) at X and at the Reja of the Altar Mayor, Granada Cathedral, Spain, Royal Chapel, created by Bartolomé de Jaen between 1523-30 (Plate 12). Though perhaps the most similar type of object, depicting freestanding figures either side of a shield or sign is the Gunsmith's sign (Musée le Secq des Tournelles, Rouen, LS 4656), the decoration incorporating three hounds, a pair of crossing guns, a cloth of estate and acanthus leaf terminating in with an eagle head. Yet the bold display of heraldry in iron was an unprecedented development from the 1680's onwards. Primarily these insignia formed the focal point of the overthrow to entrance gates of important country houses. This section discusses

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<sup>440</sup> Dobrée, B., and Webb, G. F., *The Complete Works of Sir John Vanbrugh*, Vol IV (London, 1928), p. 123



the origins, designs and new variety of styles enabled by a combination of techniques.

Many of these heraldic forms were created during the war years of 1702-1713 and it might be suggested that a sense of Queen and Country, manifested in the ideas of land ownership, were being defended with the use of heraldry to proclaim dominions. However, the use of arms upon wrought ironwork from around 1710 was also perhaps indicative of a belief in the shared sense of power across the country, a levelling out of the powers of the monarchy and an acknowledgement of the rising influence of the independently wealthy. Increasingly mercantile/industrious activities, using the resources of land for highly lucrative mining, investments in the slave trade and developing monetary policies that created the Bank of England meant that, for the first time, the affluent were released from allegiances and the bonds of attachment at court. Involvement in these powerful and significant economic and political activities may well have contributed to a sense of growth, well-being and pride, and these characteristics were nowhere better displayed than at the main gates to an estate for all to see. At this time, self-representation relied upon distinguishing oneself in all matters of innovation, novelty and taste. These new forms of production were an enduring reminder to all who witnessed them of the social, political, economic power possessed by the owner.

The English examples are illustrated at Grimsthorpe Castle (Plate 154), attributed to Edward Nutt; Ragley Hall (Plate 155), Warwickshire, Derby Cathedral, Staunton Harold Church (Plate 156), attributed to Robert Bakewell; (Church of The Holy Trinity), Milton; and Burghley, Lincolnshire (Plate 157), attributed to Jean Tijou and Belton House, Lincolnshire. The gates to Green Park have not been included here because they are consistent with work that post-dates the period by around 5-10 years.<sup>441</sup> The background to these rare examples is

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<sup>441</sup> The gates to Green Park date from the early eighteenth-century and originated from Lord Heathfield's house at Turnham Green. When the latter was demolished in 1837, they were bought by the Duke of Devonshire for Chiswick House, then moved to Devonshire House in 1897 and to their present site in 1921 dating from the early eighteenth-century. The Palladian house was constructed between 1734-1740). <https://historicengland.org.uk/listing/the-list/list-entry/1226498>. Accessed 10/01/15

summarised below. The Ragley Hall gates include the coat of arms of Conway-Seymour.<sup>442</sup> The first Earl of Conway enlisted Robert Hooke, a contemporary of Christopher Wren, to undertake design modifications to plans for the new Palladian house in 1678. Hooke was a notable scientist and architect but of the houses that he designed only Ragley remains. Kip's bird's-eye view of Ragley from the east (published 1707) shows a forecourt flanked to north and south by service blocks, and entered from the east by gates set in a semicircular wrought-iron screen.<sup>443</sup> The gate figures (c.1710) are notable for their uncommon form, size (c. 60cm high) and the gates are attributed to Tijou. One holds a “sun” motif that is suggestive of an astrological or symbolic meaning. In 2004, the figures from the Ragley Hall overthrow were restored and photographic evidence post-paint removal demonstrated that, in comparison to previous photographic records of the gates from 1929, the same area was once again due for restoration (probably due to the design of the figures which collects water at the elbow area where corrosion has occurred).<sup>444</sup> Similar motifs also appeared etched on locks illustrating mermen, grotesques and winged faces, dated 1649, by Gaspard Mazelin.<sup>445</sup> The heavily silhouetted figures of Ragley are echoed in naïve figures of several plasterwork ceilings. As early as c.1635 Claire Gapper has noted plasterwork ceilings depicting decorative shields and standard bearers at Winton House, East Lothian and as late as c.1730 at Raynham Hall, Norfolk.<sup>446</sup> At Forde Abbey in Dorset (c.1655) (where William III stayed in 1688 on the way to his coronation in London, having landed in Brixham a few days earlier) the oval Drawing Room ceiling contains similar figures supporting an acanthus wreath. Extensive building works were known to have been underway at Forde Abbey under Cromwell and, if the plaster ceiling is from that period, then the originating sources for the Ragley figures are earlier than might otherwise have been expected. At Brodie Castle in Moray, Scotland (c.1680) is a lavish plasterwork ceiling which includes fantastic figures of chunky mermen and, in one of the roundels, a similar figure to that at Ragley holds a sunbeam form. The Ragley

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<sup>442</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1024693>. Accessed 14/03/15

<sup>443</sup> <http://www.parksandgardens.org/places-and-people/site/2756?preview=1>. Accessed 11/07/15

<sup>444</sup> Ayrton and Silcock (1929), p. 176

<sup>445</sup> <http://collections.vam.ac.uk/item/O377003/lock-and-key/>. Accessed 06/06/15

<sup>446</sup> Gapper (Unpublished PhD Thesis, 1998)

gates are attributed to Tijou but the crude design of the overthrow is wholly uncharacteristic of his work. The bulky figures are also incoherent with the otherwise competent design of the gate. It might be reasonable to suggest that the gates alone are by Tijou and that the overthrow and or the figures perhaps replaced a previous concept.

In 1711, Lord Ferrers employed Bakewell to create a splendid wrought iron screen for the Church of the Holy Trinity that had been built close to Staunton Harold Hall in 1653. This was one of few churches built between the outbreak of the war and the Restoration period. The overthrow of the screen features the use of armorial bearings with standard bearers. There is a predominance of lyre motifs and abundant scrollwork. The dog rails on the wing panels are replicas of motifs depicted by Tijou and perhaps evidence knowledge of his designs (Plate 62). This commission set a precedent and was followed with local orders for two church screens for Derby Cathedral (previously known as All Saints) and St Saviours Church, Foremark, Derbyshire – both of which included armorial bearings. These forms were extremely rare and from the evidence, it is suggested that Lord Ferrers' commission was the catalyst for this new form of design. The gates demonstrated Lord Ferrers' power and influence as the local significant landowner and they emphasised his support of the church.

The gates at Grimsthorpe Castle display an overthrow with two figures located either side of a shield which incorporates the Bertie family arms, beneath which is a banner with an epitaph. Chris Topp, of Topp and Co, North Thirsk, Yorkshire, restored the gates and photographic evidence illustrates that the two existing figures are presently made of carved wood (perhaps due to an earlier restoration) or to metal clad forms – the metal of which may have since rusted away or fallen off.

In summary, this new form of production was created using the technique of cast metal to facilitate new decorative transmutable designs. These bold heraldic displays embraced family lineage and aristocratic connections which were historically a sign of social and economic links to the monarch. The demonstrative quality of these ancient familial ties were perhaps harnessed to distinguish the

nobility from the new and increasingly wealthy merchant classes. Heraldic symbols reinforced the idea that inheritance mattered.

## CHAPTER 4 SUMMARY

The different case studies demonstrate that select members of the aristocracy ardently harnessed visual media to distinguish themselves from peripheral constituents of the court nobility. Political opposition to France did not slow the pace of this stylistic influence at the aristocratic palaces in England, Wales and Scotland which commissioned and imported many new forms of decoration that were often in surprising contrast to the classical origins of exterior architecture. The significant changes in the planning of buildings and the relationship of surrounding landscapes to them, reflected the new ways in which people were living and the increasingly refined domestic arrangements that were gradually adopted. Some patrons were keen to illustrate their links to the monarch and traditional powerhouse of influence and economy. At the same time, other patrons developed independent visual ideas which could be interpreted as a display of autonomy from the monarch. Timothy Mowl has noted that: “For any oligarchy to pull consistently together as a ruling team a watchword is required, and the Whig watchword was “Liberty”. Not, of course, general democratic liberty, but the liberty of an élite to limit royal power and control the three kingdoms...”<sup>447</sup> It was this sense of freedom and the value accorded to independence during the period that were reflected in the different decorative wrought iron styles which co-existed in Britain from 1660 to 1720.

Continental influences transpired through a variety of working and interpersonal relationships. Across Britain the network of court patrons united by Court appointments, was geographically broadly spread and the result was that design ideas were disseminated from London to Scotland and Wales and, to a degree, vice versa. On the one hand, the regions displayed a style with provincial exaggeration yet on the other hand, some locations illustrated knowledge of the latest Continental designs, spurred on by knowledgeable affluent aristocratic patrons. The mobility of patrons and craftsmen enabled many more different centres of artistic creation than in previous eras when travel had been arduous and

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<sup>447</sup> Mowl, T., *Gentleman Gardeners, The Men Who Created the English Landscape Garden* (Stroud, 2010), p. 80

expensive. Direct foreign influence occasionally engendered collaboration and experience with local county smiths, such as at Chatsworth House, Derbyshire, where John Gardom, the Estate blacksmith, worked alongside Tijou.<sup>448</sup> Continental designs were candidly transferred by the process of Tijou drawing designs on boards for Gardom to effect. Specialist metalworkers, such as Savouret, the French brassworker formed part of Tijou's entourage at this magnificent project. Traditional forged techniques were temporarily abandoned during this extreme period of flux. The nature of relationships between patron and blacksmith varied. The interplay of ranks between patrons and craftsmen could be flexible. This was important in stimulating new ideas, sharing knowledge and access to ornament prints which inspired new forms of production. Craftsmen of low ranking could rise to a senior royal appointment such as William Kent, who began as a coach painter and ended as a close friend and protégé of Lord Burlington is perhaps the most famous example. Daniel Marot, the decorative designer, was also "kept on" (as a retainer with £75 per annum) by William III and Mary.<sup>449</sup> Similarly, Louis Laguerre, the painter, was godson of Louis XIV and painter to the English landed gentry. So it could be said that during this period the monarch and nobility patronised artists on a meritocratic basis (rather than by religious or social affiliations). Yet with the changing nature of commissions during the period, passing from Royal Works to private, religious and civic patronage the influence of designers with royal patronage swiftly declined and indeed Tijou's influence in London waned rather quickly after William III's death in 1702.<sup>450</sup> The evolving nature of commissions coincided with changes in city planning and the rising taste for Georgian architecture and advancements in the production and uses of cast iron which superceded iron forged at the anvil.

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<sup>448</sup> Jacques and van der Horst (1988), p. 114

<sup>449</sup> Colvin, (1976), p. 29

<sup>450</sup> Summerson (1953), p. 179

## CONCLUSION

This was an age when artistic preference did not rationally follow allegiance to political motives. Considering the differences in political factions involved in court life during the period, it is notable that particular groups of influential politicians, such as the CABAL Ministry, “The Immortal Seven” and the “JUNTO”, acted in similar ways. Sir John Summerson has commented when discussing Chatsworth: “It inaugurates an artistic revolution which is the counterpart of the political revolution in which the Earl was so prominent a leader”.<sup>451</sup> It could be said that William III’s entire military career was based around opposition to Louis XIV and yet at the very same time the French artistic influence was pre-eminent upon the English court. From an architectural point of view, the majority of largescale British country house construction projects from around 1680 were significantly influenced by French taste whereas silver styles reflected the policies and aesthetic preferences of the sovereign from James I to George III.<sup>452</sup> Designs of ironwork during the reign of William III and Mary were influenced predominantly by French and Dutch sources. At Hampton Court Palace the garden layout, for which the celebrated Fountain Court Screen was commissioned, established a new genre of Dutch-French inspired gardens. Yet across Britain, and in sharp contrast to France where political regimes were governed by absolutist power and simulation of the monarch’s aesthetic style was expected, in England and the regions there was less consistent emulation of William and Mary’s style from political influencers, who were gathered from a range of Whigs and Tories. Instead, greater independence of thought and action was reflected by considerable diversity in designs of iron which originated from a combination of continental, national and local sources. On the one hand, the regions displayed a style with provincial exaggeration yet, on the other hand, some locations illustrated knowledge of the latest Continental designs, spurred on by knowledgeable affluent aristocratic patrons. Ironwork styles in the regional locations of Wales and Scotland illustrate the impact of a mixture of Swedish, German and Austrian designs. The predominant influence across England was

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<sup>451</sup> [https://en.wikipedia.org/wiki/Chatsworth\\_House](https://en.wikipedia.org/wiki/Chatsworth_House). Accessed 02/09/13

<sup>452</sup> McNab, J., *English Silver, 1600-1800* (New York, 2003); “Heilbrunn Timeline of Art History”, *The Metropolitan Museum of Art Bulletin* (2000), <http://www.metmuseum.org/toah/hd/esilv/hdesilv.htm> Accessed 13/06/13

derived from French designs. The mobility of patrons and craftsmen enabled many more different centres of artistic creation than in previous eras when travel had been arduous and expensive.

The changing nature of commissions during the period transferred from the Royal Works to private, religious and civic patronage. The influence of designers with royal patronage swiftly declined and indeed Tijou's influence in London waned rather quickly after William III's death in 1702.<sup>453</sup> The evolving nature of commissions coincided with changes in city planning and the rising taste for Georgian architecture and advancements in the production and uses of cast iron which superseded iron forged at the anvil. As architects sought to unify entire schemes of architecture and garden designs, styles for iron evolved into more tectonic compositions. There are essentially two phases in the development of English smithcraft. The first is characterized by a highly decorative effect aimed at enriching the surface and the second evolved into a more architectural style illustrated by linear forms in which the proportions, the spacing of bars and the massing of the elements created the design. The former was more vivid and eclectically dynamic deriving inspiration from transmutable designs whereas the latter created the impression of solidity and sobriety. It could be said that in England the former is indicative of the majority of ironwork created for the monarchs and aristocracy from 1660 to 1710 and is inspired predominantly by the French influence of Tijou. The latter is exemplified by ironwork at public, religious and collegiate ironwork from around 1705 onwards and could be seen as a development of traditional blacksmith techniques and style. The most progressive English designs were those that managed to reconcile the natural characteristics of traditional forged iron with the symmetry and geometry of an organised plan. The style that prevailed embodied an instinctive sense of composition in which function and decoration were inextricably fused together and united as one. For traditionally trained blacksmiths, the practical and aesthetic balance was intrinsically understood.

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<sup>453</sup> Summerson (1953), p. 179



The influx of continental ornament prints evoked a dramatic increase in the use of applied motifs to ironwork. This was a period of immense collaboration between craftsmen, designers and highly skilled foreign labour spurred on by the the influx of foreign craftsmen following the revocation of the Edict of Nantes and inspired by the visual ideals of Louis XIV expressed in designs of the *Manufacture des Gobelins* and this productive tension enabled new aesthetic ideas, materials and techniques. The techniques of silversmiths, goldsmiths, armourers, woodcarvers and masons, combined with the plethora of inspiration provided by designers of continental ornament prints, galvanised blacksmiths to innovate and develop new combinations of skills to satisfy the voracious appetite for continental styles applied to iron. However, there was a timelag before the new designs were fully integrated into ironwork during which new skills were developed. The latest design innovations were enabled in three ways, namely by re-organisation of workshop practices, by outsourcing of specialist elements to artisans catering for niche operations and by technological advancements in refining high-grade irons with low levels of impurities (mainly from Sweden, evidenced by ironstamps) which resulted in increased malleability and a broadened capacity for design and production. The material evidence suggests that use of *repoussé* has been significantly overstated in terms of its historic contribution to styles of wrought iron during this period. Instead it was the production of fine castings using a metal with 0.7-1% phosphorus (which made the iron slightly more fluid when molten and cast) that produced the celebrated effects of the age. Tijou used the process of casting iron to achieve exquisite, precious objects of iron. Low production rates ensured rarity, a highly-prized attribute during the period and these princely, highly ornate, designs were aimed exclusively at the financially elite. Only the monarchy and rich aristocratic patrons could rise to the expense of it. Market forces played a role in creating decorative ironwork. Common perceptions about cast iron derive from the early/mid-nineteenth-century when mass produced cast objects came into vogue and coincided with the beginnings of the great public museums and Victorian ideas about "education". Whilst today cast objects are often, sometimes inaccurately, considered to be of inferior quality and low cost, Tijou harnessed the casting technique to create unique, intricately detailed and extremely expensive focal decorative features. He was the master at design and assemblage of forged and cast elements and his work, albeit highly inspirational,

was not significant in terms of wholesale influence and effect because of the techniques required to produce it and not least of all because of the vast budgets required to commission it. Yet blacksmiths derived significant visual inspiration from the different elements of Tijou's work and the motifs of transmutable designs which they applied to their own work. Profits at the high-end of the market were extremely lucrative though many, including Tijou, were never paid. Correspondence with Jean Tijou's descendants, Charles Tijou (ninth generation), has uncovered a letter referring to Thomas Tijou (Jean's son) who in 1780 wrote to a French Protestant Charity School in England requesting financial assistance.<sup>454</sup> A transcript of this family letter is included in Appendix VI. The letter refers to Jean Tijou of St Garmans, France, who was forced to flee in the time of the General Persecution of the Protestants, and came to England, where he was employed by his Majesty King William to furnish his Palace at Hampton Court with the whole of the iron work, however the ironwork not having been complete until the time of Queen Anne, the bill remained unpaid. Thomas refers to himself as now eighty years old and with three fatherless grandchildren that were dependent upon him. (The reference to St Garmans, France could be Saint-Germain-des-Prés, Paris or Saint Germain-en-Laye, Île de France (western suburbs of Paris), where Louis XIV was born and which he established as his principal residence between 1661 to 1681. A renovation of the gardens had begun in 1662 and André Le Nôtre was at work between 1669 to 1673 creating the 2.4km long stone terrace. It is possible that Tijou may have been engaged in plans for the significant ironwork that was later installed at this property yet no records currently exist of his return to the vicinity and/or death there or elsewhere. The family believe that he probably passed away shortly after his departure. In 1720 there is a genealogy record of the death of a Jean Tijou in France, though he is referred to as a labourer, so the connection is uncertain.

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<sup>454</sup> Huguenot Library/WS/C 2/2, nos. 669-670. (The numbers refer to the number given to each pupil by William Beaufort, when he compiled scrapbooks of the birth certificates etc. of entrants to the French Protestant School in Westminster); <http://www.andrewtijou.co.uk/tft> . Accessed 23/01/15; Tijou, C., and Huguenot Library, *Not Any Old Iron, The Works of Jean Tijou Produced Between 1685 and 1712* (London, 2009)

By 1700 attitudes were changing. Politically, the ideology that Louis XIV stood for (despotism, centralized government, absolute control) and which was reflected in the French architectural and garden designs at Versailles, was out of tune with the times. There were also practical reasons for change as the creation and upkeep of extensive garden schemes was extremely expensive. A gently disordered form of nature evolved encouraged by ideas endemic in the paintings of Claude depicting scenery of the Roman countryside, its informal groves and lakes, connected with a view of the landscape beyond and punctuated with follies and pavilions. In England around 1690, landscape designs were radically altered by the introduction of the *ha-ha* (a recessed landscape feature which preserves views whilst preventing livestock from entering a garden). This resulted in gardens that were no longer formal or fenced in for, in the words of Horace Walpole, William Kent (designer, architect, landscaper) had "leapt the fence and saw that all nature was a garden".<sup>455</sup> Garden layouts became less structured and the demand for decorative ironwork at grand country houses declined. Gate lodges were located at a distance to the main property and ironwork that remained independent of an overarching architectural scheme tended to maintain a greater diversity of style, such as at Chirk Castle, Wrexham, possibly because the designs of blacksmiths triumphed rather than those of the architect.<sup>456</sup> The process of exchange and reception between the continent and Britain encouraged and enabled a variety of diverse visual outcomes. New forms of production were created with a multiplicity of expressions which provided opportunities for baroque designs of iron to flourish contemporaneously with designs that developed traditional styles and techniques. The latter evolved into the tectonic designs of iron at the colleges of Oxford and Cambridge. Yet the apex of seventeenth-century ironwork in Britain was galvanised by the extravagant royal patronage bestowed upon Jean Tijou by William and Mary who supported the exquisite and rare designs of iron at the Hampton Court Palace Fountain Court screen. Whilst the voracious fashion for transmutable continental designs during the second half of the seventeenth-century inspired and drove dramatic design developments of ironwork across the

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<sup>455</sup> Clarke, H. F., "Eighteenth-century Elysiums: The Rôle of "Association" in the Landscape Movement", *Journal of the Warburg and Courtauld Institutes*, Vol. 6 (1943), pp. 165-189

<sup>456</sup> Mowl, T., "The Evolution of the Park Gate Lodge as a Building", *Architectural History*, Vol. 27 (1984), pp. 467-480

country, it was the designs recorded in Tijou's *New Booke of Drawings* from 1693 which elevated the status not just of the man but of the medium itself. The considerable value accorded to these objects, lavishly finished in smalt and gold, suggests a reassessment of the viewer's object perception and the preciousness of these creations. Public awareness and appreciation of the uniqueness of decorative ironwork from the seventeenth and eighteenth-century are crucial to maintaining these rare, historic forged and cast ironworks.

## GLOSSARY AND ABBREVIATIONS

Acanthus Leaf	A formalised leaf, deeply veined, pointed and with scalloped indentations, used in baroque ironwork for sheathing scrolls. Such leaves can be forged under the hammer or hammered cold from sheet metal.
Alloy	A metal made by combining two or more metallic elements (for strength, resistance to corrosion or malleability).
BABA	British Artist Blacksmith Association
Banded collar	A molded ring to join/make a collar around two bars
Bay Leaf	Used as a decorative flourish, especially in the overthrow, as a foil to the smooth run of the leaves and scrolls.
Bimetallic Corrosion	The electrochemical reaction between two dissimilar metals
Caryatid	A sculptural female figure used instead of a column to support an entablature.
Chamfer	A symmetrical bevel cutting of a corner. The term is commonly used in woodwork.
Chasing	To chase metal is to work it from the front (rather than <i>repoussé</i> which works from the back of the metal). Chasing is also referred to as embossing.
Coke	A solid residue consisting mainly of carbon, left after the volatile elements have been driven from bituminous coal.

Collars	The purpose of this method is to enclose and grip two or more members together. This consists of wrapping a thin piece of hot iron around two members which are to be joined, forming a small “collar”, and pounding down the over-lapping top end.
Cypher	Intertwined initials enclosed in a box or roundel in the overthrow. The initials repeat backwards to secure a symmetrical arabesque.
Damascening	A technique of inlaying one metal into the narrow, chiselled groove of another metal.
Dog Bar	A short vertical bar, usually arrow-headed, set between the verticals at the bottom of a gate.
Gadroon	An ornamental feature constituting a loop having one side concave, one convex, used in series as a filling for the fixed frieze above the gate. Otherwise determined as: any decorative motif consisting of convex curves in a series.
Gilding	Gilding was a dangerous process which involved mixing gold powder with mercury into a paste and using the mixture to paint onto brass, then burning off the mercury, the fumes of which were highly toxic.
GWICW	The Guild of Wrought Iron Craftsmen of Wessex.
Lockrail	A single, or double horizontal bar dividing the gate into upper and lower panels.
Lost-wax method	A process used in metal casting that consists of making a wax model, coating it with a refractory to form a mould,

	heating until the wax melts and runs out of the mould, and then pouring metal into the vacant mould.
Lyre	The lyre/harp shape was often used as a space filler in the panels of gate piers.
Mask	A grotesque head, formed of cast or <i>repoussé</i> work, often used as a central ornament in a screen or gate.
Overthrow	The fixed ornament, mounted on a stretcher bar, above the gates. Usually the richest part of the ensemble and often decorated with a coat-of arms, a crown or other cipher accompanied by swirling acanthus leaves and grotesque masks.
Piercing	Piercing is highly skilled technique. Holes are drilled in sheet metal and a piece of wire is fed through and joined at both ends to a handle to create a wire saw. Each pierced shape is individually sawn.
Pig Iron	A crude form of iron made in a blast furnace and shaped into rough blocks for storage or transportation.
Pilaster	A strengthening panel set in a long line of rails and serving to articulate it.
<i>Repoussé</i> work	Ornament hammered cold from thin sheet metal and taking various forms such as acanthus leaves, masks and shells.
Scrolls	Iron forged at the anvil into C, G and S-shaped scrolls.

Scroll Ends	A variety of decorative terminations to scrolls, either flat such as the penny-end, or pear-shaped nib, or more massive, such as the fish tail and snub-end.
Stamped Ornament	An ornament of hardened steel stamped into which nearly white-hot iron, used to form small flowers, rosettes, leaves and other insignia.
Threading	Passing one iron bar through another pierced bar whilst hot. The bar to be pierced is heated and laid on the anvil, at the point where another rod is to penetrate it, a punch or chisel is pounded until it has made a hole large enough for the intruding bar. The sides of the bar naturally swell because of the iron's being forced out by the action of the punch and it is this quality which is desirable and shows that the operation was done while the iron was hot. The bar is inserted through as soon as reasonably possible, before the iron cools and the hole shrinks.
Twist	A method of ornamenting iron bars by heating a section and turning the free end until the required length of twisted bar is obtained.
Waterleaf	An ornament made either under the hammer or in the <i>repoussé</i> manner, having a V-shaped profile. It is a curved leaf with a crimped upper edge. This motif was much favoured by English smiths in the baroque period.
WCB	Worshipful Company of Blacksmiths
Weld	The process of joining two pieces of iron together in order to maintain continuous strength. To protect the welding faces from burning, spikes or tongues are drawn out at the bar



	ends, giving sufficient extra metal to burn away and so ensuring a clean weld. Without this precaution, the welding faces burn giving a weak and unsightly join. Welding scrolls or branches to the parent bar gives the appearance of natural, organic growth.
Whitesmith	A person who makes articles out of metal, especially tin. Also a polisher and finisher of metal goods. (Tin is sometimes referred to as “white lead”).
WWW	World Wide Web

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## APPENDIX I

### CATALOGUE OF PRINTS OF IRON, 1660-1720

This catalogue collects together for the first time a summary of published ornament prints of decorative wrought ironwork from 1660-1720, in alphabetic order and by priority of designers, engravers and publishers from 1660 to 1720.

In assembling this catalogue, the sources I have consulted include the National Art Library and the RIBA Collection (London) and the École des Beaux-Arts (Paris). The following French publications and dictionaries of national biography have been consulted: Guilmard, D., *Les Maître Ornemanistes, Dessinateurs, Peintres, Architectes, Sculpteurs et Graveurs : Écoles Française, Italienne, Allemande, et Des Pays-Bas (Flamande & Hollandaise)* (Paris, 1880), Joubert, R. E., *Manuel de l'amateur d'estampes*, Vol II (Paris, 1821), Linzeler, A., *Inventaire du Fonds Français Graveurs du Seizième Siècle, Tome Premier* (Paris, 1932) Weigert, R.-A., *Inventaire du Fonds Français Graveurs du XVII<sup>e</sup> Siècle, Tome III* (Paris, 1954) and Tome VI (Paris, 1973).

I have noted whether the ornament prints relate to “Commissioned Work” (CW) which the designer/engraver has ascribed to a particular location or which is assuredly depicted in landscape paintings of the period, or “Not Commissioned” (NC), or Attributed Work (AW), which I propose is the completed work relating to the print and forged between 1660-1720. Occasionally Artist Titled Work (ATW) is noted where the artist has titled and ornament print yet there is evidence to date that confirms the commission (through object, text or visual references).

This catalogue of prints relates to designs for decorative forged iron (“*serrurerie*”). It does not seek to include prints for locks, guns, silverware or candelabra, though it refers to early examples of a selection of them. The titles and/or locations of the ironwork have been quoted *verbatim* from the original ornament prints and therefore the spellings and grammar are inconsistent.

**D’Aviler, Augustin-Charles** (b.1653 - d.23 June 1701)

Also known as Daviler, Daviller. French.

*Cours d’architecture qui comprend les ordres de Vignole, avec les commentaires, les figures et descriptions de ses plus beaux bâtiments et de ceux de Michel-Ange, etc.* The first edition published by N. Langlois, 1691. Two small volumes.

Frontispiece designed by L. Boulogne and engraved by I. Langlois.

Designs for ironwork illustrated in plate 44A (gates, posts and strips for locksmiths), in plate 65C (various pieces of ironwork), in plate 65D (ramps, supports and balconies of iron).

Attributed Work (AW): Canons Park, Balustrade (removed in 1747)

**De Bellin, Gilles**

Blacksmith to the King of France in 1686. French.

One print illustrating a large decorative church screen with florid overthrow, incorporating a crest, cloth of estate, shield, gadrooning and finials.

The print contains an inscription that locates the ironwork within the Church of St Anne, Paris. (n.d.). The print at the École des Beaux-Arts includes an inscription which notes “*Messire Michel Colbert, Conseiller et aumônier du Roy, Abbé de Premontré, Chef et General de tout l’ordre: A fait faire cette balustrade, qui est placée dans l’Église de Ste Anne leur College, Située rue haute-feuille près les Cordeliers a Paris. Elle est composée de dix panneaux conformément aux quatre graves cy dessus savoir deux cintrés et deux de retour de chaque costé suivant le plan iy dessous. Cette ouvrage vend chez luy rue Ste Marguerite, Fauxbourg St Anthoine a Paris*”.<sup>457</sup>

Commissioned (CW): L’Église de Ste Anne leur College, Paris

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<sup>457</sup> ESTLES116, Pl.12

**Bérain, Jean, The Elder** (1638 – 1711)

Designer, Engraver, Dessinateur de la Chambre et du Cabinet du Roi. French.

A suite of 16 plates, numbered. *Diverses pièces de serruriers inventées par Hugues Brisville et gravez par Jean Berain*. Paris, chez Langlois. 1663. Pls.1 & 2 contain the title and dedication to M. Longuet. “Ladame fecit”. Pls.13 & 14 of this suite signed “G. Ladame sc.”. *Oeuvres de Jean Berain, dessinateur ordinaire du Roy, recueillies par les soins du sieur Thuret, son gendre, et horloger du Roy*, one volume containing the most well known designs of Berain from the period, which includes 5 plates of ironwork, balconies, grilles, freizes and capitals.

Jean Bérain I (after), Album entitled 'Ornemens inventez par Jean Bérain' comprised of 137 plates engraved by various printmakers after designs by Bérain, reissued and assembled by the artist's son-in-law, Jacques Thuret. Paris, in or after 1711.<sup>458</sup>

**Le Blond, Jean** (b.1635 – d.1709)

Artist/Designer/Blacksmith/Editor, “peintre ordinaire du Roy”. French.

A folio volume entitled *Desseins de développemens d'assemblages de différents ouvrages de menuiserie, etc.* A Paris, chez Le Blond, peintre ordinaire du Roy, en son Académie royale, rue Saint- Jacques, à la Cloche d'argent 1703.

One plate depicting each of the following: door of the gate of the small stables of King in Versailles, Le Blond, with Roy privilege. One plate, door of the gate ahead of short-Versailles; door of the gate of the courtyard of the Palace of Versailles in Paris; pilasters of the grid stables of King at Versailles; pilasters grid of small stables of King at Versailles; pilaster of the grid ahead of short-Château de Versailles; door of the grand staircase of the Palace of Versailles. Two plates of balconies on the first floor of the Palace of Versailles.

"*Plan et elevation des plus beaux confessionaux de Paris tres fidèlement mesuré*, Paris, 1688.”<sup>459</sup> One print of the set illustrates an ironwork grille.

Commissioned (CW):

Porte de la grille de lavant court du Château de Versailles

Porte de la grille des petites Ecuries du Roy a Versailles

Porte de la Grille de la Cour du Château de Versailles

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<sup>458</sup> VAM: E.4171-1906

<sup>459</sup> VAM: E.550-1939

Porte du grand Escalier du Château de Versailles  
 La grille des grandes Ecuries du Roy  
 La grille des petites Ecuries du Roy  
 De la grille de lavant Court du Château de  
 Pilastre de la grille de la Court du Château de Versailles  
 Balcon du premier Etage du Château de Versailles  
 Balcon du premier étage du Château de Versailles

**Bouché, Peter-Paul** (b. 1641)

Also known as Peeter-Paul Bouché, Pierre-Paul Bouché

Engraver and Printmaker, Flemish School

*A New Booke of Drawings Invented and Desined by John Tijou, Containing severall sortes of Iron worke... wrought at the Royall Building of Hampton Court... all for the Use of them that will worke Iron in Perfection, and with Art.*

Bouché engraved plates 5, 14, 15 of 20 plates.

**Brisville, Hugues** (b.1628)

Master Blacksmith in Paris. French.

Suite of 16 plates entitled *Diverses pièces de serrurerie inventées par Hugues Brisville, et gravées par Jean Berain à Paris chez Langlois 1663*.

Brisville originally published the plates in 1662 without the portrait page. The prints were then published in 1663 with a portrait page.

Hugues Brisville (after), 1 of 15 plates including title plate, dedication plate, portrait and 12 ornamental plates (numbered 3 to 14) from the suite of 15. Designs for locksmiths; engraved and etched by Jean Bérain I and Gabriel Ladame, Paris.<sup>460</sup>

**Du Cerceau, Paul Androuet** (b.1623 – d.1710)

Also known as Ducerceau. French.

One print of iron published by François de Poilly (b.1630 - 1710)

“Inventée by Charmeton and Gravé by Ducerceau”.

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<sup>460</sup> VAM: E. 6083-1906

**Davesne, Robert** (fl.1676)

Master Blacksmith, Paris. French

*Livre de Serrurerie nouvellement inuenté par Robert Davesne, M\* serrurier à*

*Paris*. Six ironwork plates as part of one volume. Composed of a suite of fourteen numbered plates, plus three pages of text: Pl.1 A dedication to Mr Bryant, “*architecte ordinaire des bâtimens du Roy*”, integrating the title (which illustrates portrait of the author in a garden), Pl.2. A notice to the reader, and Pl.3. A table containing the explanation of fourteen plates.

The designs illustrate balconies, grilles, locks, latches, rosettes, handrails, etc.

Sold by the author rue des Marmouzais, près Notre-Dame, 1676.

**Le Pautre, Jean** (b.1618 – d.1682)

Also known as lepautre. Le pâtre. French. Architect, Designer, Engraver.

*Œuvres d'architecture de Jean Le Pautre, architecte, dessinateur et graveur du Roi*. Chez Charles-Antoine Jombert, libraire du Roi, rue Dauphine, à Paris, M. DCC. LI. (1751)

Pl.113: Details of escutcheons and other ornaments used to embellish ironwork.

Invented and engraved by J. Le Pautre in six plates.

**Francine, A**

Alexandre Francine's *New Book of Architecture Wherein is Represented Fourty Figures of Gates and Arches Triumphant* in 1669

One plate illustrating an iron gate.

**Gautier, Pierre**

Engraver/Master Blacksmith to the King in his Arsenal des Galères des Marseille, 1685. French.

Engravings signed PG. *Divers Ouvrages de Balustrades Cloisons Panneaux et autres Ornemens our Les Serruriers faits et inventez par Pierre Gautier Maistre Serrurier du Roy dans son Arsenal des Galeres A Marseille et le tout mis en oeuvre par ledit Gautier finis en L'annee 1685*. Includes six designs for balustrades, andirons, sign brackets, grilles, transoms, panels, etc. There are twenty-two plates; sixteen are marked P. G., and the other six are marked J. G., Jean Gautier, 1688. It is believed that J. G. was the son of Pierre.

**Gentot, Blaise** (b. 1658)

Engraver

*A New Booke of Drawings Invented and Desined by John Tijou, Containing severall sortes of Iron worke... wrought at the Royall Building of Hampton Court... all for the Use of them that will worke Iron in Perfection, and with Art.*

Gentot engraved Pl.20 of the 20 plates in total including a frontisplate.

**Guérard, Nicolas** (fl. Paris 1670 to 1713). (V & A note “Worked c.1670-1696”). (BNF, Paris notes Nicolas Guérard (pere), 1648?-1719 and Nicolas Guérard (fils)/son, 1680-1717)

Also known as Guérin. Engraver, Editor. French.

One volume entitled *Estampes de Guérard* contains a series of twelve plates entitled: ‘*Diverses Pièces de Serrureries pour portes, cochères et portes bourgeoises Entrée de serrures, fermeture de chœur d’Églises, apuy de communion, rozettes, boucles de portes, rampes et balcons*’, 1713. A Paris, Chez Nicolas Guérard graveur, ruë St Jacques proche Saint Yve a la Reine du Clergé. C.P.R.<sup>461</sup>

The plate depicts hardware for gates doors, bourgeois doors, church choir stall ends, balustrades and balconies. Plate engraved and published by N. Guérard. Guérard’s attributes the several of the designs to particular locations, for example: “*Grille des Côtez du Coeur de Nôtre-Dame de Paris*”, “*Fermeture de Coeur d St Sulpice de Paris*” and the left to “*Fermeture des côtés du Coeur de L’Église de St. Denis en France*”, “*Grille de la Façade du coeur de Nôtre-Dame de Paris*”, “*Petite Porteau Coté du Tresor*”, Other designs by Guérard are entitled “*Nouveau Dessein*” indicating a speculative idea rather than a proposal or a realised work of iron. *Denis invenit et fecit. A Paris, Chez N Guérard Graveur, rue Jacques a la Reine du Clerge... St Yves...C.P.R.*”.<sup>462</sup> The notes enscribed on several plates indicate that several designs are a record of work completed and installed by 1709. Many of the prints are unsigned and of different engraving styles, thereby only attributable to Guérard.

<sup>461</sup> Prints at École des Beaux-Arts (ESTLES113, Pl.3 & Pl.4, ESTLES115, Pl.4, ESTLES114 Pl.9), illustrate that the plates have been reissued and parts of them transposed (negative/positive) and readjusted

<sup>462</sup> École des Beaux-Arts, Paris (ESTLES116, Plate 13), is engraved “Mis en Place l’an 1709”



Commissioned (CW) and Artist Titled Work (ATW): Grille des Côtés du Coeur de Nôtre-Dame de Paris (CW), Grille de la Façade du Coeur de Nôtre-Dame de Paris (CW), Fermeture de Coeur d St Sulpice de Paris (CW), Fermeture des côtés du coeur de L'Église de St. Denis en France (CW), Grille de la Façade de L'Église de St Denis, Paris (CW), Petite Porteau Coté du Tresor (ATW)

**Hasté, Michel,**

Master Blacksmith in Paris. French.

A suite of six plates. *Dessins de Serrurerie*: grilles, sign brackets, balconies, balustrades, andirons, etc. in a similar style to Pierretz le Jeune. The first plate depicts an ironwork gate and an inscription dedicated to “A Monsieur de l’Espine, Architecte des bastimens du Roy”, etc”. Paris, chez F. Poilly. A second series of six plates, of the same genre as the above. A third suite of six plates. *Nouveau Livre de Rampes, Escaliers et Balcons*. A fourth series of six plates, of the same genre as the above. The designs are unsigned (except the title page). Published by F Poilly and ascribed “F Poilly excudit”.<sup>463</sup>

**Jousse, Mathurin** (b. 1607, active 1620’s onwards)

Also known as Mathuren. Architect/Designer, French.

“*La Fidèle Ouverture de l’Art de Serrurier*”, the first published book devoted exclusively to ironwork, in the year 1627. Published by Griveau and by à La Fleche. Designs illustrate four intricate, ornamental keys of office. The most extensive treatise on French locksmithing before the eighteenth century.

**Langlois, Nicolas**, 1640-1703

Engraver, Publisher. French.

Langlois published many suites of ornament prints including a book entitled *L’Architecture a la mode*, in which are collected new designs for decorating buildings and gardens, “for the most skilled architects, sculptors, painters, carpenters, blacksmiths, etc. Paris, chez N Langlois, rue St. Jacques”.

Two volumes: The first contains one hundred and seventy-four plates and the second, one hundred and twenty-two plates. Volume 2 includes 22 plates of grilles and balconies of Château de Versailles, Chez le Blond. The last 12 designs depict

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<sup>463</sup> ESTLES114, Plate 4

ironwork details and balconies, Chez Poilly. The names of the designers are absent. E. 5690-1908 to E. 5693-1908.

*'Diverses pieces de Serruriers'*, designs for locksmiths; engraved and etched by Jean Bérain I and Gabriel Ladame, Paris, first published 1662 (except portrait). (15 plates) in total. Hugues Brisville (after), 1 of 15 plates including title plate, dedication plate, portrait and 12 ornamental plates (numbered 3 to 14) from the suite of 15.<sup>464</sup>

Commissioned (CW) or Attributed Work (AW): See Le Blond entry for details of his commissioned work.

**Marot, Daniel** (b.1650 - d.c.1752)

Architect, Designer, Engraver. French.

*Oeuvres du sieur D. Marot, Architecte de Guillaume III / Roy de la Grande Bretagne, contenant plusieurs pensées utiles aux architects, peintres, sculpteurs, orfèvres, jardiniers et autres; le tout en faveur de ceux qui s'appliquent aux beaux-arts.* À Amsterdam. Chez l'auteur. 1712. The volume contains six plates "Nouveau livre de Serrurerie". Entrance grilles, balconies and staircase balustrades.

Commissioned (CW): Het Loo, Holland, Gate to Garden

**Marot, Jean** (b. c.1619 – d.1679)

Architect, Engraver. French.

A volume of ironwork containing a series of designs for ironwork; grilles, transoms, balconies, etc. "*Recueil de Diverses pieces modernes d'architecture et nouvelles inventions de portes, cheminees ornemens et autres*", J Marot fecit à Paris, chez F L'Anglois dit Chartres, Avec Privl." Several ironwork gates are detailed in these doors"/entrances.<sup>465</sup>

"*Serrurerie*", French published in 1660-1679 by Jean Marot. Suite of 27 designs for ironwork.

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<sup>464</sup> E. 6075-1906 – E. 6089-1906

<sup>465</sup> École des Beaux-Arts, Paris: Jean Marot (Tome I), Box 35, I; École des Beaux-Arts, Paris: Jean Marot (Tome 2), Box 35, II

Attributed Work (AW), Artist Titled Work (ATW), “*Porte de fer du Vestibule du Chateau de Maisons*”, title inscribed upon print. (ATW)

Hampton Court Palace staircase railings (a modified design was completed at the Palace). (CW)

**De Mortin, Jean** (fl. early 17<sup>th</sup> century)

Also known as I. de Mortin. Artist, Engraver, Draughtsman. French. Active in Paris.

One series of twelve plates entitled: *Nouveau Livre de desseins inventé et dessigné par I. de Mortin, contenant plusieurs sortes d'ouvrages de fer, comme Portes, Frontispices, Balcons, Panneaux, etc., dont la plupart ont été exécutés à Versailles, maison Royale, le tout pour l'utilité des armuriers, serruriers, architectes, charpentiers, orfèvres et autres artistes. A Paris, chez l'auteur, sur le queay des Augustins*. One ironwork plate produced for Versailles in the *Corps-de-Logis*. De Mortin's plate is reproduced in Tijou's *New Book of Drawings*, plate 5, as “gates designed in 1693 for Wimpole Hall in Cambridgeshire, for the Earl of Radnor”. The design is exactly the same as De Mortin's, surmounted by finials of urns and large bunches of flowers (different on each side of the design) and which, in proportion to the whole, double the overall height of the design.

Commissioned (CW) or Attributed Work (AW): At Versailles, originally located between the *Corps-de-logis* and the wings of Louis XIII's building, which today form the *cour de marbre*”.<sup>466</sup> (CW)

**Le Pautre, Jean** (b.1618 – d.1682)

Also known as Lepautre, Le Pâtre. Architect, Designer, Engraver. French.

*Œuvres d'architecture de Jean Le Pautre, architecte, dessinateur et graveur du Roi*. Chez Charles-Antoine Jombert, libraire du Roi, rue Dauphine, à Paris, M. DCC. LI. (1751). Three folio volumes each containing 260 plates. The folios together include 780 examples of architectural parts. Plate 113 depicts escutcheons and other ornaments used to embellish ironwork. Invented and engraved by J. Le Pautre in six plates.

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<sup>466</sup> Guilnard (1880); later noted by Jackson-Stops (1971), p. 183

**Pierretz Le Jeune, Antoine** (fl. 1664-6)

Also known as Pierretz le Jeune. Architect, Engraver, French.

12 plates of ironwork including title page, *Livre Nouveau de Serrurerie, inventé par Pierretz le jeune. Paris, chez Poilly. Grilles, Rampes, Balcons, Marteaux, Targettes, Plaques de serrures, Entrées et Chenets*. Printed and published in Paris, c.1660-66. Pierretz le Jeune's plates are "inventé par Pierretz le Jeune. Se Vend chez F Poilly rue St Jacques a l'image St Benoist avec Privelege du Roy".<sup>467</sup>

**De Poilly, François** (b.1622/23 – d.1693)

Also known as François Poilly. Engraver and Editor. French.

Two suites of six plates each entitled: *Nouveau Livre de Rampes d'escaliers et balcons*.

**Tijou, Jean** (b.c.1650, fl.1687-1711)

Also known as Tijoue, Tissoue, Tissues. Designer and Contractor of Blacksmiths. French.

The earliest published book in England for decorative wrought ironwork entitled *A New Booke of Drawings Invented and Desined by John Tijou, Containing severall sortes of Iron worke... wrought at the Royall Building of Hampton Court... all for the Use of them that will worke Iron in Perfection, and with Art*. It consists of 20 plates in total including a frontisplate (designed by Louis Laguerre, the French decorative painter, godson of Louis XIV, and son-in-law to Tijou). The publication states "Sold by the Author in London 1693".

Commissioned (CW) or Attributed Work (AW), Plate numbers below refer to the numbers of Jean Tijou's *New Booke of Drawings* (London, 1693).

Plate 2, Grotesque masks feature at Hampton Court Palace, Fountain Screen (CW)

Plate 4, Hampton Court Palace, East Front, Gates (CW)

Plate 5, Wimpole Hall, Cambridgeshire (CW)

Plate 6, Chatsworth, Derbyshire, Balcony to the West Garden, First Floor Balustrade in Main Stair (CW)

Plate 7, Magdalen College, Oxford, Gates to the President's Garden (AW)

Plates 8, 9, 14, Sign bracket designs. Probably executed at Hampton Court Palace (referenced in the Accounts, though no visual references remain) (AW)

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<sup>467</sup> E.1194-1908 – E.1205-1908

Plate 10, Chatsworth, Derbyshire, main stair balustrade (CW)

Plate 11, Elements of the screen are replicated in a simplified format in the entrance gates to St Mary the Virgin, Oxford.

Plate 12, I suggest that this may have been the original design for the Talman main horseshoe stair at Chatsworth (incorporating the Devonshire's family cipher, the snake) (AW)

Plate 13, Houses of Parliament, London, wrought iron capital (CW)

Plate 15, Elements of the architectural vocabulary of this gate is later seen in parts at Chirk Castle, Denbighshire, Leeswood, Mold, and Trinity College, Cambridge.

Plate 16, Hampton Court Palace, Fountain Screen, the central square panel resembles a study for the fleur-de-lis panel. (CW)

Plate 17, Burghley House, Lincolnshire, gate (CW)

Plate 19, Hampton Court Palace, Lion Gates (CW)

Plate 20, Hampton Court Palace, Fountain Screen, depicting one panel of twelve (CW).

**Vallée, G.,** (fl. last quarter of 17<sup>th</sup> century)

Master blacksmith in Paris. French.

*Divers Livres de Serrurerie et D'Ornement* "faits par G. Vallée", master blacksmith in Paris, engraved by his son, Scavoir. "Clotures, Balcons, Rampes à Puits de Communion, Suspension, Chandeliers, Enseignes, Grille de feu, Boucle de Porte cochere, anneaux de Clefs, et de tout ce qui se fait dans la Serrurie de – différentes façons, etc". Sold by the editor Vallée, near the door of Saint-Étienne, at the turning to the Sisters of Charity home.

First suite of seven prints, including the title plate. Second suite of ten plates, including the title page, similar to the previous. Sold by the editor, rue Bordet, Paris. Third series of twelve plates, of the same title. Sold by Vallée at the Saint-Etienne du Mont square, at the Sisters of Charity's home, Paris.

