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The Great Pagoda at Kew: Colour and Technical Innovation in Chinoiserie Architecture

by LEE PROSSER

William Chambers's Great Pagoda in Kew Gardens, constructed in 1761–62, is one of the most recognisable chinoiserie buildings in Europe (Fig. 1). At fifty metres tall, it is by far the largest and most conspicuous example of a style that has all but disappeared, leaving little by way of physical legacy for study. The Pagoda made a deep and lasting impression on contemporary viewers, its royal pedigree ensuring its fame and prompting several European princes to create similar pagodas in their own fantasy gardens (Fig. 2).[1] Yet the building we see today is only a shadow of its former self. Although held up as the exemplar of its type, it was altered in the late nineteenth century and, as a consequence, has long remained far from its original conception. Restoration undertaken by Historic Royal Palaces in 2017–18, which was guided by extensive documentary, forensic and archaeological research, has revealed new details of the building's initial colour and texture, including those of an earlier important alteration. The original Pagoda used experimental materials and a varied palette that reinforced the qualities of exoticism, novelty and ephemerality associated with the Far East. It is now known that the building was thoroughly renovated a little more than twenty years after construction by its architect, who, instead of replicating his original design, created a new and altered aesthetic for it. This discovery reinforces the importance of colour as an essential characteristic of chinoiserie architecture, so often missing or altered on surviving buildings or beyond study due to the many structures that have disappeared. Chambers's approach suggests that in regard to colour, as in so many other areas, the Chinese style was 'adoptable and adaptable'.[2] Although a self-proclaimed proponent of authenticity, the architect created the Pagoda from a combination of sources, most entirely fanciful. His use of experimental materials and his readiness to instigate a radical change so soon after the Pagoda's completion further mitigate any high principles he may have held. As scholars of the style have noted, eighteenth-century chinoiserie was a fluid concept, determined as much by imagination as by any realistic vision of China.

Fig. 1. *The Great Pagoda, Royal Botanic Gardens, Kew, as restored in its modern landscape setting*

The European imitative Chinese style, which Dawn Jacobson has called 'one of the strongest, most consistent strains in western taste', has always reflected contemporary attitudes towards China.[3] In the seventeenth and eighteenth centuries, these were marked by curiosity and reverence, only to be replaced in the nineteenth century with feelings of familiarity and often aversion. More recent studies link the style to the rise of consumerism, materialism and innovation in manufacturing, while also crediting it with its own sustained aesthetic logic.[4] Few historians, however, have treated chinoiserie architecture entirely separately from decorative arts and interiors. Such buildings have often been marginalised in the scholarly literature, rarely attracting detailed analysis and consideration.[5] This comparative neglect may be explained by the narrow function that they served as garden buildings or follies. And they were never numerous; in contrast to the many surviving examples of furniture, porcelain, lacquered objects and other tradable commodities of the period, few buildings still exist and virtually none survive in an original state. The Pagoda itself now stands isolated, one of only half a dozen survivors of the many buildings that Chambers constructed in the gardens for Princess Augusta, the dowager princess of Wales. It is the last of a clutch of Chinese-inspired buildings that once included the royal aviary, a '*ting*' or pavilion on an island in the royal menagerie, a Chinese bridge and the 'House of Confucius'. These structures

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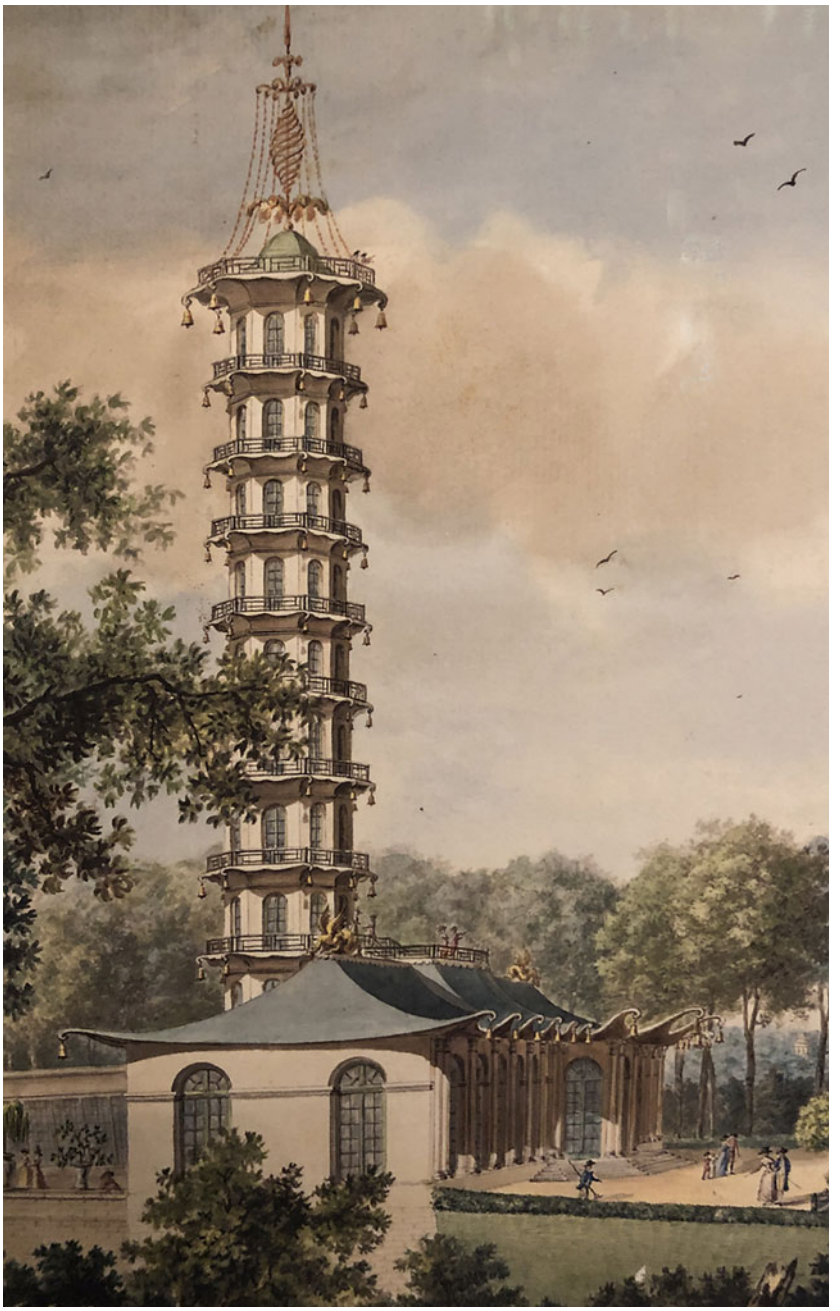