Title and designs (2) for iron balcony and lamp-pendant. On the title page are two designs for keys. From a set of ten prints.<sup>468</sup>

*E. 1191 lettered* *Divers Livres de Serrurie, et d'Ornement faits par G. Vallée* Maitre Serrurier à Paris, et Gravez par son fils, Scavoir (b.1680). Ils se vendement

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<sup>468</sup> Guilmard (1880), p. 111

chez le dit Vallée, rue Bordet *etc. etc. E.1192 lettered S. Vallée fecit etc. E.1193 lettered* faits par G. Vallée *etc. E. 1191-1193-1936*, S Vallée is the engraver, his son. (b.1680)

**Vander Banck, P.** (b.1649 – d.1697)

Also known as Banck. Engraver.

*A New Booke of Drawings Invented and Desined by John Tijou, Containing severall sortes of Iron worke... wrought at the Royall Building of Hampton Court... all for the Use of them that will worke Iron in Perfection, and with Art.*

Vander Banck engraved plates 4-6, 8, 9 of 20 plates in total including a frontisplate.

**Vander Gucht, Michael** (b. 1660 – d.1725)

Also known as Michel Van der Gucht. Engraver.

*A New Booke of Drawings Invented and Desined by John Tijou, Containing severall sortes of Iron worke... wrought at the Royall Building of Hampton Court... all for the Use of them that will worke Iron in Perfection, and with Art.*

Vander Gucht engraved plates 11, 12, 13 of 20.

## APPENDIX II

### BLACKSMITHS IN ENGLAND, WALES, SCOTLAND 1660-1720

#### LIST OF DOCUMENTED EXAMPLES OF DECORATIVE IRONWORK, ENGLAND, WALES AND SCOTLAND, 1660-1720 (AND ATTRIBUTIONS)

This short catalogue is a list of the wrought ironwork in England, Wales and Scotland. It supplements Edward Saunders Biographical Dictionary of English Blacksmiths with the addition of Welsh and Scottish smiths.

**Ashworth, Richard (fl. 1652-78)**

Queen's House, Greenwich, London, The tulip staircase, 1661-68

**Atkinson, William (fl. 1701-32)**

Flatt Hall (now Whitehaven Castle) Cumberland, iron door, arch room over the brew house, 1718-19

**Bache, William (d. 1690)**

Charing Cross, London, ironwork around the statue of King Charles I, 1676/7  
Hampton Court, Middlesex, rails and scrolls to the Water Gallery, 1690

**Bagley or Baggaley, William (fl. 1687-96)**

Chatsworth House, Derbyshire, iron gate and palisade, 1687

**Bakewell, Robert (1681-1752)**

St James Place, London, railings in front of the Rt. Hon. Thomas Coke's house, 1706

Melbourne Hall, Derbyshire, garden arbour, 1706-11. Also attributed is the balustrade at the end of the terrace overlooking the Melbourne Pool, c. 1725

Trentham Park, Staffordshire, iron gates, 1711

Trentham Church, Staffordshire, iron rails for the church yard, 1711

Staunton Harold Church, Leicestershire (attributed) wrought iron church screen, 1711

Bretby Park, Derbyshire (attributed) wrought iron balustrades, depicted in Kip's engraving, in place pre-1711.

St Saviour's Church, Foremark, Derbyshire (attributed) altar rail and gates at the east end of the church, c. 1710

St Michael's Church, Ravenstone, Leicestershire (attributed) altar rail in the church, c. 1715

Cholmondeley Castle, Cheshire, ironwork screen, bow-shaped, with five bays either side of the central gate, for the north front of the house (the bill dates from 1722 but Bakewell is likely to have worked on the project prior to the bill) and iron rails for the hall and great stairs, 1713-14 and three pairs of iron gates and a piece of railing for the bridge, c. 1709.

Houghton Hall, Norfolk (attributed) wrought iron gates between the south lodges at New Houghton (brought from Cholmondeley Castle, Cheshire, 1798 and originally attributed to Jean Tijou).

St Anne's Church, Manchester (attributed), altar rail, c. 1710

Beningborough Hall, Yorkshire, North Riding (attributed), first floor alcoves enclosed with wrought iron rails), c. 1715.

Wentworth Castle, Yorkshire, West Riding, a pair of iron gates, palisades and railings (stair balustrade) for Stoneborrow, 1717.

Park Hall, Leigh, Staffordshire (attributed), pilasters to the gate on the bridge, date?

Cannock, Staffordshire (attributed), gates and gate piers.

The Derby Churches, five lights for five desks at All Saints', St Peter's, St Werburgh's, St Michael's, St Alkmund's, 1716.

St Werburgh's Church, Derby, ironwork for the font in the church, 1718.

St Michael's, Alvaston, Derby (attributed) wrought iron reredos in the form of an angel, c. 1718.

Aldenham Park, Shropshire, two iron piers, and gates, 1716.

Eaton Hall, Cheshire (attributed) Golden Gate, early eighteenth century.

Full Street, Derby, a house built by John and James Heathcote (attributed) fanlight, c. 1720 (now in Derby Museum).

Berwick House, Shrewsbury, Shropshire (attributed) gates, c. 1730 (gates originally made for Berwick House and removed to Newnham Paddox, Warwickshire in 1875).

St Alkmund's Church, Duffield, Derbyshire, weather cock, c. 1719.

Calke Abbey, Derbyshire, iron work for the garden steps to the front door, 1719.

Combermere Abbey, Cheshire (attributed), gates, c. 1720 (incorporating RB stamp).

St Oswald's Church, Ashbourne, Derbyshire (attributed) churchyard gates, c. 1720.

Heathcote House, 3 Full Street, Derby, house built by John and James Heathcote (attributed), fanlight, c. 1720

Tissington Hall, Derbyshire (attributed) garden gate facing the road with arched overthrow, c. 1720

Longford Hall, Derbyshire (attributed) front gate, c. 1720

Etwell Hall, Derbyshire (attributed), Hall gates, c. 1714

St Stephen, Borrowash (attributed), the altar rail, c. 1720 was originally a garden rail and given to the church.

Long Eaton, West Park, Derbyshire (attributed) gates (purchased from Aston Lodge, Aston-on-Trent, Derbyshire and updated in late 19<sup>th</sup> century), c. 1720

Cheshire House, 25 Friar Gate, Derby (attributed) a wrought iron gate from the interior

Silk Mill Gates, Derby (attributed) gates, c. 1718

Chillington Hall, Staffordshire (attributed) Bowling Green Screen (a fine gate with an arched overthrow, pilasters, side panels), c. 1724-25

Leeswood Hall, Flintshire, two sets of gates known as the black and white gates, c. 1720

Cholmondeley Castle, Cheshire, ironwork screen, bow-shaped, with five bays either side of the central gate, for the north front of the house (the bill dates from 1722 but Bakewell is likely to have worked on the project prior to the bill) and iron rails for the hall and great stairs, 1713-14 and three pairs of iron gates and a piece of railing for the bridge, c. 1709.

Work attributed to Bakewell upon stylistic grounds includes: Staunton Harold Church, Leicestershire, wrought iron church screen, 1711; Bretby Park,



Derbyshire, wrought iron balustrades, depicted in Kip's engraving, in place pre-1711; St Saviour's Church, Foremark, Derbyshire, altar rail and gates at the east end of the church, c. 1710; St Michael's Church, Ravenstone, Leicestershire, altar rail in the church, c. 1715; Houghton Hall, Norfolk, wrought iron gates between the south lodges at New Houghton (brought from Cholmondeley Castle, Cheshire, 1798 and originally attributed to Jean Tijou); St Anne's Church, Manchester, altar rail, c. 1710; Benningborough Hall, Yorkshire, North Riding, first floor alcoves enclosed with wrought iron rails), c. 1715; Park Hall, Leigh, Staffordshire, pilasters to the gate on the bridge, date?; Cannock, Staffordshire, gates and gate piers; Tissington Hall, Derbyshire, garden gate facing the road with arched overthrow, c. 1720; Longford Hall, Derbyshire, front gate, c. 1720; Etwall Hall, Derbyshire, Hall gates, c. 1714; St Stephen, Borrowash, the altar rail, c. 1720 was originally a garden rail and given to the church; Long Eaton, West Park, Derbyshire (attributed) gates (purchased from Aston Lodge, Aston-on-Trent, Derbyshire and updated in late 19<sup>th</sup> century), c. 1720; Cheshire House, 25 Friar Gate, Derby, a wrought iron gate from the interior; Silk Mill Gates, Derby, gates, c. 1718. Based upon stylistic analysis, Hollister-Short attributes ironwork at Penshurst Place, Kent; Plas Llanrydd, North Wales; Kingston House, Kingston Bagpuize, Berkshire to Bakewell.

**Ball, William (fl. 1680)**

St Martin's, Ludgate, London, a candlestick, 1680.

**Bennett, Thomas (fl. 1662-95)**

St Stephen, Walbrook, London (attributed) vane

**Bigg, Stephen (fl. 1694-1702)**

Wrest Park, Bedfordshire, wrought iron screen and gates, 1694-1702 and palisades on the terrace in the garden, 1696-1701.

Winslow Hall, Buckinghamshire, ornament on the front gates and the iron staircase in front of the house, 1700-1703.

**Bird, Robert (fl. 1665-85) (a coppersmith)**

Wren's City churches, copper weathervanes for spires and steeples.

St Mary Le Bow, a weathervane in the form of a dragon made from a wooden model carved by Edward Pearce (or Pierce) (c.1635-95) in 1679, steeple completed 1680.

St Michael, Wood Street, 1670-75

St Nicholas, Cole Abbey, 1671-77

St Stephen, Walbrook, 1672-79

St Michael, Queenhithe, 1676-87

St Anne & St Agnes, 1676-81

St Benet Fink, 1670-73

St Lawrence Jewry, 1671-77

St Dionis, Backchurch, steeple completed 1680

St Peter, Cornhill, 1675-81

St Martin, Ludgate, 1677-84

St Swithin, Cannon Street, 1677-85

St Antholin, Watling Street, 1678-82

St Mildred, Bread Street, 1682-87

St Benet, Gracechurch Street, 1681-86  
 St Mary, Abchurch, 1681-86  
 St Mary Magdalene, 1683-85

**Booth, Richard (fl. 1712-28)**

Clarendon Building, University of Oxford, Oxford, gates, 1715  
 New College, Oxford, communion rail in the chapel, 1718  
 Chiswick Church, Middlesex, altar rail, 1713  
 Dawley House, Middlesex, misc work, 1714  
 St Paul's, Covent Garden, London, iron railings and work done at the porch, 1719.  
 Stowe, Buckinghamshire, unspecified work, 1720

**Ireland, A (fl. 1715-26)**

Clarendon House, Oxford. Ireland was probably associated with Richard Booth on this project, 1715.

**Brooks, Henry (fl. 1656-86)**

Employed on six of Wren's city churches for general smith work:  
 St Dionis Backchurch, Fenchurch Street, 1670-74  
 St Magnus Martyr, Lower Thames Street, 1671-77  
 St James, Garlick Hill, 1676-83  
 St Mary Abchurch, 1681-86  
 St Michael, Crooked Lane, 1684-88  
 All Hallows, Lombard Street, 1686-94  
 Also, St Michael, Paternoster Royal, College Hill, 1686-94 (for work carried on in his name during/after his death).

**Browne, James (fl. 1710-25)**

King's Lynn (attributed to Browne or his apprentices), various wrought ironwork.  
 No recorded work by this smith.

**Bunker or Buncker, George (1669-1735)**

St Thomas's Hospital, Southwark, smith's work and materials, 1720-1724.

**Callender, John (fl. 1673-76)**

The King's blacksmith and locksmith.  
 Holyrood Palace, Edinburgh, Scotland, stair rail to the Picture Gallery (attributed).

**Chalet (fl. 1692-96)**

Chatsworth House, Derbyshire (worked alongside Jean Tijou producing ironwork for Chatsworth in 1691)

**Clay, Humphrey (fl. 1669-86)**

Smith work for four London city churches:

St Michael's, Crooked Lane, 1689 (possibly the communion rail and other fittings)

St Clement, Eastcheap, 1686-87 (possibly the iron sword rest with painted mace and sword)

All Hallows, Lombard Street, general smithwork

St Michael, Paternoster Royal, general smithwork

**Cleave, John (fl. 1711-29)**

General smithwork on the London city churches:

St Alphege, Greenwich, 1712-14

St Anne, Limehouse, 1724-5

Christ Church, Spitalfields, Cleave worked there 1723-4

St George, Hanover Square, Cleave worked there 1721-24

Cannons House, Middlesex, 1719 for scrollwork.

**Clifton, Thomas (fl. 1705-18)**

St Magnus the Martyr, Lower Thames Street, London (possibly the iron communion rails with repouse ornament c. 1705 and an iron sword rest 1708).

**Coe, John, sen. (fl. 1709-32)**

St John's College, Cambridge, ironwork for the bridge and adjoining New Gate 1711-12 and ironwork over Regent House, 1710 and wicket bars and scrolls for the University Schools, 1717.

Jesus College, Cambridge, Gate facing onto Jesus Lane. Stone piers erected 1703, iron gates erected between 1703-55.

**Colborne, Samuel (fl. 1670-95) and Thomas (fl. 1693-1704)**

St Swithin, Cannon Street, Samuel was employed on interior fittings (including possibly a fine sword rest).

Samuel was employed on general smithwork for Wren's City of London churches:

St Andrew by the Wardrobe, 1685-93

St Antholin, 1678-82

St Benet, Paul's Wharf, 1677-83

St Martin, Ludgate, 1677-84

St Matthew, Friday Street, 1681-85

St Michael, Quenhythe, 1676-87

St Michael, Wood Street, 1670-75

St Mildred, Bread Street, 1681-87

St Swithin, Cannon Street, 1677-85

Thomas Colborne was employed between 1694-1704 on the building of St Paul's Cathedral, London. Iron window frames and other utilitarian work and a balcony for one of the diagonal arches under the dome.

**Collins, Thomas (fl. 1666-87)**

The Grocers' Hall, London, wrought iron screen, 1682-3, parts of which were retained from the original screen by Thomas Collins and refashioned into one of about a third of the former size.

**Cowdry, William (fl. 1714-21)**

Queen's College, Oxford, for wrought iron candleholders projecting from the wall and general smithwork, 1714-21.

**Davies, Hugh (1680)**

Recorded at Chirk Castle as the "gunsmith"

**Davies, Robert (1675-1748) and John (1682-1755)**

Chirk Castle, Denbighs, set of gates, 1712-16

Wrexham Church, Denbighs, set of gates, 1720-24 (the chancel gates of this church may also have been made by the Davies brothers).

St Peter's Church, Ruthin, Denbighs, set of gates, erected iron gates in the church yard, 1727

Oswestry Church, Salop, set of gates, 1738

Erddigg Hall, Denbighs, gates and palisade, 1721 and two flights of palisades to fix before the hall, 1723

Hawkstone Hall, Salop, a set of plain gates, c. 1725

Hanmer Church, Wrexham (attributed) churchyard gates at Hanmer which were formerly chancel gates within the church, c. 1720

Eccleston, Cheshire (attributed) the churchyard gates (the gates and piers were originally from Emral Hall, Flintshire)

**Dent, George (fl. 1673-95)**

Lowther Hall, Westmorland, iron gates (depicted in Kip and Knyff, Britannia Illustrata 1707, with a concave head without an overthrow).

Rose Castle, Cumberland (the palace of the Bishops of Carlisle), a lock for the front door, 1673.

**Dissell, John (fl. 1675-1729)**

St James, Piccadilly, London, unspecified work for Wren in the vestry.

**Dove (fl. 1700)**

Golden Square, London, general smithwork, c. 1700 for the 1<sup>st</sup> Duke of Chandos.

**Drew, George (fl. 1660-78)**

General smithwork at Wren's City churches:

St Nicholas, Cole Abbey, 1671-77

St Mary at Hill, Thames Street, 1670-76

St Michael, Cornhill, 1670-72

St Bride, Fleet Street, 1671-78

St Dionis Backchurch, Fenchurch Street, 1670-74

Queen's House, Greenwich, two wrought iron balconies for the two bridges spanning the Dover Road, 1661-2.

Burlington House, Piccadilly, possibly wrought iron balustrades to the balcony and entrance, 1667-68.

**Duke, John (fl. 1718)**

7 Cork Street, London, general smithwork 1718-20.

**Edney, William (d. 1715) and Simon (d. 1726)**

Temple Church, London, William, sword rest, 1702 (relocated to St Mark, College Green, Bristol).

Dyrham Park, Gloucester, rails and balusters before the house, 1694 (paid to Simon)

St Mark, College Green, Bristol, sword rest dating from 1702. It contains the initials AR for Anna Regina. Iron gates in the east part of the south chapel may also be by William Edney and originate from Temple Church, London. Iron palisades around the lead sculpture of Neptune, possibly made by Simon Edney after 1723.

St Mary Redcliffe, Bristol, weather vane depicting a Dolphin, 1717, by Simon Edney.

St John the Baptist, Bristol, Scroll for the candlesticks, 1716. Pevsner refers to a wrought iron hour glass by the pulpit, possibly by Simon Edney.

St Nicholas Church, Bristol (attributed to William Edney) sword rest, the finest in the city and dated to the first decade of the eighteenth century) and a pair of gates, by same.

Tredegar Park, Newport, Monmouthshire, iron gates and palisades, 1714, six pairs of candlesticks, 1718, and iron gates and palisades to the Green Court, 1718.

Elmore Court, Gloucestershire (attributed to William Edney). These are very similar in style to Plate 19 of Tijou's book (the gates still remaining at Hampton Court Palace). Edward Saunders notes that they were erected at Rendcomb before 1712 and transferred to Elmore Court in the 19<sup>th</sup> century.

Tewkesbury Abbey, Gloucestershire (attributed) wrought iron gates to the churchyard erected in 1734. Fine overthrow and work characteristic of Edney. If 1734 is correct as the date of erection then they must have been brought from elsewhere as the brothers had both passed away by then.

**Flack, Thomas (fl. 1702-12)**

Great Abingdon Hall, Cambridgeshire, the gate and palisade, 1712.

**Fowle, Edward (fl. 1714-23)**

St Mary the Great, Cambridge, for bars and other work, 1714.

Senate House, Cambridge, general smithwork, 1723-4.

**Gardom, John (1664-1713)**

Chatsworth House, Derbyshire, hall stair balustrade and grill to the garden (in collaboration with Tijou), 1692. By Gardom is the iron grill for the new parterre, 1694. Iron rail and iron works upon the terrace wall, 1698. An addition to the iron gate next to Holme Lane (by Tijou), 1699. Ironwork for the staircase on the west front, 1700.

Castle Howard, Yorkshire, ironwork for the great court, 1700.

Kiveton Park, Yorkshire, West Riding, iron fence to enclose the courtyard of the house 1706, Possibly the entrance gates (either with Tijou or independent of him).

**Greenway, Richard (1699-1706)**

The Royal Hospital, Kilmainham, Co. Dublin, Ireland, wrought iron gates between the hall and the chapel, 1706.

**Griffith, Robert (fl. 1720-27)**

Burlington House, Piccadilly, London, general smithwork, 1720-26.  
The Rolls House, Chancery Lane, London, unspecified work, 1717-24.

**Grimes, Thomas (fl. 1681-1721)**

Great Park House, Ampthill, Bedfordshire, several pairs of iron gates to enclose the court with iron balusters, 1707.

**Grissell, or Grizzell, William (fl. 1664-91)**

Trinity College Library, Cambridge, general smith work, 1691-2, and the balcony railing in the middle storey of the library where it adjoins the west range of the New Court, 1693-4.

**Harding, William (fl. 1671-76)**

Vintners' Hall, London, ironwork, c. 1670-6.

**Hardinge (fl. 1719)**

Cannons House, Middlesex, hinges, 1719.  
Chandos House, St James's Square, London, railings, undated.

**Harris, Philip (d. 1709)**

Greenwich Hospital, London, utilitarian work including the windows and locks, c. 1704.  
Buckingham House, St James's, London, ironwork in window bar hinges, c. 1702-8. The iron rails to the Court of the Great Gates (the wrought iron screen that closed off the forecourt facing the Mall), were possibly by Harris. (The gate possibly by Tijou).  
St Lawrence Jewry, London, church fittings.

**Hill, Richard (fl. 1720-26)**

Bulwick Hall, Northamptonshire, the ironwork for the house, 1726.

**Hodgkins, Thomas (fl. 1662-86)**

Wren's city churches, general smith work on:  
St Alban, Wood Street, 1682-85  
St Augustine, Watling Street, 1680-83  
St Mary, Aldermanbury, 1670-76, the rail to the pulpit steps and other work.  
St Michael Bassishaw, 1676-79  
St Benet, Paul's Wharf, 1677-83  
St Mary, Abchurch, 1681-86  
St Mary Magdalene, 1683-85  
St Mary, Somerset, 1686-95

**Holles, Humphrey (fl. 1697)**

Sir John Moore's School, Appleby Parva, Leicestershire, a weathervane featuring a Globe and Cock on the central cupola, 1697. Central entrance gates of simple design, possibly of a similar date.

**Howse, Richard (fl. 1677-97)**

Six of Wren's city churches, general smith work:

All Hallows, Watling Street

St Olave, Jewry

St Stephen, Coleman Street (locks and keys for the pews, hinges and fastenings, 1676)

St Michael Bassishaw

Christ Church

St Peter, Cornhill

St Margaret, Lothbury

St Paul's Cathedral, general smith work, 1693-95.

St Vedast, Foster Lane, fittings, 1697.

St Dunstan in the East, fittings, 1697.

**Hurst, William (d. 1711)**

Burley-on-the-Hill, Rutland, iron gates at the end of the stables, 1710

**Ireland (fl. 1715-26)**

Clarendon House, Oxford. Ireland was probably associated with Richard Booth on this project, 1715.

**Ireland, Anthony (d. 1727)**

Vintners' Hall, London, a pair of gates installed in 1706.

**Jevens, Charles (fl. 1690-98)**

St Michael, Crooked Lane, London, an ornamental bracket for a candle or light, iron and other works, 1689-90.

**Jones, Richard (fl. 1700-27)**

St Paul's Cathedral, London, cast iron fence, 1710.

**Key, or Kay, Josiah (d. 1711)**

Marlborough House, London, unspecified ironwork, 1710.

Hampton Chapel, balustrade, c. 1710.

Hampton Court, Middlesex, iron rail in front of the orangery and thirty spikes to go on a panel by Tijou there, 1701.

Hampton Court, Middlesex, a balustrade to the round staircase by the chapel, 1700 and locks with highly ornate borders, chased and gilded.

**Keymer or Keimer, Samuel (d. 1718)**

St Thomas's Hospital, Southwark, general architectural smith work, 1694 – 1717.

St Thomas's, railing around the statue of Sir Robert Clayton (carved by Grinling Gibbons), 1702 and ironwork to the steps of the Treasurer's House, 1706.

St Thomas's Church, Southwark, unspecified work, 1702-4.

**Knight, Thomas (fl. 1718-23)**

7 Cork Street, London, unspecified smith work, 1718.

Leicester House, Leicester Square, unspecified work, 1718-19.

Westminster Abbey, a pair of iron gates, crockets, spandrils, in the great cloisters, 1723.

The Great Park House, Amphil, Bedfordshire, unspecified work, 1713-14.

**Knight, Vincent (fl. 1681-1710)**

Trinity College Library, Cambridge, library casements and bars, and for ironwork about the "tara spouts", 1681.

**Leaver, Stephen (d. 1684)**

St Mary le Bow, London (attributed) staircase to the tower, 1678.

Work on City Churches:

St Anne & St Agnes, Gresham Street

St Antholin, Watling Street

St Stephen, Walbrook

St Nicholas Cole Abbey

St Michael Queenhithe

St Lawrence Jewery

St Bride's, Fleet Street

St Benet, Paul's Wharf

**Lord, Joshua (fl. 1700-10)**

Burley-on-the-Hill, Rutland, carriage gate, c. 1700-1710.

**Lovejoy, Elisha (d. 1738)**

King's smith at Windsor, utilitarian work, 1717 onwards.

**Macculloch, John (fl. 1719-25)**

Burlington House, Piccadilly, London, iron railings, 1719.

**Marshall, William (c. 1655-1716)**

Chatsworth House, Derbyshire, palisade on the west forecourt and gates, 1686.

Cottesbrook Hall, Northamptonshire, palisade and gates to the front of the house,

1711. Ironwork at this property includes a staircase balustrade, and Sir John

Langham's cypher contained within an oval, set in a rectangular panel of scrollwork; a weathervane in the shape of a cockerel, possibly also by Marshall.

Chicheley Hall, Buckinghamshire, pair of iron gates, 4 pilasters, 6 rails, 108 darts and colouring, 1708.

**Montigny, Jean (d. 1757)**

Felbrigg Hall, Norfolk, iron gates (by Montigny and Tijou), 1708.

Wotton House, Buckinghamshire, gates and railings enclosing the forecourt and a wrought iron staircase balustrade in the interior, 1704-14, c. 1711.

All Saints, Wotton Underwood, an iron screen with wrought iron Corinthian pilasters, probably from Wotton House (Pevsner).

Cannons House, Middlesex, railing around the equestrian statue of King George 1 and lanterns, 1724-26/27.

Uppark, Sussex, unspecified work, 1727.



The Admiralty, Whitehall, London, unspecified work, 1723-26.

Durdans, Epsom, Surrey (attributed) wrought iron gates and cast iron pilasters on Chalk Lane (bearing the Chandos motto), brought from Cannons, Middlesex.

Design elements derived from the style of Le Blond.

Hampstead Parish Church (attributed), purchased from Cannons with 59ft of railings.

Author attributes (VAM: M.56:16-1921) to Jean Montigny.

**Moysey, Abel (1695-1737), Huguenot**

St Andrew Undershaft, unspecified regular work, documented 1718-19.

(Pevsner ascribes the fittings of the church to include a communion rail by Tijou 1704 and two sword rests of the 18<sup>th</sup> century, one from All Hallows Staining, Mark Lane, dated 1722.

**Nash, Arthur (fl. 1719)**

St Paul's, Deptford, unspecified work, 1719 (possibly a communion rail and pulpit stair).

St Mary le Strand, London, unspecified work, contract dated 1719.

**Nutt, Edward (fl. 1730)**

Grimsthorpe Castle, Lincolnshire, Entrance gates to the forecourt, 1730.

(Hollister short attributes these to Nutt).

**Oddy, Richard (1682-1753)**

Chatsworth House, Derbyshire, undocumented work but possibly the set of gates by the north entrance to Chatsworth House c. 1720 (removed to their present location about 1829).

Wentworth Woodhouse, Yorkshire, unspecified "goods", 1726-27.

**Paris, Nicholas (d. 1716)**

St Mary's Church, Warwick, iron (chancel) screen, originally 10ft in height, and probably two mace rests, and the ironwork around the monument to Robert Dudley, Earl of Leicester in the Beauchamp Chapel and general smith work between 1682-1716.

Stoneleigh Abbey, Warwickshire, iron gates for the garden, 1699. Possibly also another gate on the south front bearing the arms of the 3<sup>rd</sup> Lord Leigh and his wife Mary Holbeche, so dating from the same period.

**Paris, Thomas (b. 1687, d. 1753)**

Sandywell Park, Gloucestershire, unspecified work though possibly a pair of gates with overthrow and railings each side of five bays, 1720.

Charlecote House, Warwickshire, a pair of iron gates, 1722.

Stoneleigh Abbey, Warwickshire, rail and pilasters and ongoing unspecified smith work, 1738-44.

Warwick Court House, Warwickshire, unspecified ironwork, 1725-30 (by Thomas Paris and Benjamin Taylor).

**Partridge, William (d. 1715)**

Trinity College Library, Cambridge, the grille to the arcade (constructed of three iron panels, one of which forms the gate) and the balustrade to the stair, 1691.

Hampton Court Palace, Middlesex, unspecified ironwork, 1689-96.

Clarendon House, Piccadilly, unspecified ironwork, possibly casements and locks, 1664-5

East Hatley, Cambridgeshire, various ironwork, locks, hinges, 1683.

**Philpot, Richard (fl. 1700-11)**

Burley-on-the-Hill, Rutland, balustrade leading to the front door, 1700 and ironwork for steps to the west end, 1704 (the latter possibly cast as the carpenter was paid for making moulds for the work). Possibly also iron balustrades on the north and south too.

**Quartermain, Daniel (d. 1737)**

St Dionis, Backchurch, Fenchurch Street, sword rest, 1685.

**Raget (Fr)**

Chatsworth House, Derbyshire, unspecified work for Tijou, 1688-89.

**Reading, William (fl. 1704-17)**

St Stephen, Walbrook, London, ironwork for four ornamental light fittings, usually wall mounted, 1709.

**Robins, John (fl. 1685-1731)**

St Mary, Woolnoth, iron gates to the west end of the church with pilasters, iron railing to the altar with panels and scrollwork leaves, etc, iron rail to the pulpit and readers desk with scrollwork. Possibly also a communion rail from 1718-31.

Christ Church, Spitalfields, Stepney, Ironwork leading to the pulpit with leaves and scrollwork, ironwork for the altar with leaves, cherub heads and scrollwork, iron gates at the west and north ends of the church, 1724-29.

St John, Horsleydown, Southwark, altar rail and ironwork to the font, 1727-33.

**Robinson, Samuel (d. 1696)**

Chatsworth House, Derbyshire, iron gates and palisades, 1688.

Robinson, Thomas (d. 1716) "of Fetter Lane"

St Paul's Cathedral, general smith work and minor pieces including window brass locks and chains for the tower, 1697-1710.

Greenwich, The Royal Hospital for Seamen, unspecified smith work, 1704.

The Guildhall, London, balcony, 1706.

St James's Place, London, brass hinges, 1716.

General smith work on Wren's City churches: All Hallows, Bread Street; St Brides, Fleet Street; Christ Church, Newgate Street; St Christopher Le Stocks, Threadneedle Street; St Edmund King and Martyr, Lombard Street; St Magnus Martyr, Lower Thames Street; St Mary At The Hill, Thames Street; St Margaret, Lothbury; St Margaret Pattens; St Michael, Crooked Lane; St Stephen, Walbrook and St Vedast, Foster Lane.

**Robinson, Thomas (d. 1723) “of Hyde Park Corner”**

New College, Oxford, the gates and screen enclosing the east side of the Garden Quadrangle, 1711. (The current screen is understood by Jackson-Stops to be an exact replica of the original and created before 1897 by Wm. Lucy and Co. of Oxford).

Trinity College, Oxford, iron gates towards Parks Road, 1714.

Chiswick House, Middlesex, unspecified work between 1714 and 1716 for Sir Stephen Fox (owner of this house in the early eighteenth century).

The Rolls House, Chancery Lane, London, staircase with 30 panels, with square bars and twisted bars, c. 1720-24.

Burlington House, Piccadilly, London, unspecified work between 1719 and 1722.

**Sabin, Edward (fl. 1671-1704)**

St Clement Danes, The Strand, church fittings and other unspecified work 1682-3.

Temple Church, London, ironwork for the canopy over the pulpit, 1682-3.

**Salter, Ann (fl. 1689-90)**

St Paul's Cathedral, general smith work, 1689-90.

**Seal, Job (fl. 1710-28)**

Temple Church, Bristol, new rails for the middle aisle and ironwork for the communion table, 1728.

**Shaw, Huntingdon (1660-1710)**

Chatsworth House, Derbyshire, possibly worked with Tijou from 1687-1692.

Drayton House, Northamptonshire, probably assisted Tijou with wrought ironwork to the forecourt, 1702-3.

Hampton Court Palace, Middlesex, probably assisted Tijou with wrought ironwork, 1691-1710.

Marston Trussell, Northamptonshire, possibly the gate (originally from Brompton Manor, Market Harborough, Leicestershire), c. 1700.

**Silver, John (d. 1719)**

Blenheim Palace, Oxfordshire, unspecified work, 1710

**Skeat, John (d. 1724)**

St Paul's, Deptford, copper vane and vase for the top of the spire, 1716, standard irons to support the gallery, 1717, a run of circular panels and scrollwork to the stairs and landing place of the pulpit, altar rail and gates to rail, 1723.

St John's, Smith Square, Westminster, general smith work connected with the building fabric, 1713-1724.

St Alphege, Greenwich, iron pillars for supporting the gallery, ironwork for the fronts of two galleries at the east end, fence to the east portico, altar rail with chased work, panels of iron to the pulpit stairs and reading desk, 1713-1719.

St Mary-le-Strand, London, copper ball and vane, 1717, pilasters and iron fence, 1718, a frontispiece of scrolls and chased work in the gates at the west end of the church, 1719.

Christ Church, Spitalfields, Stepney, general smith work connected with the fabric of the building, 1714-23.

St Anne, Limehouse, Stepney, general smith work, 1714-23.

**Smith, Edmund (fl. 1664-85)**

City churches, St Mildred, Poultry, St Edmund the King, St Swithun, Cannon Street, St Margaret Pattens, general smith work,  
The Sheldonian Theatre, Oxford, unspecified smith work, 1664-69.  
Clarendon House, Piccadilly, unspecified work, 1664.

**Smith, Grace (fl. 1670-76)**

St Mary, Aldermanbury, unspecified ironwork about the church, 1674.

**Smith, Marmaduke (fl. 1713-27)**

Unspecified smith work at:  
4-6 Fournier Street, Spitalfields, 1720s.  
1-5 Princelet Street, Spitalfields, completed 1722.  
17-27 Wilkes Street, completed 1724.

**Smith, Peter (fl. 1669-82)**

St Brides, Fleet Street, London, unspecified smith work, 1676 – 1681.  
St James, Piccadilly, unspecified smith work c. 1676-84.

**Smith, Thomas (fl. 1671-81)**

St Lawrence Jewry, ironwork including a neat iron for the Lord Mayor's sword, one for the Hour glass and a candlestick for the pulpit, iron branches for the lights, c. 1671-78  
St Benet, Gracechurch Street, unspecified smith work, 1661-86.

**Spooner, Henry (d. 1704)**

Westminster Abbey, all utilitarian in nature, until 1704.  
Westminster Abbey, unspecified work at the altar by Widow Spooner, 1707.

**Sutton, Thomas (d. 1709)**

Southwick House, Hampshire, general smith work and an ornamental gate for the garden, 1700.

**Taylor, Benjamin (d. 1751)**

Charlecote House, Warwickshire, pair of iron gates, 1739  
Warwick Court House, Warwickshire, ironwork, 1725-30.

**Tew, Edward (fl. 1666-94)**

St Andrew, Holborn, London, a standard for the Lord Mayor's sword, the ironwork for the hour glass, 1687.

**Thatcher, William (d. 1694)**

Hampton Court Palace, Middlesex, extensive work at Hampton court including work on the greenhouse in the fountain garden and the pheasant house in the park.

**Thompson, Richard (fl. 1710-13)**

Chicheley, Buckinghamshire, the gate in the church chancel, 1713.  
Blenheim Palace, Oxfordshire, no details of his work are known.

**Thorold, Benjamin (fl. 1682-90)**

St James, Garlickhythe or Garlick Hill, all ironwork in the pews with hat stands of iron and two iron sword rests, with carved lions and unicorn supporters. (It has been suggested that one of these sets came from St Michael, Queenhithe, perhaps of 1681).

**Tijou, Jean (fl. 1687-1712)**

Chatsworth House, Derbyshire: iron gates before the courtyard with his Graces arms wrought in the overthrow, stone pillars to the sides, carved with trophies (swords/guns and instruments, etc). Rails to the steps and terrace, wrought and gilded. A gate to the bridge over the canal and palisades on either side of the gate. Grill in the garden, adapted as a balcony, 1687-1692.

Hampton Court Palace: Weather vanes for two cupolas on the Thames Gallery 1691. The Great Staircase, Kings apartment, iron railing, 1699. Three iron gates for the vestibule of the park front and iron rail to the King and to the Queen's (unfinished) back stairs, the Prince's, Lord Portland's and several other stairs in the Palace, 1694-98. Wrought iron screens, designed originally for the Fountain Garden and now located in the Privy Garden. The works consists of twelve panels with embossed, *repoussé* masks and flowers. The Pheasant Garden, a decorative cage for the pheasants integrating ornaments, frieze and upright bars and four casements and frames about it. A plain iron fence was erected by the Fountain Garden, originally 773ft in length. The whole was separated into bays by twisted pillars, with balls and collars to the top of the twisted bars, 1699.

Cholmondeley, Cheshire, gates for the end of the garden and another little iron gate, 1695.

St Paul's Cathedral, London. Tijou was in receipt of payments for work at St Paul's from 1691-1708. Windows for St Paul's, 1691-2. The great metal chain around the dome, 1706. An altar rail which Pevsner describes as a low communion rail, with brass rail, and wrought iron foliage with cast busts of hooded figures, 1706. Wrought iron screens at the entrances to the north and south aisles. Tijou's former sanctuary screens are now located in the east bays of the choir arcades. Broader iron screens in the next bay to the west incorporate Tijou's gates formerly of the west choir entrance.

Buckingham House, St James's, London, The main staircase balustrade by Tijou. Attributed, wrought iron gates to the forecourt (illustrated in an engraving by Kip & Knyff) may have been by Tijou, 1702-5.

Kensington Palace, London, main staircase with wrought iron balustrade, 1696.

House of Commons, Westminster, two iron pillars with capitals in iron by Tijou, c. 1692.

Burghley House, Lincolnshire, gates on the west front in an archway, c. 1690/5.

The Upper School, Eton College, Buckinghamshire, iron gates, 1700.

The Royal Hospital, Chelsea, two iron gates, 1699, and two further iron gates.

Attributed (Pevsner) two rare, elaborate wrought iron lamp standards in the shape of Ionic columns on big bases in the East and West Courts.

Drayton House, Northamptonshire, wrought iron entrance gates, 1702-3.

Kiveton Park, Yorkshire, West Riding, unspecified work and payments to Tijou from 1698-1704. The great staircase and the entrance gates may be Tijou's work or Gardoms. No record currently exists.

Great Park House, Ampthill, Bedfordshire, iron rails and balusters for the staircase, 1712.

The Royal Hospital for Seamen, Greenwich, in 1707 a proposal for ironwork by Tijou was approved, though it is not known if or where it was produced.  
St Andrew Undershaft, London (attributed), wrought iron communion rail, 1704.

**Underwood, Thomas (fl. 1704-21)**

Chicheley Hall, Buckinghamshire, unspecified work, 1704 and iron sashes for the cellar windows, 1721.

**Waite, Richard (fl. 1682)**

St Bride, Fleet Street, for smith work in the vestry, 1682.

**Walker (fl. 1684-5)**

Christ's Hospital, Newgate Street, London, a gateway and wall leading to the Tabernacle of Christ Church, 1685.

**Warren, Thomas (1675-1735)**

Blenheim Palace, Oxfordshire, general smith work and ironwork done in staircases in the east and west wings of the offices and at the bridge, iron rails and bars, iron rail for the east boundary wall between the piers, 1709-10.  
Castle Ashby, ironwork at the steps in the court before the Hall door 1706, ironwork on the bowling green 1709, iron grill in the orchard 1716, iron grill and ironwork to a pair of steps 1716, two pairs of iron gates and locks at the end of the pavement 1722, a pair of iron gates at the bowling green north front 1727. Work between 1704-35.

Clare College, Cambridge, the gate next to the field, 1713.

Kimbolton Castle, Huntingdonshire (attributed) wrought iron balustrade on the south front, c.1710.

Wimpole Hall, Cambridgeshire, iron rails for the top of the house and iron rails for the stairs in the garden 1716, and fine altar rail in the chapel and unspecified iron work, 1719-28.

Lamport Hall, Northamptonshire, iron work for the great court, 1732.

Kislingbury Rectory, Northamptonshire (attributed) gate, c.1710.

Grendon Hall, Northamptonshire (attributed) garden gate and screen.

St Michael Haselbeach, Northamptonshire (attributed) chancel gate (possibly adapted from a garden gate) and overthrow.

St Mary, Finedon, Northamptonshire (attributed) gates to the porch and the railings outside the east window.

Cheveley Rectory, Cambridgeshire (attributed). Pevsner states that the wrought iron gates from Horseheath Hall, Cambridgeshire went to St John's and Trinity Colleges, Cambridge and to the rectory at Cheveley.

Powis Castle Gates (attributed by Hollister-Short) to Warren.

**Washington, Benjamin (fl. 1717-24)**

Penrith Parish Church, ironwork about the dial plate, 1717 (an elaborate gnomon supported by a wrought iron scroll with water leaves).

**Wells, William (d. 1694)**

St Swithin, Cannon Street, iron casements and unspecified work about the church, built 1677-85.

St Mildred, Poultry, general smith work, built 1681-87.

**Wilkinson, John (d. 1680)**

St James's Palace, London, supplied fine locks and keys, 1677.

**Winckles, Paul (d. 1700)**

The Royal Hospital, Chelsea, possibly lamp standards in the shape of Ionic columns on big bases, wrought iron gates at the main entrance, west entrance gates and entrance to the Infirmary Garden.

St James's Place, London, simple wrought iron railings to nos. 28-31 and link holder to no. 31, c.1685.

St James's, Piccadilly, London, unspecified ironwork for the vestry room, 1688.

**Winckles, William (d. 1732)**

The Royal Hospital, Chelsea, worked with his father until 1700.

Burlington Girl's School, Boyle Street, London, iron rails, 1721 on.

**Wright, John (d. 1695)**

Rufford Park, Nottinghamshire, pair of iron gates, c. 1690s.

## APPENDIX III

### IRON PRODUCTION IN ENGLAND

This appendix summarises the technological advancements in iron production prior to and during the period, for it was these techniques that contributed and enabled the effects in decorative wrought iron of the period. The evolution of metal processing depends on several competences: physical (geology), chemical (purity) and technological (production volume).

During the Roman domination of Britain, the smelting of iron became a flourishing trade in heavily afforested areas which supplied charcoal, such as in the Sussex Weald and the Forest of Dean. Smelting is a form of extractive metallurgy; its main use is to produce a base metal from its ore. This method is used to produce silver, iron, copper and other base metals. Smelting makes use of heat and a chemical reducing agent to decompose the ore, driving off other elements as gases or slag and leaving the metal base behind. The reducing agent is commonly a source of carbon such as coke, or in earlier times charcoal. The carbon (or carbon monoxide derived from it) removes oxygen from the ore, leaving behind the elemental metal. The carbon is thus oxidized in two stages, producing first carbon monoxide and then carbon dioxide. As most ores are impure, it is often necessary to use flux, such as limestone, to remove the accompanying rock gangue as slag. The ratio of wood to charcoal for smelting is: 8 loads of wood to 2.5 loads of charcoal. This smelts into 2.5 tons of iron ore.<sup>469</sup> The wrought iron from the Sussex Weald and the Forest of Dean was renowned for its combination of strength and ductility. Geological conditions determine the location of mining and when coal was discovered in conjunction with other minerals there was a strong tendency to the localisation of manufacture.<sup>470</sup> By the early seventeenth-century there had been little development of technological processes. Coal and iron, in association with each other, had led to the assembly of hardware trades in the Black Country and of tool-making in south-west Lancashire. The centre of the metalworking trades in London was Clerkenwell. In

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<sup>469</sup> Exhibition of Wealden Iron Industry, Anne of Cleves Museum (Lewes, 2005)

<sup>470</sup> Scott, B. G., *Early Irish Ironworking* (Ulster, 1990)



the Midlands there was a rapid expansion of small metalworking industries that produced high quality fashionable items being sent to London for export. According to John Crowley, the Shropshire ironmaster, writing in 1717 the iron industry was “the second manufacture in the Kingdom”.<sup>471</sup> Most early large-scale iron production was for nails (used in house construction), locks, hinges and brackets including trade-signs, which were evident in many European streets up until the 19<sup>th</sup> century and acted as indicators of the trade being carried out within the premises. Iron balustrades were increasingly common after the Rebuilding Act of 1666 and enabled identification of business and residential premises in large towns and cities which was essential in an age when illiteracy was still widespread and house numbering and street signs were not yet commonly in use.

### THE DIRECT PROCESS

The early process of smelting in England was a simple one. A furnace was built up and first a layer of charcoal was put in, then a layer of iron ore, and then one of fuel, and so on. The blast was applied by foot bellows and enabled the furnaces to produce daily blooms weighing about one hundredweight. A small quantity of malleable iron was produced in this way, which was hammered into a “bloom”. Such iron was very pure and soft and lent itself readily to hammering on the smith’s anvil. The mediaeval blacksmith beat the blooms into rods or plate (depending upon which was required) and in producing a bar, for example, the ideal was to beat it until it was perfectly round, square or whatever shape was desired. The truer the edges and the fewer the flaws, the better the piece of craftsmanship. It was a tedious process from the rough, crude ingot to the finished bar. By the mid-seventeenth-century, production methods had evolved sufficiently to relieve the blacksmith of this preparatory work and instead concentrate on the overall designs made possible by various types of pre-formed bars. The next developments were the Trip (or Drome Beam) hammer and more powerful bellows which were both worked by water-wheels. The wheel turned on its axle, which had cams on it. A large beam was pivoted at the centre, with a heavy

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<sup>471</sup> Court, W. H., *The Rise of the Midlands Industries* (Oxford, 1938); Rowlands, M. B., *Masters and Men in the West Midland Metalware Trades Before the Industrial Revolution* (Manchester, 1975)

hammer attached to one end and it was raised or lowered at the other end by the action of the cams. This method doubled production and extracted a greater proportion of the metal, whilst still producing iron in the form of a bloom or spongy mass. The heat produced by the earliest furnaces was never enough to make the iron molten but merely to reduce it to a spongy state from which the unburned ore and impurities were driven by means of hammering. The lump of metal was re-heated and hammered under great hammers. The Direct Process still persisted in rural districts with a limited demand and particularly in remote parts with poor transport links. However, it also lasted as long as it did because of its advantages. Iron made in the bloomery was usually of superior quality, free from harmful impurities such as phosphorus and sulphur which were amalgamated as part of the blast furnace process. Gardner has noted that during the seventeenth and eighteenth centuries "... there probably still remained 400 furnaces and iron mills of the Weald, some 200 in Wales, and as many in the Midlands, which latter must even then have been rapidly monopolizing the trade".<sup>472</sup> Eventually the greater demand for iron favoured the blast furnaces and so the Direct Process of the bloomsmithies was gradually superseded throughout the country by the Indirect Process.

### THE INDIRECT PROCESS

The emergence of the blast furnace as used in England is generally accepted and recorded by Karlsson to be from Flanders in the 15th century.<sup>473</sup> However, Karlsson accepts contested claims made by several recent authorities that blast furnaces emerged far earlier in Europe, perhaps as early as the 12th century, and he suggests that some of the larger examples of iron construction from late in the medieval period pre-suppose the use of the blast furnace, though he offers no evidence to support this, based on the surviving examples of medieval Swedish ironwork that he has catalogued.<sup>474</sup> This is possibly because his judgments relating to Swedish medieval ironwork were largely based upon aesthetic

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<sup>472</sup> Starkie Gardner, J., *A Survey of Iron in Great Britain* (London, 1922), p. 32

<sup>473</sup> Karlsson, L., *Medieval Ironwork in Sweden*, Vol. 1. (Stockholm, 1988): review by Reynolds, T. S., *Technology and Culture*, Vol. 31, No. 3 (1990), pp. 514-515

<sup>474</sup> Karlsson (1988), p. 362

characteristics and he did not rely on metallurgical evidence to determine whether the surviving artifacts were, in fact, produced using the Indirect (blast furnace) method of iron production.

The development of the Indirect process in England (blast furnace and forge), had a powerful impact on increased iron production and growth of the industry in the seventeenth-century.<sup>475</sup> The increased availability of various types and thicknesses of iron were a great benefit to the smiths. This in turn had an influence in creating a greater demand, in part due to the greater economies of pre-formed bars. The title of the indirect process refers to the two steps of production. The first produces a brittle product and the second step transforms it into iron that can be wrought. This brought about a complete revolution in ferrous metallurgy. “Pig iron” was produced from the blast furnace yet it was useless for any wrought fabrication as it was too brittle. The transformation from pig iron to iron suitable for forging was achieved by melting the pig iron in hearths (similar to those used at bloomeries) and then burning out the carbon with an air blast blown onto the hot metal. The product was a lump of “slag” iron which could be refined into various bar sizes in the rolling and splitting mills. The main benefits of the processes are summarised in the following table. The Indirect Process was able to create a comparatively high output of liquid pig iron, with a carbon content of 3-4% which made it suitable for use in castings, finery, chafery and final hammering, yet not ideal for forged iron due to the high carbon content collected by the metal during the last furnace process. The pig iron then needed to be melted in the hearth and the carbon burnt out with a blast.

#### General Comparison of Processes

	<b>Direct Process</b>	<b>Indirect Process</b>
Furnace	Bloomery	Blast Furnace
Fuel	Charcoal	Charcoal

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<sup>475</sup> *Metalworks! The Blacksmith's Tale*, BBC4 (May 2012). Accessed via YouTube 05/04/16. Part 1 of 4 suggests that cast iron came to England in 1496 with the arrival of the blast furnace

Bellows	Foot, later water powered	Larger water powered bellows with strong blast
Product	Sponge iron (solid)	Pig iron (liquid)
Composition	Pure, less than 0. 1% carbon	Carburised, 3-4% carbon
Further Treatment	Heating and hammering	Used for castings; finery and chafery and final hammering
Final product	Wrought iron	Iron (not ideally suited to forged work)
Output	Low	Comparatively high
Quality	Usually superior and free from impurities	Wrought iron usage with a reduced application due to impurities collected from blast furnace.

## COKE SMELTING

Since the time of Elizabeth I (1533-1603), the industry's rate of consumption of timber had caused alarm and its use had been forbidden within 35.2 km of London. Throughout the seventeenth-century, the problems of charcoal supplies for furnaces increased. Charcoal was largely produced for these purposes from quick growing deciduous woods which were felled every 15 years or so. Ironmasters had to go farther afield for their charcoal and the industry seemed doomed if no alternative fuel was found. Alongside the growth in imports of softwoods, fir, spruce and pine, there was an increased export of iron, used as ballast, *en route* to Norway from England and Scotland.

Abraham Darby developed a new process for smelting iron using coke, instead of charcoal. His furnace in Coalbrookdale first smelted iron using coke in 1709. The effect of this innovation was to encourage the iron industry to gravitate towards the coalfields e. g. Yorkshire, Derbyshire and Staffordshire, and to exploit the built-in coal measure ironstones. As a result, the iron industry was transformed. Although coke was the cheaper option, it took another 50 years before it completely replaced charcoal because the new technology of coke smelters was not without developmental issues. Charcoal iron became a speciality

for many years at the beginning of the age of steel. It was Henry Cort who, in 1783, discovered an economic method of producing wrought iron. His 'puddling furnace' produced molten iron that could be rolled straight away, while it was still soft, into rails for railways, pipes, or even sheet iron for shipbuilding.<sup>476</sup> Steel had been produced in bloomery furnaces for thousands of years. It was Aristotle who had described Damascus steel in 334B. C which had been used to make swords. In Britain, as early as 1740, small quantities of steel had been made by Benjamin Huntsman, a clockmaker, for use in cogs and wheels. Huntsman had created steel by putting molten iron into earthenware crucibles and then heating it, while excluding air at the same time.<sup>477</sup> The use of steel expanded extensively when production methods became more efficient. With the invention of the Bessemer process in 1856 by Sir Henry Bessemer, a new era of mass-produced steel began. Bessemer developed a "basic oxygen converter" to change pig iron into steel. This was followed by Siemens-Martin process and then the Gilchrist-Thomas process that refined the quality of steel. With their introductions, mild steel replaced wrought iron. Pockets of charcoal forging survived, catering for niche markets which demanded bar iron of an exceptionally pure and ductile type.<sup>478</sup>

## SWEDISH AND RUSSIAN IRON IMPORTS

Towards the end of the Middle Ages, central Sweden and northern Spain were the biggest exporters of iron to England. The major transformation of the Swedish and Russian iron industries and increased export trade, was essentially motivated by the demand created for military production. In Sweden there were the European conflicts, such as the Thirty Years War (1618-1648) and in Russia there were ongoing hostilities with neighbouring countries and the Great Northern War with Sweden. Warfare had a profound effect on the iron industry in both countries because it required considerable quantities of material to be produced efficiently and reliably. The state of "being at war" also upset the established European trade routes. Swedish iron was renowned for being typically low in sulphur and

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<sup>476</sup> <http://saburchill.com/history/chapters/IR/037f.html>. Accessed 16/04/16

<sup>477</sup> *Ibid.* Accessed 16/04/16

<sup>478</sup> Evan, C., "A Skilled Workforce During the Transition to Industrial Society: Forgemasters in the British Iron Trade, 1500-1850", *Labour History Review*, Vol. 63 (1998), pp. 143-159

phosphorus and therefore high in purity, durability and ductility. This was precisely the type of iron that was demanded for challenging artistic tasks. Russian iron, on the other hand, was a good deal cheaper but of inferior quality in comparison.

Evidence from the Dundee Records Office reveals a wide variety of shipping documents that confirm the imports and exports of Scottish, English, Danish, Norwegian iron. Iron imports to Scotland from Norway increased during the late sixteenth and seventeenth-centuries. This is of significance because it evidences the demand in Britain of the highest quality iron, free from impurities which created a more malleable metal which could be formed into a great variety of decorative and other uses. With poor quality iron, the range of decorative possibilities was decreased. Records dating back to 1711 note the increasing tonnage that Sweden was exporting and the continued growth of the industry in the following period.

#### **Swedish Bar Iron Exports 1711 – 1739<sup>479</sup>**

Averages in Metric Tonnes

<b>Year</b>	<b>Tonnes</b>
1711-19	32,000
1720-21	34,000
1724	34,000
1725-28	34,000
1730-39	39,500

By 1660, Britain was established as a major importer of Swedish iron and the British market was to remain the most important one for Swedish bar-iron for over a century. Sweden's share of the British market declined after 1760 and thereafter Russia gradually became the main supplier with the level rising through the eighteenth-century to around 45,000 tons annually after 1790. By 1725, Russia was the world's leading producer of iron and this position was maintained until the beginning of the nineteenth-century. More than half of the iron produced was exported, mainly to England for cast building work. The Russo-British Treaty of

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<sup>479</sup> Hildeband (1992), p. 25

1734 granted “most favoured nation” status to Britain and afforded considerable assistance. The dramatic increase in imports of Russian iron into England, 500% within approximately 20 years, demonstrates the high demand for iron from this location. The table below summarises the figures pertaining to market growth. The impurities of Russian iron meant that it was more suited to cast iron than forged uses.

**British Iron Imports from Russia 1725 – 1744<sup>480</sup>**

Five Year Averages in Metric Tonnes

YEARS	ENGLAND	SCOTLAND	TOTAL
1725-29	856	55	911
1730-34	2937	-	2937
1735-39	3011	30	3041
1740-44	4022	85	4107

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<sup>480</sup> Kahan, A., *The Plow, the Hammer and the Knout* (Chicago, 1985), p. 23

## APPENDIX IV

### Lord Cholmondeley, Cholmondeley Hall

#### A COPY OF THE AGREEMENT BETWEEN BAKEWELL AND LORD CHOLMONDELEY ILLUSTRATES THE COMMISSION PRACTICE

“An article of agreement made betwixt ye Rt Honrb ye Earl of Cholmondeley and Rob Bakewell of Melbourn in ye County of Darby For making the Iron Rales and banestors for ye Grate Starecase and ye Panels for the Galloreyes about ye Hall is to be made as folloeth viz The aforesaid Rob Bakewell is to make Starecase Rales and benestors according to ye draught annexed viz ye banestors of ye Starecase to be made thirty three incs Hoigh and eight Pilastors to be Rought Square and Proportionable to ye banestors. The eleven Vaconces in ye Galloreyes is to be ffitd up with a Rought Iron Panol according to ye drought annexed. The Heigh of the eleven panols is to be Three Feett Heigh. For all ye work ye Sd Robert Bakewell is to have one Hundred and Ten pounds to be paid him viz: Fiftety pounds to be Pade him at ye Delivering of the Eleven Panels viz at nantweich ye Whole worke is to be Delivered at ye charge of Rob Bakewell And to be brough from thence to Cholmondeley at his Ld Ships charge. The whole Complement of worke is to be Completed and Delivered by ye next in ye ensuing year. 1711. The Remr of ye money to be paid when ye whole is sett up y finisht or within a month of same.

Wm Adams

N W Smith

(Cheshire Record Office DCM/M37)

Robert Bakewell”



## APPENDIX V

### SUMMARY OF PHYSICAL PROPERTIES AND CHARACTERISTICS OF METALS

(Relative costs, ability to cast, weld, rivet and colour)

Bronze casting & techniques of joining: complicated angular pieces or figures can be cast separately and joined by soldering or dovetailing. Bronze is an alloy of copper and tin. In England ornamental bronze came into use as early as the twelfth century.<sup>481</sup> Expensive cast bronze was in use by c. 1400, but was superseded by cheaper cast iron, first used in Europe around 1400 for military purposes.<sup>482</sup> Italy is the home of bronze. Bronze has a mellow, sober hue.

Imitation Paris bronze (cast and wrought zinc) is treated almost in the same manner as bronze yet however well moulded or cast, it is no substitute and it cannot be decorated, treated with color, or gilded and given the patinas of bronze.

Tin is a flexible, soft, ductile metal which does not permit the fine chiselling of a good and careful bronze casting. It is more appropriate to smooth surfaces, which may be relieved by annealing or by sunk design. Tin, or “white lead” was extensively used in work dating from mediaeval times.<sup>483</sup> Gothic iron was often originally tinned, especially in Germany, and this gave it a different appearance from that which it has now has.<sup>484</sup>

Lead is extremely ductility and needs to be supported by iron or wooden braces. Lead is substituted for bronze for economical reasons. (The fountains of Versailles are of lead partly fused, partly wrought, 1668-1687).

Zinc is the least valuable of all metals, is not usually beaten or wrought, and, because it is rather brittle, use is restricted to objects of large dimensions. Its extreme malleability also prevents it from being extensively adopted in architectonic work.

Brass is an alloy of copper and zinc. Brass can be polished to create a high shine.

Pewter is an alloy of copper, antimony and lead (with 85-95% tin).<sup>485</sup>

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<sup>481</sup> Mayeux, H., *The Decorator and Furnisher*, Vol. 14, No. 5 (1889), p. 155

<sup>482</sup> Campbell (2000), p. 15

<sup>483</sup> Mayeux (1889), p. 156

<sup>484</sup> Frank, E. B., “Small Gothic Ironwork”, *Speculum*, Vol. 24, No. 4 (1949), p. 531

<sup>485</sup> Hull, C., *Pewter* (Oxford, 1992), pp. 1–5

Copper cannot be cast because it is prone to surface cracking, hence the *repoussé* technique is utilised to form it.

## APPENDIX VI

### A TRANSCRIPTION OF A LETTER FROM THOMAS TIJOU, SON OF JEAN TIJOU, SENT TO A FRENCH PROTESTANT CHARITY SCHOOL IN 1780

*The humble Petition of Thomas Tijou*

*Sheweth That your Petitioner is the Son of John Tijou of St. Garmans in France, who was forced to flee from thence in the time of the General Persecution of the Protestants, and came to England, where he was employ'd by his Majesty King William to furnish his Palace at Hampton Court with the whole of the Iron Worke, which Workes not being finished till in the reign of Queen Ann, only a part was paid for, and there remains great Sums due to your honours Petitioner, in right of his said Father, which he has made frequent and assiduous Application for in vain. That your Petitioner has worked at his Business as a Small Worker in Gold upwards of Fifty Years, but latterly not able to pursue it through Defect of Sight, being near Eighty Years of Age, by which Your Petitioner is reduced to the utmost indigence, which together with the loss of his patrimonial Right renders him a real Object of Charity, and the more so having three indigent fatherless Grand Children dependant upon him for Support.*

*Wherefore Your Petitioner most humbly prays, that he may be considered as an Object of this Charity, and that two of his said Grand-Daughters may be admitted into your Charity School, and your Petitioner being in the most distrest Circumstances, that Your Honours would bestow on him Some Small Donation.*

*And your Petitioner for in duty bound will ever pray &c*

*Thomas Tijou*

*This Petition was presented by Wm. Wright Esqr.*

*Saturday July 8 1780. being [word illegible] a subscriber to The mentioned Charity School.*

## APPENDIX VII

## SUMMARY OF PAYMENTS TO JEAN TIJOU FOR IRONWORK AT ST PAUL'S CATHEDRAL

<i>Introduction</i>			
<i>Ironwork.</i>			
<i>Monsr Tijou (Contracts June 30, 1691, for Windows and Sept. 7, 1695, Choir Screens &amp; Gates.)</i>			
<i>Reference.</i>	<i>Date.</i>	<i>Description of Work.</i>	<i>Value.</i>
Vol. XIV, p. 78	Oct. 1690	Two round Windows W Door,	£ s. d.
" p. 88	Aug. 1691	1st Window E End of Choir, as Contract.	12 0 0
" p. 90	Nov. "	2 Windows " "	67 1 6
" p. 93	Jan.-Feb. 1691/2	6 " " "	124 18 0
" p. 96	May-June 1692	6 " " "	353 9 0
" p. 104	Nov. 1692	4 " " "	384 0 6
" p. 125	Nov. 1693	3 Upper Windows E End of Choir	250 11 6
" p. 131	March 1693/4	6 " " in the Choir	135 8 0
" p. 139	Oct. 1694	Rails 2 Staircases £40 & 2 Wds in same	252 4 0
		£20.	
Vol. XV, p. 6	March 1695/6	36 Panels for Choir, Oak Screens to	60 0 0
		Isles.	
" p. 8	May 1696	Add Rail Stairs West End. 4 yds in	354 3 4
		T & F's Work.	
" p. 11	Aug. 1696	Iron Screen under Organ. 221 ft at 40s	4 0 0
		per ft.	442 0 0
" pp. 42-3	July-Sept. 1698	Choir Gates N & S at E End.	1614 10 0
" pp. 50-1	April-Jan. 1699	Gates at S. Portico £160. Choir Desks	
		£265.	
" p. 58	Jan.-Mar. 1699/1700	8 Windows. Scrolls &c complete.	425 0 0
" p. 105	March 1703/4	Iron Balcony to Dome.	525 4 6
" p. 122	June 1705	Side Isles Choir Gates.	823 0 0
" p. 133	March 1705/6	Iron Girdle round Dome.	540 0 0
" p. 136	June 1706	Staircase in S.W Tower.	274 16 8
" p. 152	June 1707	Altar Rail.	303 12 9
" "	"	Balcony at West End.	260 0 0
" p. 163	June 1708	NW Tower. Copper Finial.	408 15 0
" pp. 202-3	June 1711	Fence Queen's Statue.	275 11 0
			385 13 9
		<i>Total</i>	£8275 19 6

21 years.

## APPENDIX VIII

## CONTRACT BETWEEN ST PAUL'S CATHEDRAL AND JEAN TIJOU

Dated June 30<sup>th</sup> 1691

June 30<sup>th</sup> 1691. //  
 Agreed then with John Tijou Smith, to make all the  
 Iron work and Bars of a window for the East end of the  
 Church of St. Pauls Cathedral according to the Directors given;  
 The Bars to be all very straight, square, & neatly forged;  
 And the Muntions of open work of Groteske masonry according  
 to the Patterns approved, and all well joyned and strongly  
 fixed together, and with such Bars as shall be directed  
 for setting the Glass; The said Tijou is to assist the Mason  
 in setting up the said work (Scaffolding & Lead being allowed  
 him) For all which, the said Tijou is to be paid for follows:  
 The whole window bars and muntions to be weighed in  
 together at the rate of 6<sup>d</sup>. 8<sup>d</sup>. and for the Groteske  
 he is to be further allowed for Workmanship six shillings  
 & foot running, and proportionably for the leadwork according  
 to the breadth of it. The Payment to be made by 10<sup>th</sup>  
 at a time, as the work proceeds, and as m<sup>r</sup>. Oliver shall  
 certify to m<sup>r</sup>. Surveyor of the Church to pay for the same  
 John Hampton Clerk to the works. //

In witness  
 J. Tijou

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**Geoff Wallis, Dorothea Restorations**, Discussion by phone

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**The Church Conservation Trust, South West Region**, Brian Clark

**The Tijou Family**, Family Correspondence via E-mail with Kathleen, Charles (9<sup>th</sup> Generation Tijou) and John.

**The Worshipful Company of Blacksmiths**, Meeting with the Clerk, Mr Christopher Jeales, Access to Library and Livery Company Records (now stored at the Guildhall Library, London)

## SITE VISITS

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Bristol, St Mary Redcliffe  
 Cambridge, Trinity College, Clare College and Jesus College  
 Cheshire, Malpas Church  
 Denbighshire, Chirk Castle  
 Denbighshire, Ruthin, St Peter's Church  
 Derbyshire, Melbourne Hall  
 Flintshire, Leeswood Hall  
 Leicestershire, Staunton Harold Church  
 London, Hampton Court Palace, St Paul's Cathedral  
 Monmouthshire, Tredegar House  
 Oxford, Magdalen College and New College  
 Shropshire, Oswestry Church  
 Wrexham, Erdigg  
 Wrexham, St Giles

### SCOTLAND

Angus, Glamis Castle  
 Fife, Donibristle House  
 Kinross, Kinross House  
 Midlothian, Caroline Park  
 Midlothian, Gogar House  
 Peebleshire, Traquair Castle  
 Perth, Dunkeld Cathedral

### FRANCE

Fontainebleau, Château de Fontainebleau  
 Versailles, Château de Versailles

### THE NETHERLANDS

Apeldoorn, Het Loo  
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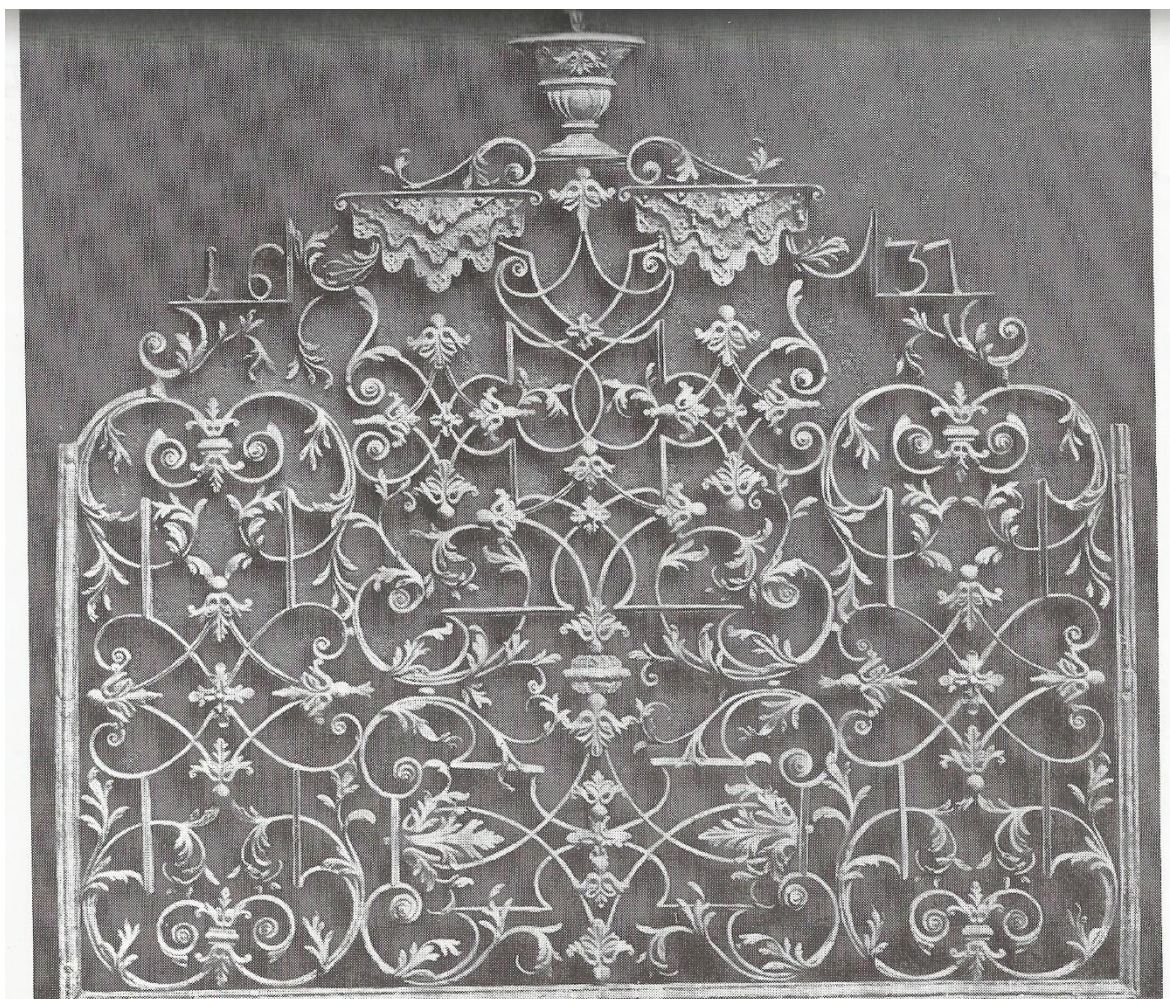


# PLATES

## Notes to Plates

1. All works, unless otherwise stated, are forged from wrought iron or a combination of cast iron and wrought iron.
2. The creators or designers are stated, where known, and otherwise they are anonymous.
3. The dates listed are those that are most generally associated with each work.





## **PLATE 1**

Wrought iron grille, Dresden, Germany  
Kunstgewerbe Museum, Dresden  
1637



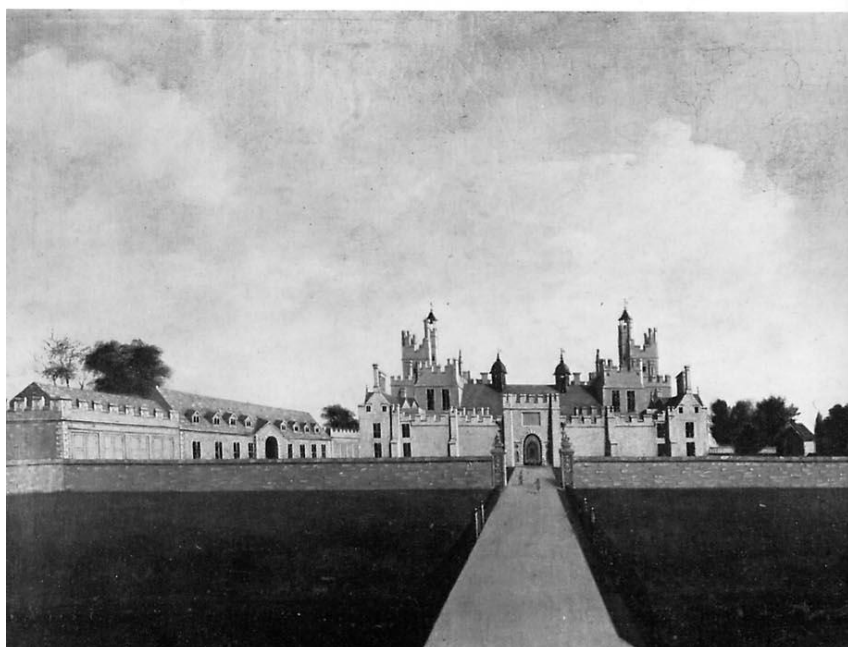
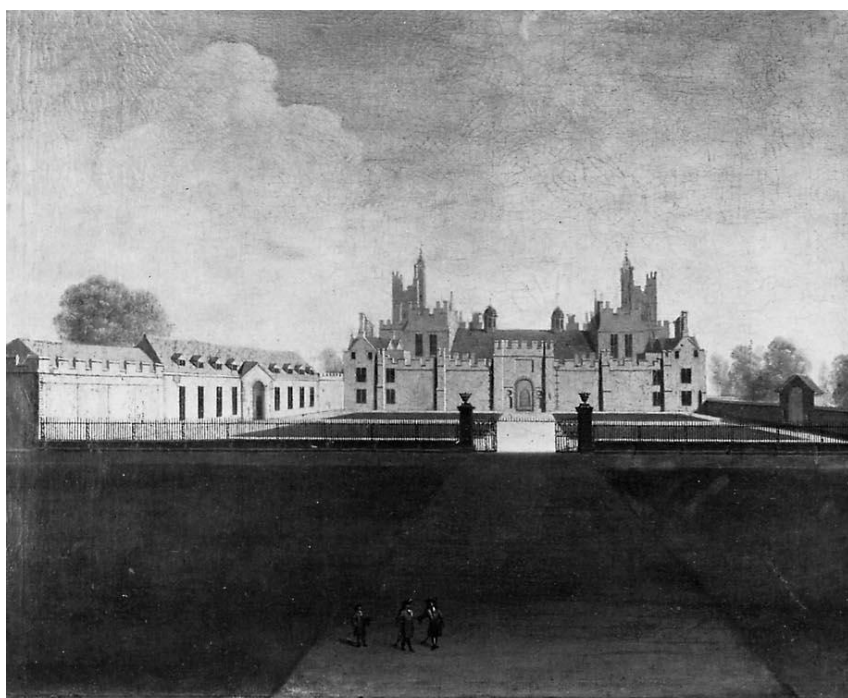


## PLATE 2

Map of continental trade routes in 17<sup>th</sup>/18<sup>th</sup> centuries

Illustrated by Peter Thornton,

*Form & Decoration, Innovation in the Decorative Arts 1470-1870*



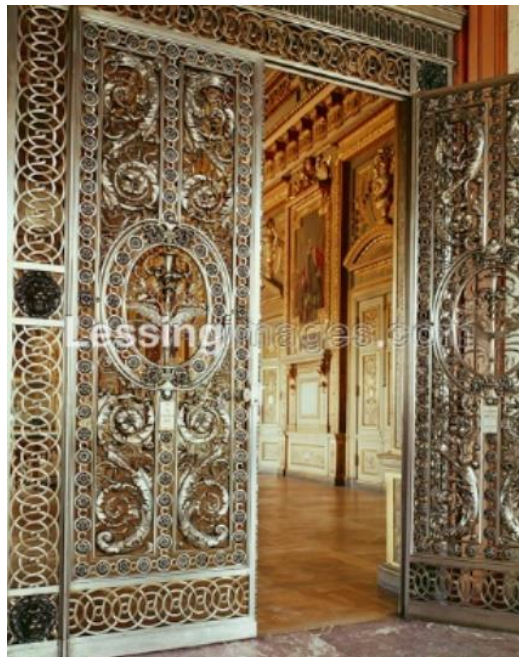
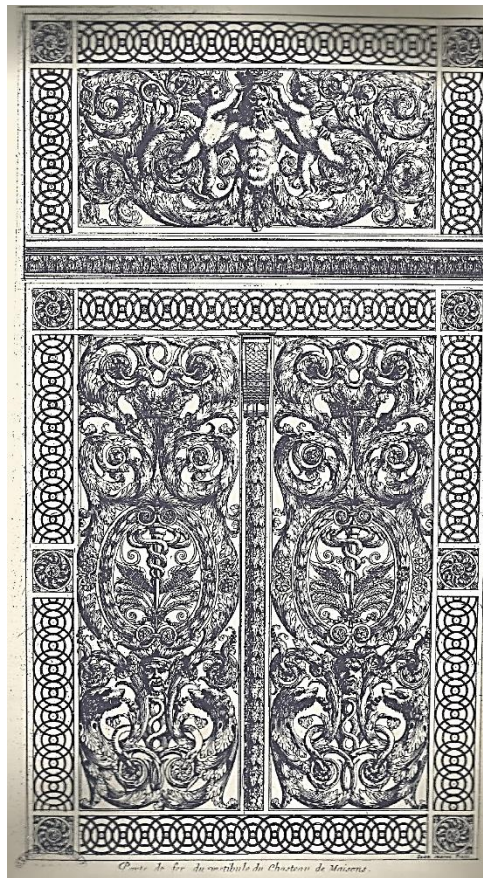
### **PLATE 3**

Paintings, oil on canvas

Drayton House, Northamptonshire

Views of house with and without wrought iron screens and railings  
c.1690





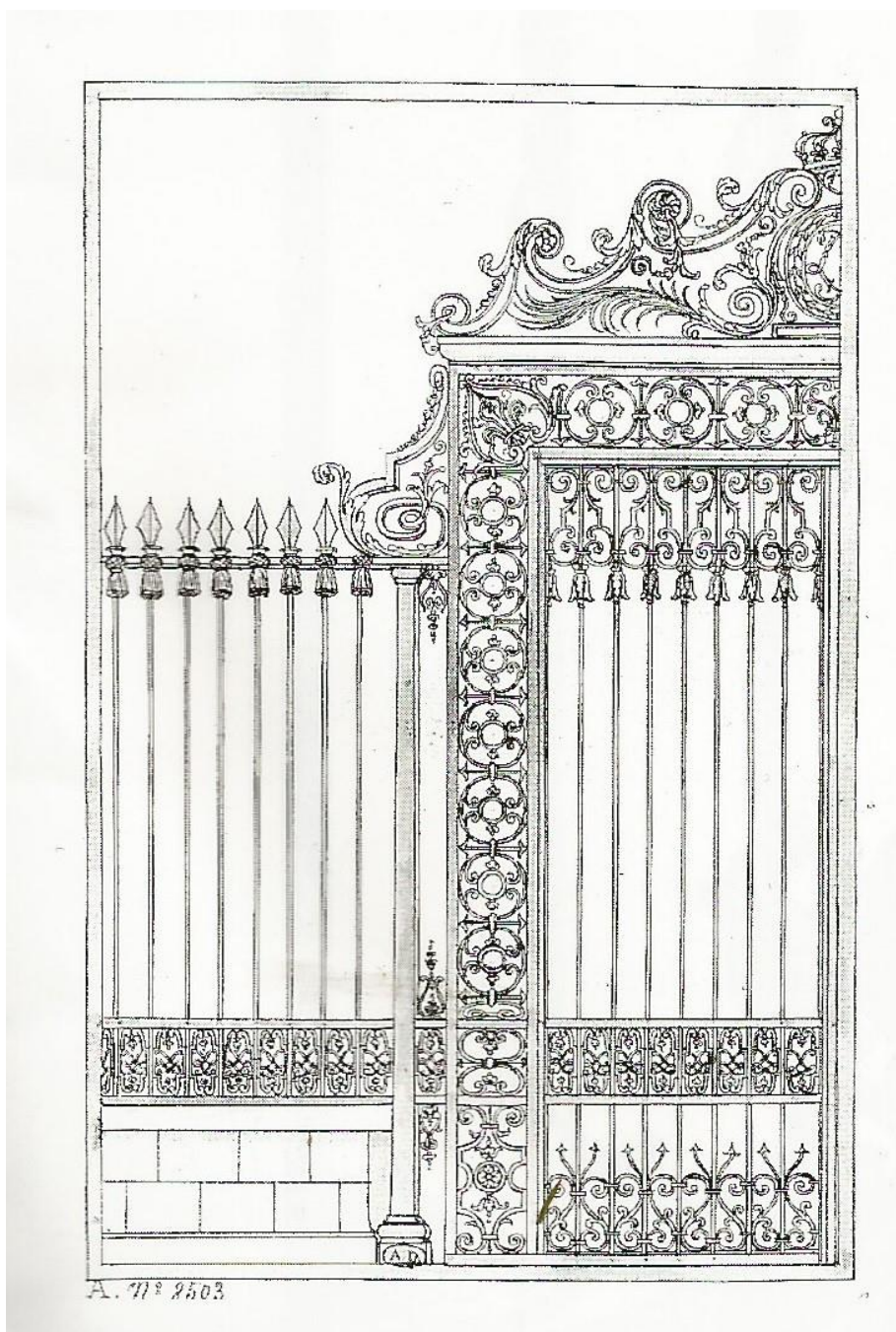
## PLATE 4

Wrought iron and silver doors

Originally from the Château de Maisons, Paris

Now located at the Galerie d'Apollon, Louvre, Paris

1650



## PLATE 5

Château de Versailles, detail of gate and railing

Designed by Luchet

1678-9

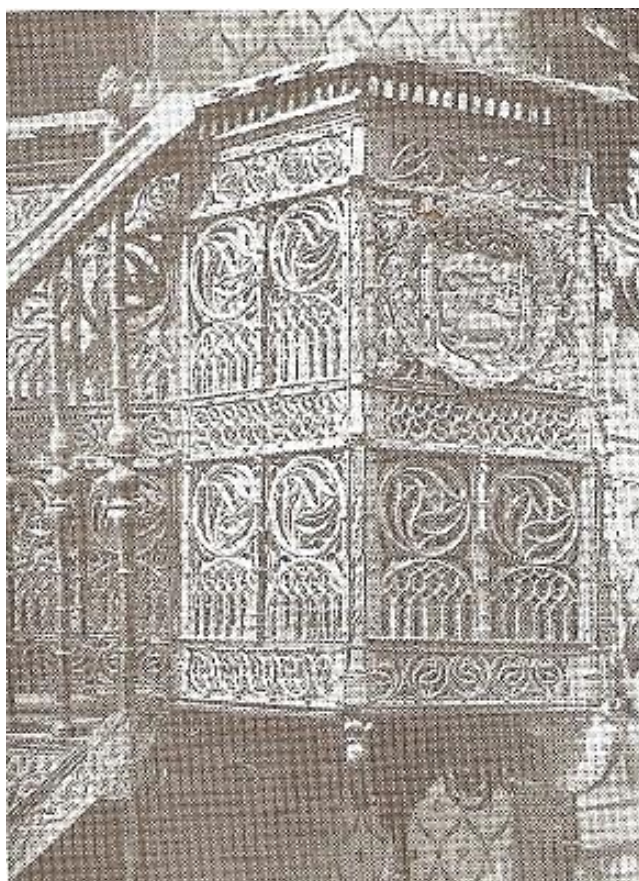
Ink and wash drawing by J. Lechevin, 1694, Paris





## **PLATE 6**

Wrought iron balustrade, main staircase  
Detail of traditionally forged wrought iron  
Caroline Park, Midlothian, Scotland  
c.1685



## **PLATE 7**

Iron Pulpit

Cathedral, Avila, Spain

Pulpit of oak core with iron tracery

c.1520



## PLATE 8

The Shop of M.Périer, Ironwork Merchant  
By Gabriel de Saint-Aubin (Paris, 1724–1780)  
1767



## **PLATE 9**

Drawing on paper  
Capital for Houses of Parliament  
1692  
RIBA39619

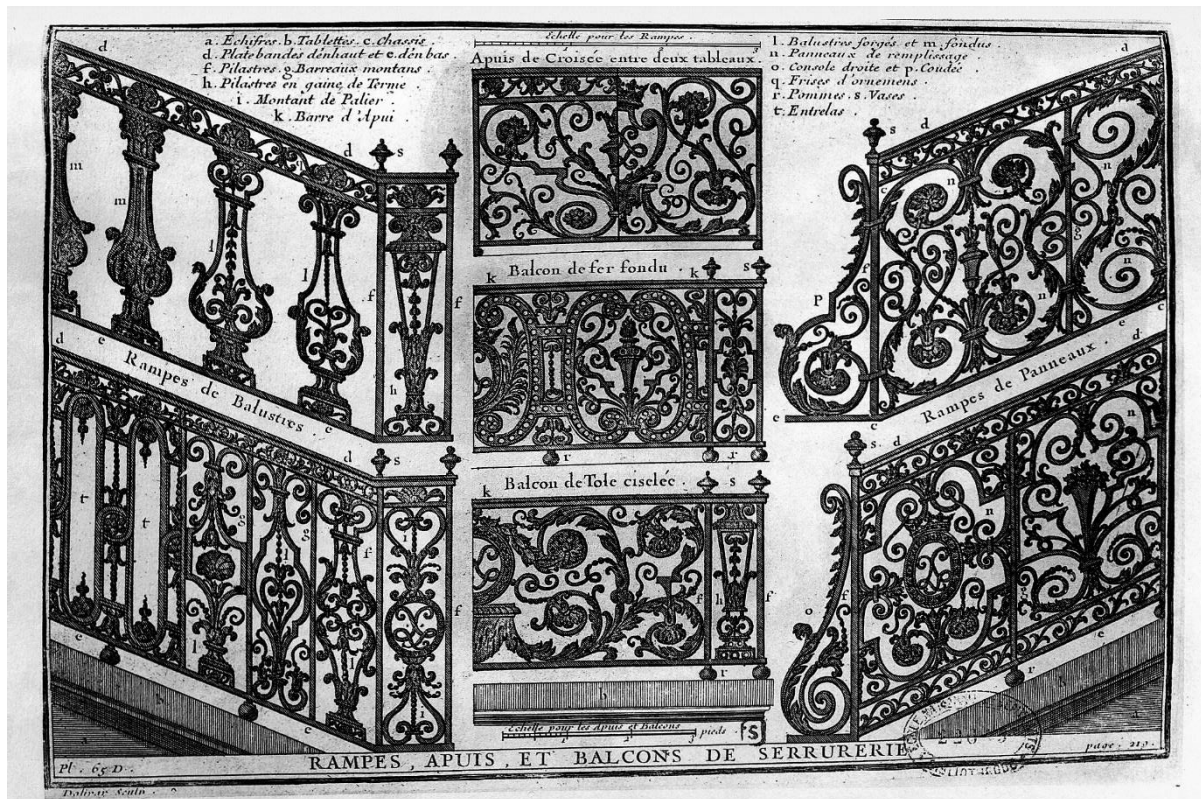




## PLATE 10

Design for wrought iron capital

Jean Tijou, *New Booke of Drawings*, detail of plate 13  
1693



## PLATE 11

Ornament print, designs for ironwork, *Rampes, Apuis, et Balcons de Serrurerie*  
 Charles Augustin D'Aviler  
 1691





## **PLATE 12**

Wrought iron reja

Granada Cathedral, Spain, Royal Chapel, Reja

Bartolomé de Jaen

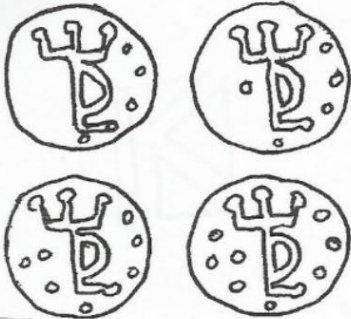


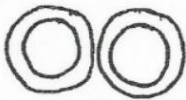
1518-23



## **PLATE 13**

Top: Detail of iron bar during restoration, from Clare College, Cambridge  
Attributed to Warren, 1713





Below: Iron Stamp, Attributed to Robert Bakewell

	<p>English Name: PL</p> <p>Forge: Akerby</p> <p>County: Uppsala</p> <p>Founded: 1646 Closed: c. 1875</p> <p>Location: Hampton Court Palace</p>
	<p>English Name: Circle G</p> <p>Forge: Gammelbo</p> <p>County: Orebro</p> <p>Founded: Before 1683 Closed: c. 1870</p> <p>Location: Roof Structure over Fountain Court, at Hampton Court Palace</p>
	<p>English Name: C and Crown</p> <p>Forge: Elfkarleo</p> <p>County: Uppsala</p> <p>Founded: 1659 Closed: Still operating but no longer making iron</p> <p>Location: Hampton Court Palace, Tijou Screen</p>
	<p>English Name: Double Bullet</p> <p>Forge: Osterby</p> <p>County: Uppsala</p> <p>Founded: 1545 Closed: 1941</p> <p>Location: Tijou Screen, Hampton Court Palace</p>

## PLATE 14

Identified iron stamps from Hampton Court Palace, Fountain Court Screen, Middlesex

Uncovered during the 1997 restoration

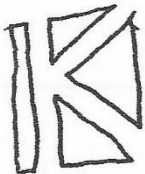

	<p>English Name: P S</p> <p>Forge: Nyfors &amp; Korslangan</p> <p>County: Kopparberg</p> <p>Founded: 1681 Closed: 1899</p> <p>Location: Tijou Screen, Hampton Court Palace</p>
	<p>English Name: Circle F</p> <p>Forge: Fforssmark</p> <p>County: Stockholm</p> <p>Founded: Before 1700 Closed: Not known</p> <p>Location: Tijou Screen, Hampton Court Palace</p>
	<p>English Name: -</p> <p>Forge: Ullnas</p> <p>County: Orebro</p> <p>Founded: Before 1700 Closed: Not known</p> <p>Location: Tijou Screen, Hampton Court Palace</p>
	<p>English Name: -</p> <p>Forge: Lannaforss</p> <p>County: Orebro</p> <p>Founded: Before 1700 Closed: Not known</p> <p>Location: Tijou Screen, Hampton Court Palace</p>

## PLATE 15

Identified iron stamps from Hampton Court Palace, Fountain Court Screen, Middlesex

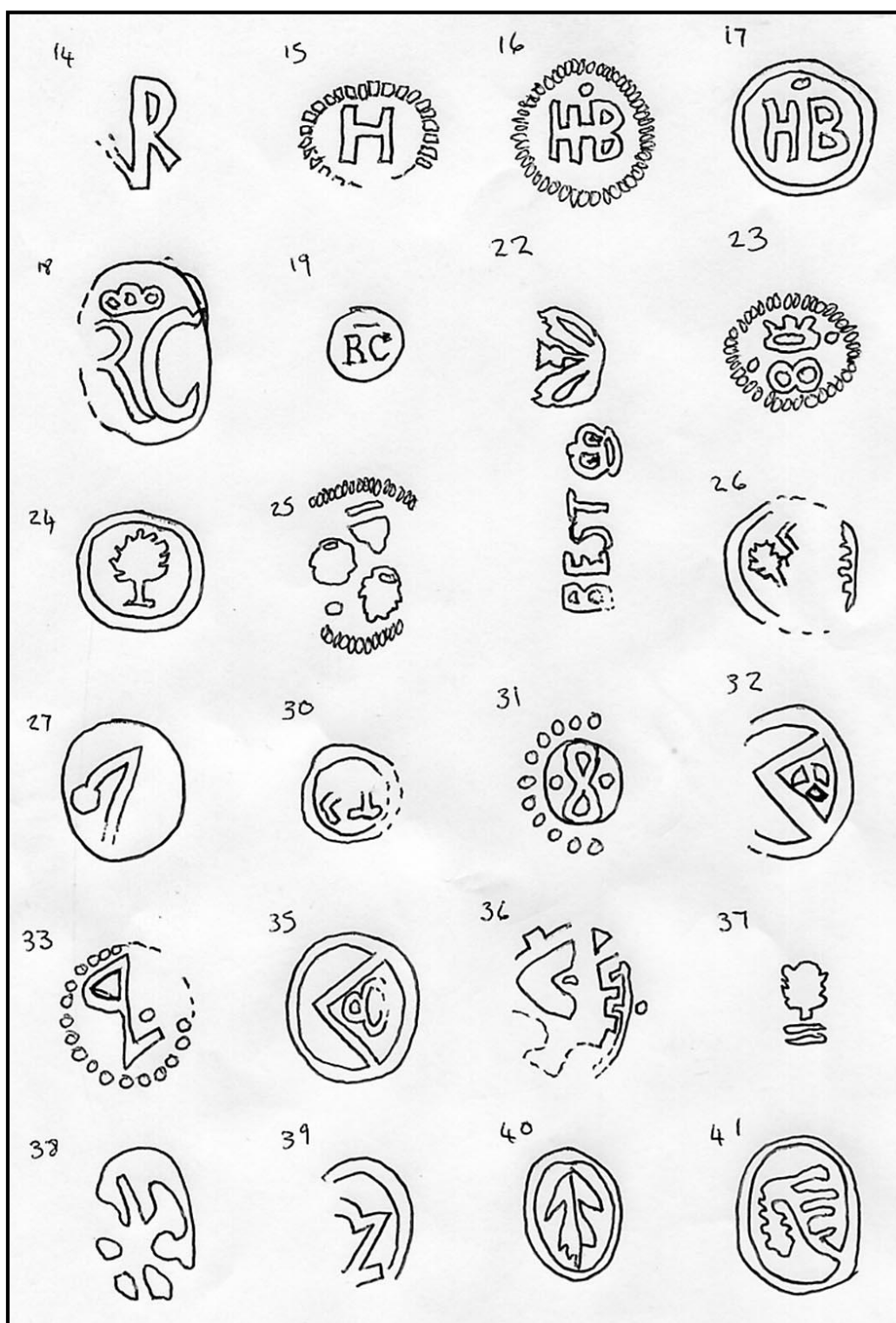
Uncovered during the 1997 restoration



	<p>English Name: -</p> <p>Forge: Warnas</p> <p>County: Orebro</p> <p>Founded: Before 1700</p> <p>Closed: Not known</p> <p>Location: Tijou Screen, Hampton Court Palace</p>
	<p>English Name: -</p> <p>Forge: Tibbingsforss</p> <p>County: Skaraborgs</p> <p>Founded: Before 1700</p> <p>Closed: Not known</p> <p>Location: Tijou Screen, Hampton Court Palace</p>

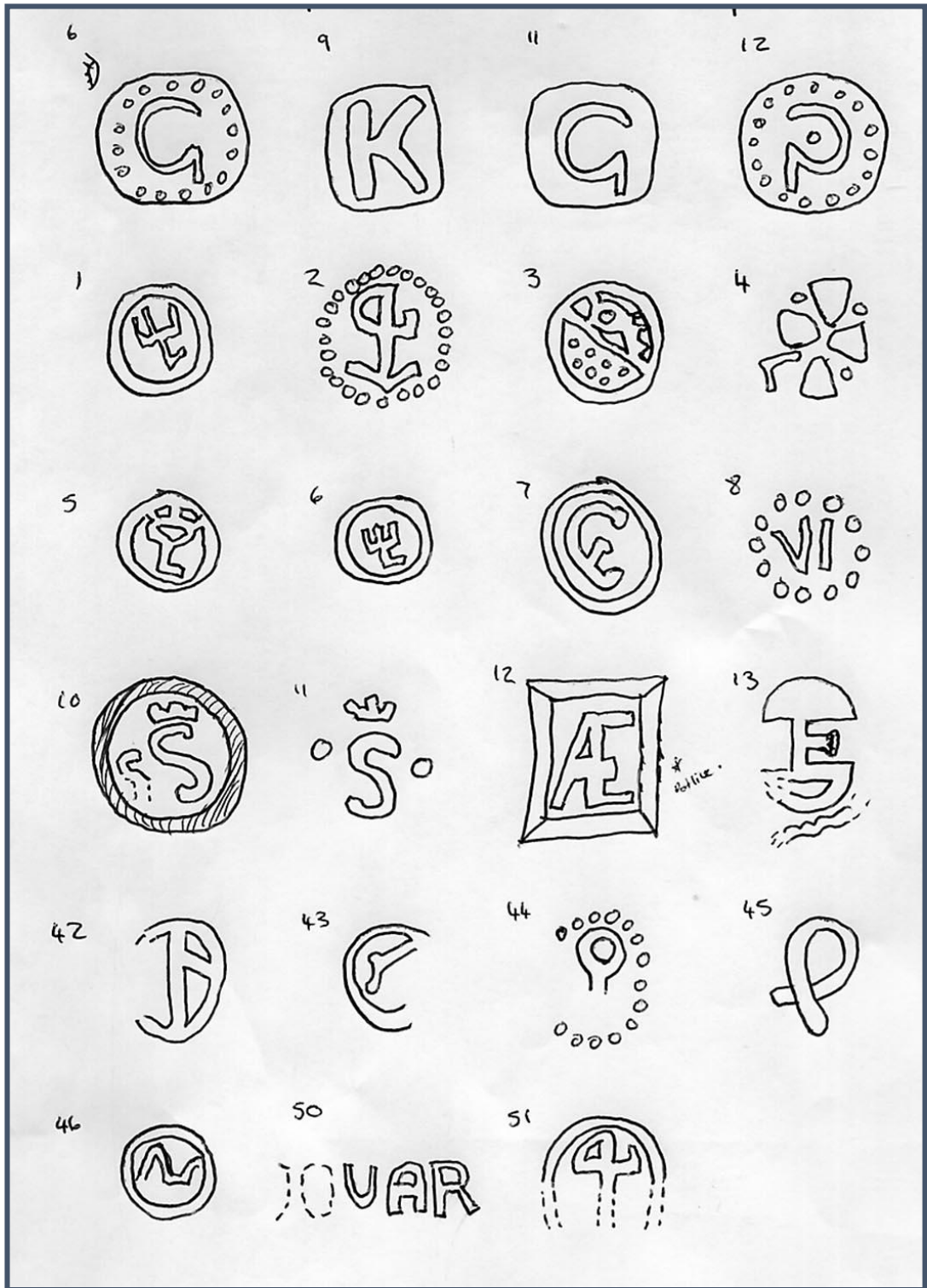
## PLATE 16

Identified iron stamps from Hampton Court Palace, Fountain Court Screen  
Uncovered during the 1997 restoration