Fig. 2. *François Lefèbvre (1762–1835),* Chinese Pavilion in the Park of Laeken *(detail), 1787. The pagoda with its Chinese orangery was built in 1782–84 for the governor of the Habsburg Netherlands and said to be inspired by Kew. It was destroyed by occupying French troops before 1815 (Albertina Museum, Vienna)*

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represented the largest assemblage of its kind and were given more authority by Chambers's own claims to first-hand knowledge of Chinese architecture. Alone among contemporary architects, he had travelled to China twice in his youth as a factor in the Swedish East India Company, an experience that culminated in the publication of his *Designs of Chinese Buildings* in 1757.[6]

The construction and early history of the Pagoda are not well recorded. Hitherto we have relied almost entirely on Chambers's own self-expressed motivations and descriptions in his *Plans, Elevations, Sections and Perspective Views of the Gardens and Buildings at Kew* of 1763, a book that was not always received uncritically. One guidebook author, John Fisher Murray, declared it to be 'a tedious account of his expensive trumpery'.[7] Chambers's narrative does, however, highlight two noteworthy features of the Pagoda's initial appearance: its roof was laid with 'plates of varnished iron of different colours', while the roof hips were adorned with eighty carved timber dragons 'covered with a thin glass of various colours, which produces a most dazling [*sic*] reflection'.[8] Until now, the physical record has not been carefully studied. Nor does the documentary record hold much information of this early period, as it was only from the 1770s that management of all the garden and ornamental buildings fell under the responsibility of the Office of Works and its successor organisations. A recent discovery in the Works accounts, however, reveals the results of a comprehensive refurbishment in 1784, when the dragons and iron were removed. Thereafter, only small-scale repairs to the Pagoda seem to have taken place, until the architect Decimus Burton refurbished the whole again in 1845.[9] In 1895, the building was painted vermilion on the orders of the secretary of Works Henry Primrose, who wanted the Pagoda to accord more closely with contemporary notions of authenticity, and this is the way it has been experienced in living memory.[10]

Chambers's own descriptions of the unusual materials and the dragons are reinforced by the first schemes of paint revealed by the archaeological analysis, which shows that the main joinery elements of the roofs, the slatted undersides (then with only widely spaced slats) and fascias were painted with green copper verdigris, an expensive and prestigious material capable of achieving a glossy sheen.[11] Derived from basic copper acetate boiled in Venetian turpentine, it was the brightest and most vivid green available, although very rarely found in exterior environments.[12] Before the eighteenth century, it had normally been used in panel paintings and in some interior decorations, such as Horace Walpole's green closet at Strawberry Hill, which still survives. As well as being difficult to make and apply, verdigris was expensive. Comparative prices for colours a generation earlier had placed 'common colours' at 4d per yard, rising through Prussian blue at 10d and green (which may mean copper verdigris) at 12d.[13] The technical aspects of producing this colour and others were still clearly being perfected in the mid-eighteenth century. The premiums given by the Royal Society for the Encouragement of Arts, Manufactures and Commerce for innovation in 1764 include an award of £50 to Nicholas Crisp (1704–74) for developing zaffre and smalt, while John Bindley had been awarded £100 for verdigris the previous year.[14] Its popularity may have derived from its glass-like surface, which mimicked japanning, itself developed to imitate East Asian lacquerwork. As recent tests have confirmed, however, verdigris is wholly unsuitable for exterior paintwork. Within a few months,

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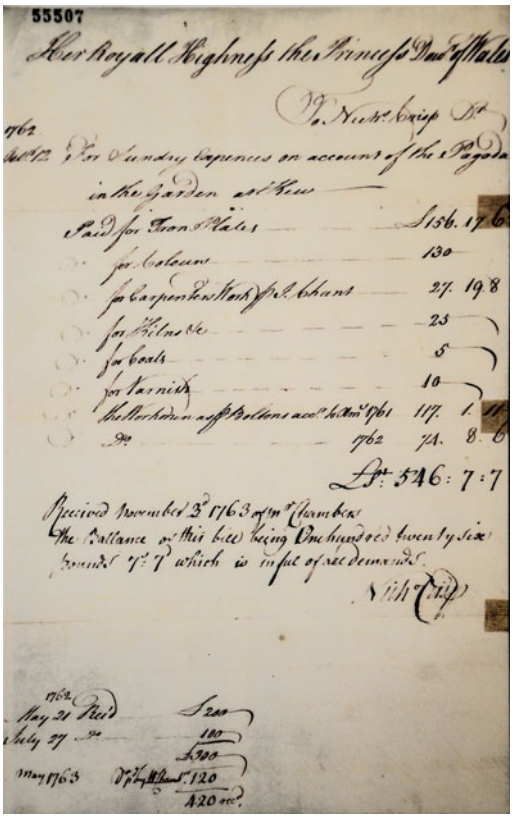

Fig. 3. *Privy purse account of Princess Augusta of Wales detailing the final works on the Pagoda roofs, 1762–63 (Royal Archives, Windsor)*

it develops a crazing surface-pattern, loses its sheen and becomes progressively darker.[15] The technological know-how involved in the Pagoda's construction went further still. Crisp, noted above for his efforts in developing smalt, can be linked directly to the Pagoda by a bill that survives in the privy accounts of Princess Augusta for the fabrication of the coloured iron plates (Fig. 3).[16] It lists payments for iron tiles, for 'colours', kilns, coals and varnish, including provision for workmen provided by a certain Mr Bolton over two years from 1761 to 1762.