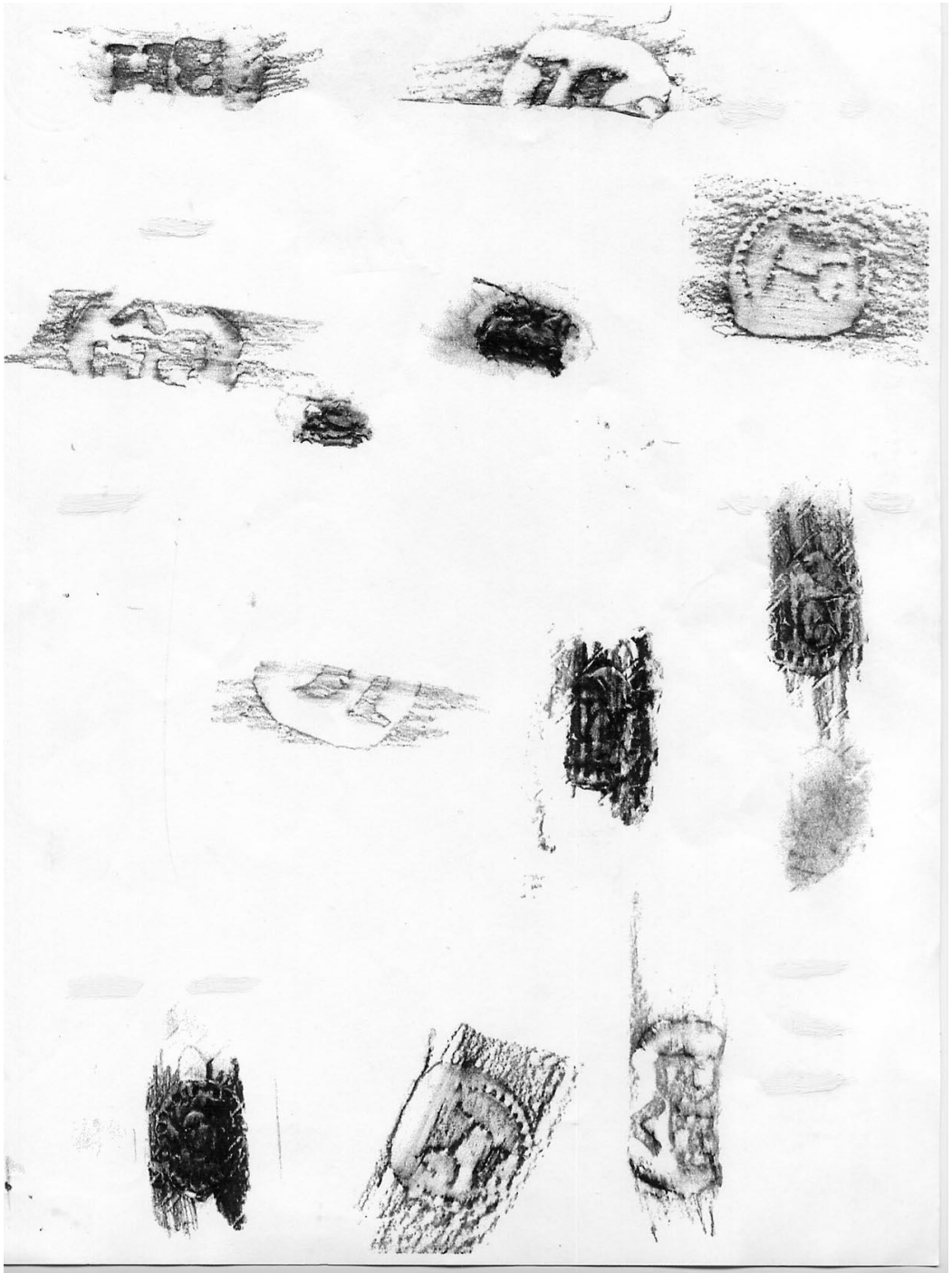
## PLATE 17

Unidentified iron stamps from Hampton Court Palace, Fountain Court Screen  
Uncovered during the 1997 restoration



## PLATE 18

Unidentified iron stamps from Hampton Court Palace, Fountain Court Screen  
Uncovered during the 1997 restoration

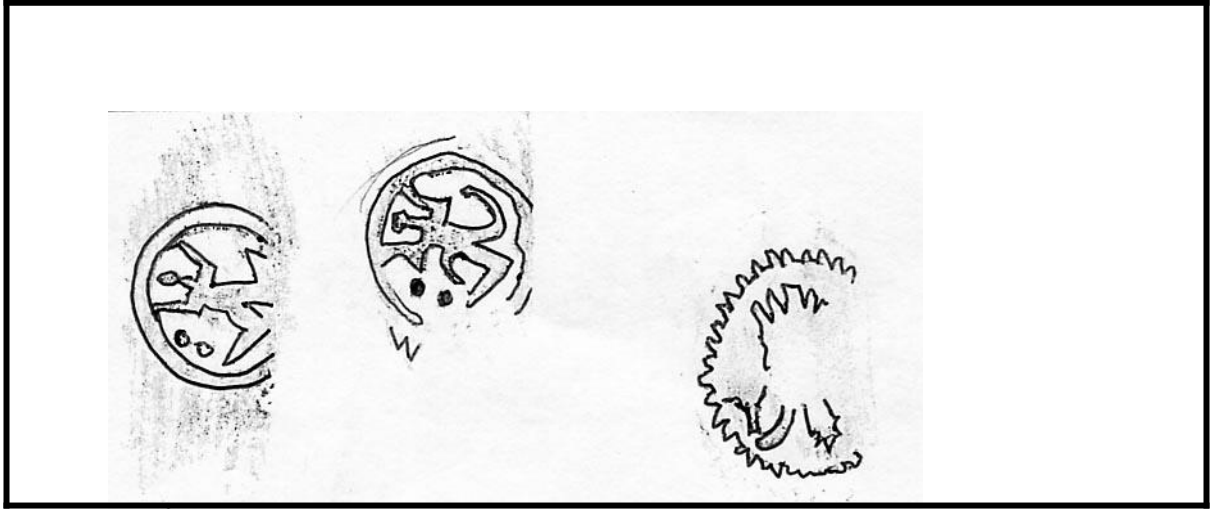


## **PLATE 19**

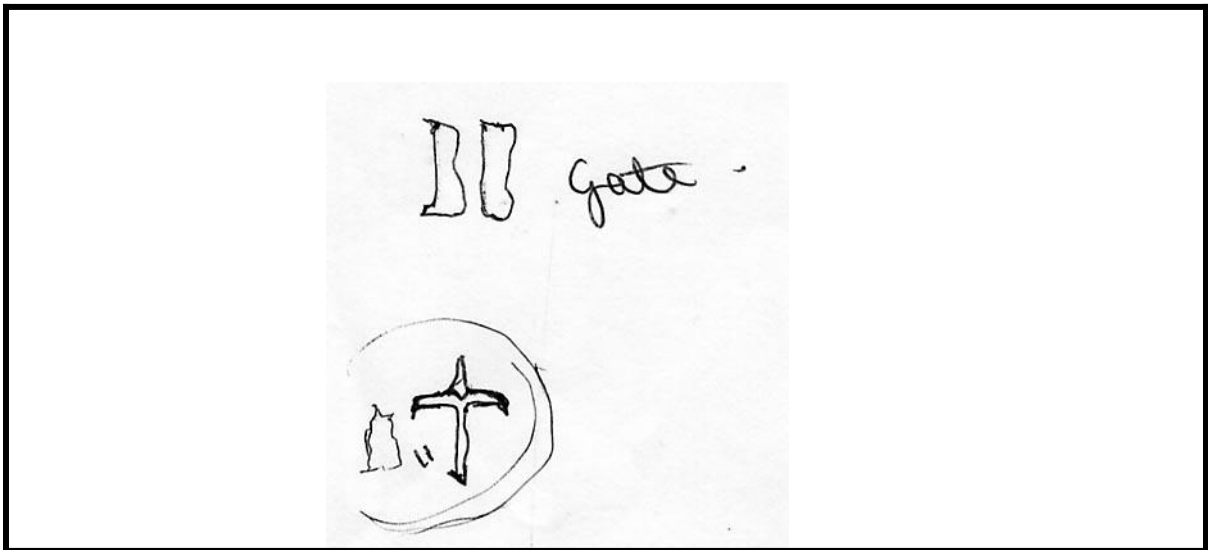
Okeover Hall, Derbyshire

Iron stamps found during restoration by Chris Topp & Co





Iron Stamps found on Obelisk Gates (Above)



Iron Stamps found on Garden Entrance (Above)

## PLATE 20

Okeover Hall, Derbyshire

Iron stamps found during restoration by Chris Topp & Co



## **PLATE 21**

Bailey railing, Hemony, Rijksmuseum, Amsterdam

Model by Quellinus

1656-1657

The panel measures 28.3cm (H) x 224.5cm (W) x 3.8-1.3cms



## **PLATE 22**

Mildenhall Dish, silver, chased and engraved  
British Museum, London  
4<sup>th</sup> Century AD





## **PLATE 23**

Versailles, lead/gilt sculpture in celebration of Louis XIV marriage to Maria Therese

Benoit Masson

Located, Versailles, Escalier de la Reine

c.1680



## **PLATE 24**

Wrought iron screen. part of a series of 12.  
Hampton Court Palace, Fountain Court Screen  
Jean Tijou  
c.1690





## PLATE 25

Hampton Court Palace, Fountain Court Screen

Detail of floral garlands (top) and figure and harp (below)

Jean Tijou

c.1690



## **PLATE 26**

Wrought iron, detail of satyr mask  
Hampton Court Palace, Fountain Garden Screen  
c.1690





## **PLATE 27**

Wrought iron decorative masks.

Hampton Court Palace, Fountain Garden Screen

Photographs depict the high relief of these sculptural masks.

c.1690



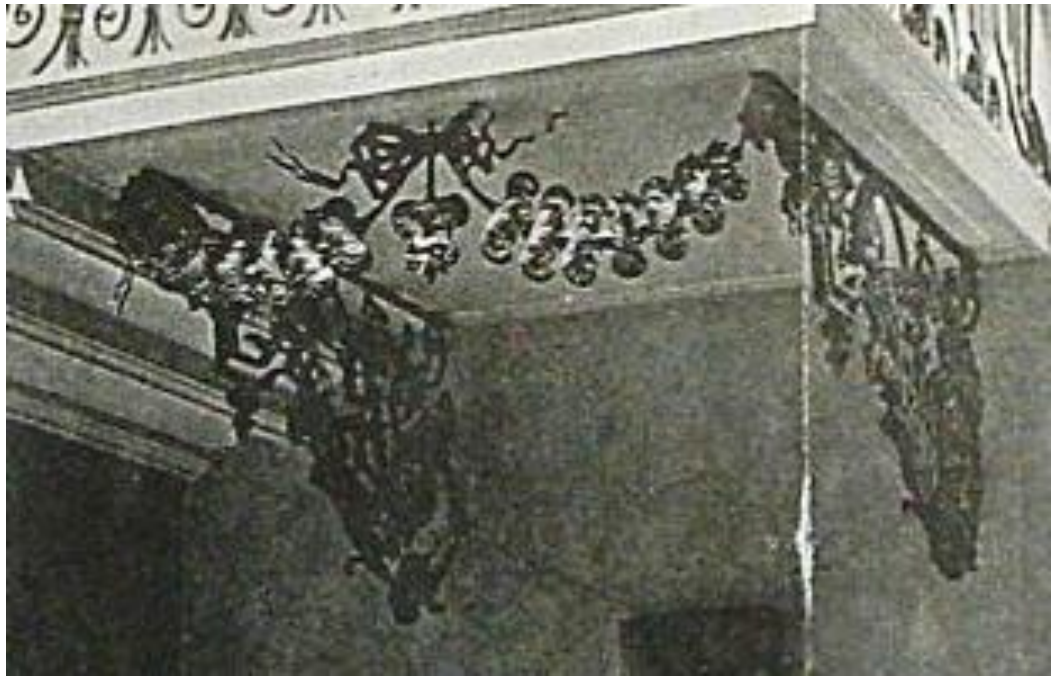


## PLATE 28

Hampton Court Palace, grand staircase to the King's Apartment,  
c.1690-1

Top: Painting on canvas by Richard Cattermole (?1795-1868)

Below: Detail of wrought ironwork, Jean Tijou, 1694-1698



## **PLATE 29**

Wrought iron balcony

Hampton Court, Queen Mary's Water Gallery

(Now erected in Special Reserve Picture Gallery beneath the  
Princes Staircase)

c.1685

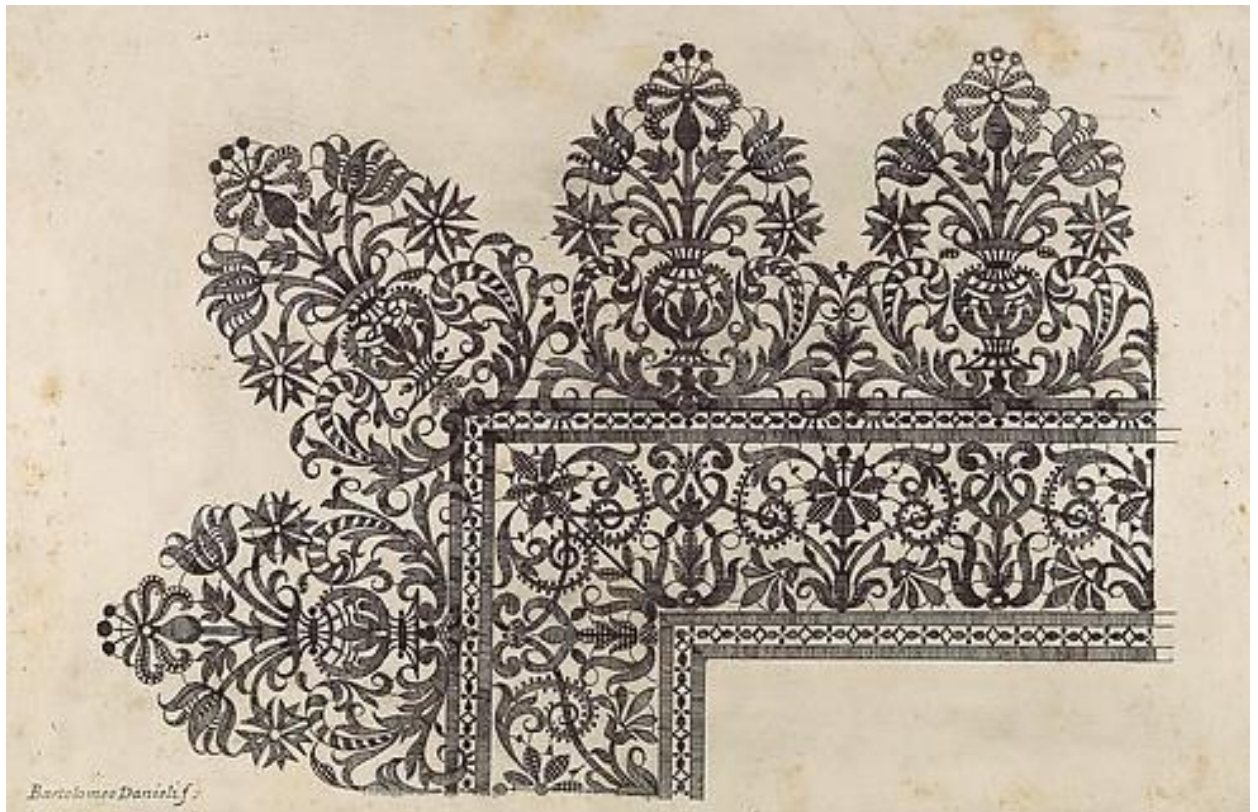




## **PLATE 30**

“The Tulip Staircase”, Wrought iron staircase  
Queen’s House, Greenwich

The balustrade dates from 1616-1619 with the tulips, a later addition, from 1665

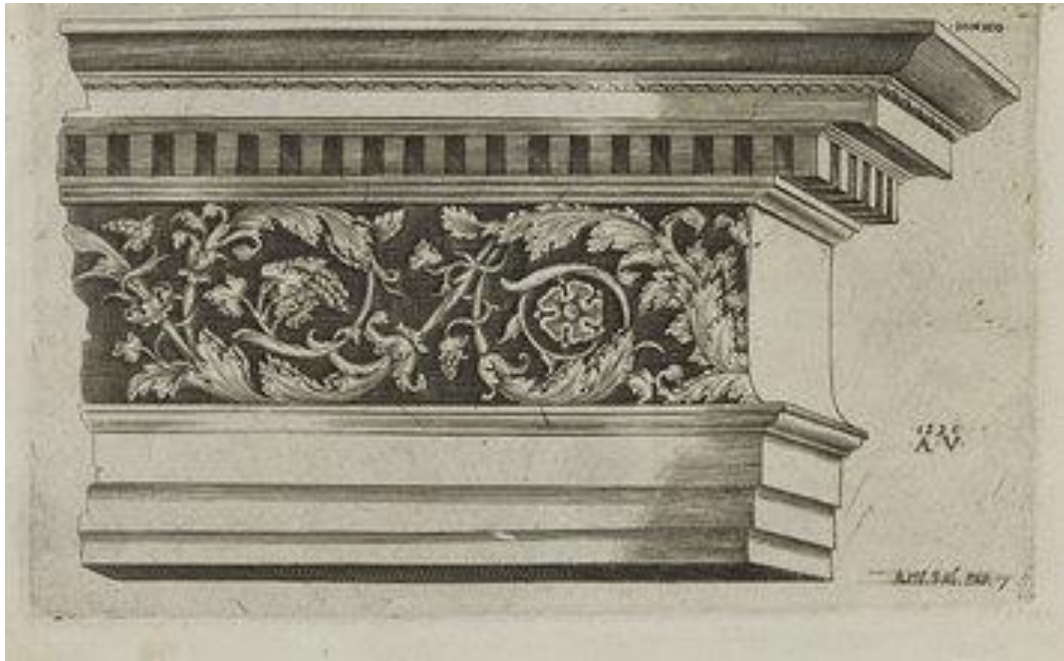


## PLATE 31

Top: Ornament print, design for lace, Bartolomeo Danielli, Italian, 1639  
Metropolitan Museum of Art, New York, 37.47.2 (1-13)

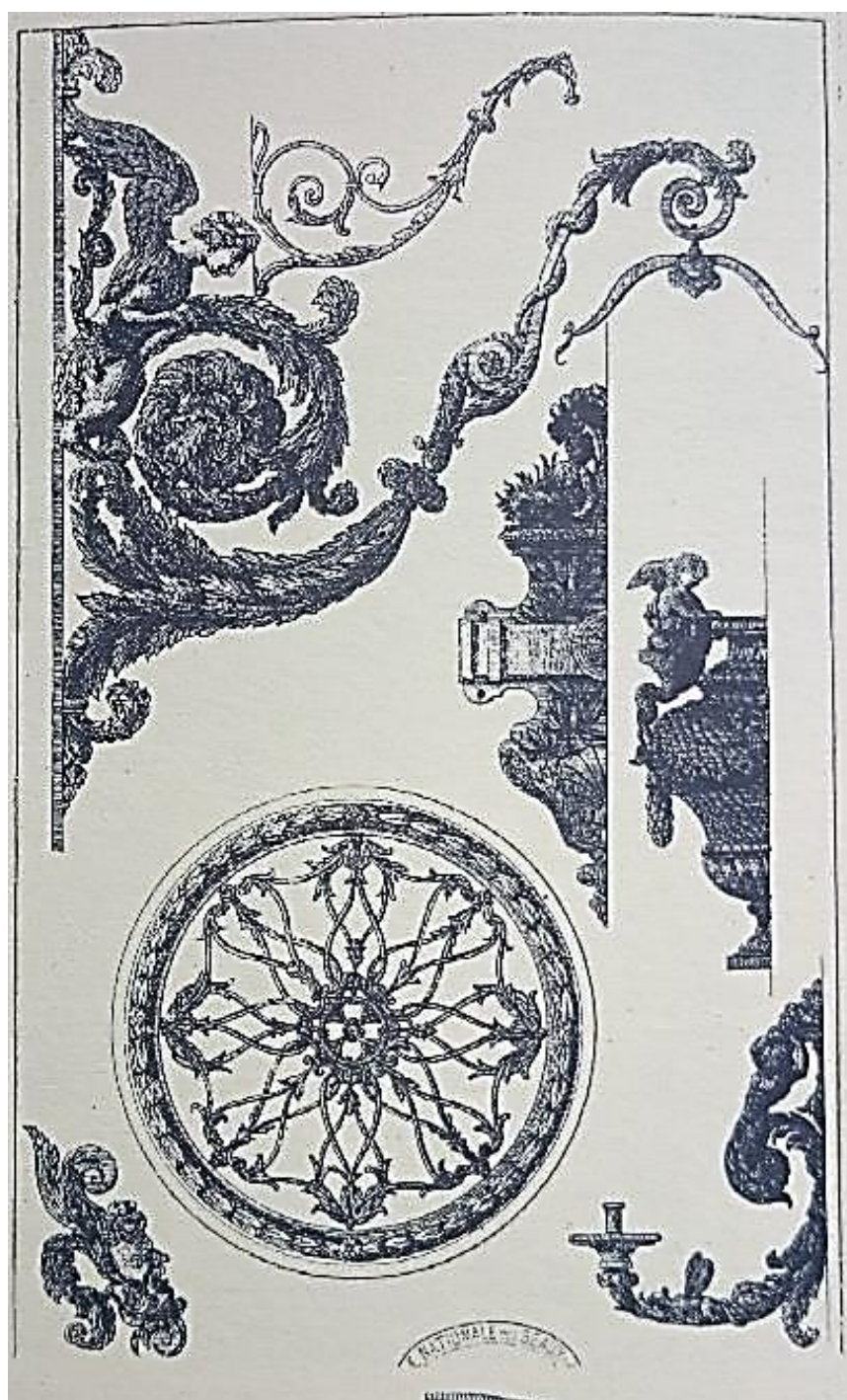
Ornament print, design for iron (depicting gates to Wimpole Hall), Jean Tijou,  
*New Booke of Designs*, 1693





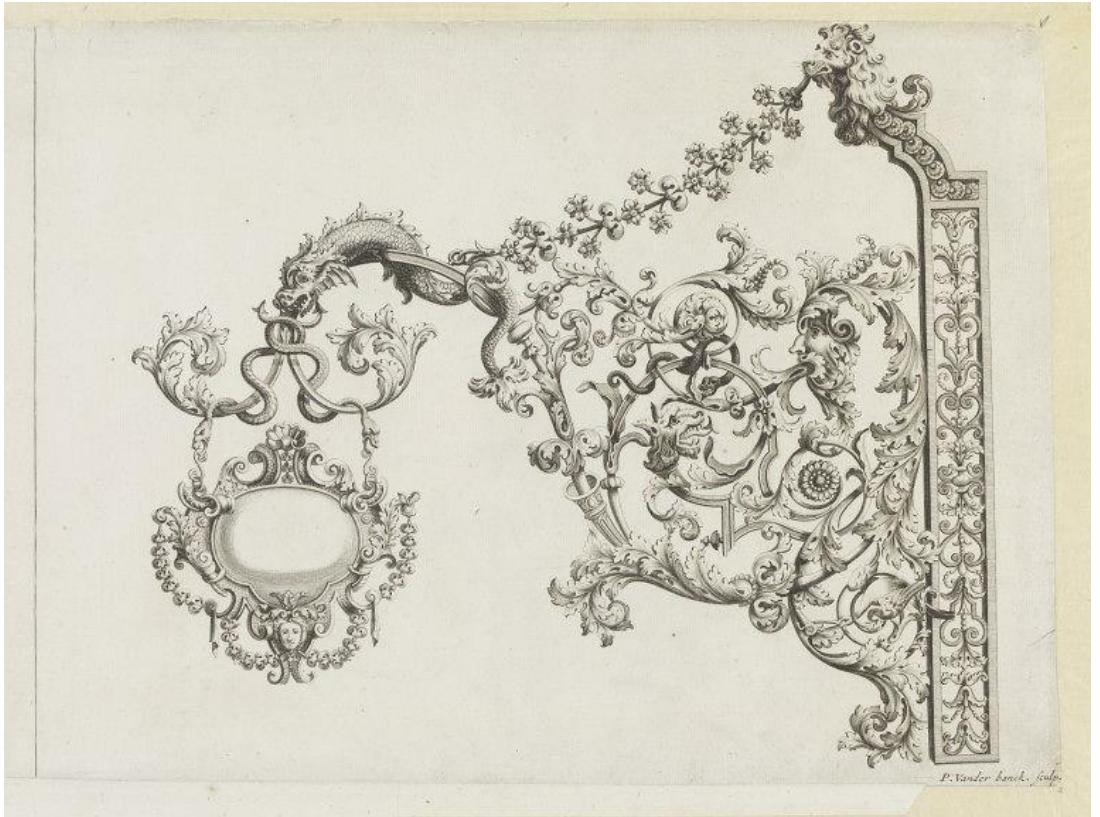
## PLATE 32

Top: Ornament print on paper, Sebastiano Serlio, 1531-1553, VAM: 16802  
 Below: Ornament print on paper, published by Antonio Lafrery, made 1561, VAM: 13249:1



## PLATE 33

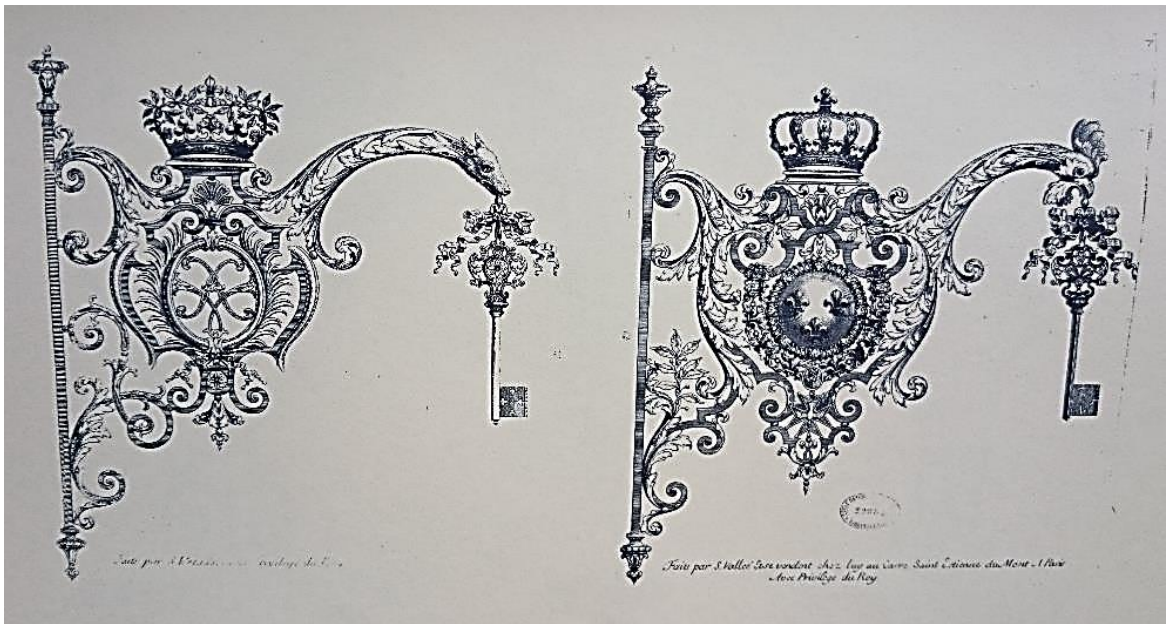
Ornament Print, design for iron sign  
Jean Le Pautre  
c.1660



## PLATE 34

Ornament Print, design for iron sign bracket  
*New Booke of Drawings*, Jean Tijou, plate fourteen  
1693





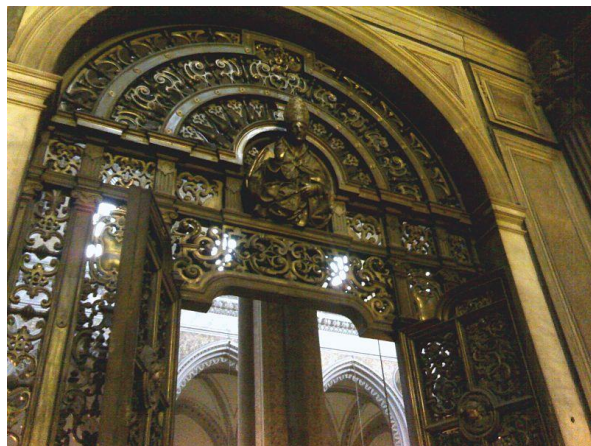
## PLATE 35

Ornament print, design for iron

G. Vallée

c.1675-1710



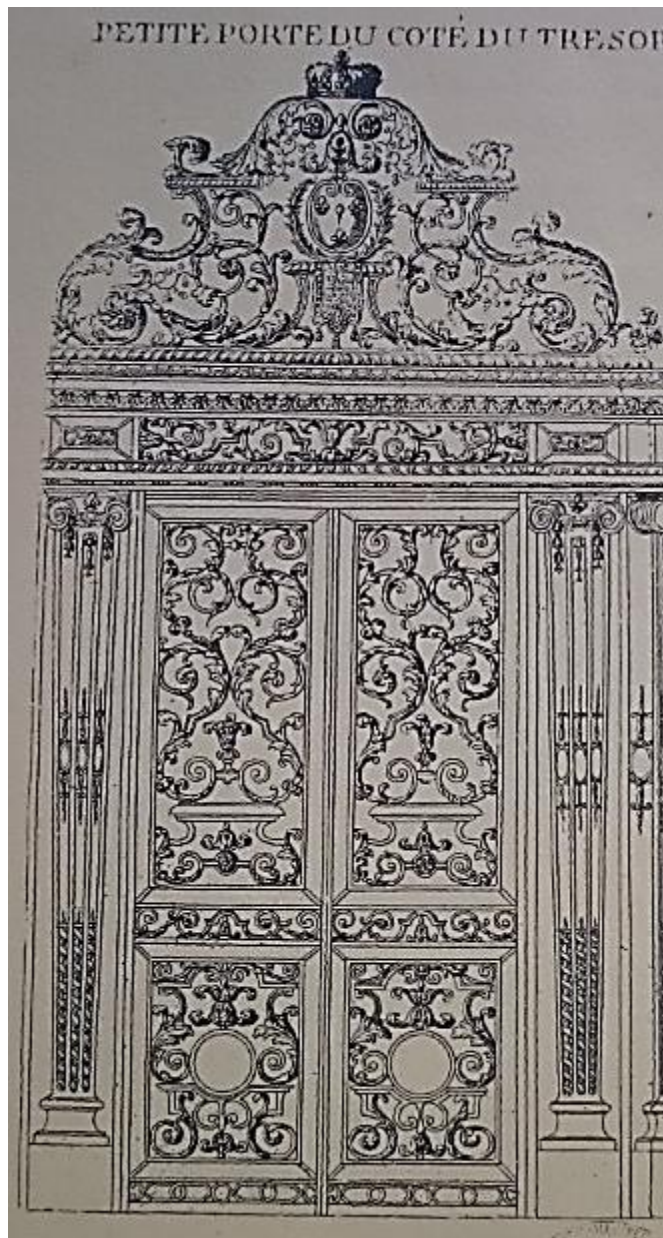


## PLATE 36

Design for a wrought iron grille (possibly for the Cappella del Tesoro in the Cathedral at Naples)

Cosimo Fanzago (1591-1678)

D.1984.AB.109 Courtauld Institute of Art



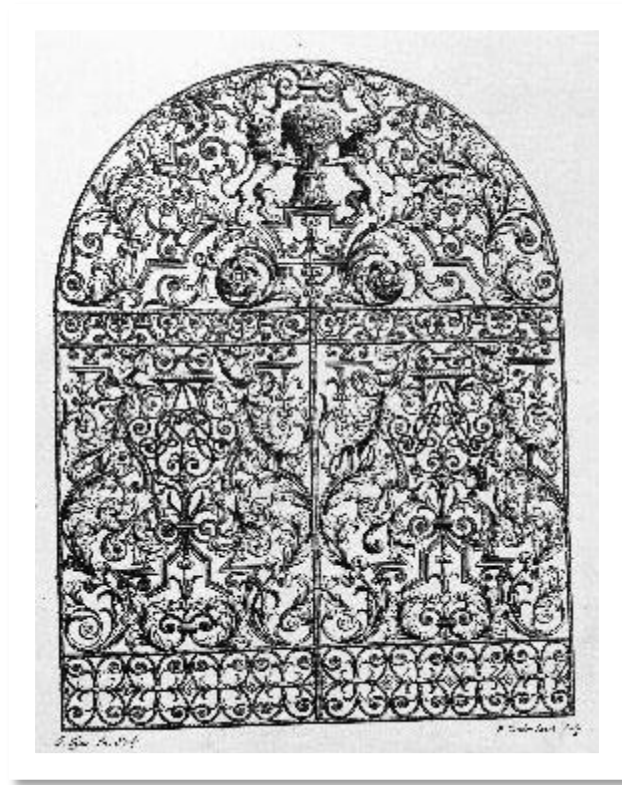
## PLATE 37

Ornament print, design for iron gate

Nicolas Guérard

c.1709-13

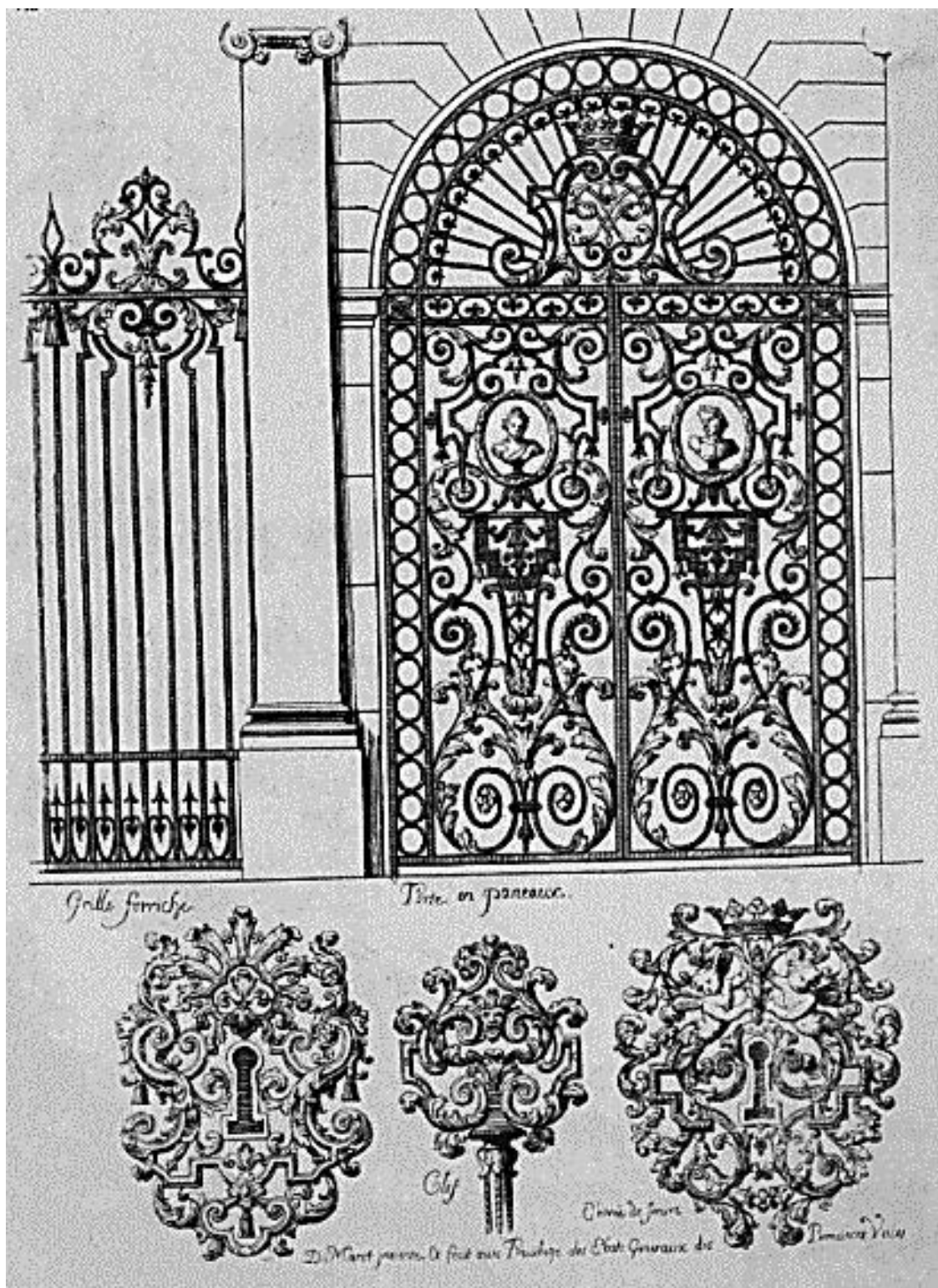




## PLATE 38

Wrought iron gates to the west front  
Burghley House, Northamptonshire

Top: Design by Jean Tijou, *New Booke of Drawings*, 1693



## PLATE 39

Ornament print on paper

Design of Gate by Daniel Marot for Het Loo, Holland

c.1690





## **PLATE 40**

Wrought iron gate to garden consisting of two panels

Het Loo, Holland

Designed by Daniel Marot

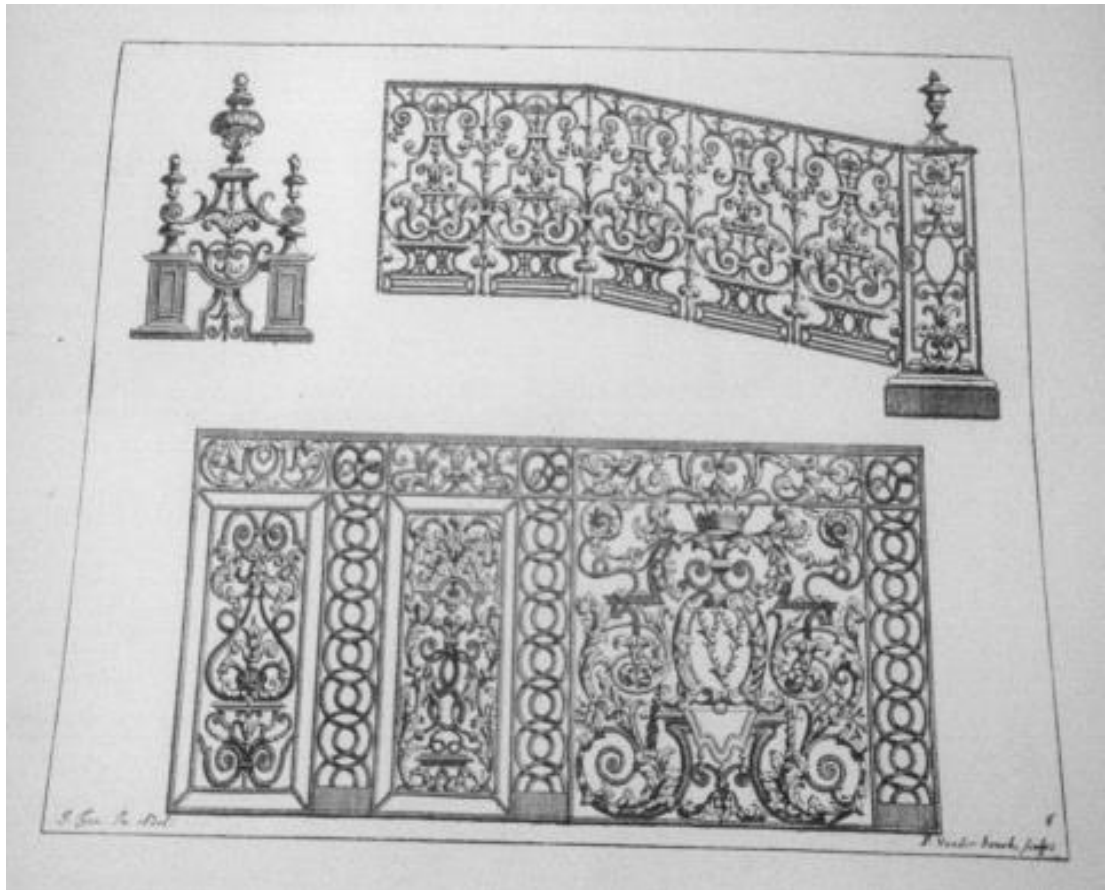
Late 17<sup>th</sup> century/early 18<sup>th</sup> century



## **PLATE 41**

Chatsworth House, Derbyshire,  
Balcony to west gardens  
c.1690  
Jean Tijou.





## PLATE 42

Ornament prints, designs for iron

*New Booke of Drawings*, Jean Tijou, Detail from Plate Six

1693



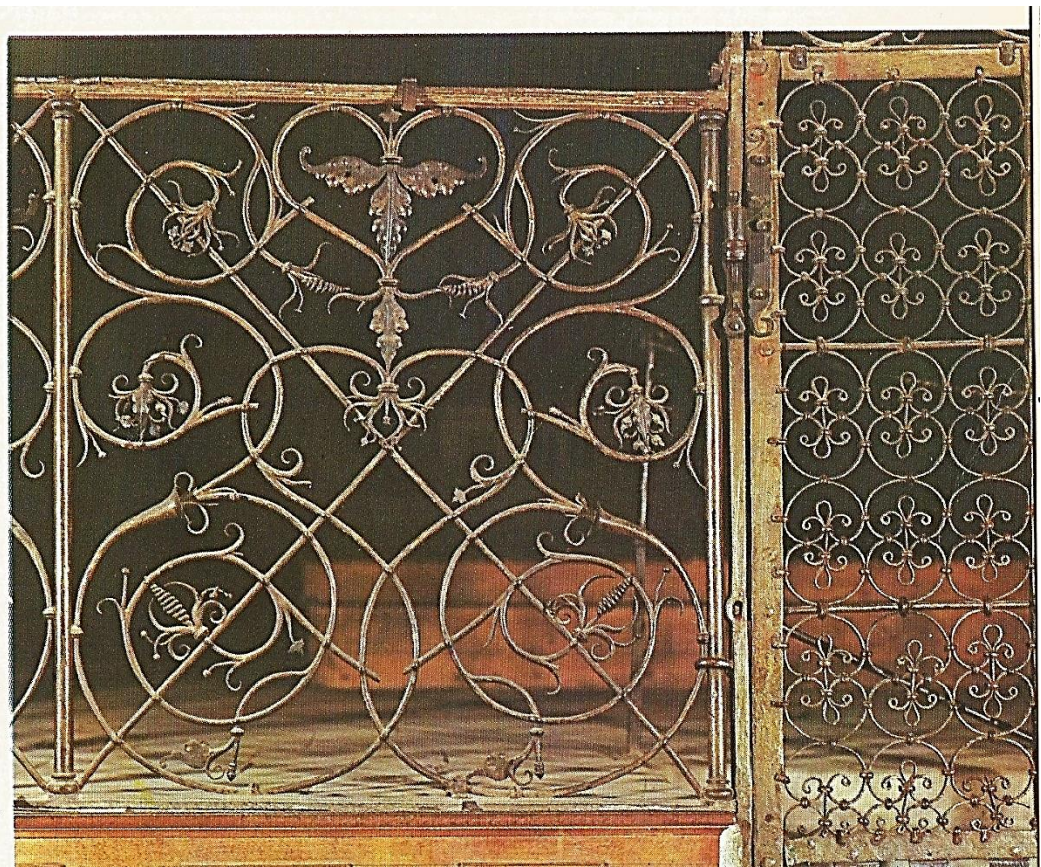
## PLATE 43

Wrought iron gates in style of Louis XIII period

*Porte de la Nymphée*, Setting at Châteaux de Wideville (left)

c.1650

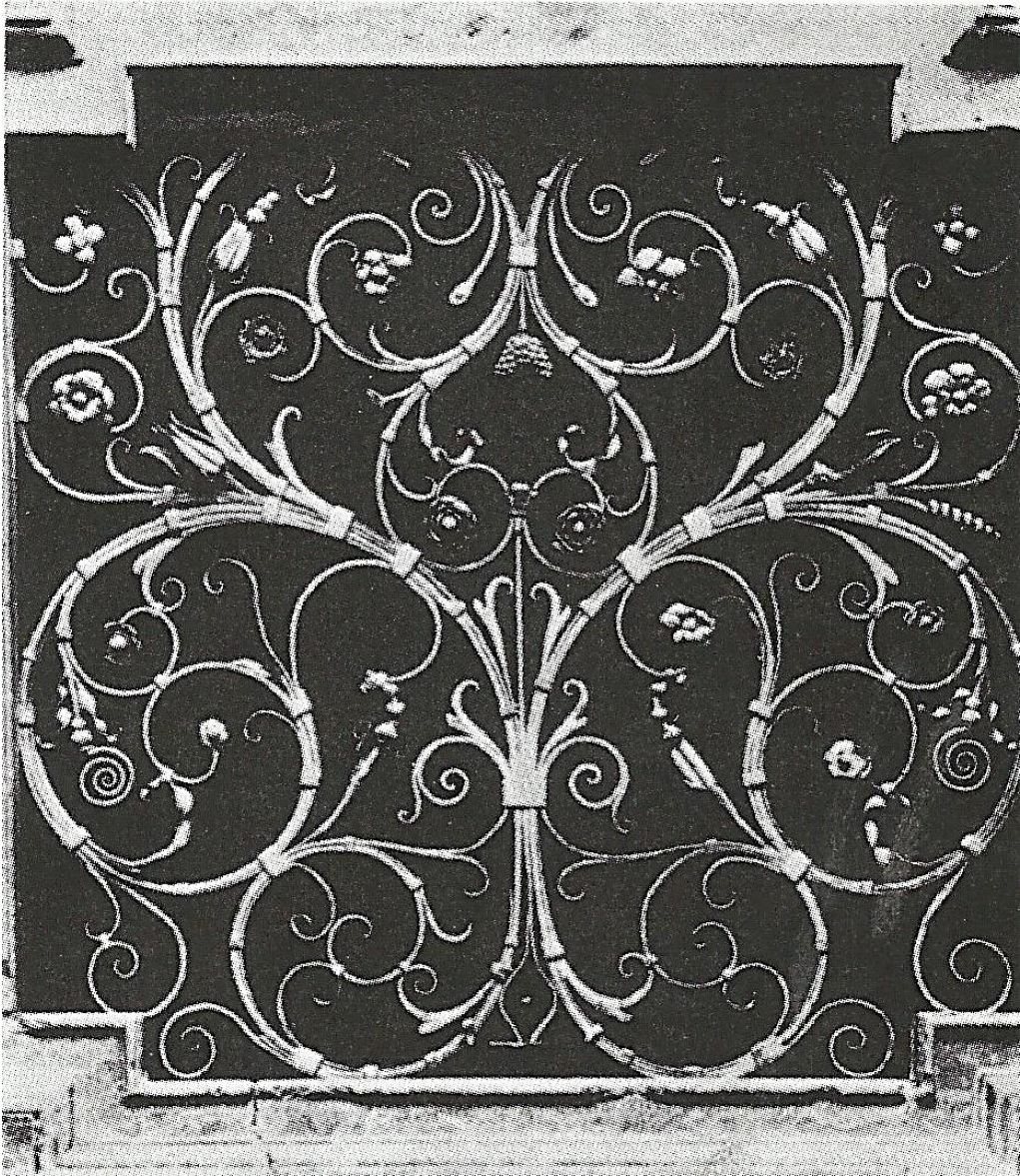




## **PLATE 44**

Wrought iron gates and adjoining panel  
Augsburg Cathedral, Austria  
16<sup>th</sup> Century





## **PLATE 45**

Wrought iron grille  
Chapel, Arona, Lago Maggiore  
17th century





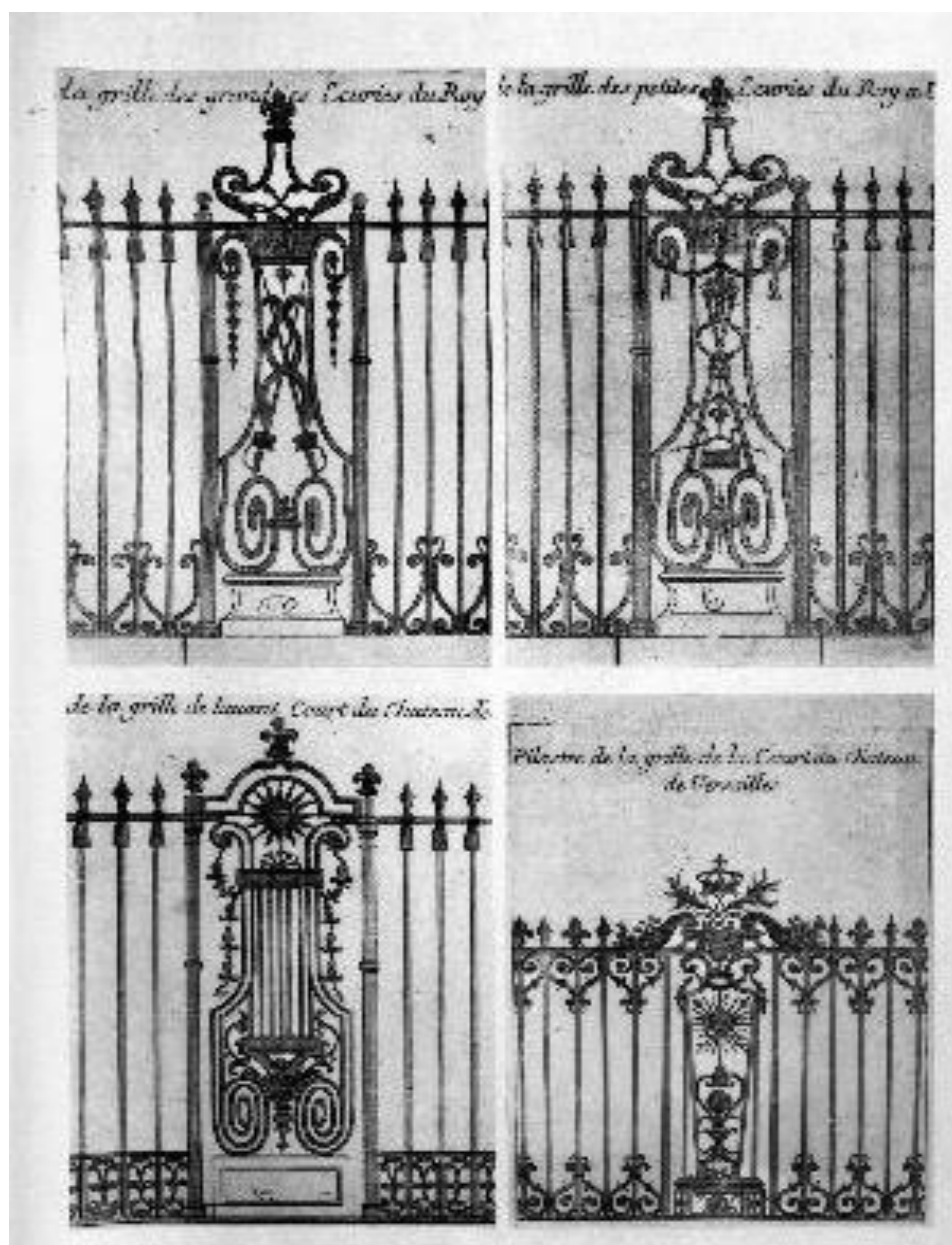
## Plate 46

Ornament prints on paper

Paul Androuet du Cerceau (1623-1710), V&A 23106:9

Top: One of four plates including title plate from a series of ten designs for panels of ornament for painters, sculptors, goldsmiths. “ “

Below: VAM: E.2481-1912. “Le Second Livre de Divers Ornemens de feuillages en forme de Panneaux a L'Usage de Ceux qui exercent le Dessin”



## PLATE 47

Ornament Print, designs for iron depicting lyre shaped pilasters

Jean Le Blond

1703



## PLATE 48

Ornament print, design for iron

Hugues Brisville

1662/3

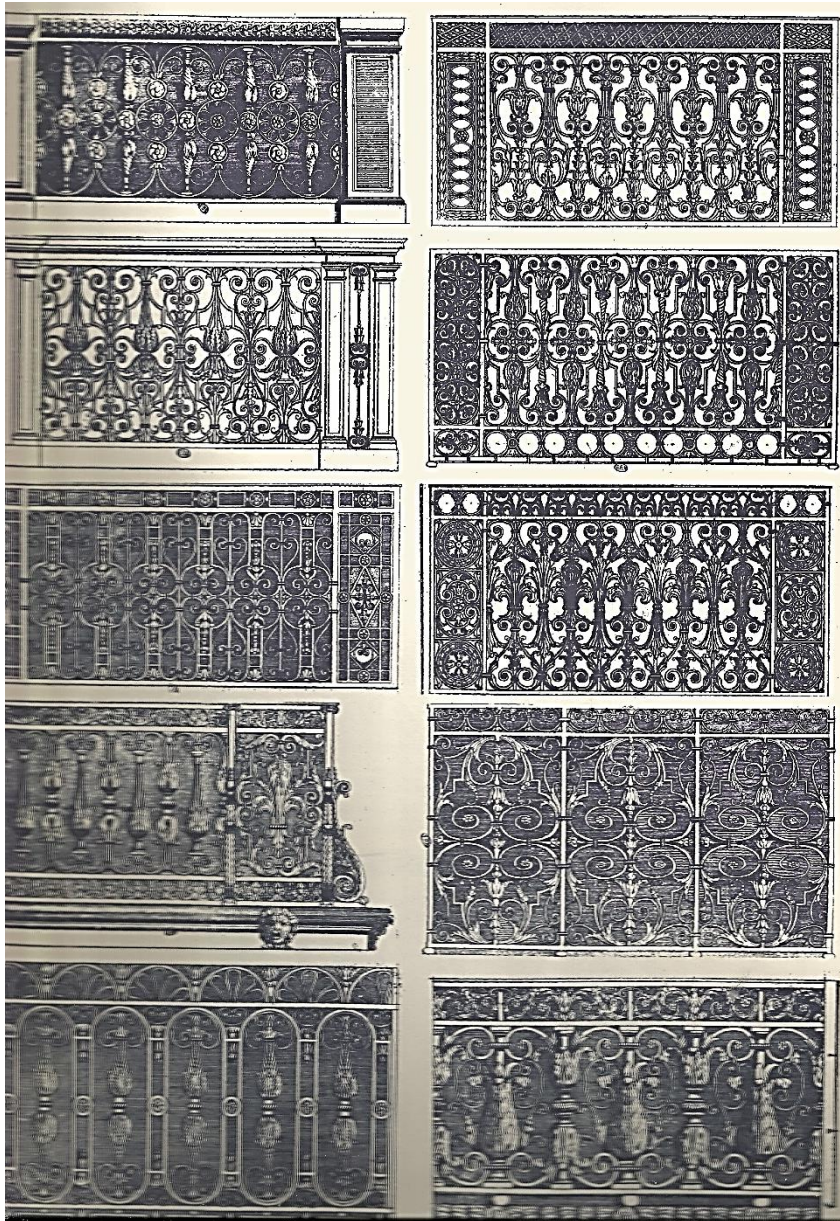




## PLATE 49

Ornament print, design for iron  
 Pierre Gautier  
 1685



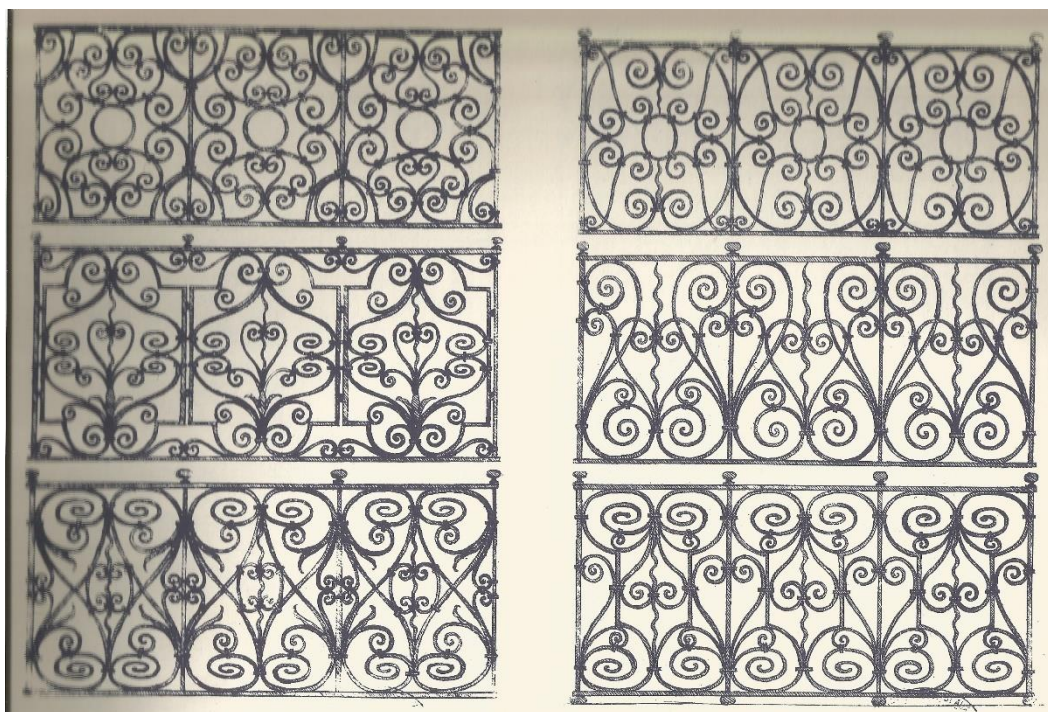


## PLATE 50

Ornament print, designs for iron railings

Jean Marot

“*Serrurerie*”, published 1660-1679



## PLATE 51

Ornament print, design for iron

Pierretz Le Jeune

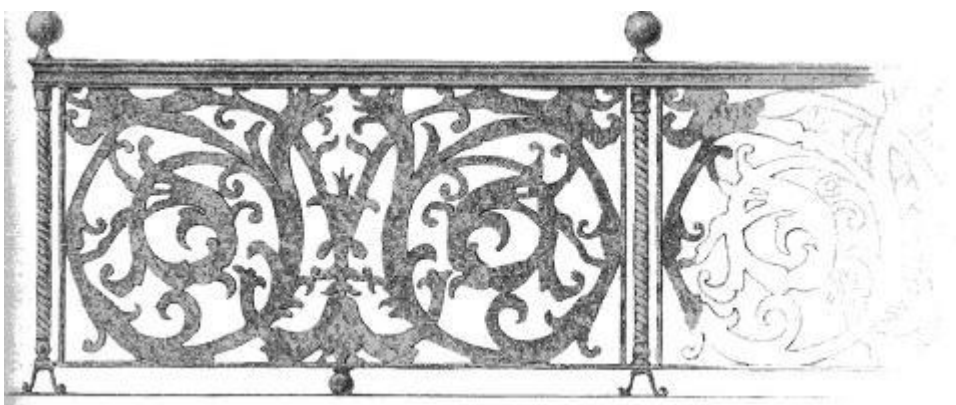
c.1660-1666





## **PLATE 52**

Wrought iron staircase  
Caroline Park, Midlothian, Scotland  
c.1685

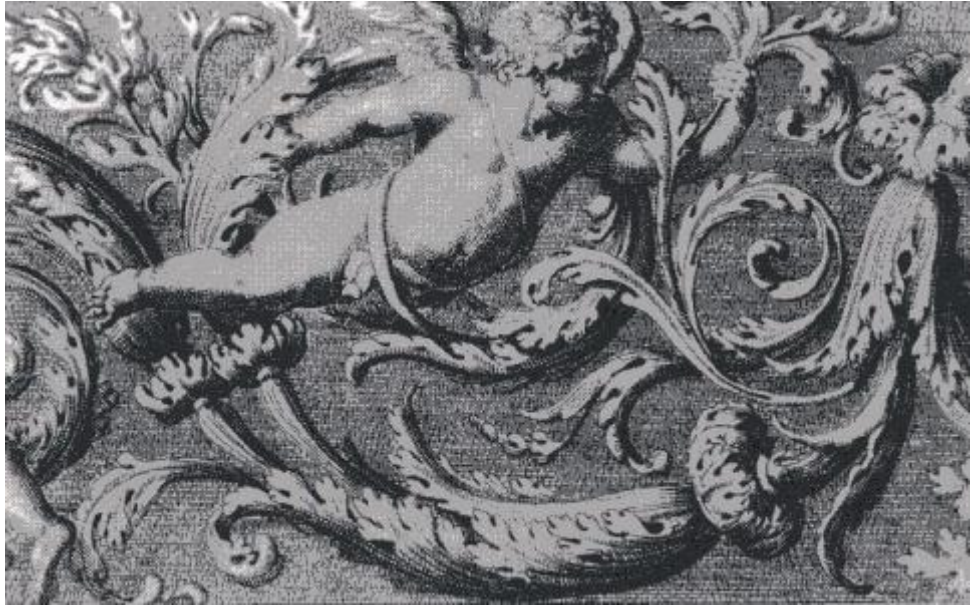


## PLATE 53

Top: Design for wrought and carved iron balustrade, Thorpe Hall, Northamptonshire, c.1665