The use of iron on the Pagoda is unprecedented. Despite great strides in cast iron fabrication in the latter part of the eighteenth century, it has long been believed that the material was not used for roof covering until the construction of the Palace of Westminster in the 1830s. Its appearance at the Pagoda therefore anticipates iron-clad roofs in Britain by seventy years and represents the forefront of its use in architecture. Surprisingly, Chambers gives no hint in his writings that he ever considered iron as a suitable material at all. His motives for using such a risky and experimental material are more likely due to sheer novelty and the greater possibilities that it offered for the application of colour in the form of enamelling and varnishing.

Had Chambers adhered to the buildings he saw in China, he would undoubtedly have considered glazed and coloured ceramic tiles rather than an untested material

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such as cast iron. White, green or yellow slip-glazes would have been possible to produce, though their longevity in a frost-prone climate may have dissuaded him. In contrast, iron provided promising new opportunities for innovation, as a flat plate would have been durable and straightforward to manufacture at scale by casting in sand. New innovations would also offer him the opportunity of applying seemingly frost- and weather-proof colour, which could only have been achieved by the application of vitreous enamelling. This process, which required industrial furnaces, had only recently been made possible with the development of coke smelting around 1750.[17] In the bill, the iron plates cost just over £156, while the 'colours', which we can only assume were unspecified enamel pigments, were almost as much at £130, suggesting that whatever form they came in, they were both prodigious and expensive. Mention of Mr Bolton is likely to refer to John Bolton, an enameller of Kentish Town and former professional associate of Crisp.

An unlikely contributor to a building project, Crisp was a technical innovator. Described variously as a jeweller, watchmaker and haberdasher of Bow Churchyard, he might today be described as a restless entrepreneur, who combined commercial ventures with scientific experimentation to promote technological advances.[18] His reputation was reinforced when he became a founding member of the Royal Society for the Encouragement of Arts in 1756.[19] From 1752, he joined John Sanders in a venture to make porcelain in Vauxhall.[20] Although the factory was not a commercial success, it was distinguished by continuous experimentation in glazes and colours, particularly after 1754 when Henry Delamain invented a kiln for burning white-glazed earthenware with pit-coal instead of wood.[21] In 1758, Crisp had submitted a treatise for the gold medal offered by the Royal Society on 'searching for cobalt, trying it and making zaffre and smalt with it' and, as mentioned above, was later awarded a prize for similar efforts.[22] In November 1761, just as the Pagoda's plates were being made, he was experimenting with cobalt on porcelain to establish the quality of the colours that resulted.[23] A year later, in a letter to Lord Alva, he may have alluded to the enamelled iron of his Pagoda work, noting that 'we have Mills, and Furnaces, to Burn, Calcine, Melt and Grind our Glaze, Blue & Materialls, and by the means of which I have had much experience in the making Glass and all compositions of Vitrifiable Earths, colouring metals, and zaffre'.[24] The Pagoda's iron roofs were therefore part of an experimental venture in which colour was applied to iron plates in a new way and on an ambitious and unprecedented scale. Which colours were used and how they were arranged on the building remains open to debate. John Harris has suggested that they were laid in alternate rows of green and white. This is plausible, but difficult to corroborate on the available evidence.[25]

Chambers's efforts failed rather quickly. The *Public Advertiser* remarked on the deterioration as early as 1772: 'His Majesty has given Orders for repairing and beautifying the Pagoda in Kew Gardens with all speed.'[26] Despite this notice, there is no record of anything other than minor repairs in the accounts until the autumn of 1783, when the building was clearly in a poor state and exercising Chambers's mind.[27] The architect, by now surveyor and comptroller of the King's Works, wrote to the Lord Chamberlain with estimates. After noting various methods of restoring the roofs of the Pagoda, 'which are now much out of repair', he advocated the replacement of the ironwork with slate and copper, 'for though it be considerably dearer than any other method, it will be

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Fig. 4. *The Pagoda roof slats repainted in 2018 according to their eighteenth-century colours*

attended with no material future expense'.[28] Analysis of the building attests to comprehensive repairs: the timber in the roofs was strengthened and partially replaced, almost all the previous covering materials were removed, and colour combinations were adjusted.[29] The experimental nature of the plates, combined with their weight, the known instability of copper verdigris and the hostile weather conditions experienced in the later eighteenth century are likely to have prompted this expensive refurbishment.

The warrant for repair arrived in July 1784.[30] The dragons and iron slates were removed shortly after and replaced by Tavistock slate and copper.[31] The copper, rather than being left untreated and allowed to patinate naturally, was painted with Venetian red, the blood-like colour obtained from iron oxide. The colour scheme of the roof soffits was also transformed, first by infilling the open gaps with new, slender slats. Analysis suggests that they were then painted in a pattern of wide green and white stripes, diminishing in proportion towards the upper levels, with each colour banded with a thin slat in black (Fig. 4).[32] This change suggests that the original colour variation was transferred from the upper to the lower faces of the roofs, but with the added effect of accentuating the sense of height. The joinery throughout was similarly updated: the balcony rails and window frames were painted a flesh colour to contrast with Venetian red used for the casement windows. This time the original verdigris of the soffits was substituted for cheaper, more durable pigments. Although the paint is specified as 'copper verdigris' in the bill and charged at just under £35, modern chemical analysis has proved it to be a more durable green obtained by using Prussian blue.[33]

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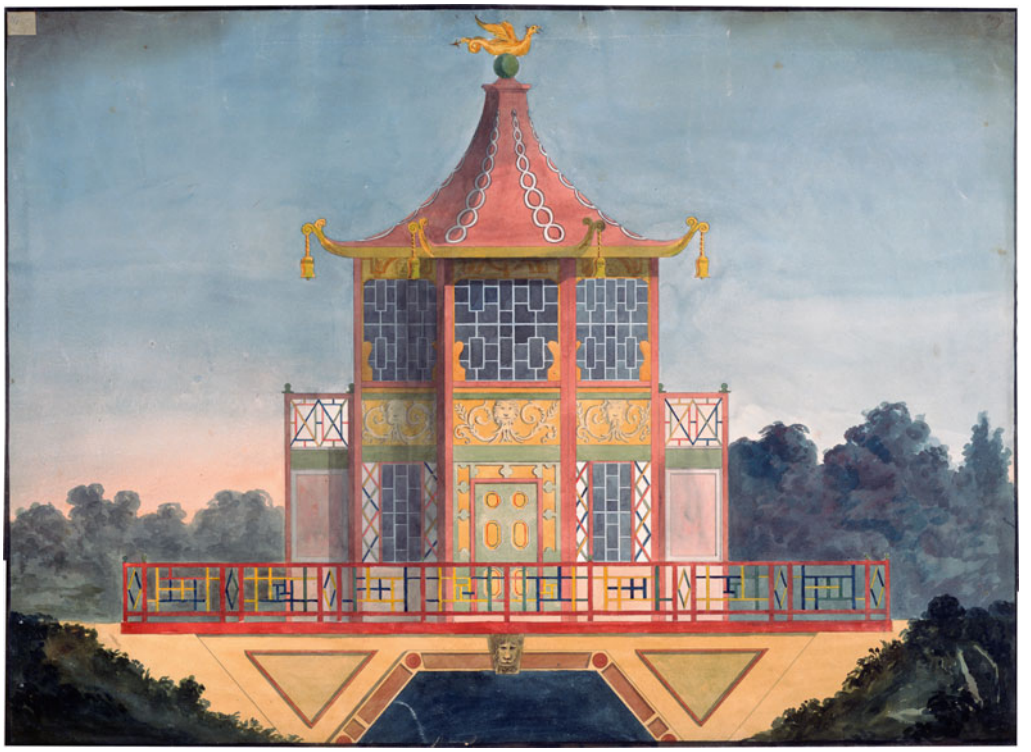

Fig. 5. *Soane Office, undated coloured drawing of the House of Confucius at Kew, produced for Royal Academy lectures (Sir John Soane's Museum)*

The repairs were undertaken by a well-known group of craftspeople who regularly worked for George III at Kew, aside from one figure who appears uniquely in the royal accounts for the refurbishment: Frederick Jury, a coppersmith who may have had Continental links and a direct connection to European chinoiserie buildings. As a building craftsman, Jury specialised in a material that had a long tradition of use in northern European architecture, but not in Britain.[34] At Potsdam, the Chinese tea-house constructed for Frederick the Great in the 1760s was given an undulating roof of painted copper by one Friedrich Jury, a member of a prolific local dynasty of coppersmiths in Berlin, familiar with royal commissions.[35] It has yet to be established whether Kew's Frederick Jury is the same person; Friedrich Jury died in 1785 in Berlin, and he is not known to have travelled.[36] However, Chambers had links to Potsdam, and the coincidence of name and occupation suggests that there must at the very least be a familial link, which may explain the sudden and anomalous appearance of this material on an English building.[37]

The two distinct versions of the Great Pagoda reveal not only a process of experimentation, but, more importantly, a clearer picture of the role of colour in chinoiserie buildings generally. The few such structures that survive have been altered and repainted, while the artistic record, often represented by coloured prints and drawings, is not necessarily reliable.[38] As Ian Bristow has noted, the study of colour is also full of

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deeply rooted perceptual prejudices.[39] Nor is the documentary record abundant. Contemporary sources seldom mention colour, and even where good records survive, such as for the redecoration of the House of Confucius at Kew in 1813, the terminology used can be vague and difficult to identify with known modern colours. There, for example, the painter Rowland used 'Nankin colour', 'fine' Indian red, 'fine' blue, Chinese vermilion prepared in varnish, Naples yellow and Chinese green (Fig. 5).[40] This case is unusual in that several of the colours remain in use today, but it is not known whether they were intended to match the original decorative scheme, that is, merely to refresh a building by then sixty-three years old, or whether they represented an entirely new aesthetic. Often the earliest layers on buildings have been obscured by later schemes, which themselves have important value. As a good example, the Chinese pavilion at Stowe has in recent years been redecorated to match a scheme from the 1820s, rather than one from its origin in the 1740s, when an entirely different aesthetic prevailed.[41]

In the early 1750s, the architect Roger Morris had dismissed the need for careful consideration of colour in Chinese buildings, which, he claimed, needed nothing more than 'a few Laths nailed across each other, and made Black, Red, Blue, Yellow, or any other Colour, or mix'd with any Sort of Chequer Work, or Impropriety of Ornament', to complete the whole.[42] Morris's pejorative language, however, may not be representative. William Hogarth, and later Robert Dossie, showed a keen interest in colour theory and in the inter-relationships of colours in the mid-eighteenth century.[43] Certainly, colour was an important aspect of Chambers's approach to design. In a letter from the eccentric Duchess of Queensberry dated November 1772, she speaks of a previous discussion about the Chinese house at Amesbury in Wiltshire, demonstrating her apprehension about colour but also her confidence in the architect's taste. At Lord Radnor's she had seen 'a parcel of Couleurs added by a painter towards the rough finishing shocking to behold as intollerably tawdry'. However, she adds that 'S^{r} W^{m} knows that the assemblage & blending of Couleurs are great Principals of his own masterfull supream taste'.[44]

What, then, of the extraordinary picture conjured by the two phases of the Pagoda? The arrangement of colours and the use of stripes bring to mind ephemeral structures such as tents and garden pavilions. An earlier example of royal chinoiserie was the Duke of Cumberland's Chinese yacht known as the *Mandarine*, which had been dragged as a hulk across land to Virginia Water in 1756 and then embellished in the Chinese style. A large structure, analogous to a garden building, it had a roof striped in the manner of a tent.[45] Paul Sandby's depiction shows a clear construction in fabric of pale blue and white (Fig. 6). A similarly decorated pavilion stood on a nearby island. Mrs Lybbe Powys described it in 1766 as 'a small house quite in the taste of that nation [the Chinese], the outside of which is white tiles set in red lead, decorated with bells and Chinese ornaments.[46] Even the House of Confucius at Kew had a striped roof made of canvas.[47] The portable pavilion now at Boughton, made for the Second Earl of Montagu in 1746, is essentially a tent fabricated with oilcloth and stiffened on a timber framework, which has only survived because it could be dismantled and packed away each winter. Its roof also retains traces of striping (Fig. 7).[48] The Kew Pagoda may have been intended to render such ephemeral structures in permanent, monumental form.