Below: Wrought iron staircase, Caroline Park, Midlothian, Scotland c.1685





## PLATE 54

Top: Jean Le Pautre (1618-82), engraving of acanthus frieze

Below: Sudbury Hall, Derbyshire

Carved wooden staircase

Edward Pierce, the Younger

c.1676



## **PLATE 55**

Carved Wooden Staircase  
Dunster Castle, Somerset  
c.1683-4

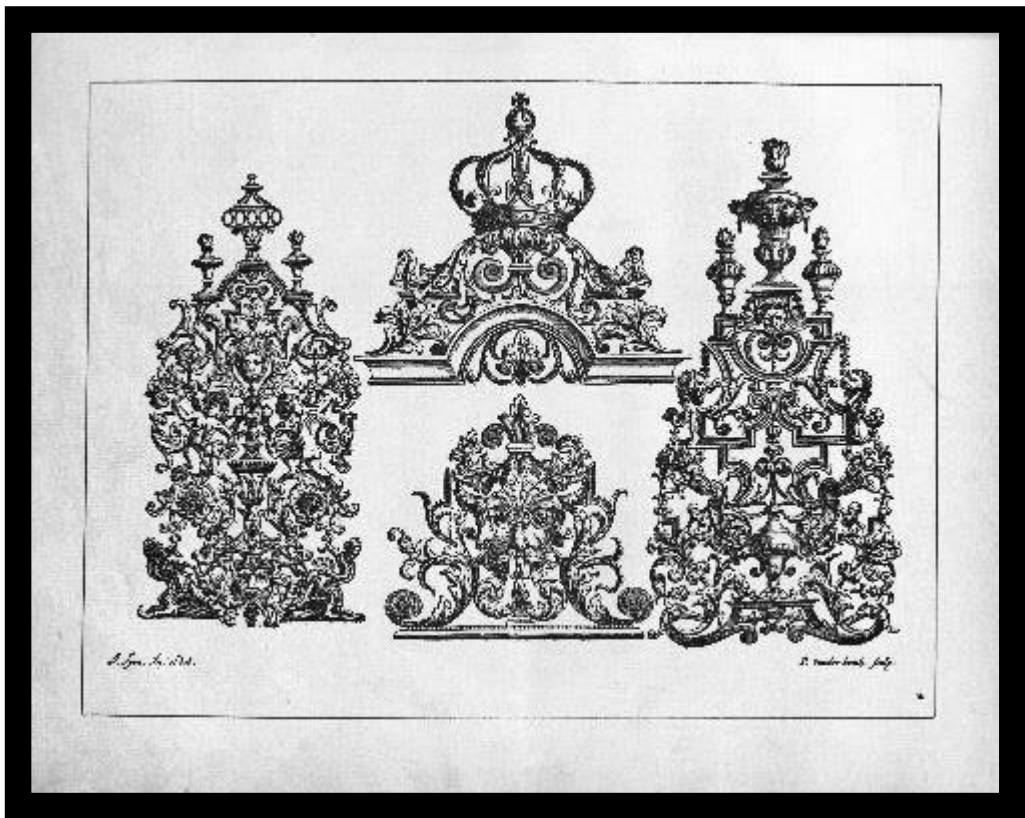


## PLATE 56

*New Booke of Drawings*, Frontispiece

Jean Tijou

1693



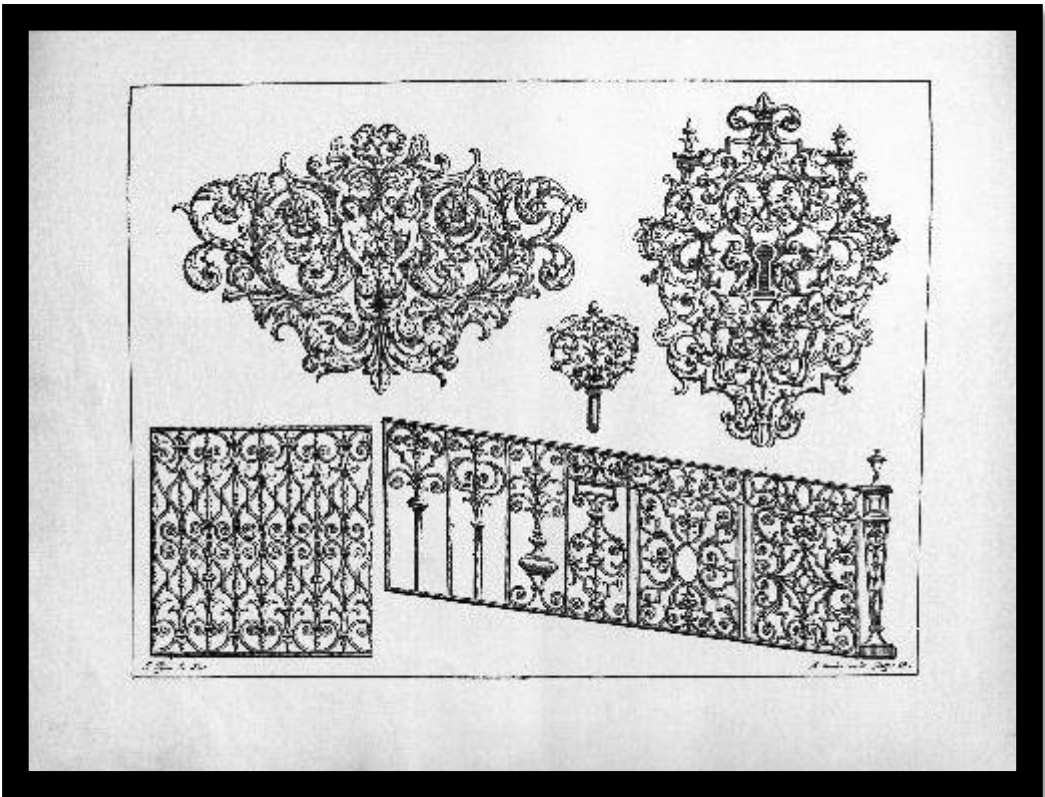
## PLATE 57

*New Booke of Drawings*, Plate 2

Jean Tijou

1693



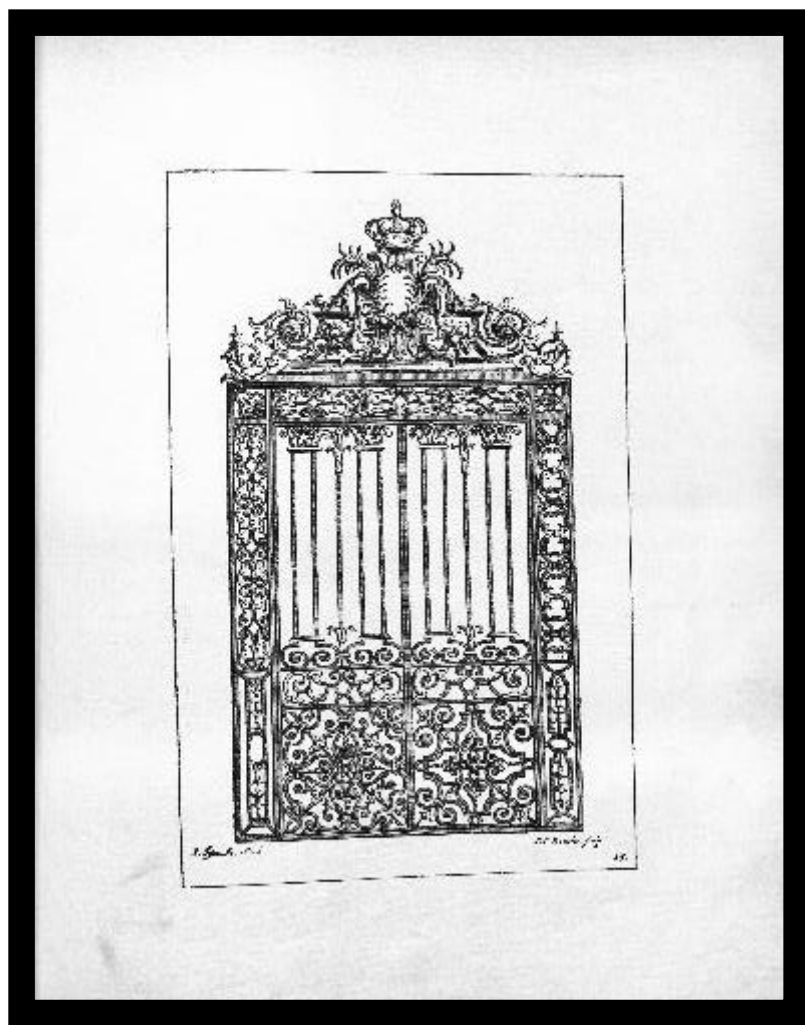


## PLATE 58

*New Booke of Drawings*, Plate 3

Jean Tijou

1693



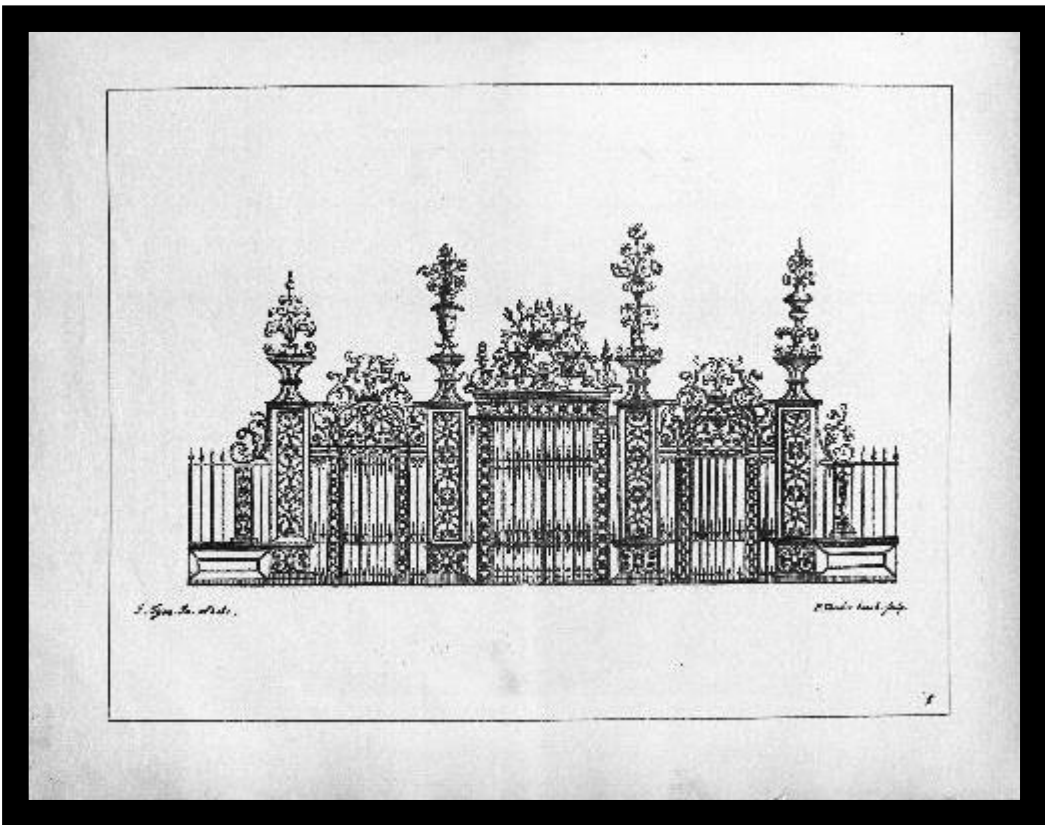
## PLATE 59

*New Booke of Drawings*, Plate 4

Jean Tijou

1693



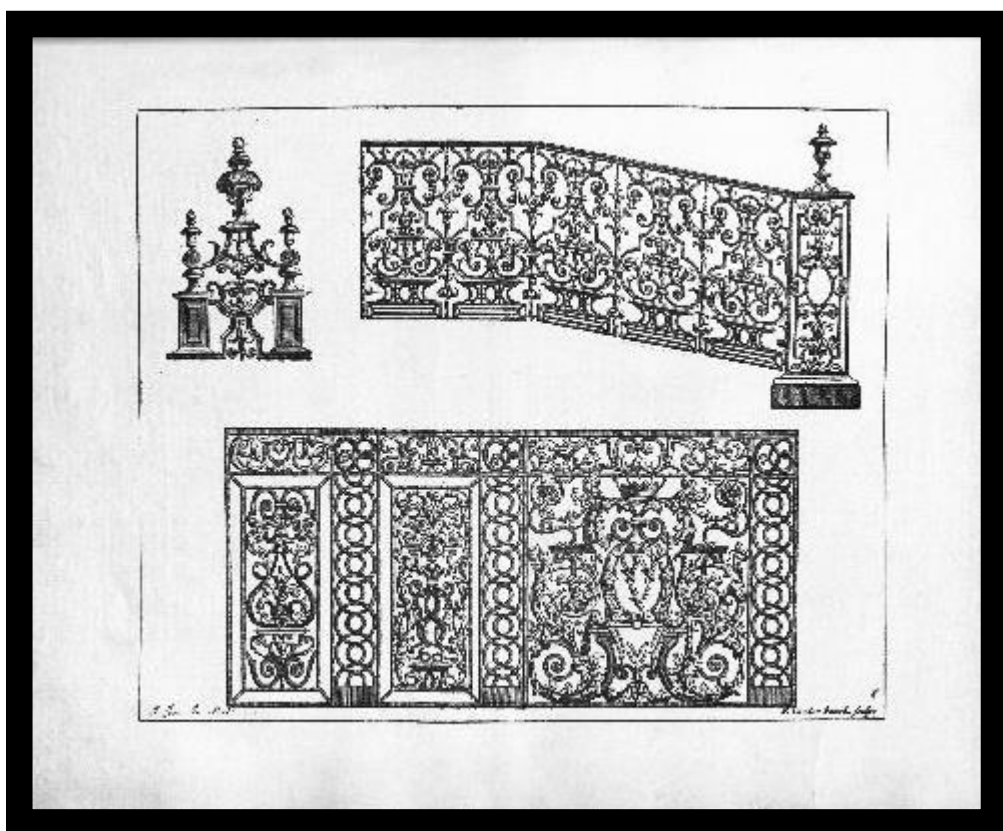


## PLATE 60

*New Booke of Drawings, Plate 5*

Jean Tijou

1693

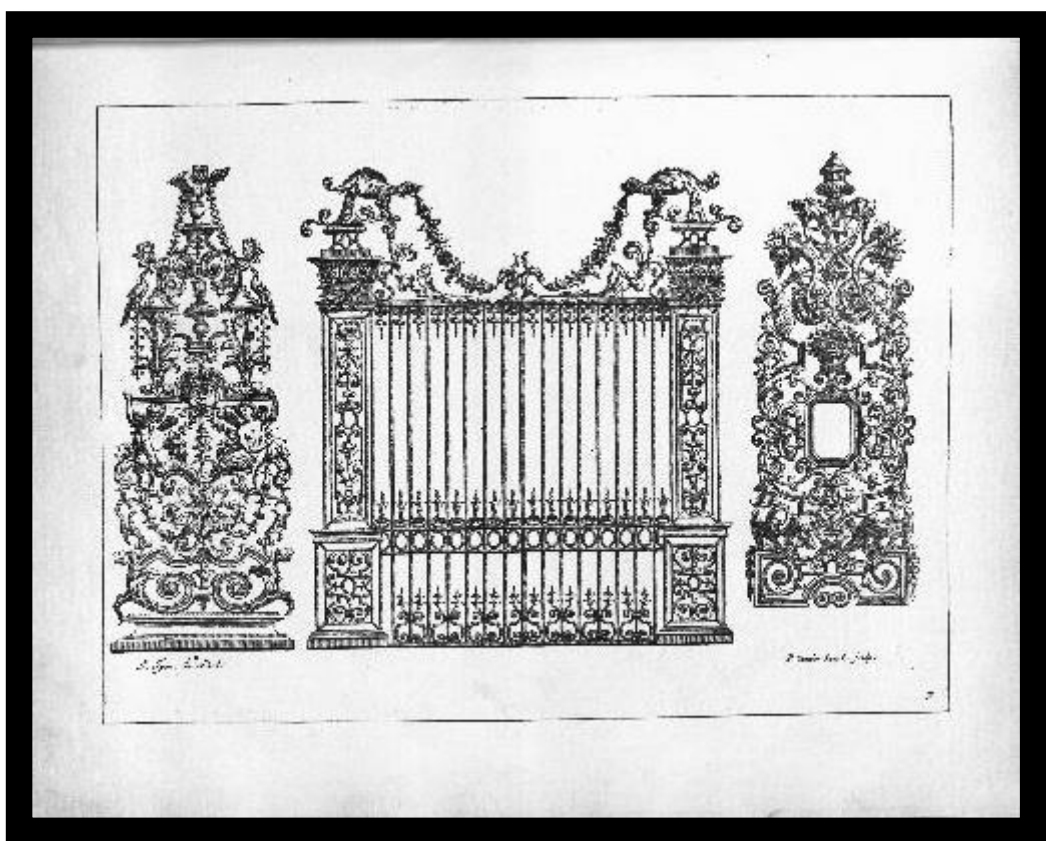


## PLATE 61

*New Booke of Drawings, Plate 6*

Jean Tijou

1693

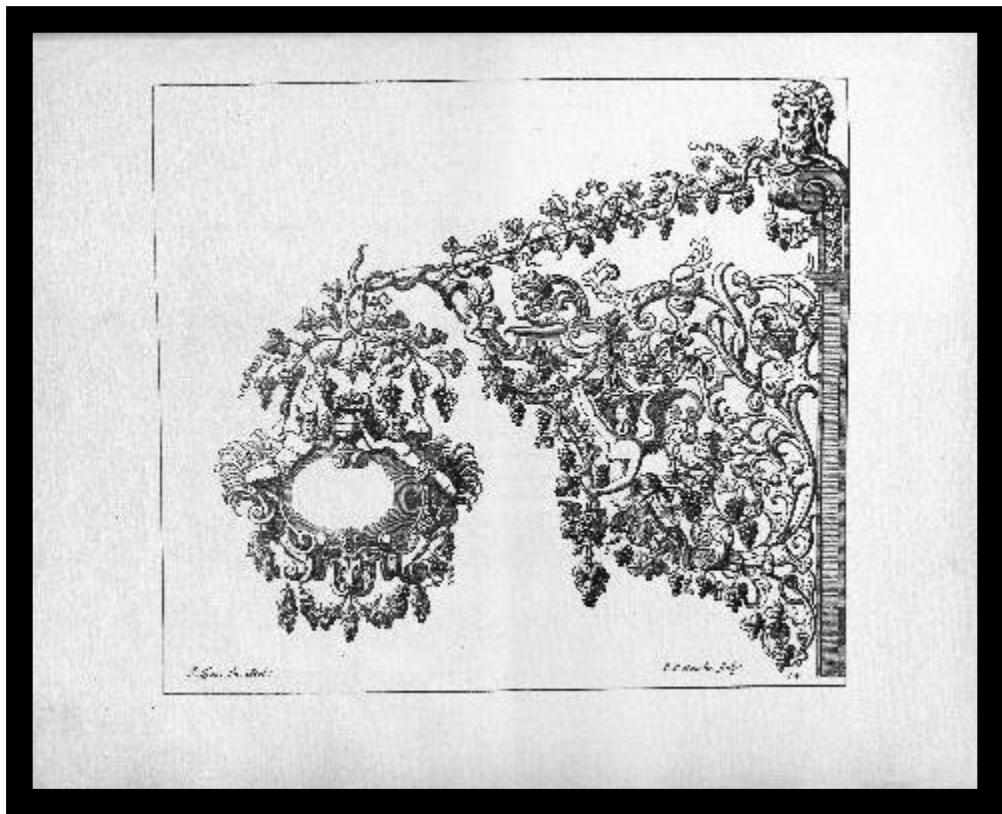


## PLATE 62

*New Booke of Drawings, Plate 7*

Jean Tijou

1693

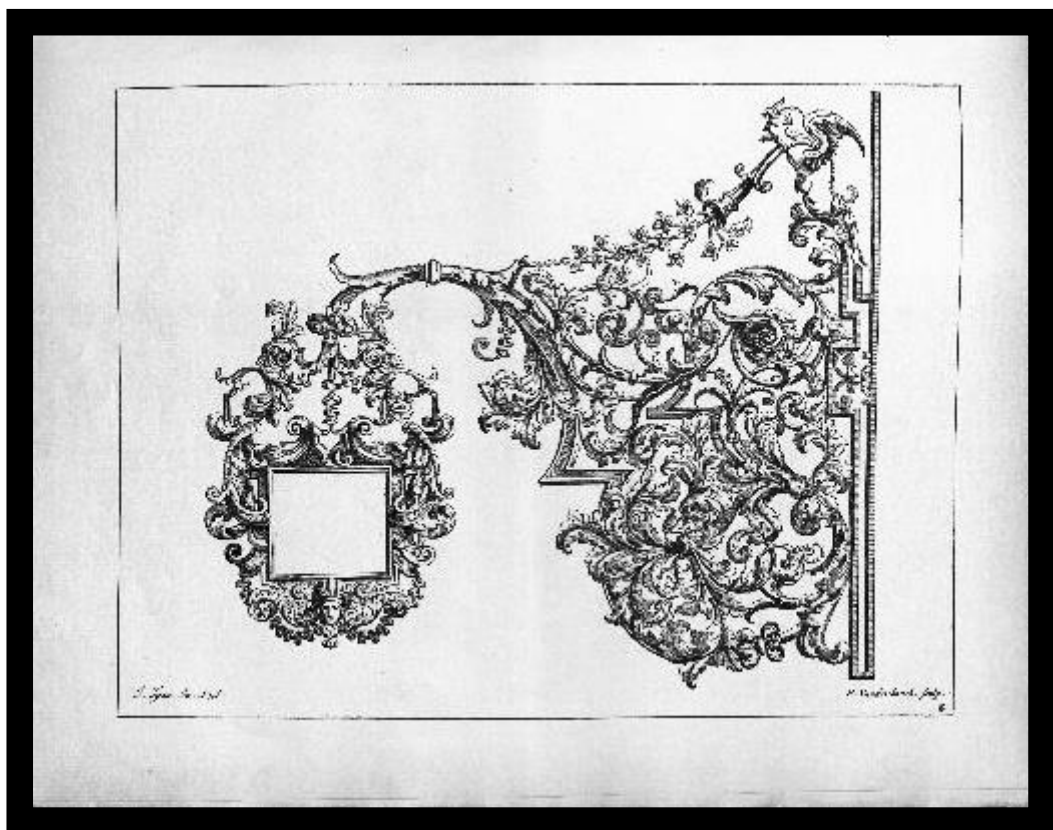


## PLATE 63

*New Booke of Drawings*, Plate 8

Jean Tijou

1693

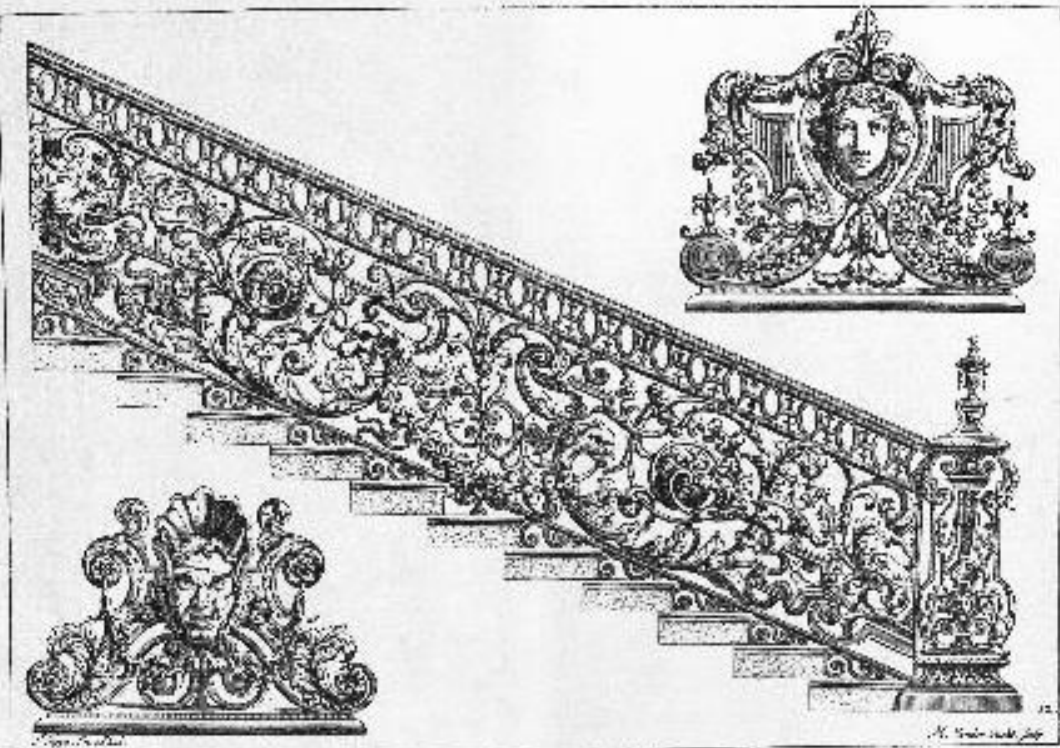


## PLATE 64

*New Booke of Drawings*, Plate 9

Jean Tijou

1693

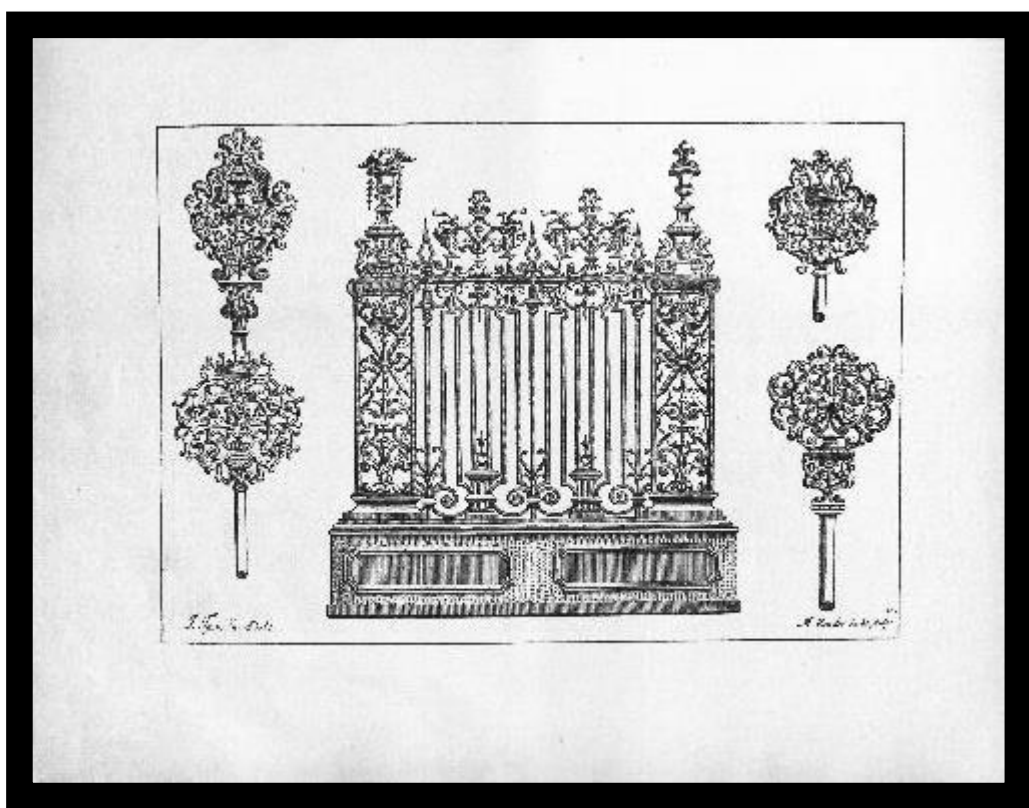


## PLATE 65

*New Booke of Drawings*, Plate 10

Jean Tijou

1693

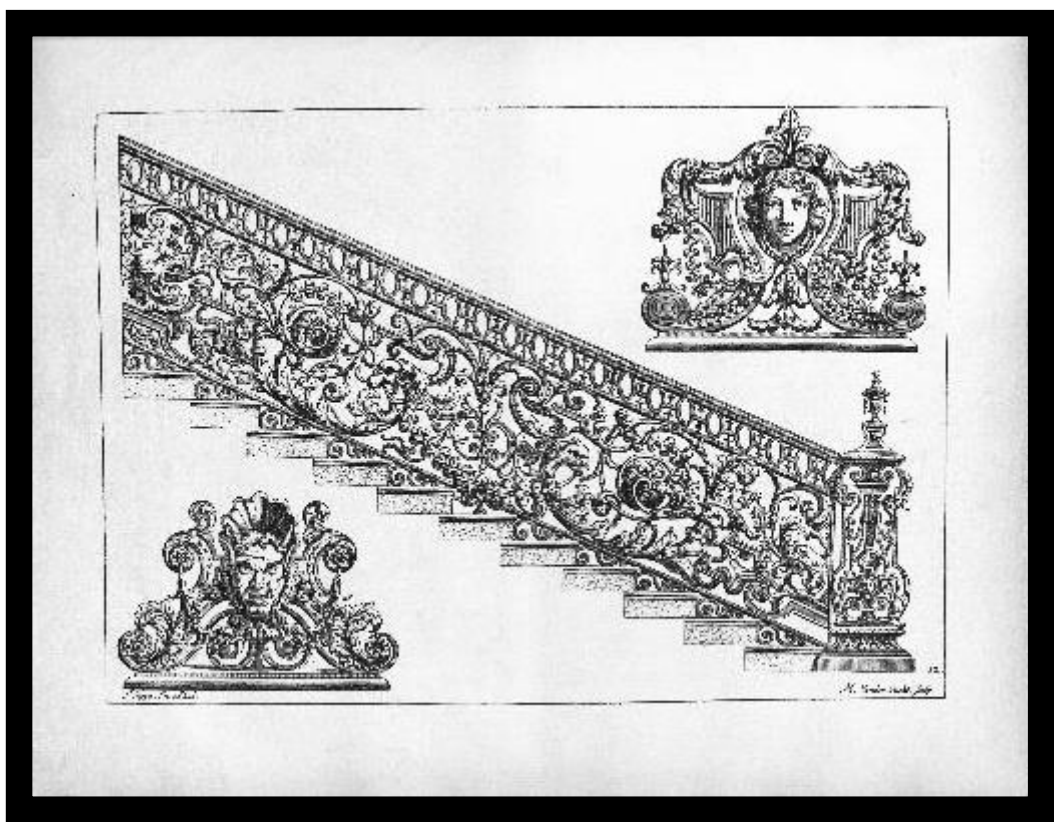


## PLATE 66

*New Booke of Drawings, Plate 11*

Jean Tijou

1693



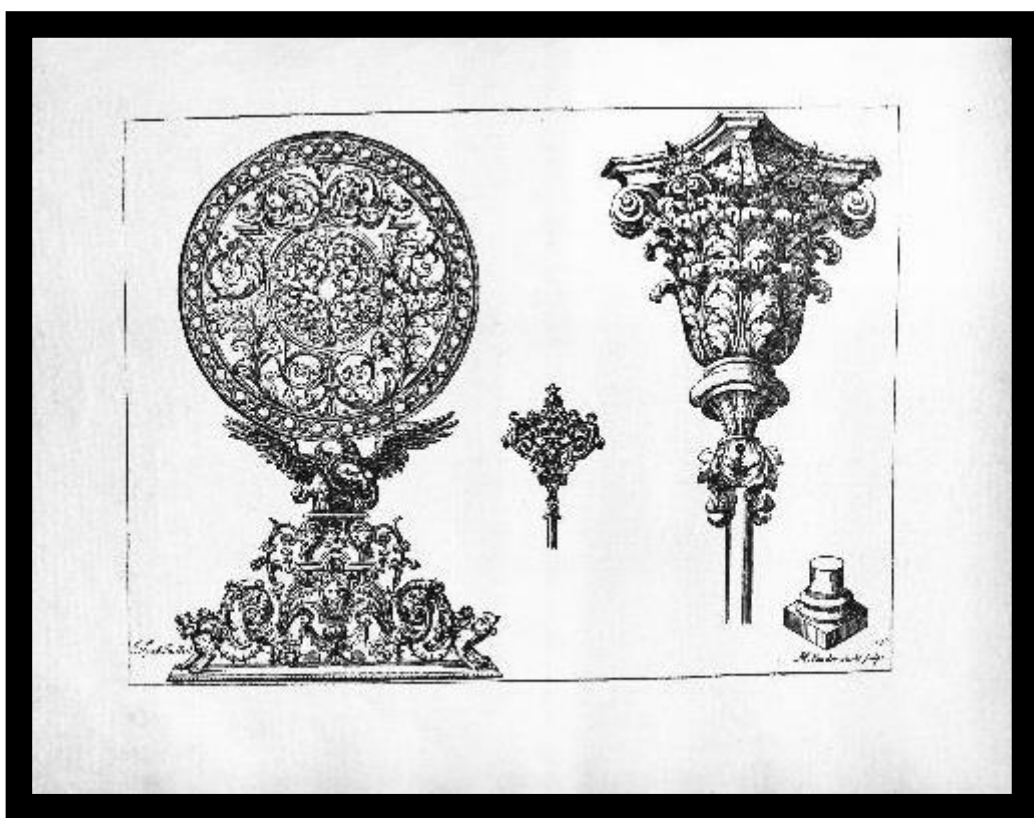
## PLATE 67

*New Booke of Drawings*, Plate 12

Jean Tijou

1693



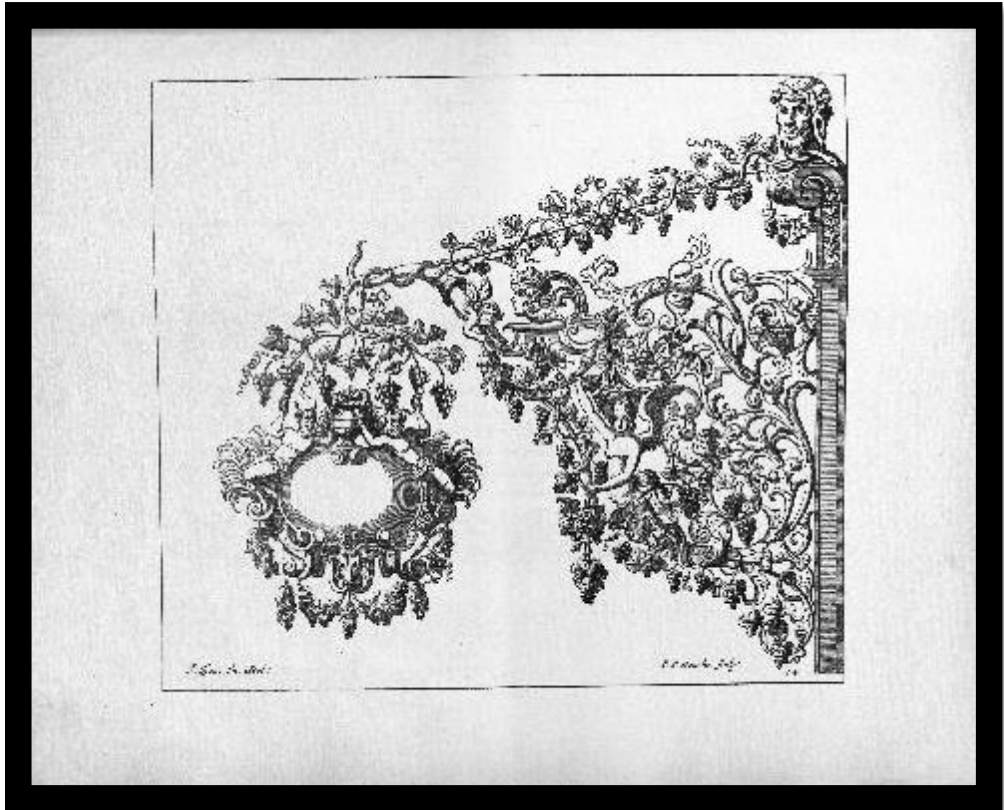


## PLATE 68

*New Booke of Drawings*, Plate 13

Jean Tijou

1693

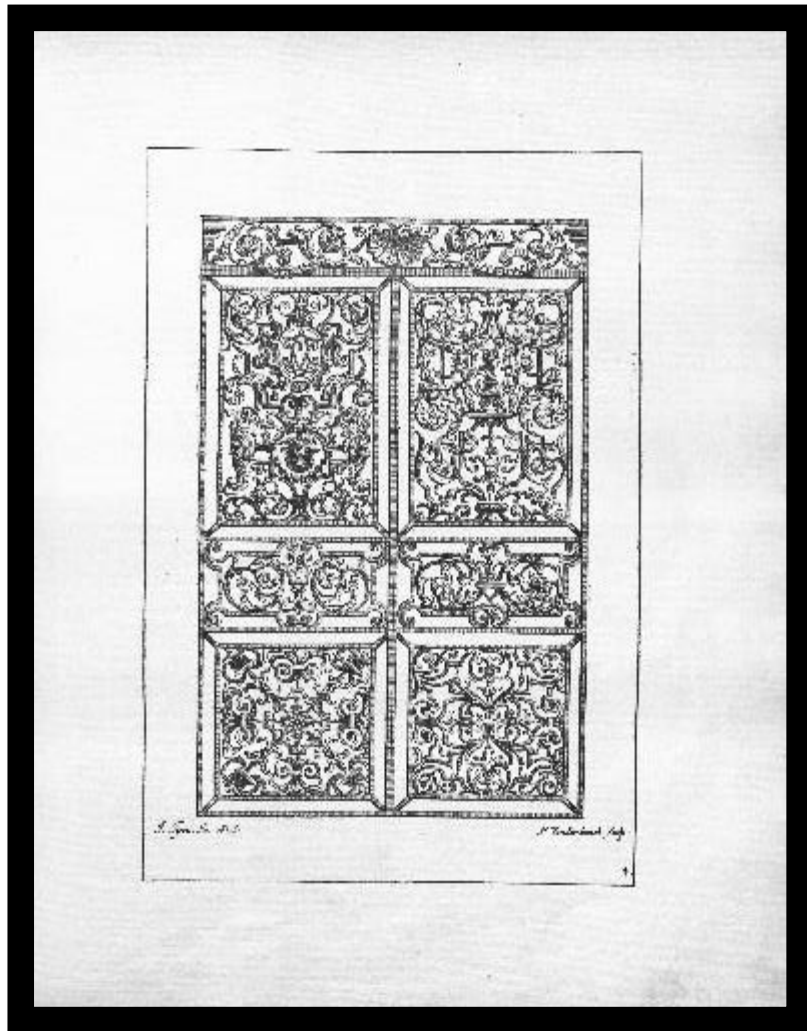


## PLATE 69

*New Booke of Drawings*, Plate 14

Jean Tijou

1693

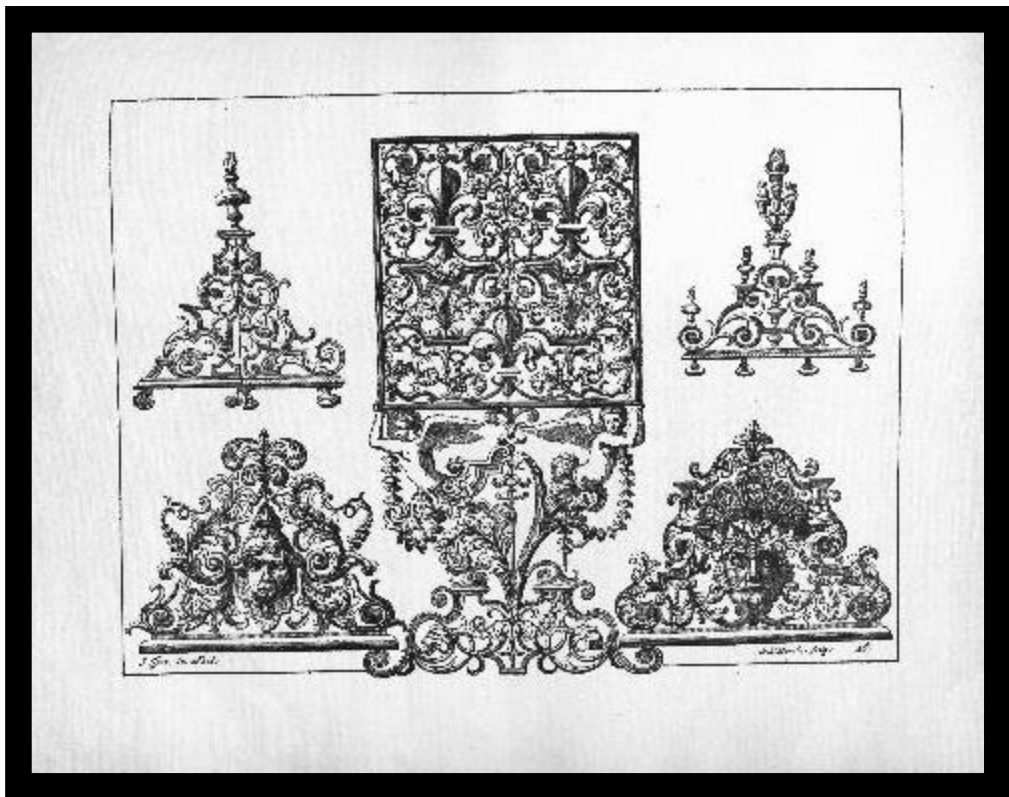


## PLATE 70

*New Booke of Drawings*, Plate 15

Jean Tijou

1693

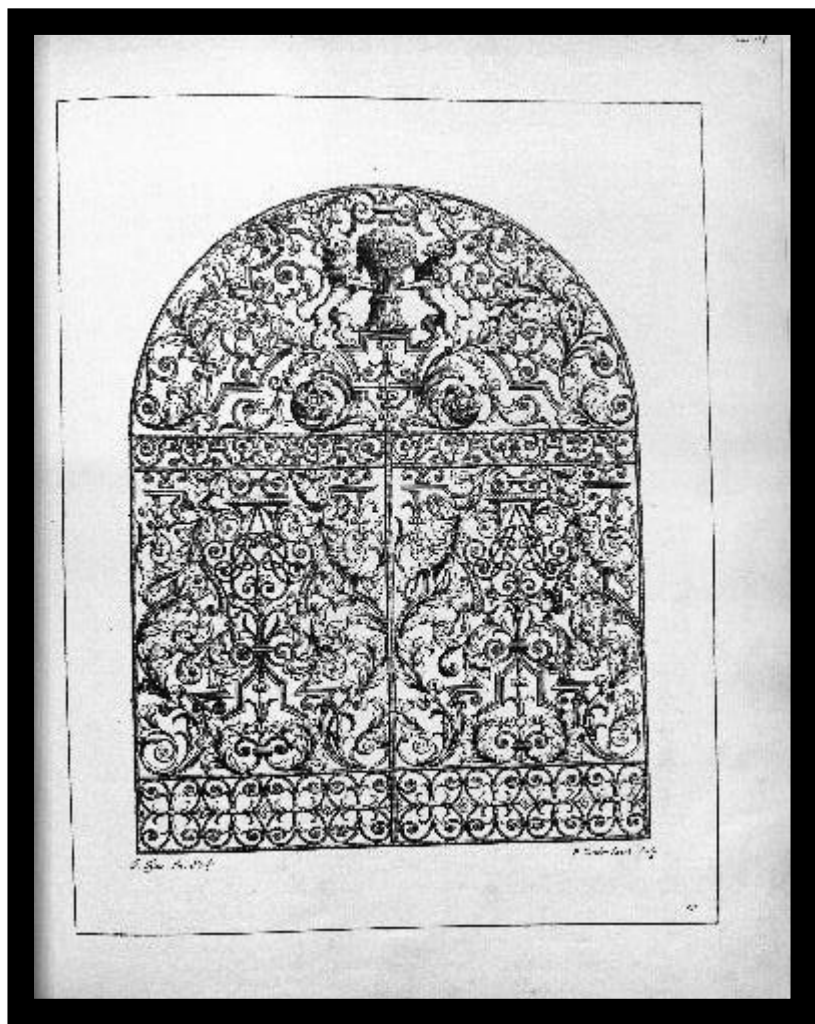


## PLATE 71

*New Booke of Drawings*, Plate 16

Jean Tijou

1693

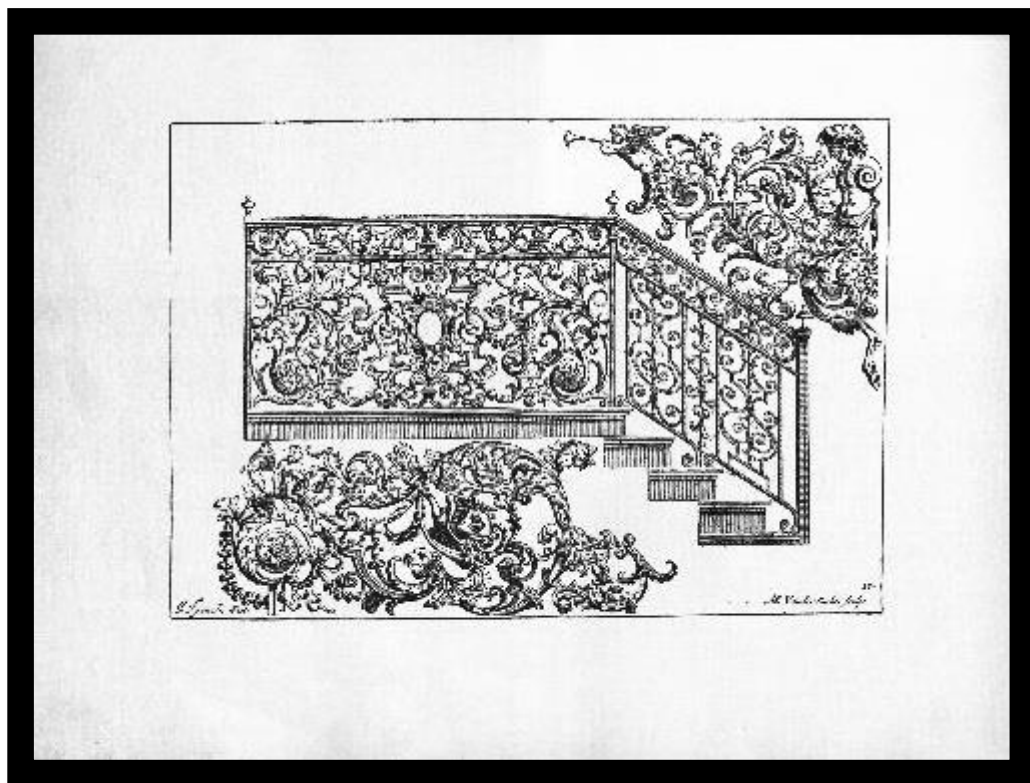


## PLATE 72

*New Booke of Drawings*, Plate 17

Jean Tijou

1693

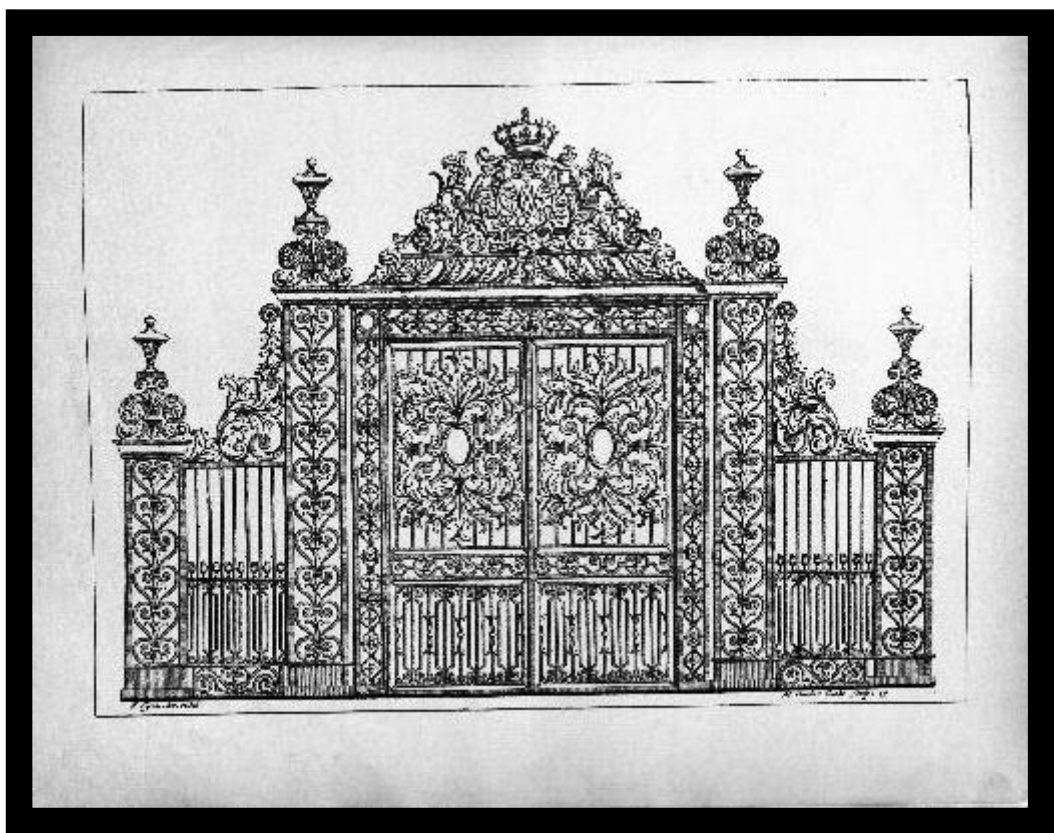


## PLATE 73

*New Booke of Drawings*, Plate 18

Jean Tijou

1693

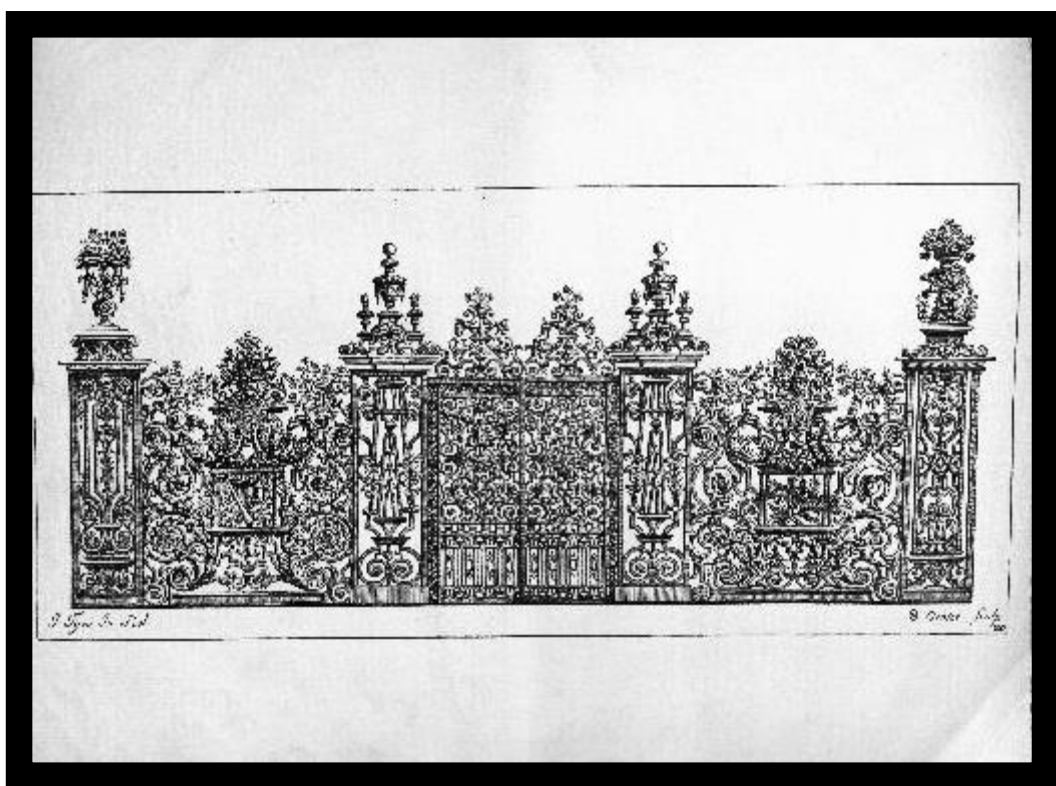


## PLATE 74

*New Booke of Drawings*, Plate 19

Jean Tijou

1693



## PLATE 75

*New Booke of Drawings, Plate 20*

Jean Tijou

1693





## Plate 76

Ornament print on paper

Paul Androuet du Cerceau (VAM: 23106:9)

Printed and published c.1670-85

Below:

Paul Androuet du Cerceau (VAM: E.2481 1912)

Printed and published c.1670-93



## **PLATE 77**

Hampton Court Palace, Fountain Court Screen

Detail of floral garlands

Jean Tijou

c.1690





## PLATE 78

Ornament print on paper, (VAM: E.1098 1908)

Jacques Boyceau (After, Designer)

Poilly, François de (Publisher)

1640-1660



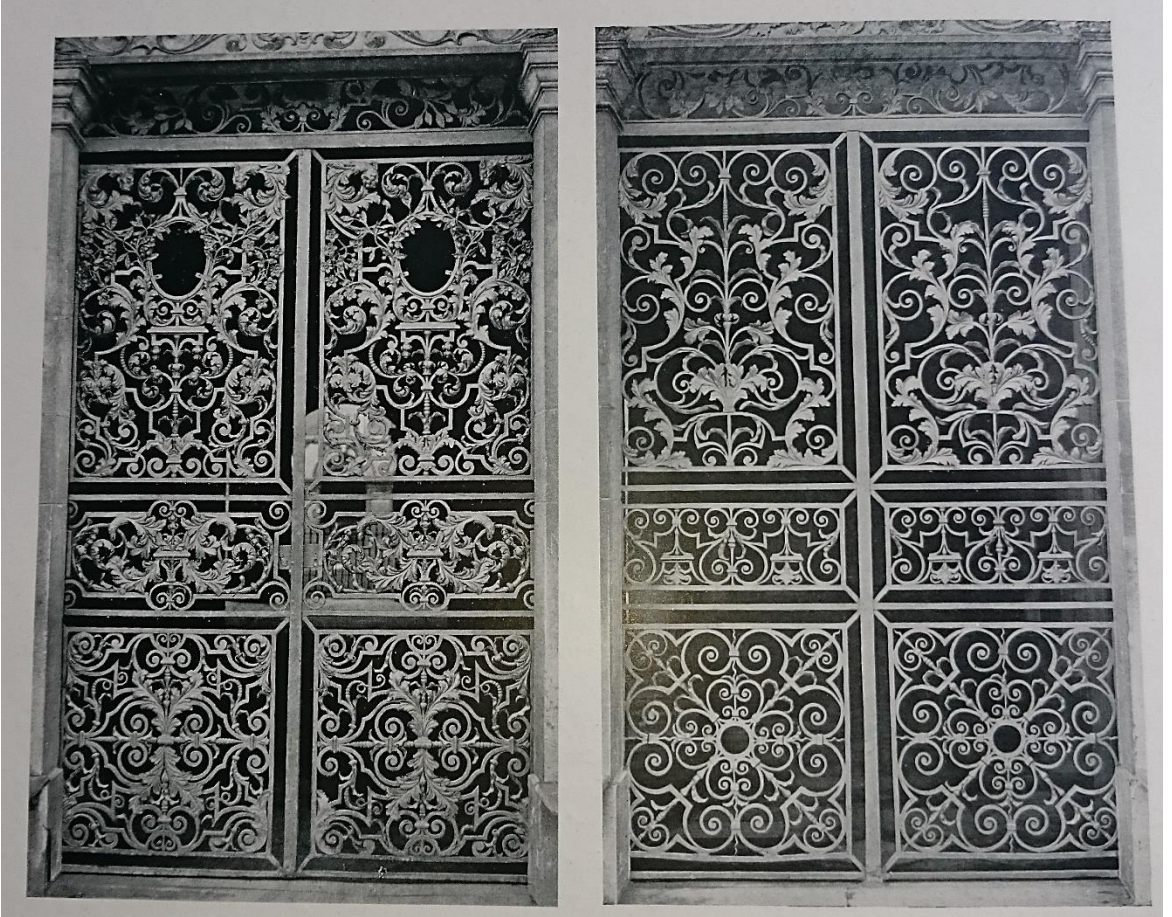
## **PLATE 79**

Hampton Court Palace, east front vestibule

Wrought iron gates

Jean Tijou

1694-1698



## PLATE 80

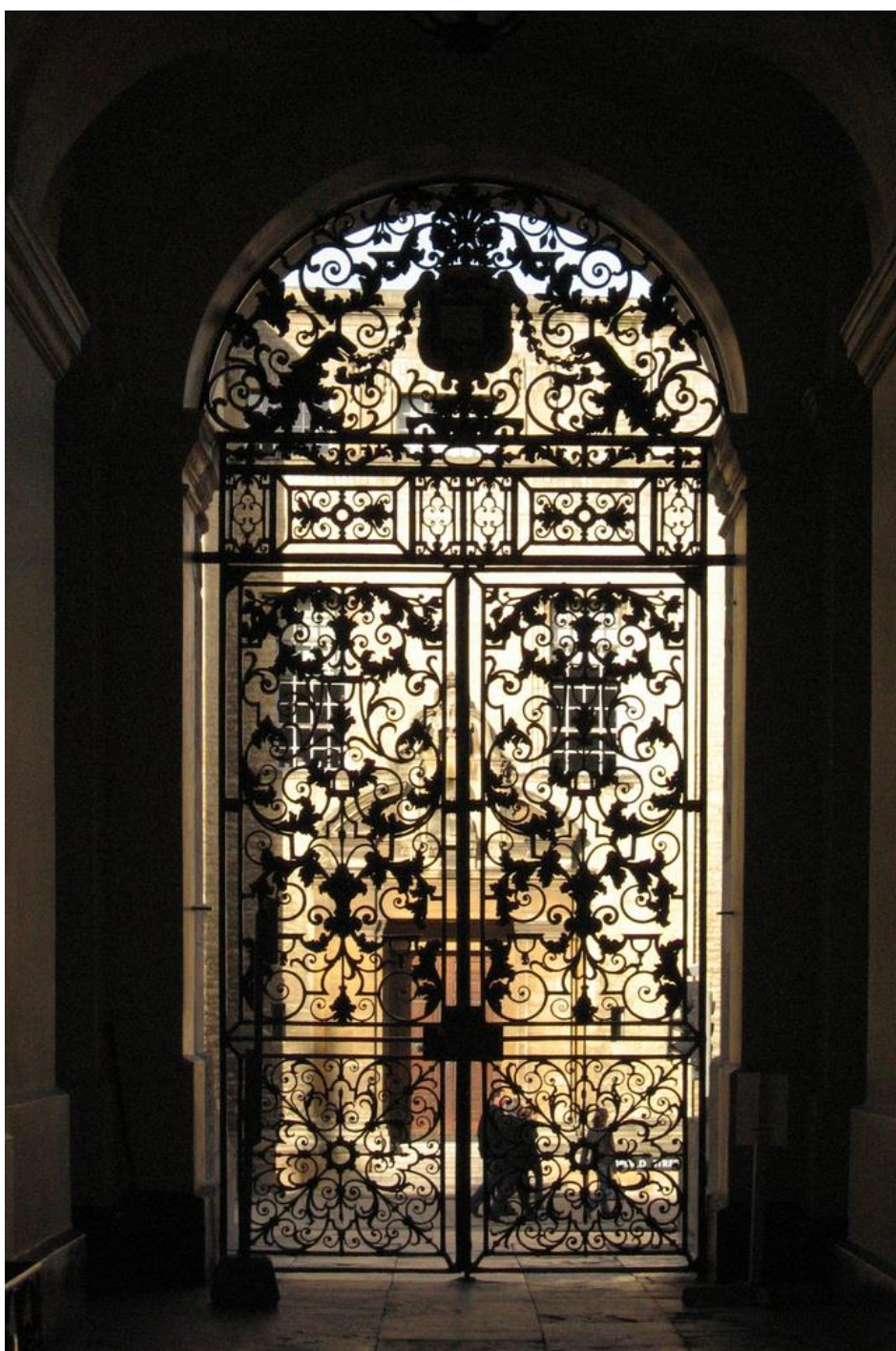
Hampton Court Palace, east front vestibule

Wrought iron gates, centre gate (left), side gate (right)

Jean Tijou

1694-1698

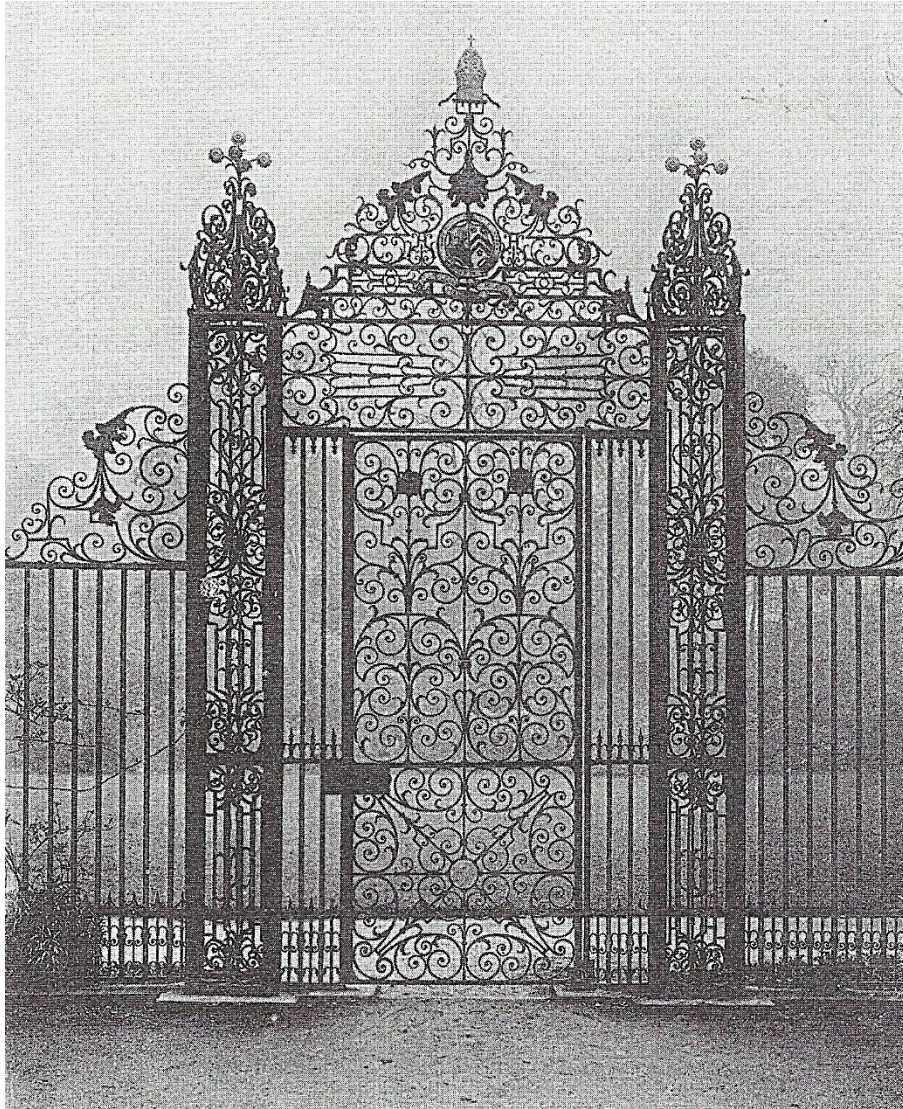




## **PLATE 81**

Wrought iron gates  
Clarendon Building, Oxford  
Richard Booth  
1715





## PLATE 82

New College, Oxford

Thomas Robinson

Wrought iron gates and railing/screen

1711

(The top photo illustrates the adjoining screen and context of the setting)





## PLATE 83

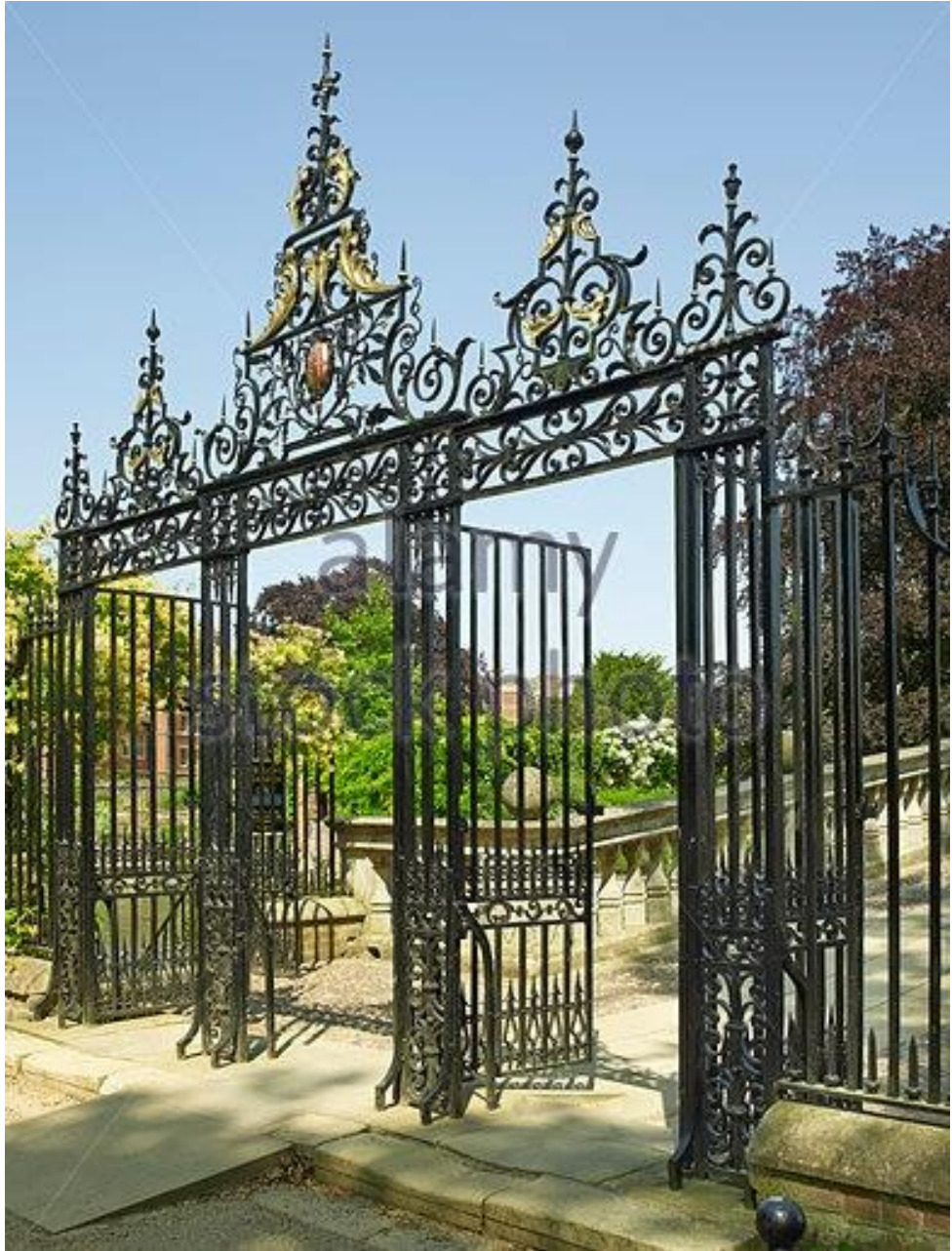
Drayton House, Northamptonshire

Wrought iron, entrance to the bowling green

Jean Tijou

1702-3





## **PLATE 84**

Clare College, Cambridge

Wrought iron gates at the bridge

Thomas Warren

1713



## PLATE 85

Etching on paper

Sacellum Corporis S Norberti Pragae, Questenberg, Strahoven, Abbatia  
c.1690





## **PLATE 86**

Wrought iron screen

Nuremberg

Anon.

c.1690



## PLATE 87

Wrought iron screen (Detail)

Nuremberg

Anon.

c.1690





## PLATE 88

Wrought iron screen

Holy Roman Emperor Maximilian I's Tomb, d.1519

Tomb completed during 1590s

Located at Hofkirche in Innsbruck



## PLATE 89

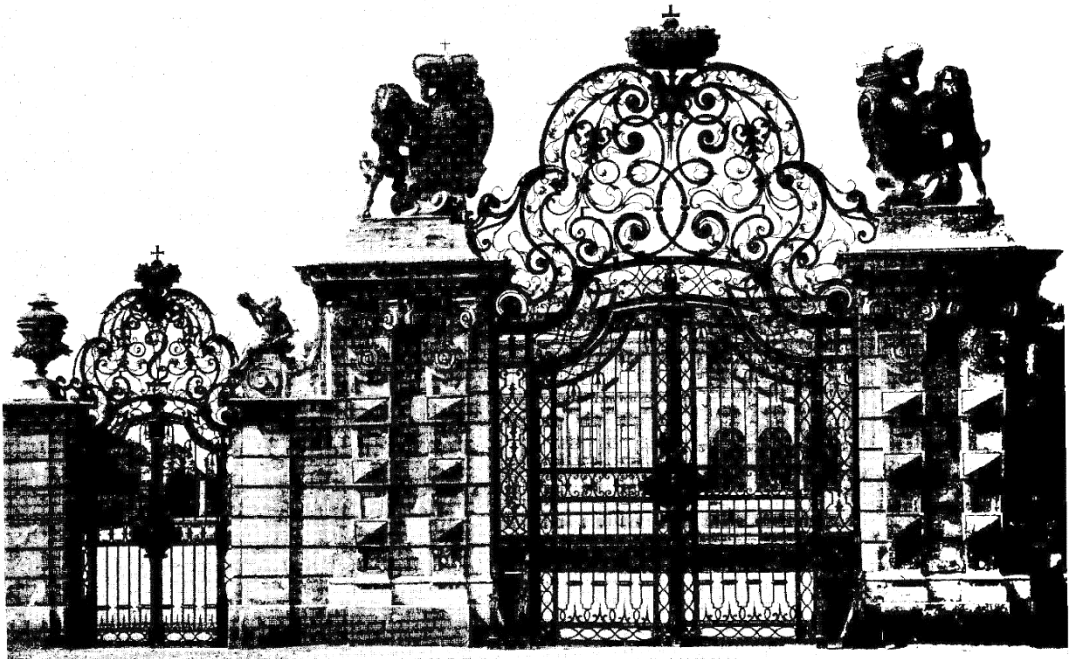
Wrought iron gates and screen

Drayton House, Northamptonshire, gates at the East Avenue

Attributed to Jean Tijou

c.1685



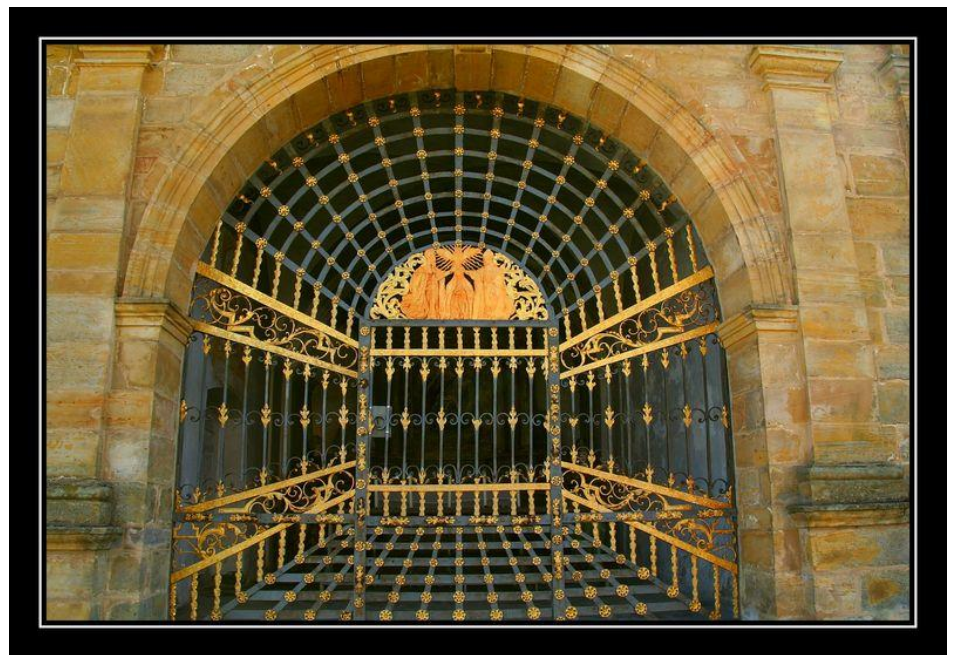


Wrought iron gates  
 Belvedere Palace, Vienna, Austria  
 Lukas von Hildebrandt (1668-1745)  
 c.1720



**PLATE 90**  
 Wrought iron gates  
 Place Stanislaw, Nancy, France  
 Jean Lamour  
 1755

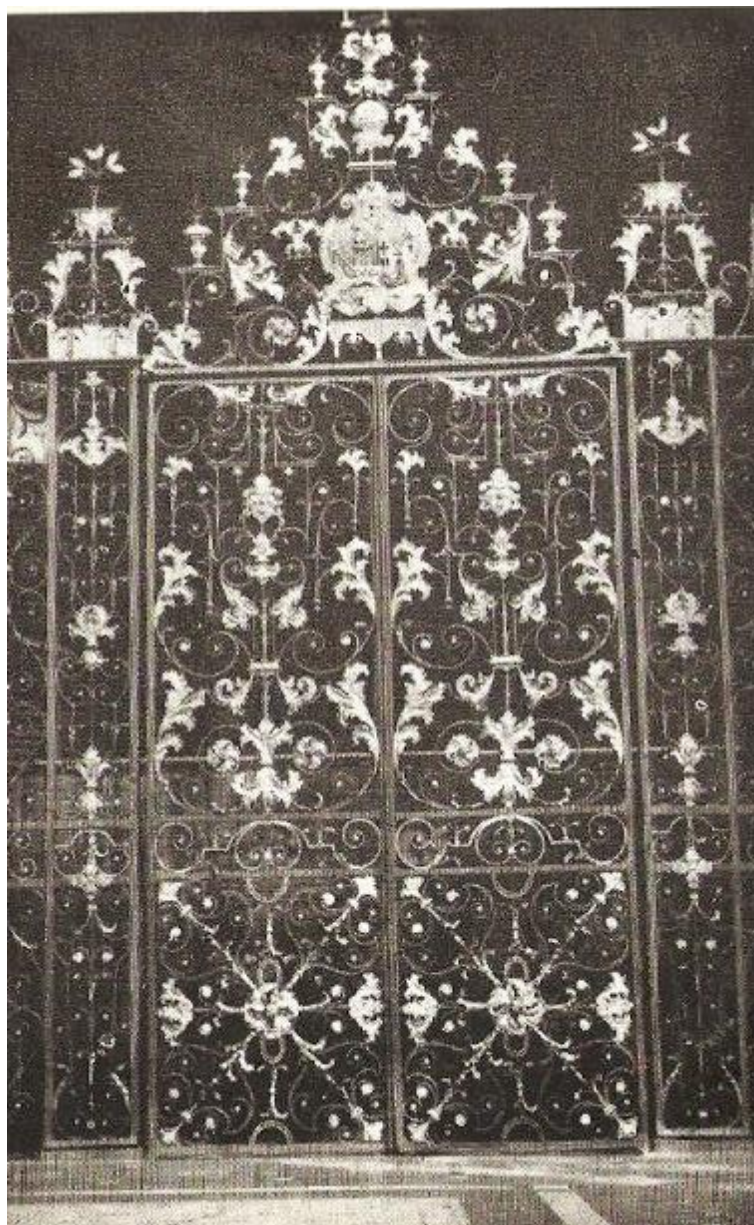
Wrought iron gates  
Würzburg Castle  
Bavaria, Germany  
18<sup>th</sup> Century



## PLATE 91

Wrought iron gates  
Parish Church, Ingolstadt, Bavaria, Germany  
c.1725





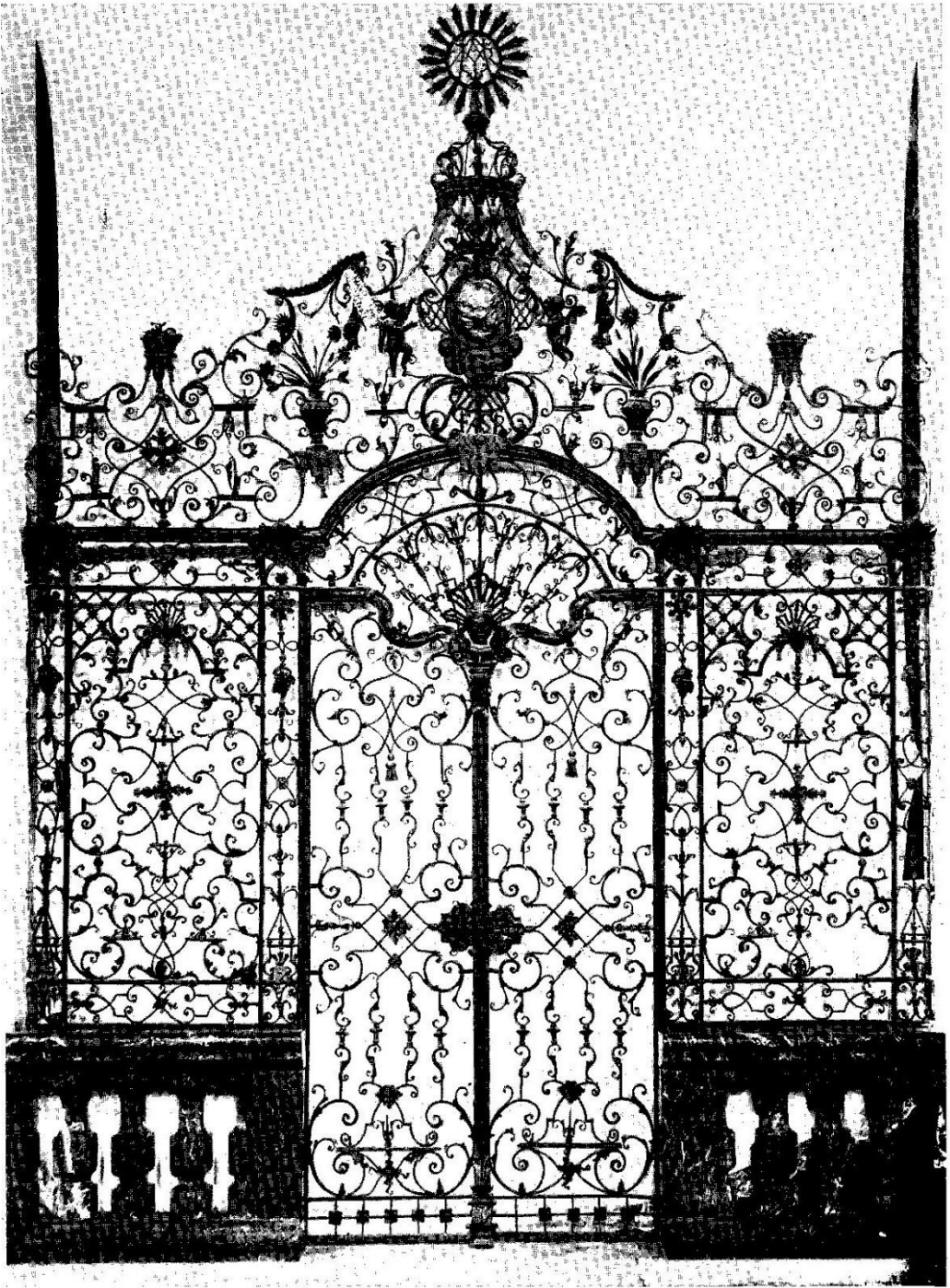
## **PLATE 92**

Wrought iron gates, west entrance to nave

St Mary Redcliffe Church, Bristol

William Edney

1710



## PLATE 93

Wrought iron gate and screen  
Graz Cathedral, Austria  
Early 18<sup>th</sup> Century



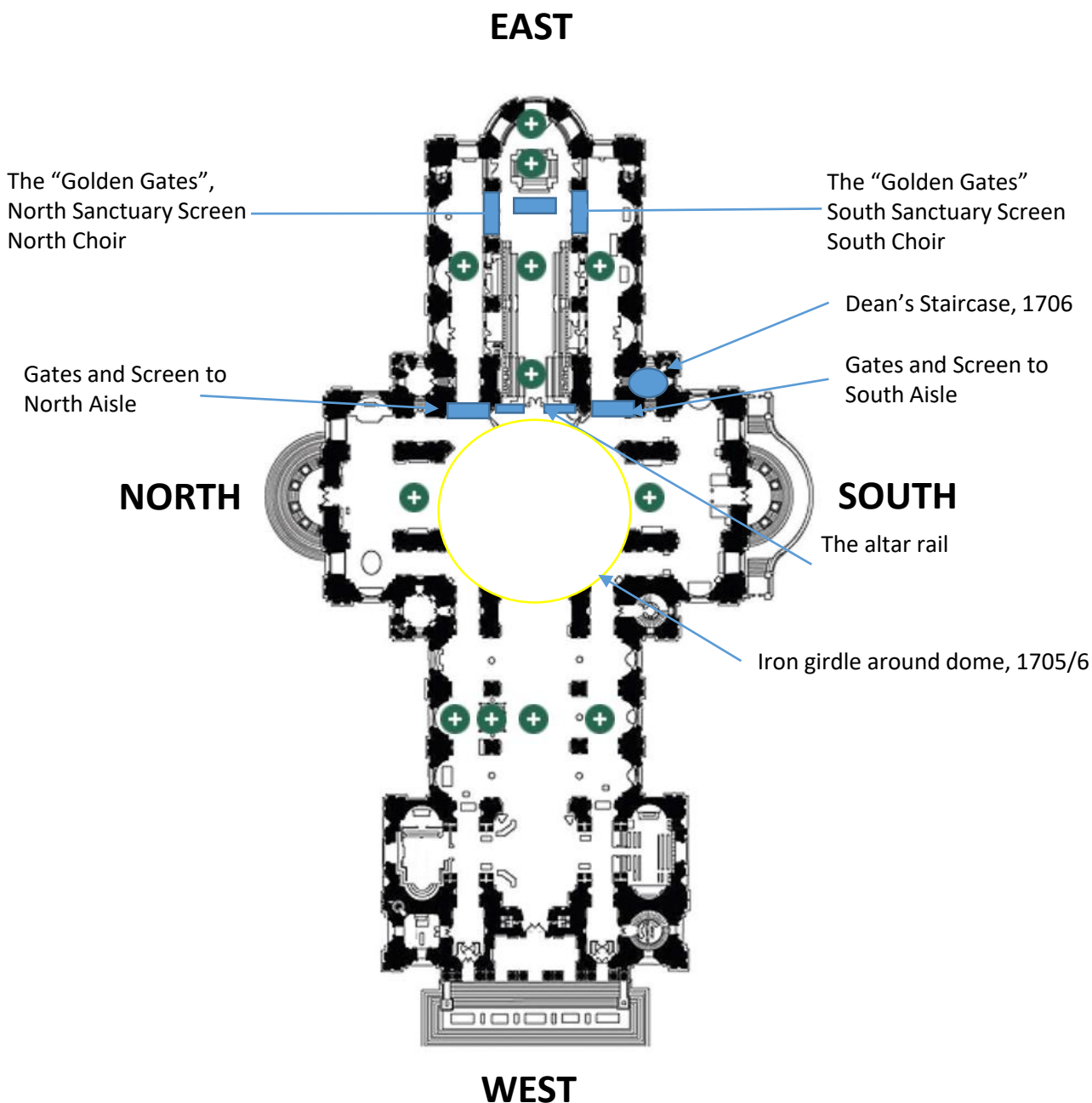
## **PLATE 94**

Wrought iron altar/choir rail of German/Austrian influence  
St Paul's Cathedral, London

Jean Tijou

c.1700





## PLATE 95

St Paul's Cathedral, London

Ironwork by Jean Tijou and workshop 1691-1711

The diagram illustrates the current locations



## PLATE 96

St Paul's Cathedral, London

Wrought iron grilles inset into carved wooden choir.