Similar decorative colour patterns were found elsewhere. The Chinese pavilion at Shugborough, complete by 1748, was painted pale blue and white with fret patterns,

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Fig. 6. *Paul Sandby (1731–1809),* The Chinese Junk Afloat on Virginia Water, c. *1753, watercolour (Royal Collection Trust)*

Fig. 7. *The Chinese Pavilion, Boughton, Northamptonshire, view of the striped roof covering*

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Fig. 8. *Thomas Chippendale senior (1718–1779), corner cupboard, 1768–78. The cupboard, 'japanned green and white', was part of a suite made for David Garrick's villa at Hampton (Victoria and Albert Museum)*

and decorated with Indian birds and mandarins.[49] Among luxury products, the evidence suggests that Asian lacquerwork provided a strong inspiration. Mrs Delaney remarked that the *Mandarine* was 'as rich and gay as carving, gilding, and japanning can make it'.[50] Even the most ephemeral buildings may have followed the theme. A recent test on the pavilion at Boughton indicates an external treatment of green which may be copper verdigris, though chemical degradation has rendered it almost black and new testing is needed.[51] Interior furnishing, too, may have served as an inspiration. Thomas Chippendale manufactured japanned furniture in colour combinations that accord with those found on the Pagoda. In 1772, David Garrick paid him £48 for '12 very neat carv'd Cabreole arm'd Chairs, Japan'd Green & White' as well as a sofa for

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Fig. 9. *Robert le Vrac Tournières (1667–1752), portrait of Richard Bateman, 1741, oil on canvas (Birmingham Museum and Art Gallery)*

the best dressing room at his villa in Hampton. Several pieces from the same suite survive, including a startling green and white corner cupboard in the V&A collection (Fig. 8).[52]

Green and red, too, were closely identified with chinoiserie, both in England and abroad. A model of a Chinese pavilion in the garden of the Hotel Montmorency-Chatillion in Paris, belonging to Count Gontaut-Biron, has a green roof with red and white details which may replicate the actual building, now lost.[53] At the fantasy village of Mulang at Wilhelmshöhe near Kassel, Germany, a pagoda begun in 1781 by the Landgrave Friedrich II of Hesse-Kassel had a roof of sheet metal painted red.[54] In his portrait of Richard Bateman of 1741, the artist Robert le Vrac Tournières included as a backdrop his patron's little Chinese pavilion at Grove House, Old Windsor, described by the poet and landscape designer George Lyttleton as 'half-gothic, half attick, half Chinese, and complete fribble' (Fig. 9).[55] The artist used red for the timber and green and yellow for the roof tiles, which appear to be inspired by ceramics.[56]

Neither these buildings nor the Pagoda drew on a single common source. Although Horace Walpole and others assumed the Great Pagoda to be a straightforward copy of the Porcelain Pagoda at Nanjing, Chambers himself, in his *Designs of Chinese Buildings* of 1757, wrote generally about pagodas or the Chinese '*taa*' as a building type.[57] Although Chambers must have known of the Porcelain Pagoda through prints, it has been suggested that he saw and perhaps emulated pagodas on the Whampoa River in the vicinity of the trading entrepots of Canton, to which all merchants were confined and where he spent time as a factor for the Swedish East India

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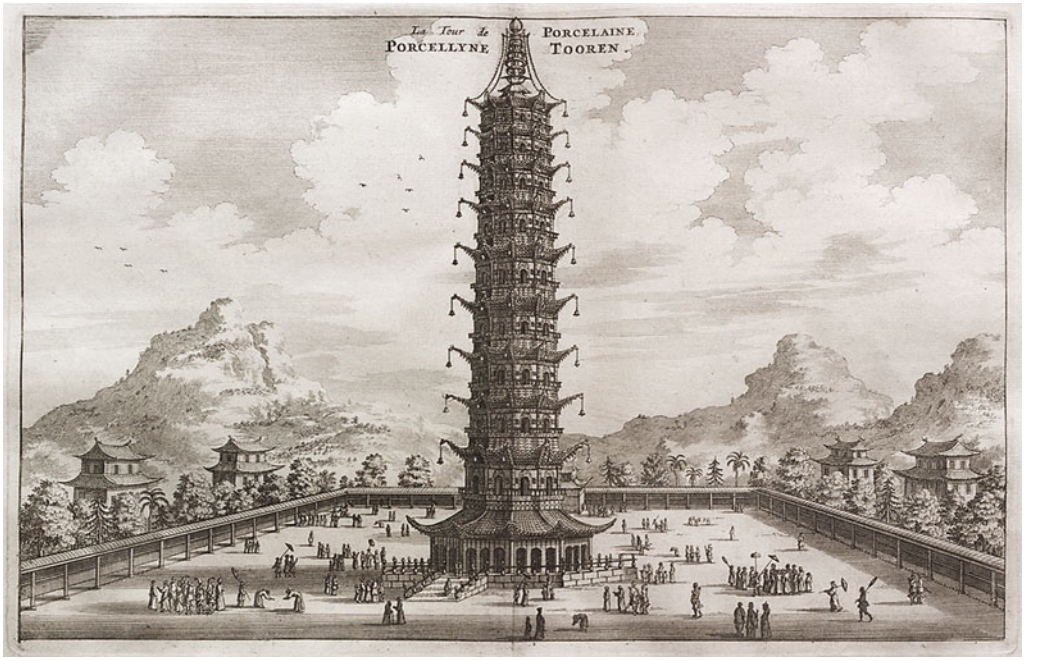

Fig. 10. *Johan Nieuhof, the Porcelain Pagoda as illustrated in the French 1667 edition of* An Embassy from the East-India Company

Company in 1747 and 1749.[58] However, this interpretation may be too simplistic. Kew's Pagoda has none of the sophisticated timber joisting, corbelled brickwork or structural embellishments that characterise Chinese architecture and that he could have seen had he been given a chance to inspect these buildings closely. To the contrary, the Kew Pagoda is conventionally built of brick and timber, with hardly any structural embellishment, and its sources are clearly much wider and more dispersed. When composing his Chinese treatise, for example, Chambers wrote to his brother in Sweden requesting new material, betraying the limitations of his own first-hand observations.[59] The disparity between his printed examples and what he eventually built at Kew also suggests that he felt no obligation to follow his own earlier ideas. The Pagoda instead resonates with both early prints and the written descriptions of Johan Nieuhof (published in the 1660s) and Jean-Baptiste du Halde (1735), whose accounts were the result of travel that went far further than merchants and others later in the eighteenth century.[60] Nieuhof described the Porcelain Pagoda as ten storeys tall and 'Glaz'd over and painted several Colours, as Green, Red, and Yellow'. His print likewise depicted it with ten floors (Fig. 10), an error that the Pagoda seems to have reproduced despite the fact that pagodas in China conventionally have an odd number of floors.[61] These buildings also appear to have provided inspiration for ornamentation. Of the pagoda at Sinkocien, Nieuhof says that 'on the roofs, on the corners of which hang copper bells, lie cleverly carved dragons and other land-monsters'.[62] While many depictions

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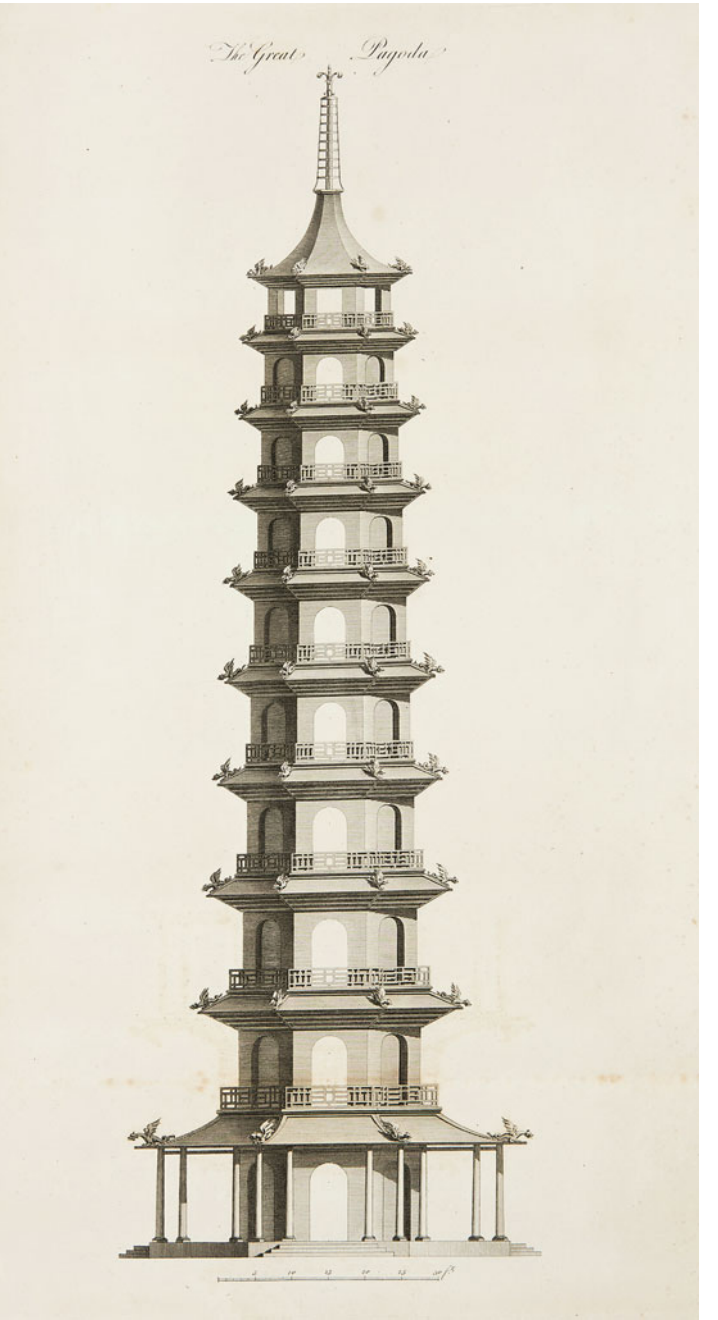

Fig. 11. *William Chambers (1723–96),* The Great Pagoda*, from* Plans, Elevations, Sections and Prospective Views of the Garden Buildings at Kew *(London, 1763)*

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Fig. 12. *Ceramic stove with dragon, unknown artist, c. 1745–47 (Palace of Sanssouci, Potsdam)*

of chinoiserie structures show a token dragon at the apex of the roof, Chambers seems to have taken this description and applied it fully at Kew (Fig. 11).

Chinoiserie dragons differ from those found in China. Printed sources and surviving carved and ceramic examples show them creatively transformed by the Rococo imagination. Restoring the lost dragons of the Pagoda has proved challenging, as the originals were never recorded in detail. Indeed, the depictions in Chambers's own printed engravings are fairly crude. However, many dragons survive on European decorative art of the period, adorning furniture, mirrors, picture frames and silverware. Comparison shows that they conform to a standard model, with feathered bodies, often two legs and a looped tail terminating at an arrow-point. The tent at Boughton (Fig. 7) features just such a dragon, although this is likely to be later, and a more contemporary and expressive version can be seen on a ceramic stove at Frederick the Great's residence at Sanssouci in Potsdam (Fig. 12). These models, as well as the silhouettes shown in William Marlow's oil and watercolour depictions of the building, discussed below, have been used to recreate Chambers's dragons on the newly restored Pagoda.