Jean Tijou

1695-96

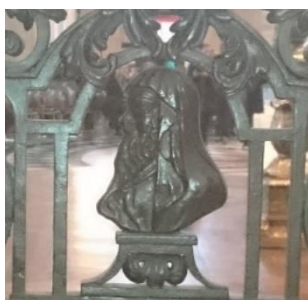
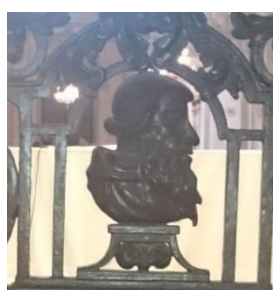




## **PLATE 97**

Wrought iron altar/choir rail Of German/Austrian influence  
St Paul's Cathedral, London

Jean Tijou  
c.1700



## PLATE 98

St Paul's Cathedral, London, Altar Rail detail

Detail of cast figures

Jean Tijou

c.1700





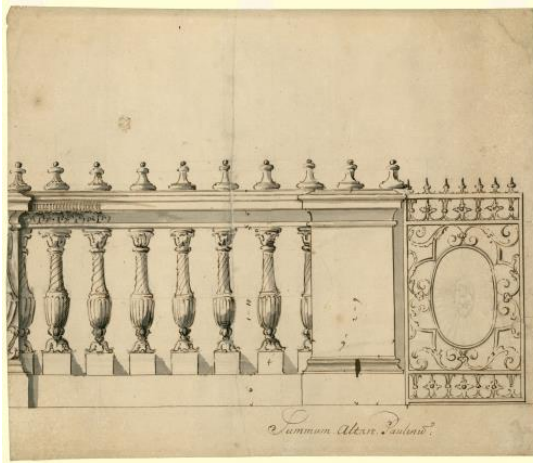
St Paul's Cathedral, London  
 Wrought iron chancery railing (approx. 16cm high x 25cm wide)  
 Of French Louis XIII influence. Attributed to Tijou.  
 Late 17<sup>th</sup> century



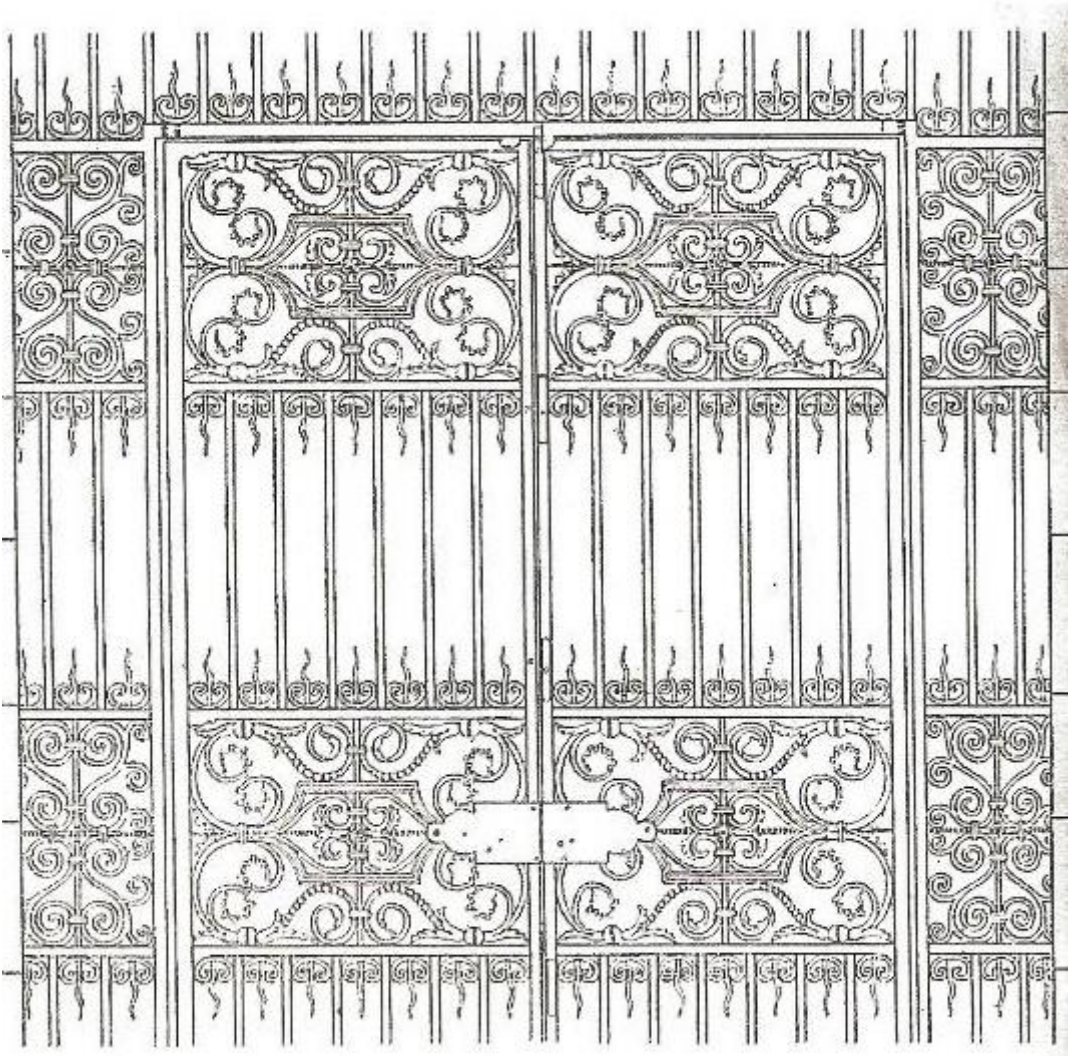
## **PLATE 99**

St Paul's Cathedral, London  
 Wrought iron altar rail of Louis XIII, French influence  
 Late 17<sup>th</sup> century  
 Attributed to Jean Tijou



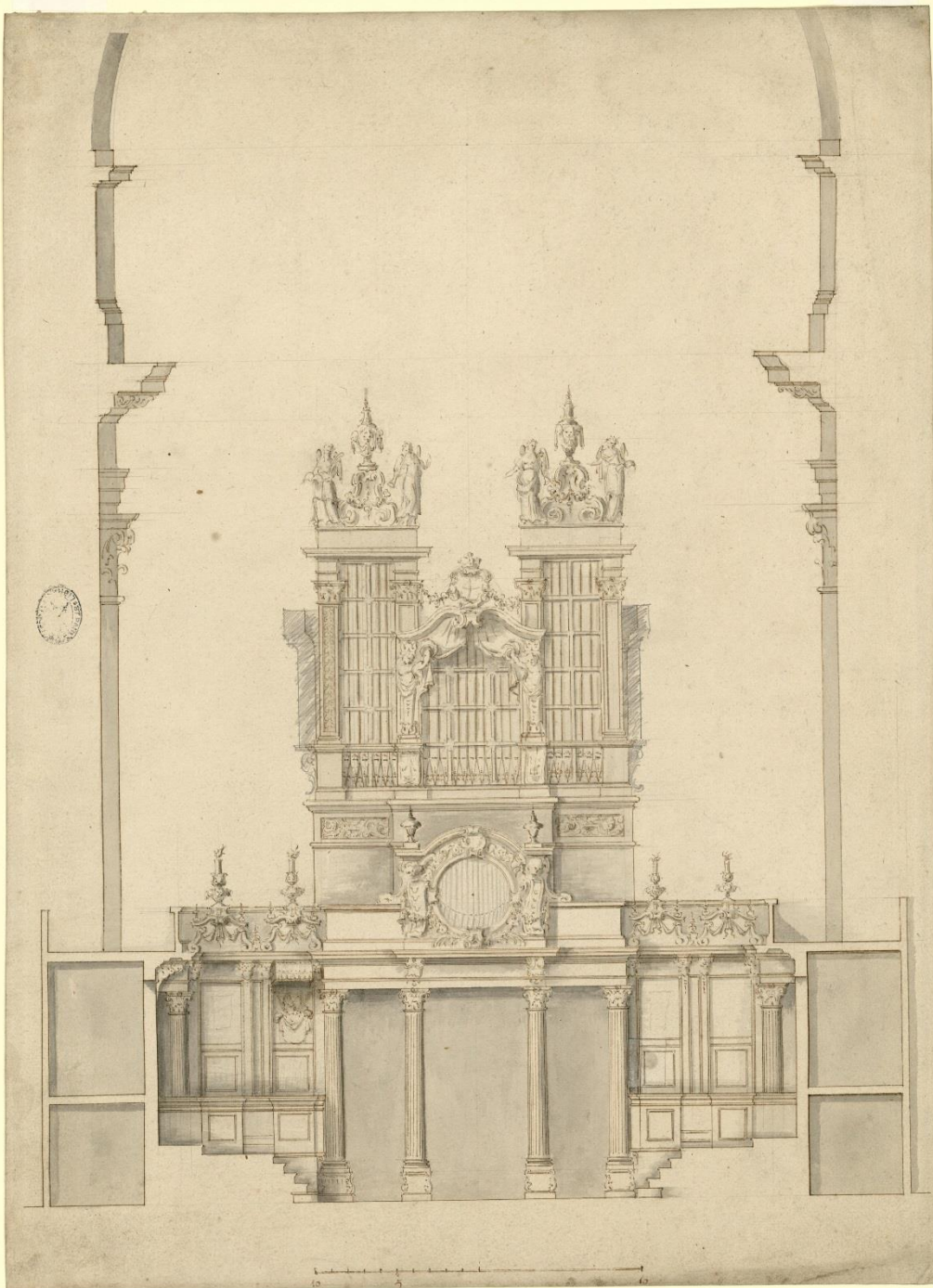


Study for the altar rail and gate  
St Paul's Cathedral  
WRE/4/1/17  
Nicholas Hawksmoor  
c.1693/4



## PLATE 100

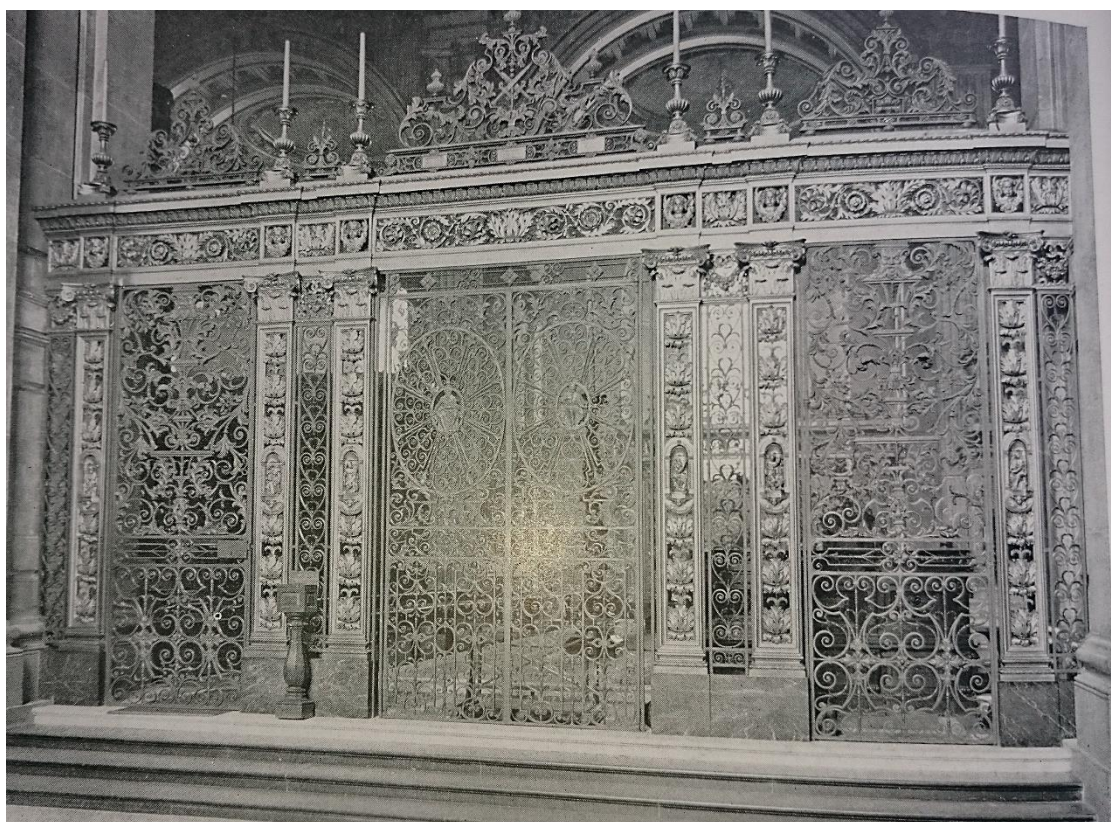
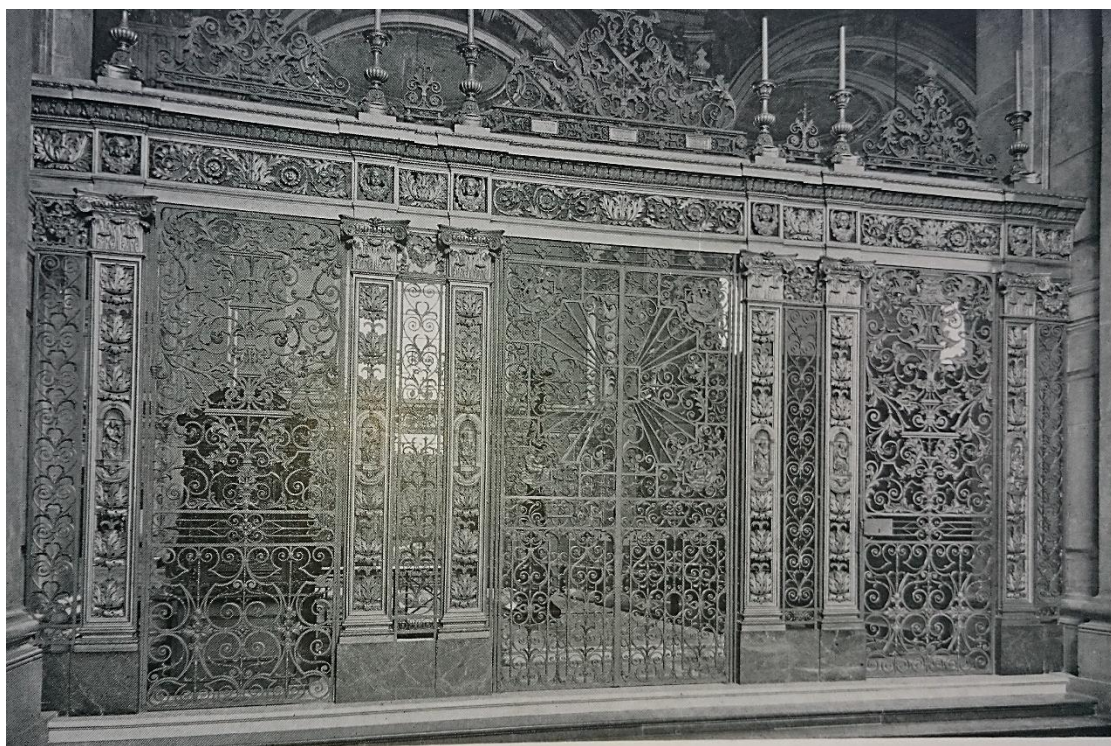
Trinity College, Cambridge  
Wrought iron grille to the Library arcade  
William Partridge  
c.1691



## PLATE 101

Elevation and section of east side of west range of choir stalls including the organ, drawn by Hawksmoor  
St Paul's Cathedral, London  
c.1693–94 (WRE/4/2/6[D180])





## PLATE 102

St Paul's Cathedral, London

Wrought iron screens and gates

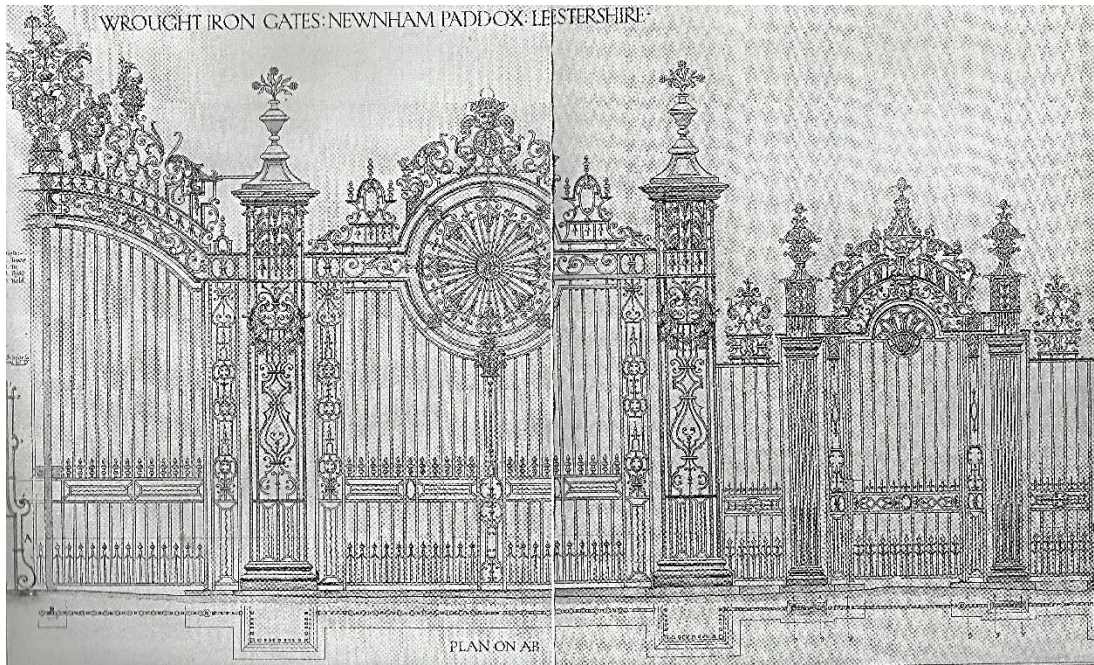
Top: The Golden Gates: Sanctuary Screen (North)

Below: The Golden Gates: Sanctuary Screen (South)

Jean Tijou,

1696





Newnham Paddox, Leicestershire (since removed)

Drawing of wrought iron gate and Screen

Saunders attributes the whole work to Bakewell

Larger work by Davies Brothers, smaller work by Bakewell (Gardner)

c.1725 - 30



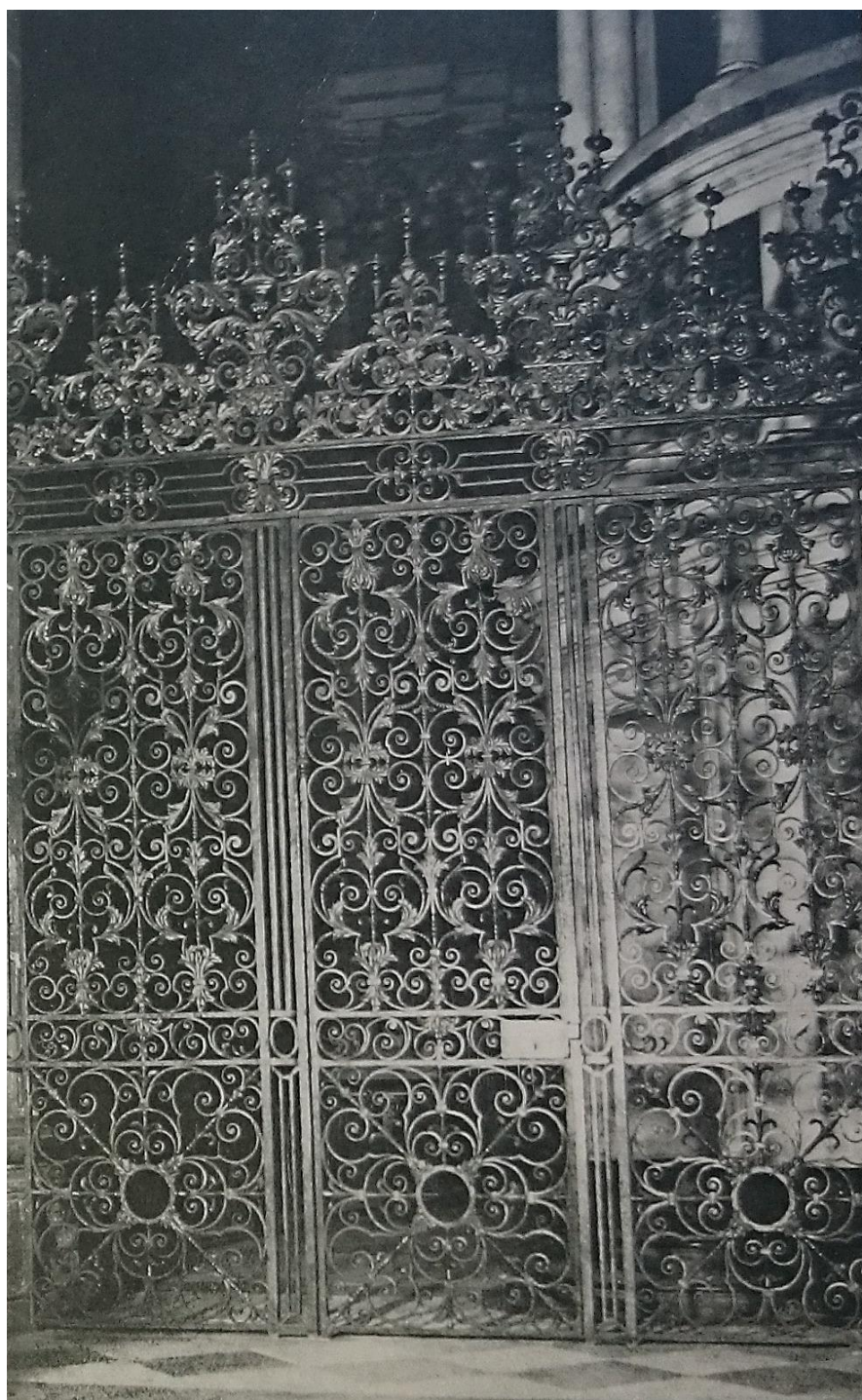
## PLATE 103

Eaton Hall, Cheshire

Wrought iron gates to main entrance (detail of circular motif)

c.1720-25





## **PLATE 104**

St Paul's Cathedral, London

Wrought iron gates, The Candelabra Gates (north side)

Jean Tijou

c.1705



## PLATE 105

St Paul's Cathedral, London

Cast iron panels

c.1695-1730

SPC: 9094

Anon.





## PLATE 106

St Paul's Cathedral, London

Cast iron panels, c.1695-1730

Top: SPC: 9295, 38.5 Below: SPC: 9296

Anon.



## PLATE 107

St Paul's Cathedral, London

Top: SPC: 9098

Right: SPC: 9299

Below: SPC: 9300

Attributed to Jean Tijou

c.1693-1711





## PLATE 108

Ornament print, design for iron

Robert Davesne

c. 1676



## PLATE 109

Wrought iron altar rail, painted.

Originally created for St Augustin, Watling Street, London

Probably by Thomas Hodgkins

SPC: 661 (top), SPC: 662 (below)

c.1700





## PLATE 110

Wrought iron gates, enclosing forecourt  
Traquair House, Peebleshire, Scotland  
c.1690's

Image to right depicts a section of Tijou's Plate 5, New Book of Designs for Wimpole Hall, Cambridgeshire, in which there is a similar decoration at the horizontal rails.



## PLATE 111

Wrought iron gates (possibly restored with cast applied decoration)

Tredegar Park, Newport, Monmouthshire

William Edney, Blacksmith

1714





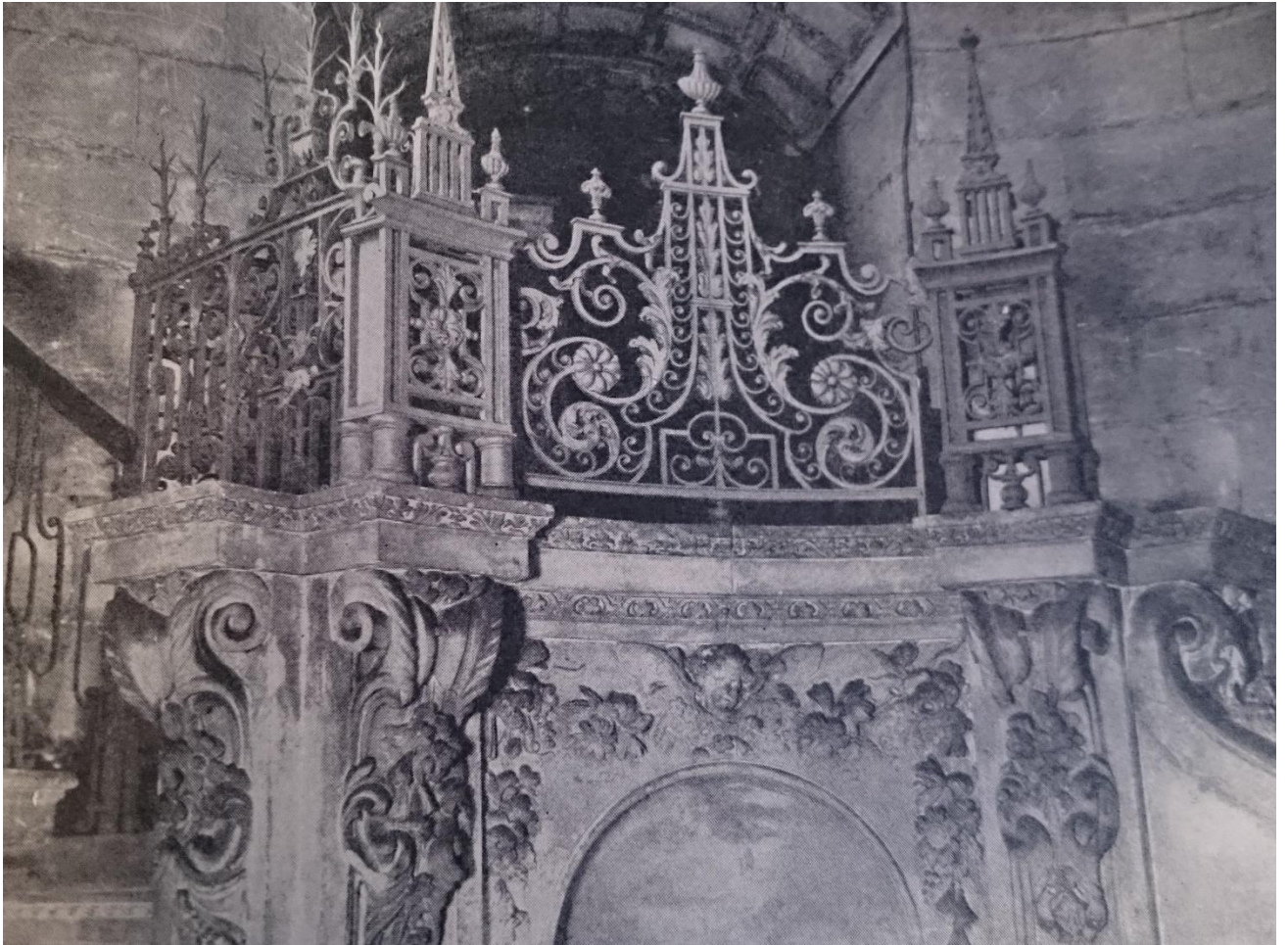
## **PLATE 112**

St Paul's Cathedral, London

Wrought iron gates and screen to north choir aisle

Jean Tijou

1698



## **PLATE 113**

St Paul's Cathedral, London

Wrought iron railing, to the Dean's Staircase (south-west tower)

1706

Jean Tijou



Engraved view of St Paul's Cathedral, London choir at a thanksgiving service attended by Queen Anne, 31 December 1706

Far left is depicted the altar rail by Jean Tijou (since relocated)





## **PLATE 115**

Door with iron mounting depicting hooded figures

Pressburg, Austria

16<sup>th</sup> Century

Anon.





## **PLATE 116**

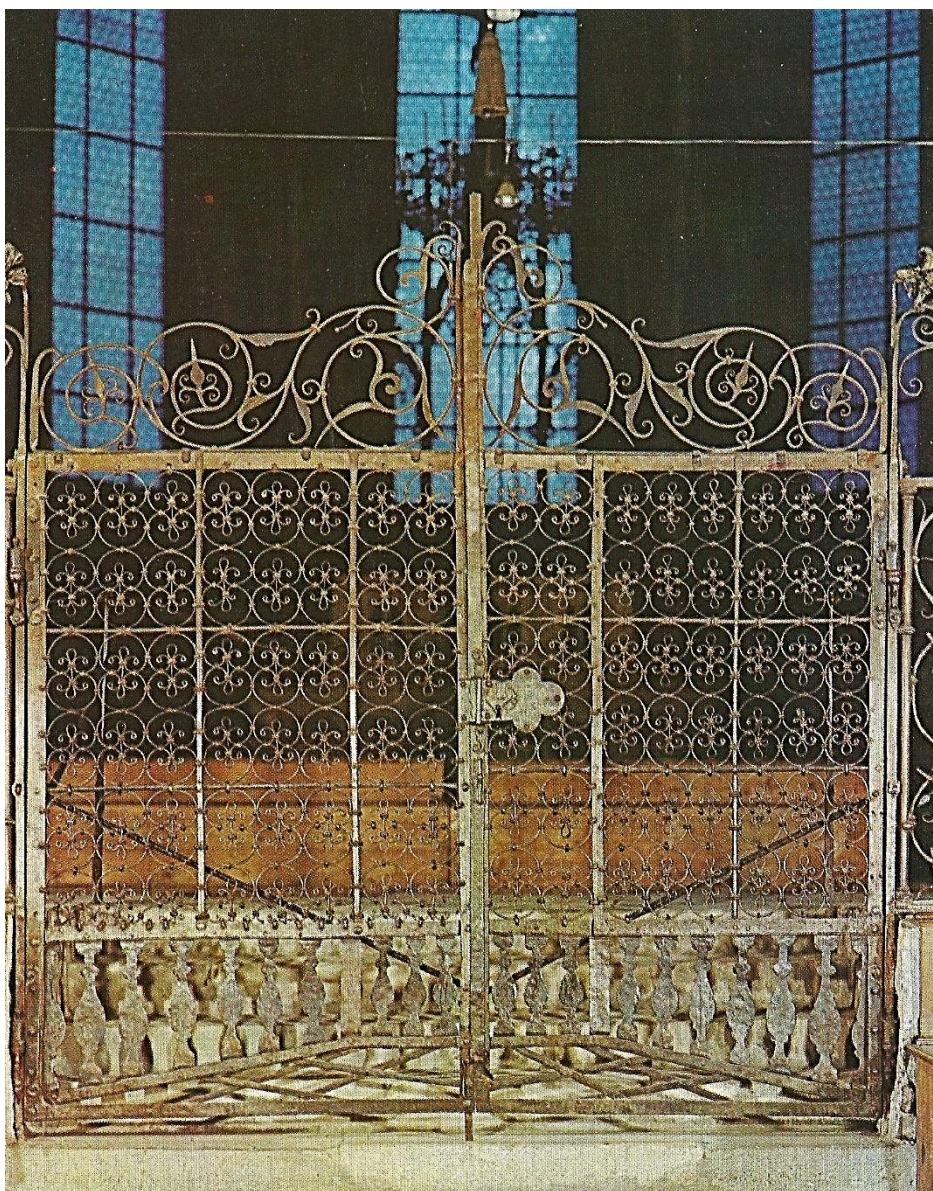
Wrought iron gateway

Frederiksborg Castle, Hillerød, Denmark

17<sup>th</sup> century

Anon.





## PLATE 117

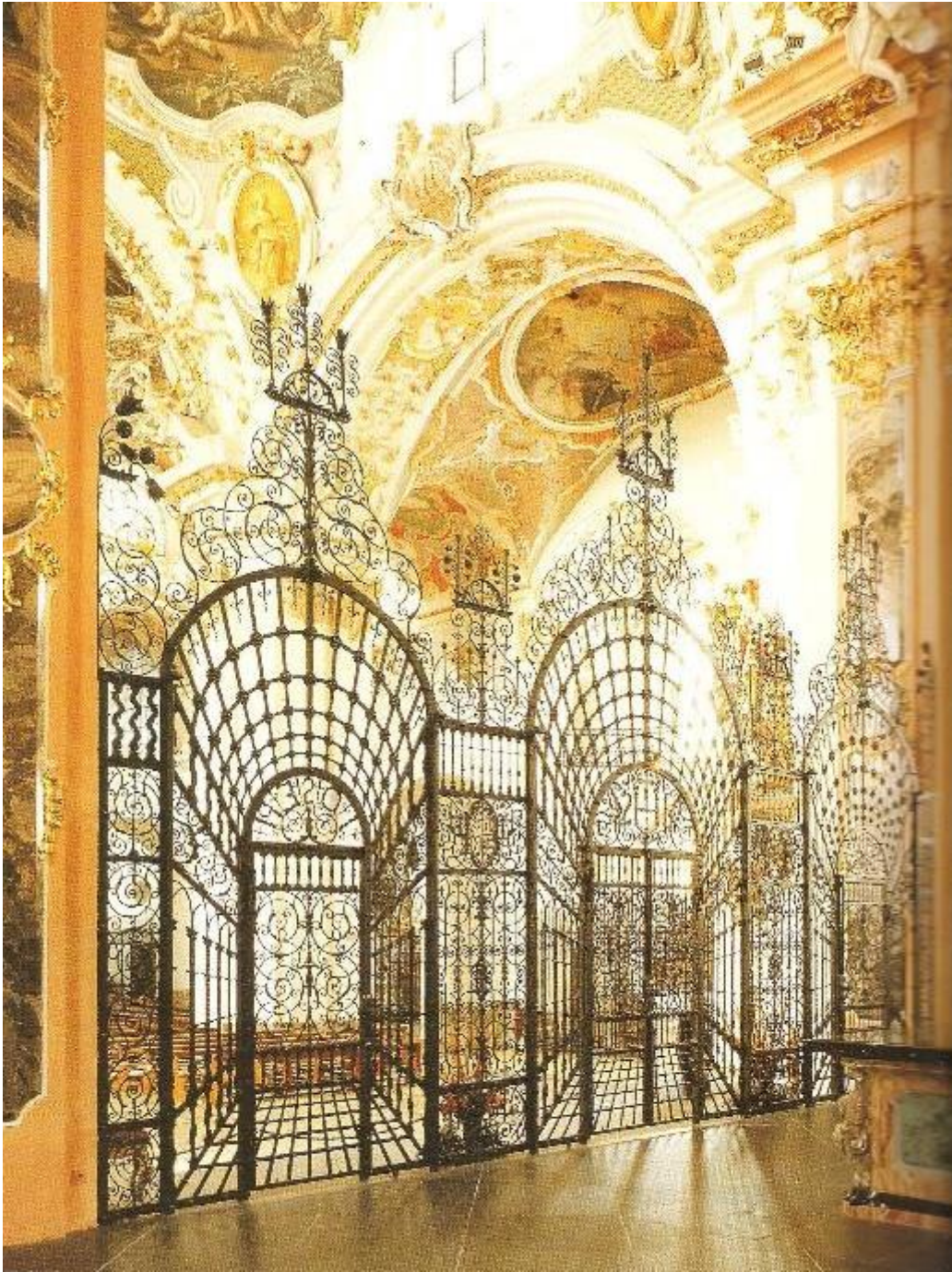
Augsburg Cathedral, Augsburg

Wrought iron choir gate

16<sup>th</sup> Century

The first tentative example of perspective in iron gates (lower panel)





## **PLATE 118**

Wrought iron screen

Klosterkirche, Einsiedeln, Switzerland

Use of perspective panels was a speciality of Swiss and south German smiths in the 17<sup>th</sup> century.





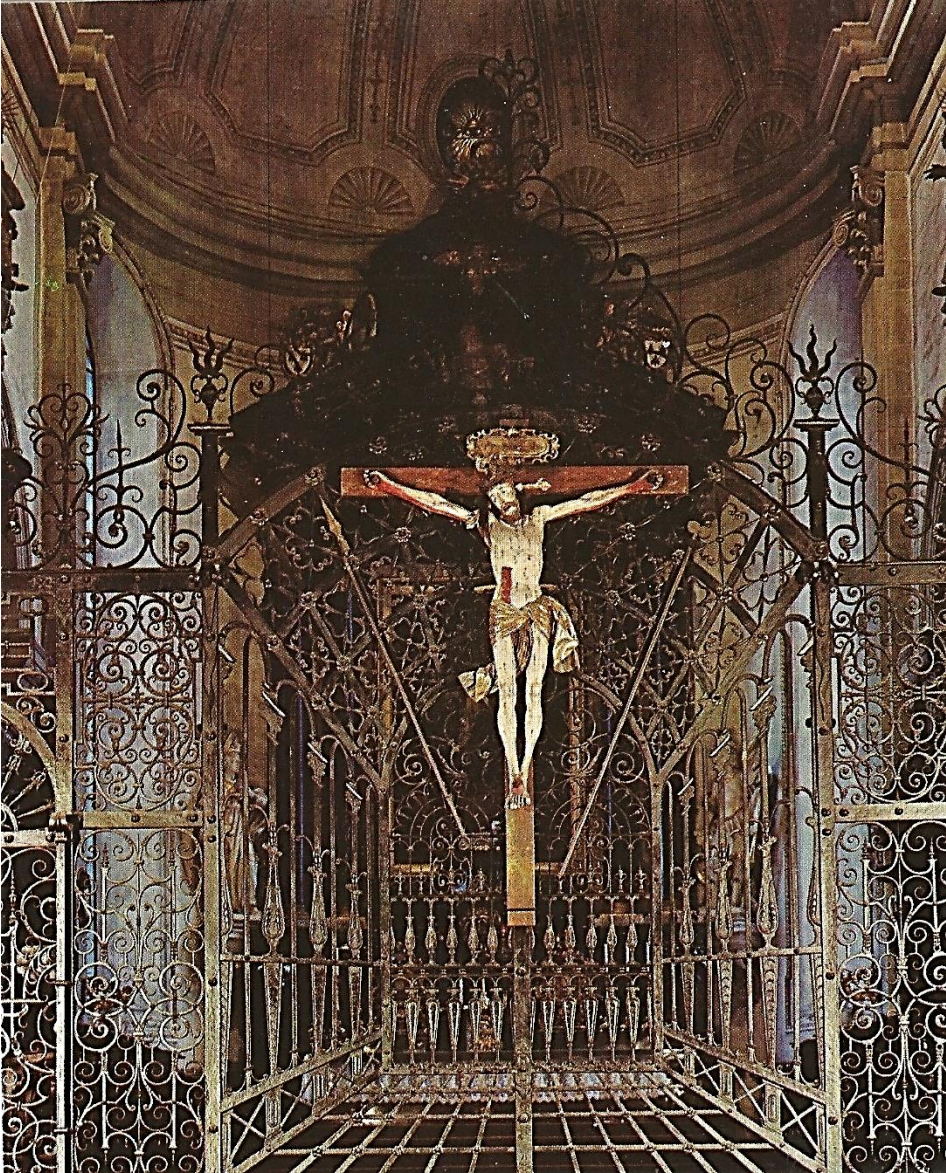
## **PLATE 119**

Church of St Ulrich, Augsburg

Wrought iron and carved wooden screen

18<sup>th</sup> Century





## PLATE 120

Wrought iron screen

Lucerne Cathedral, Switzerland.

Image depicts the central part of the crucifix screen

17<sup>th</sup> Century

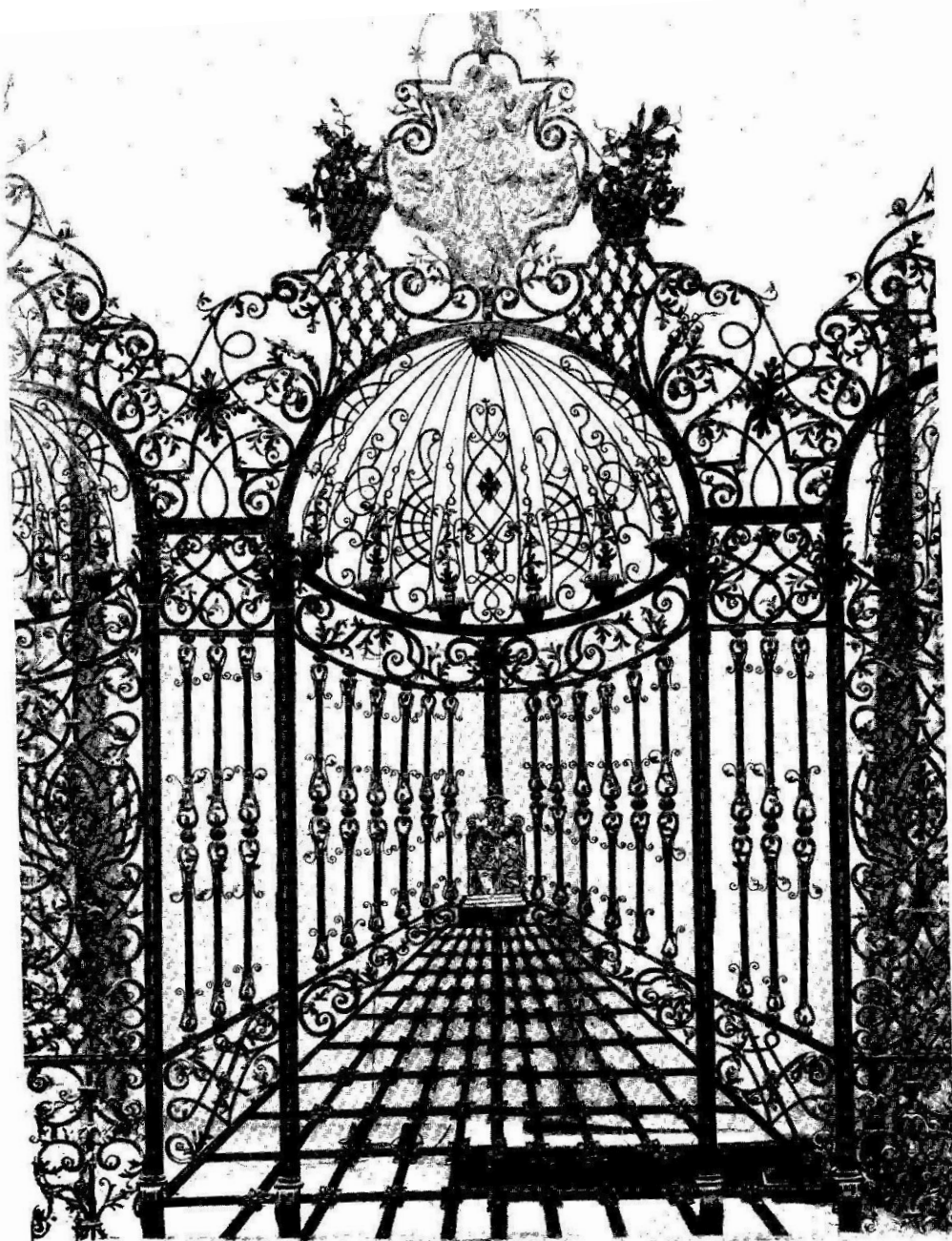




## **PLATE 121**

Wrought iron screen  
Lucerne Cathedral, Switzerland  
Right-hand gate of the crucifix screen  
17<sup>th</sup> Century