Ultimately, Chambers's experiments in chinoiserie architecture were confined to Kew.[63] This limited output could be interpreted as representing a certain ambivalence towards the

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Fig. 13. *William Marlow (1740–1813), view of the Pagoda, the Alhambra and Mosque at Kew, c. 1763. This oil-on-copper version complements a watercolour now in the Metropolitan Museum, New York (private collection)*

style, perhaps even as a source of embarrassment. However, the evidence suggests the opposite. The Kew buildings were constructed early in his professional career, when he was eager to please his patrons, the princess and the king, in a context that was amenable to expressing architectural variety. In contrast to his classical pavilions and temples, these were whimsical and fantastic, unlikely to come under focused scrutiny for their perceived imperfections. Indeed, during the refurbishment twenty years later, the architect, now with an established reputation, took the time to rethink and reimagine the Pagoda along entirely different lines. Clearly, the building still interested him; this effort was no less imaginative than the first. Nor were his design experiments at Kew limited to chinoiserie. Among the other buildings there, he constructed a tea-house known as the 'Turkish mosque', demonstrated by John Harris to be a concoction of sources as well as the loosely 'Moorish' Alhambra.[64] The commissions at Kew thus gave Chambers's imagination free reign.

The matter of authenticity seems to have been an eighteenth-century preoccupation, and Chambers was at pains to demonstrate that his Chinese style was also genuine, as if seeking validation from his peers. Modern commentators have been less generous. David Porter has accused the Pagoda and other Chinese buildings of repudiating any fixed standards or accepted models and displaying an irreverent disregard for their sources.[65] Our new knowledge of the Pagoda shows that this is broadly true, but it misses the point that the building needed to play to the novelty and exoticism that was expected of it. There were, in other words, no 'accepted models' other than those which Chambers himself chose to use. As I have argued, colour was a crucial element of Chambers's aims and of the building's purpose, and it played particularly to the context of the garden, where theatricality and other-worldliness reigned. In William Marlow's view of Kew, for example, which Chambers replicated in his own book as an engraving, the juxtaposition of three fantasy buildings portrays the gardens as a land of the imagination and of variety (Fig. 13). Colour was clearly far more important to the concept than architectural form alone. The building's novelty was reinforced by

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the use of untested and experimental materials. In all of these ways, Chambers signalled an affinity with the rarity and exoticism of luxury products such as porcelain and lacquer, thus providing a crossover between chinoiserie as decorative art and as architecture. Contemporary viewers no doubt understood that the building was fully 'authentic' for being integrated into the wider visual culture of chinoiserie.

The prominence and visual impact of the Pagoda has always produced extremes of reaction. The anonymous writer of a piece entitled 'On Gardens and False Taste' in 1774 criticised Kew Gardens in its entirety, but reserved particular censure for the building.[66] For him, it appeared 'more like a baby house', commanding neither respect nor awe. Comparing it to the 'puerile efforts of an overgrown boy' — a barb at George III — he expressed exasperation with its seeming frivolity and unintelligibility. A more recent commentator has mirrored this sentiment, describing Kew as an 'uninhibited world of chinoiserie frivolity'.[67] Many contemporaries, however, would have appreciated precisely this quality, one that the newly restored Pagoda recaptures.

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BIOGRAPHY

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ABSTRACT

The Great Pagoda in Kew Gardens is the most important surviving chinoiserie building in Europe. Restoration of the building in 2017–18 was attended by extensive documentary and forensic research, which revealed two markedly different eighteenth-century schemes of decoration undertaken by the architect William Chambers in 1761 and 1784. Both schemes were characterised by the use of innovative and experimental building materials and the application of a varied colour palette which can be shown to have close affinities with temporary, ephemeral buildings. With so few surviving contemporary examples for reference, colour and building materials appear as important characteristics of chinoiserie architecture. The discoveries at Kew demonstrate that these elements were fundamental to the style, which was never constrained by any fixed set of rules. Chambers drew on no single source for the building, but instead imaginatively adapted the Chinese style in a structure of great virtuosity.

NOTES

1 Two good examples are the pagoda at Oranienbaum-Wortlitz in Saxony-Anhalt, Germany, built by G.Ch. Hesekiel for Leopold III, Prince of Anhalt-Dessau, between 1795 and 1797 (extant), and the pagoda with a

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Chinese orangery at Laeken (then known as Schonenberg), constructed in 1782–84 by Charles de Wailly under Louis Montoyer as a summer residence for the governors of the Habsburg Netherlands.

2 Stacey Sloboda, *Chinoiserie: Commerce and Critical Ornament in Eighteenth Century Britain* (Manchester, 2014), p. 45.

3 Dawn Jacobson, *Chinoiserie* (London, 1993), preface.

4 Sloboda, *Chinoiserie*, p. 6.

5 Patrick Conner's *Oriental Architecture in the West* (London, 1979) remains the most comprehensive text on buildings rather than wider decorative arts.

6 William Chambers, *Designs of Chinese Buildings, Furniture, Dresses, Machines and Utensils* (London, 1757).

7 John Fisher Murray, *Environs of London, Western Division* (London, 1842). The Pagoda is represented in plates 22 (plan), 23, 24 and 25. It is also depicted in plates 38 and 43, the latter after a watercolour by William Marlow.

8 William Chambers, *Plans, Elevations, Sections and Prospective Views of the Garden Buildings at Kew in Surrey, the Seat of Her Royal Highness the Dowager Princess of Wales* (London, 1763), pp. 5–6.

9 Examples of minor works include repairs to the steps by William Jelfe in 1769 (Windsor, Royal Archives, 55597) and by George Warren to the staircase in May 1770 (William Chambers's letter books, London, British Library [hereafter BL], Add MS 41133, ff. 12–13). Various plans and drawings also exist in the Kew Herbarium Library. The main documentation is contained in the UK National Archives at Kew [hereafter TNA], Work 16/590. In the 1840s, Burton quoted £3500 for the refurbishment but advocated the painting of the brickwork and the addition of bells and chains to newly curved roofs. There is no evidence this was ever carried out.

10 TNA, Work 16/590. Henry Primrose was secretary to the Office of Works from 1887 to 1895.

11 Catherine Hassall, 'The Pagoda, Kew Gardens', unpublished report B138, June 2013. Also see 'Kew Pagoda Roof Paint', unpublished report B392, November 2014. Hard copies are held in the curatorial archive at Hampton Court Palace.