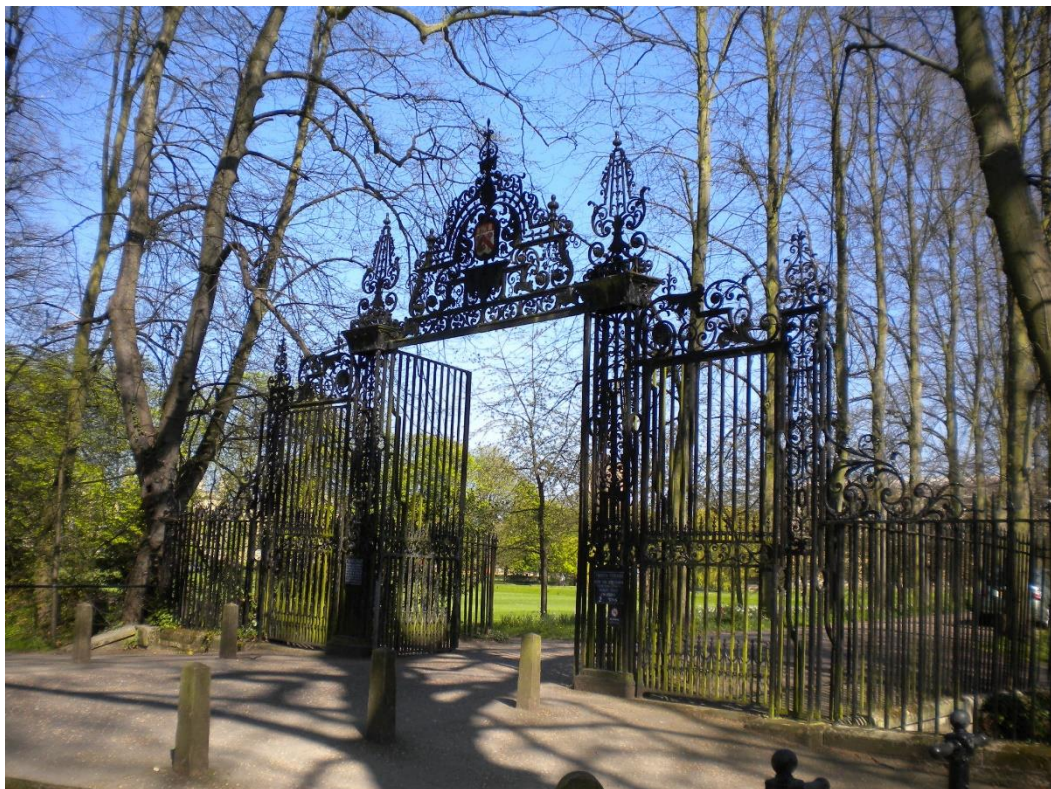


## **PLATE 122**

Wrought iron screen

Chapel Screen, Constance, Germany

Early 18<sup>th</sup> Century



## **PLATE 123**

Trinity College, Cambridge

Wrought iron gates

Attributed to Warren

c.1720





## **PLATE 124**

St John's College, Cambridge

Wrought iron gates

Attributed to Thomas Warren

c.1715



## **PLATE 125**

Leeswood Hall, Mold, North Wales

“The White Screen”, wrought and cast iron gates

Attributed to Robert Bakewell

c.1720





## **PLATE 126**

Chirk Castle,

Wrought iron gates

Attributed to the Davies Brothers, Robert & John

1712-19



## PLATE 127

Clandon Park, Surrey

Wrought iron gate with adjoining railings illustrated in lower photo

Attributed to Warren

c.1715





## **PLATE 128**

Kirkleatham Hospital, Redcar

Wrought iron gates

Attributed to Thomas Warren

c.1720





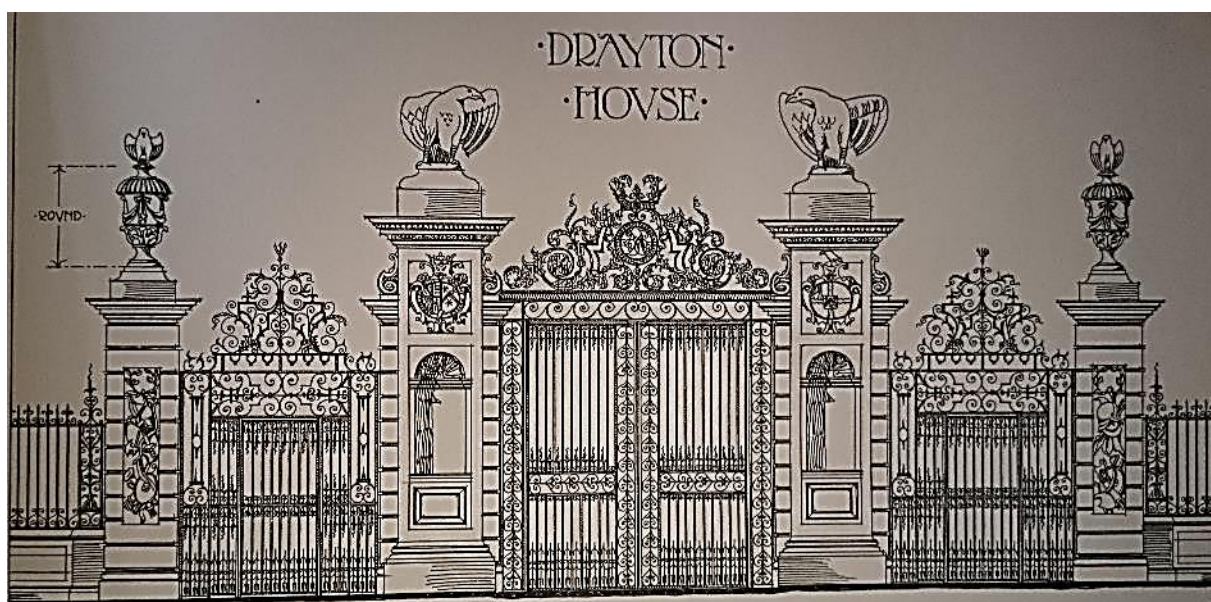
## **PLATE 129**

Wotton House, Buckinghamshire

Wrought iron gates and railings enclosing the forecourt

Jean Montigny

c. 1704-1711



## PLATE 130

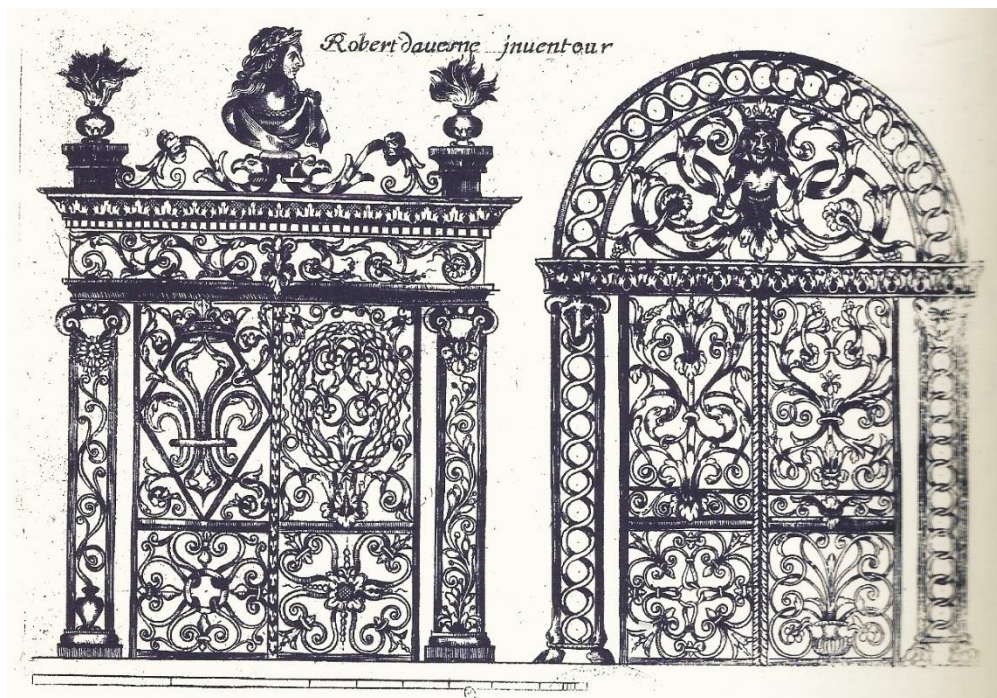
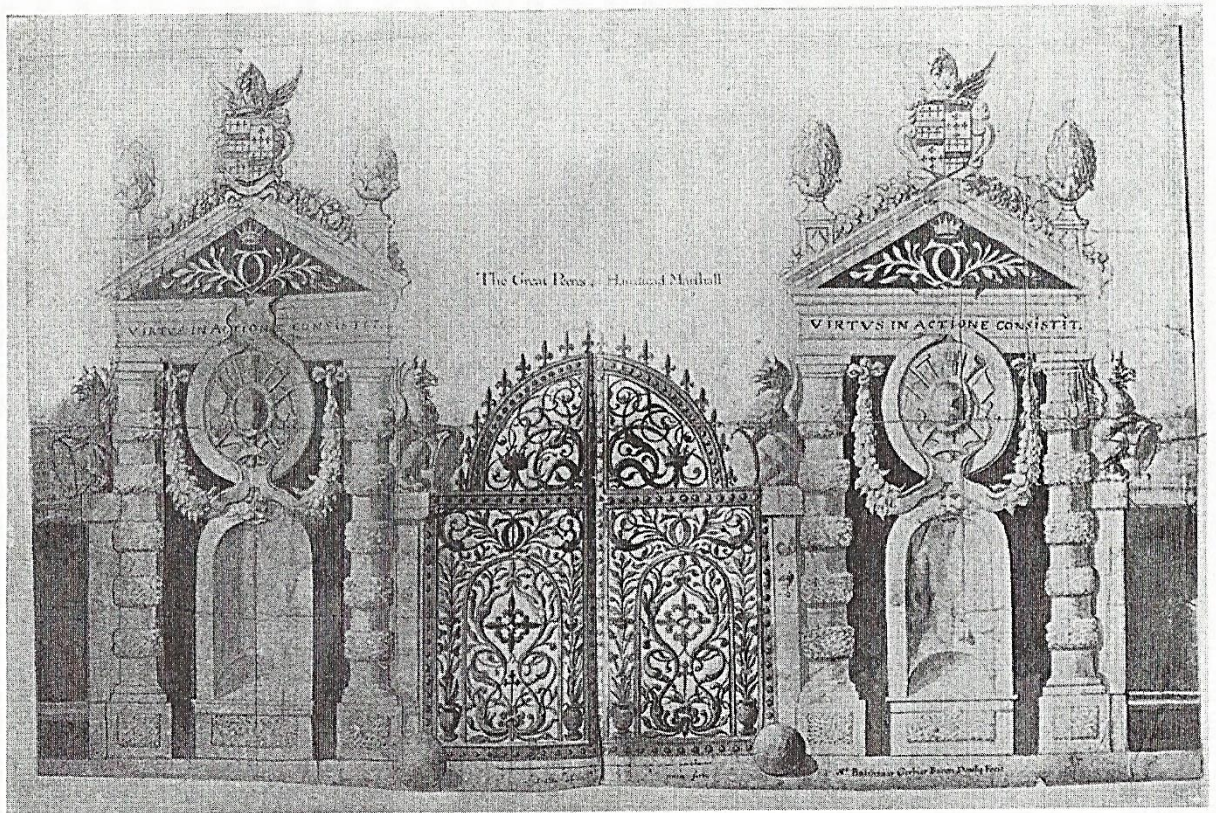
Drayton House, Northamptonshire

Wrought iron gateway to entrance at Gravel Court

Jean Tijou

1702-3

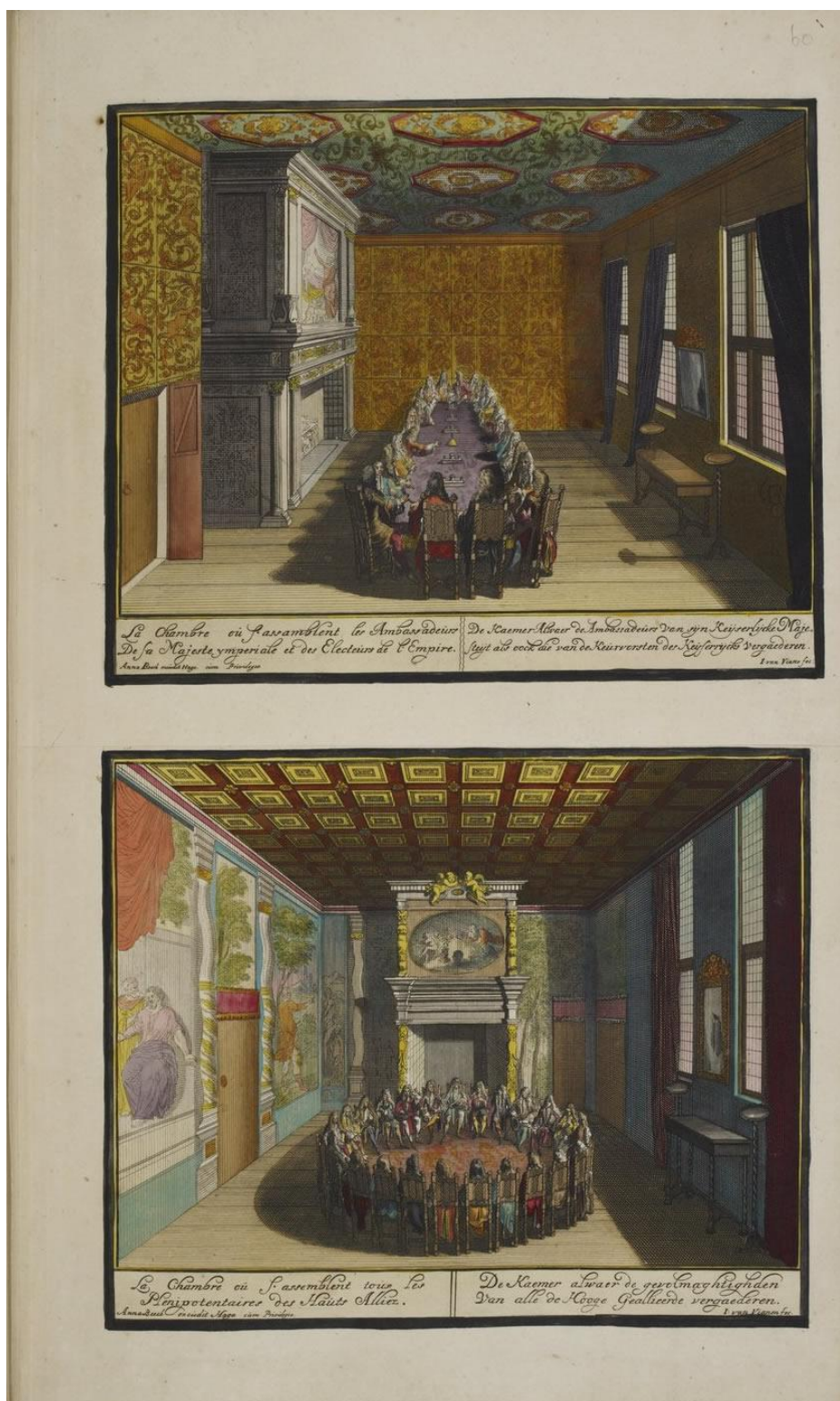




## PLATE 131

Top: Drawing by Sir Balthazar Gerbier (1591?-1667), gates to Hamstead Marshall  
 Below: Ornament print, designs for iron, by Robert Davesne, c.1676



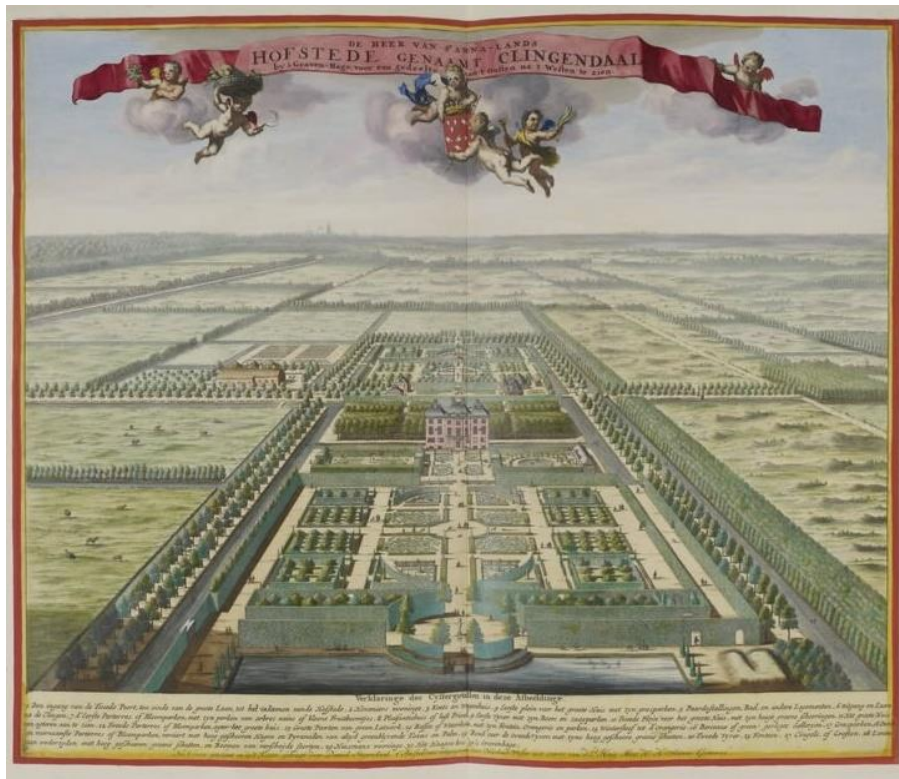


## PLATE 132

Print on paper entitled "12 Ambassadors of the Emperor Meeting the Elector"

Jan van Vianen Beudeker,

*Dutch Gardens Netherlands Atlas Beudeker, (1718?), p.55*



## PLATE 133

Illustration of the landscape designs terminating in an Exedra  
 Etchings of Clingendaal (top) and Het Loo (below)  
 Early 18<sup>th</sup> century





## PLATE 134

Illustration of the landscape design terminating in an Exedra  
 The Orangerie and Park at Sorgvliet  
 Early 18<sup>th</sup> century



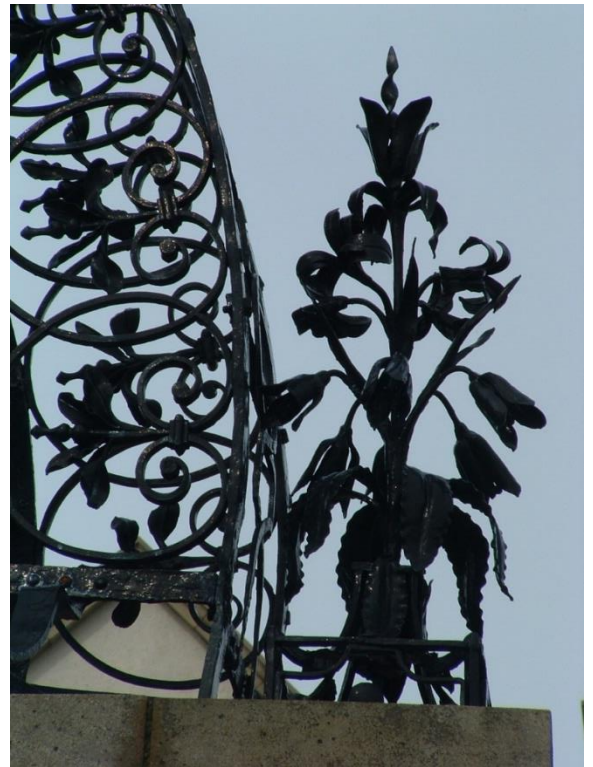


## **PLATE 135**

Wrought iron gateway

Donibristle House, Dalgety Bay, Scotland

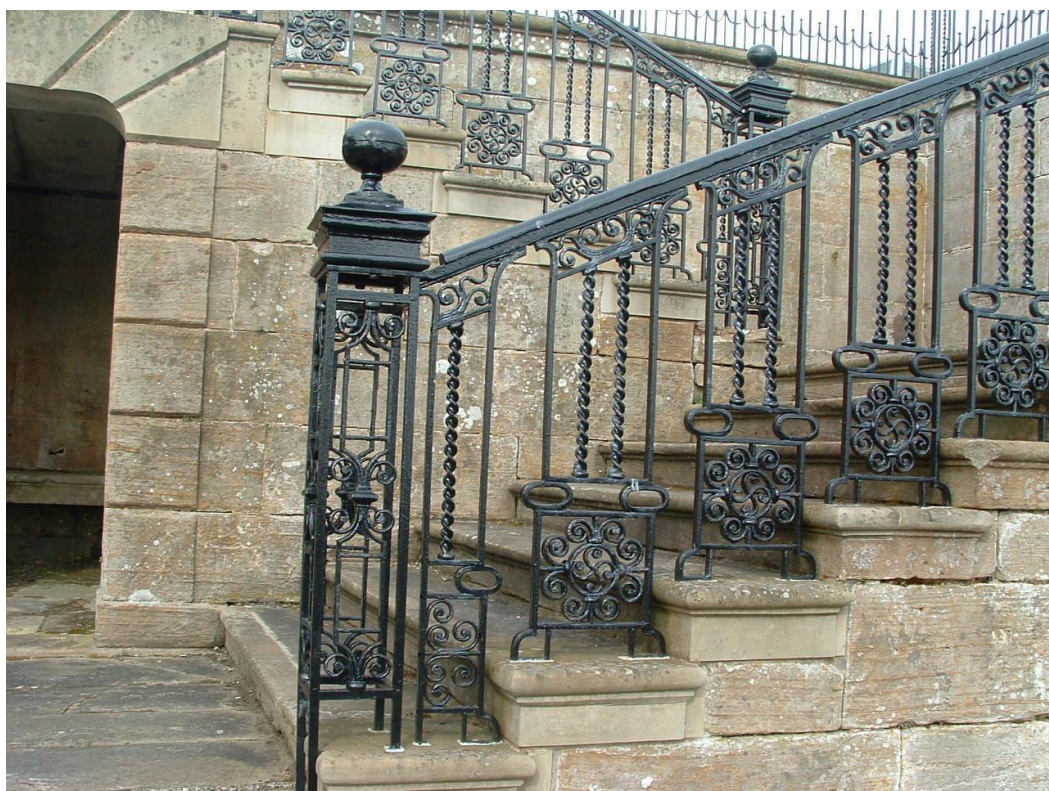
Early 18<sup>th</sup> century



## PLATE 136

Details of wrought iron gateway  
 Donibristle House, Dalgety Bay, Scotland  
 Early 18<sup>th</sup> century





## **PLATE 137**

Detail of wrought iron staircase railings  
Donibristle House, Dalgety Bay, Scotland  
Early 18<sup>th</sup> century



## **PLATE 138**

Dutch Silver Candlesticks, one of a pair

RCIN 35298

c.1670

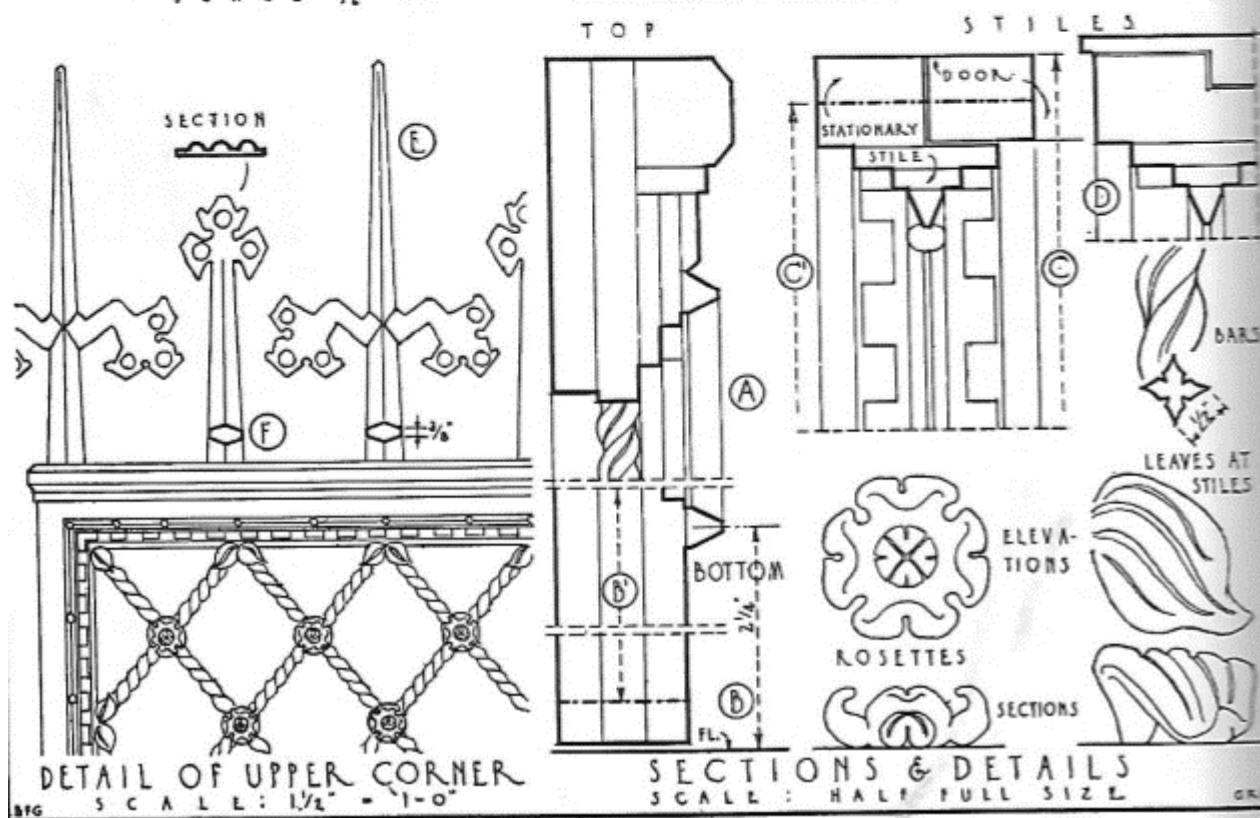
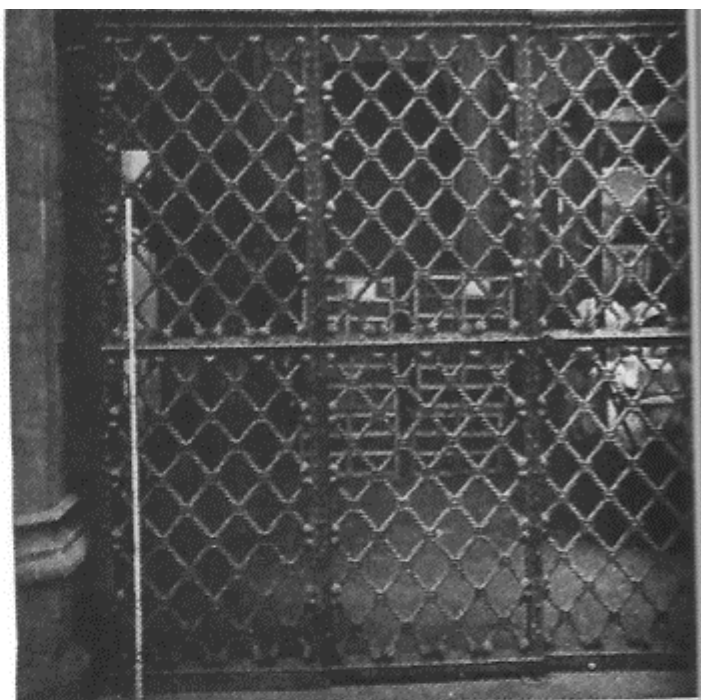
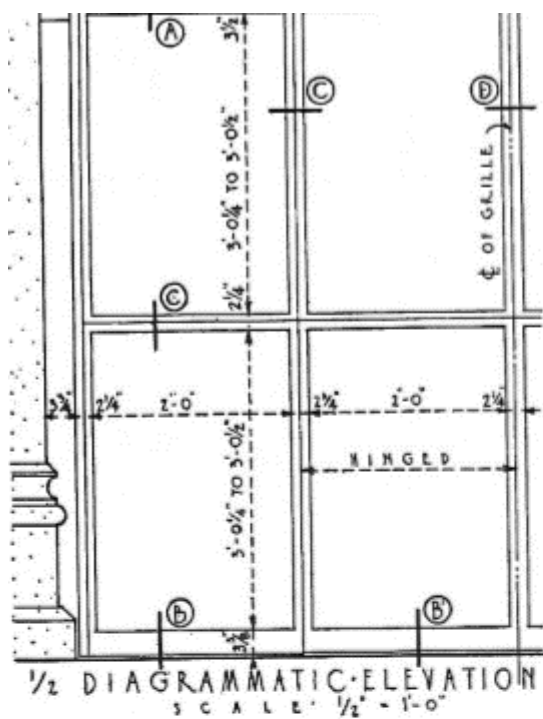




## PLATE 139

Daniel Marot

*Nouveaux Livre de Housses, en Broderie et en Gallons*  
1703-1712 (published)



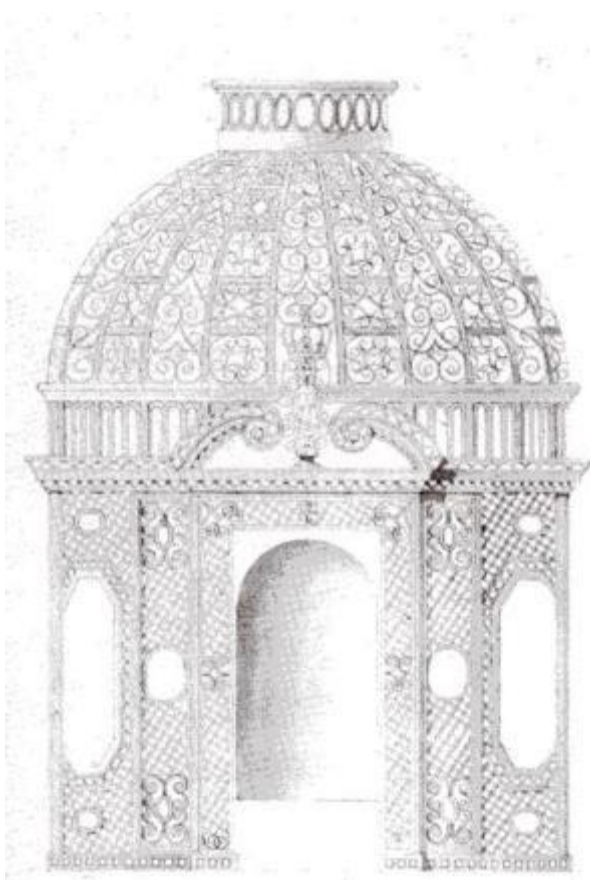
## PLATE 140

Wrought iron grille

Palazzo Dell'Arte Della Lana, Florence, Italy

Early 16<sup>th</sup> century





## PLATE 140

Top: Hampton Court Palace, wooden arbour, with the interior painted by Louis Laguerre, (Illustrated in Fort Album c.1718)

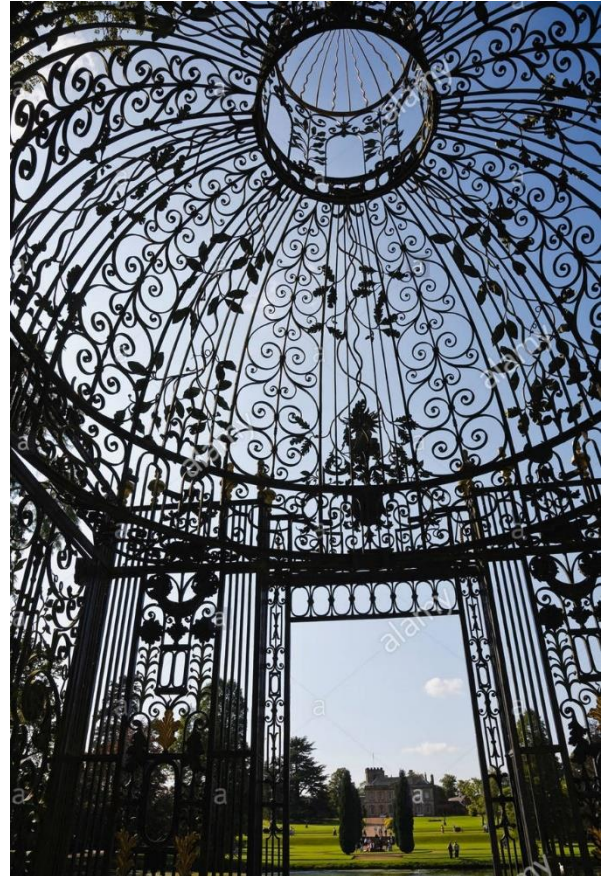
Below: Nicholas Lancret, "Le Moulinet", Oil on Canvas, c. 1670



## **PLATE 142**

Wrought iron garden arbour  
Melbourne Hall, Derbyshire  
Robert Bakewell  
1707-1710





## PLATE 143

Wrought iron garden arbour, details  
Melbourne Hall, Derbyshire  
Robert Bakewell  
1707-1710

Cholmondeley Castle, Malpas, Cheshire  
The Great White Screen and —



The Moat  
Gardens



**PLATE 144**

Wrought iron gates and screen, “The Great White Screen”  
Cholmondeley Castle, Malpas, Cheshire  
Attributed to The Davies Brothers and/or Robert Bakewell





## **PLATE 145**

Wrought iron balcony  
Guildford Town Hall, Surrey  
Anon.  
c.1680



## **PLATE 146**

Drawing on paper by Inigo Jones

Design for balcony for Sir Edward Cecil's house

Ribapix ref no: RIBA12960

1612





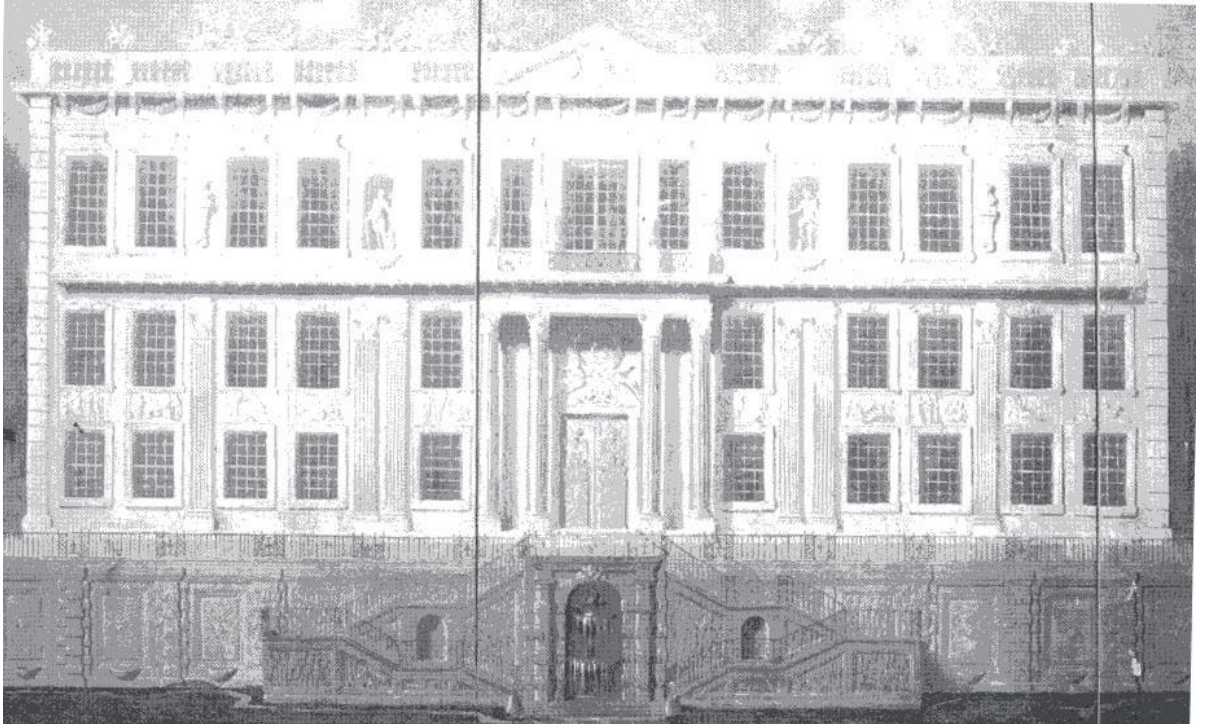
## **PLATE 147**

Wrought iron gateway and railing

Versailles, Paris

Le Blond

Late 17<sup>th</sup> century



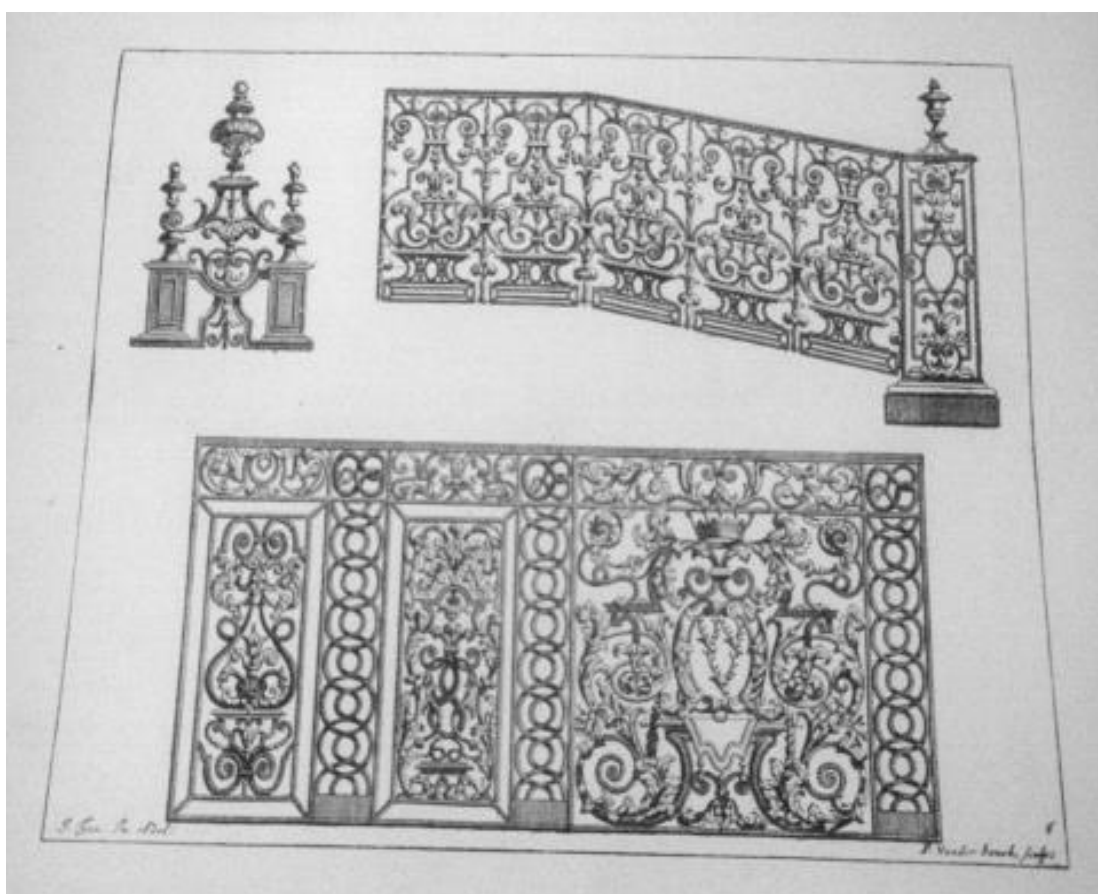
## **PLATE 148**

Oil on Canvas

A design for the west front of Chatsworth

Louis Chéron

c.1700



## PLATE 149

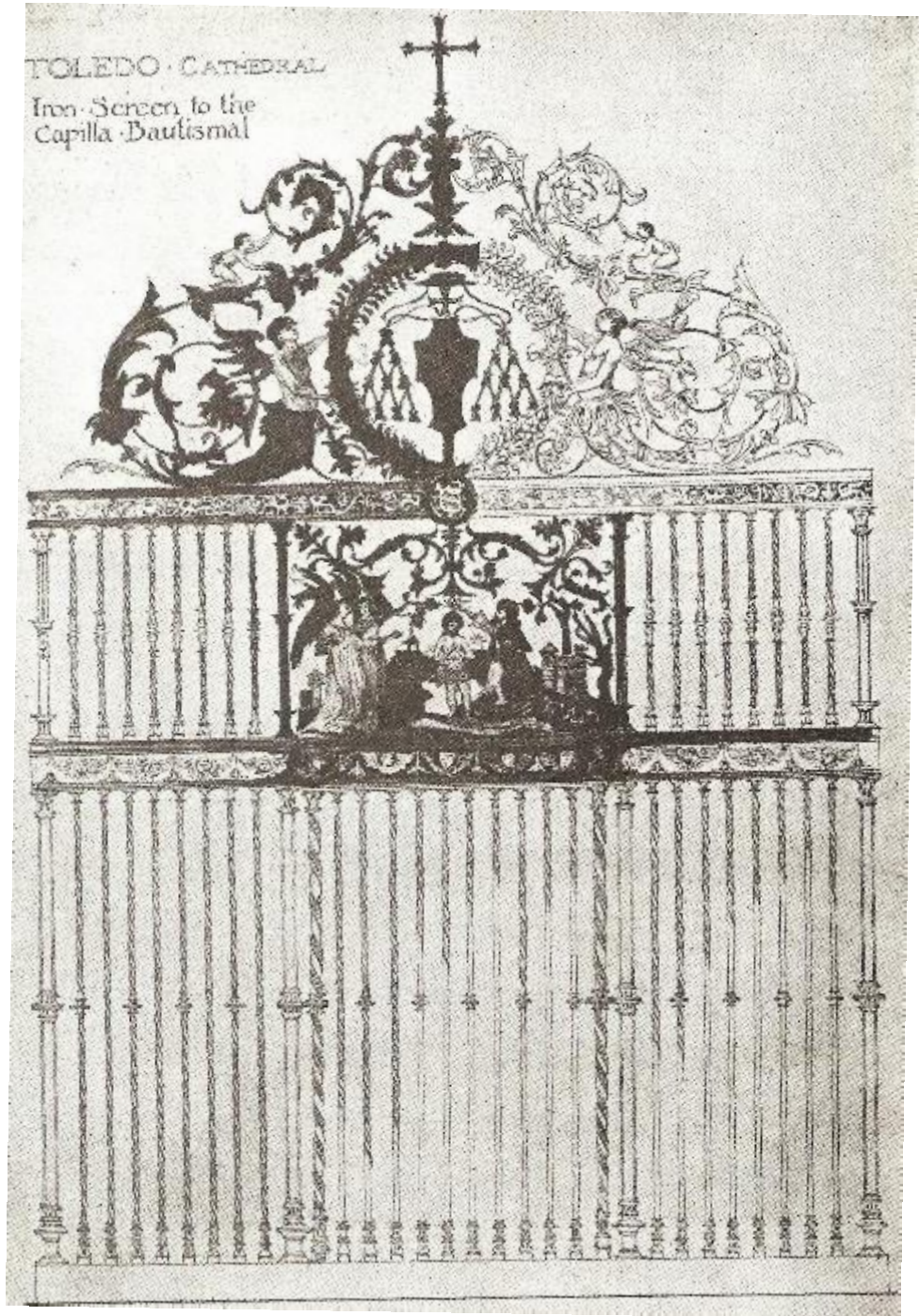
Ornament print, designs for iron

*New Booke of Drawings*, Plate 6 (detail)

Jean Tijou

1693

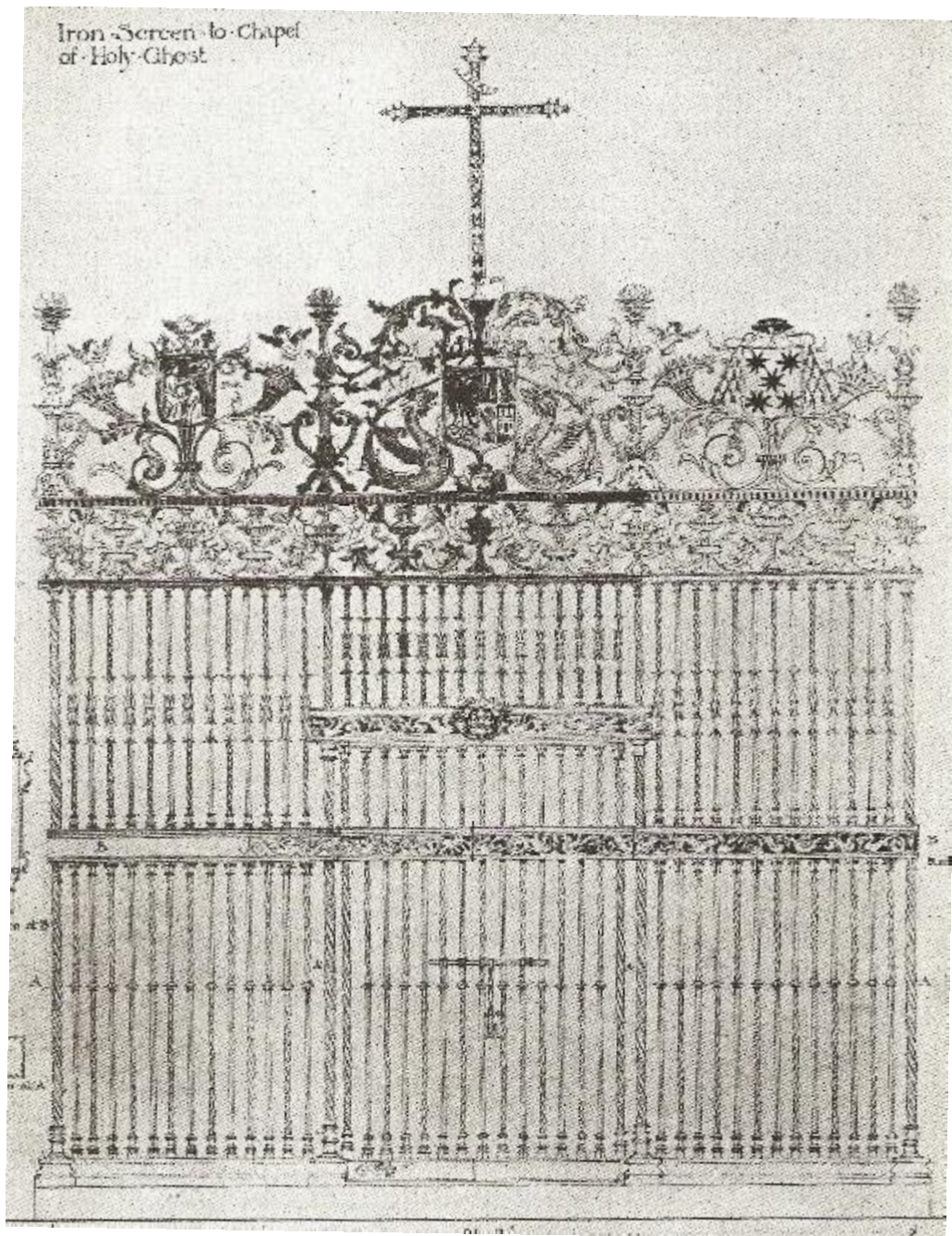




## PLATE 150

Capilla Bautismal, Toledo Cathedral, Spain  
Wrought iron reja





## PLATE 151

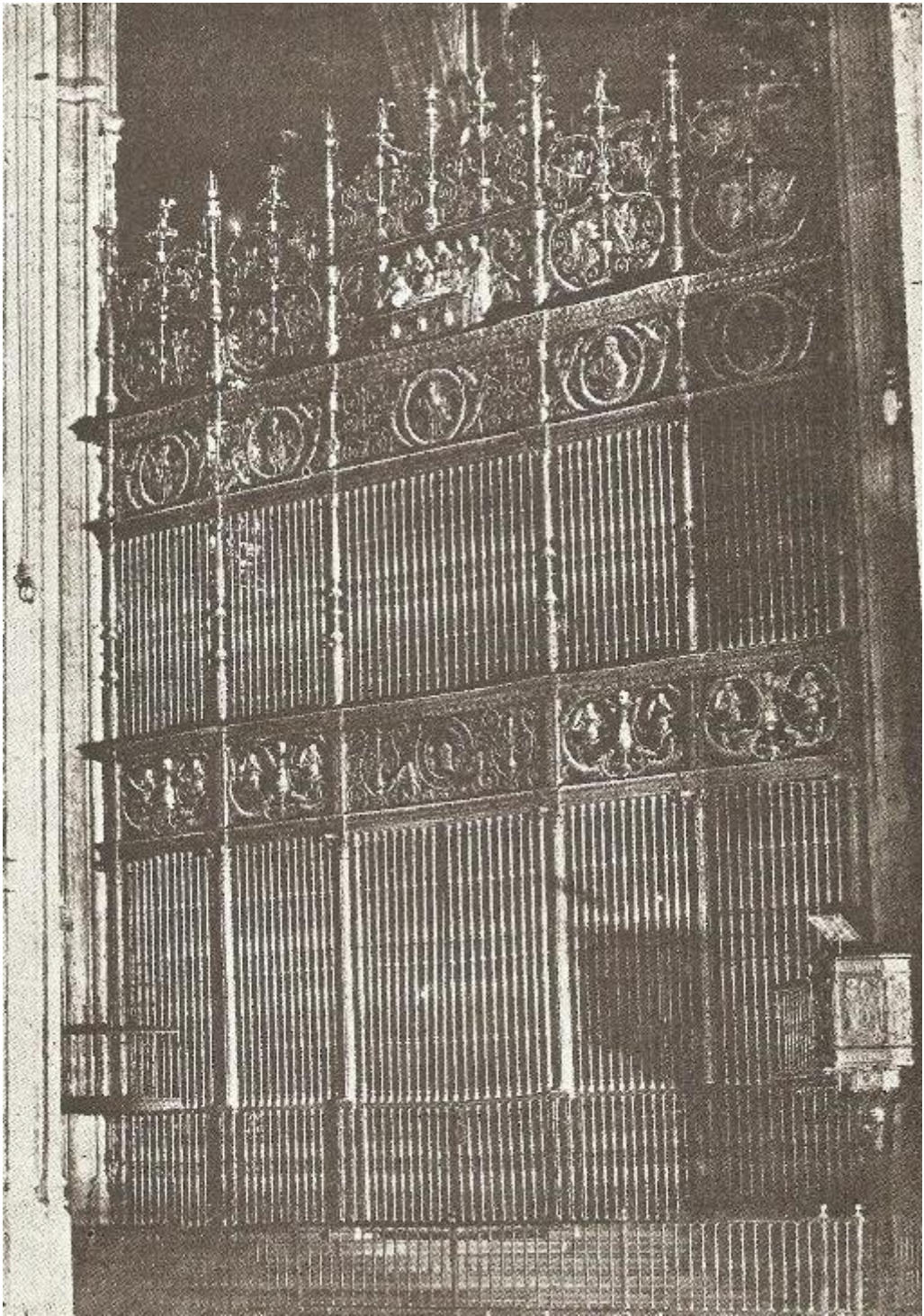
Chapel of the Holy Ghost, Toledo Cathedral, Spain

Wrought iron reja

Anon.

16<sup>th</sup> century





## **PLATE 152**

Seville Cathedral, Spain

Wrought iron reja of the Altar Mayor

Anon.

c.1530





## **PLATE 153**

Oval Curved Iron Shield

Family Crest of Johanne Lacarre, Marquis of Saumery in Béarn  
c.1755



## PLATE 154

Top: Grimsthorpe Castle, Lincolnshire,  
Wrought iron entrance gate

Jean Tijou

c. 1710

Below right: Overthrow detail, stripped of paint during restoration and found to be carved of wood.



## PLATE 155

Top: Ragley Hall, Warwickshire  
 Wrought iron gate, attributed to Jean Tijou  
 Right: Overthrow, detail of figures  
 During restoration by Peter S Neale  
 Early 18<sup>th</sup> century





## **PLATE 156**

Wrought iron church screen  
Staunton Harold Church, Leicestershire  
Robert Bakewell  
c. 1715



## **PLATE 157**

Wrought iron gates to the west front  
Burghley House, Northamptonshire  
Jean Tijou  
1693