12 H. Kühn, 'Verdigris and Copper Resinate', in *Artists' Pigments: A Handbook of Their History and Characteristics, Volume 2*, ed. A. Roy (Oxford, 1993), pp. 131–58. For a summary of copper verdigris used on historic oil paintings, see Renate Woudhuysen-Keller, 'Aspects of Painting Technique in the Use of Verdigris and Copper Resinate', in *Historical Painting Techniques, Materials, and Studio Practice* (preprints of the symposium held at the University of Leiden, 26–29 June 1995), ed. Arie Wallert, Erma Hermens and Marja Peek (Getty Conservation Institute, Los Angeles, CA, 1995), pp. 65–69.

13 William Salmon, *Palladio Londiniensis* (London, 1734), p. 62.

14 Robert Dossie, *Memoirs of Agriculture and other Oeconomical Arts* (London, 1768), pp. 23, 167. See also 'The Premiums', *Journal of the Royal Society of Arts*, 60, series VI, no. 3087 (19 January 1912), pp. 235–45.

15 This work has been carried out by Pedro da Costa Felgueiras of Lacquer Studios, London, who was a consultant to the Pagoda project and with whom HRP is collaborating on continuing testing of the material. See 'The Development of Copper Verdigris in the Eighteenth Century' (forthcoming report for the Traditional Paint Forum).

16 Windsor, Royal Archives, 55507.

17 John Gloag and D.L. Bridgwater, *History of Cast Iron in Architecture* (London, 1948), p. 44. The authors note that the 'seventy-year period from 1750 to 1820 is crowded with the names of adventurous, innovating, mechanical engineers, civil engineers and architects who appreciated the possibilities of the new material' (p. 53). The Carron iron company, for example, was founded in Falkirk in 1760.

18 Roger Massey, 'Nicholas Crisp at Bovey Tracey', *Transactions of the English Ceramic Circle*, 18.1 (2002), pp. 96–113.

19 Aubrey J. Toppin, 'Nicholas Crisp, Jeweller and Potter', *Transactions of the English Ceramic Circle*, 1.1 (1933), pp. 38–43.

20 From Richard Cecil, ed., *Memoirs of John Bacon, Esq, R.A., with reflections drawn from a review of his Moral and Religious Character* (London, 1801), p. 3. See also Peter Bradshaw, *Bow Porcelain Figures circa 1748–1774* (London, 1992), p. 31, and Toppin, 'Nicholas Crisp', p. 38.

21 *Monthly Magazine or Monthly Chronologer*, 1754, p. 437. Cited in Bernard M. Watney, 'The Vauxhall China Works, 1751–1764', *Transactions of the English Ceramic Circle*, 13.3 (1989), pp. 212–25 (p. 214).

22 Edinburgh, National Library of Scotland [hereafter NLS], Erskine Murray archive, MS5153. Zaffre is a form of raw cobalt oxide.

23 Letter from Nicholas Crisp to Lord Alva, NLS, Erskine Murray archive, MS5098, f. 136.

24 Letter from Crisp to Lord Alva, 11 May 1762, NLS, Erskine Murray archive, MS5098, f. 160. Crisp ultimately went bankrupt in 1764 and transferred his venture to Bovey Tracey in Devon, where he procured his soapclays, but this too failed.

25 John Harris, 'Sir William Chambers and Kew Gardens', in his *Sir William Chambers: Architect to George III* (London, 1997), pp. 55–67. Harris notes his source (p. 212) as the travel diary of Count Charles Paul Ernest of

Bentheim-Steinfurt (1729–80), information he derived from Dr Bernard Korzus. The diary, in the form of a bound volume, reflects a journey of 1763 and remains in the private possession of the current Prince Bentheim-Steinfurt. On re-examination, the original manuscript was found not to mention colour but only: 'The Chinese tower, 300 English feet high of the very best kind of bricks ever baked in England. The drawing and remarks stand, that in my opinion this piece you can't find in all of Europe' (f. 14). I am grateful to Dr Gunnar Teske of the Landschaftsverband Westfalen-Lippe (LWL) for obtaining an image of the original pages and to Silke Kiesant of the Stiftung Preussicher Schlösser und Gärten Berlin-Brandenburg for transcribing it.

26 *Public Advertiser*, 16 April 1772.

27 Small-scale repairs are recorded in the Works accounts: in June 1779, Thomas Hardwick, mason, repaired the Portland plinth and some brickwork; James Arrow, joiner, repaired linings, and Rebeccah Hillman, the glazier, cleaned and mended windows (TNA, Work 5/67).

28 TNA, LC1/39, 1 August 1783. Also see the Office of Works Minute Books, 1 August 1783: 'sent a letter to the Lord Chamberlain relative to the repairing of the pagoda at Kew — £421.6s.6d', TNA, Work 4/16.

29 These conclusions can be extrapolated from the results of a paint analysis and tree-ring dating, which suggest that much of the timber in the 1780s phase can be traced to south western Sweden. The earlier phasing has not been matched to any known sequences and therefore is impossible to locate. Oxford Dendrochronology Laboratory, 'The Dendrochronological Investigation of Timbers from the Roofs and Floors of the Pagoda, Kew', unpublished report 2017/50. Hard copy held in the curatorial archive, Hampton Court Palace.

30 Office of Works Minute Books, 2 July 1784, TNA, Work 4/16.

31 TNA, Work 5/73, for all the bills associated with the refurbishment. Unpaginated but included as 'Pagoda Extra' for Michaelmas Quarter, 1784.

32 The use of these colours in combination is attested by William Evans's submission to the Works account bill of 1784, which specifies, among other items, '101 yards in Verdigris green', 'primary and second colouring black laths under the eaves' and 'stiff white lead'.

33 As the paint described in the bill as 'copper verdigris' has proved not to be true verdigris, the term is likely to describe its appearance, rather than the type of material used. The discrepancy provides a lesson that documentary descriptions of colour can be unreliable.

34 Painted copper appears on the King's Observatory at Richmond, designed by Chambers and constructed in 1769 for the second Transit of Venus. At the Brighton Pavilion, the Music Room and Banqueting Room were covered in copper *c.* 1815.

35 Jury is mentioned working with Benjamin Giese at the Chinese House in Sanssouci: *Beschreibung der königlichen Residenzstädte Berlin und Potsdam*, 2 vols (Berlin, 1779), II, p. 1021.

36 Hans Huth, 'Chambers and Potsdam', in *Essays in the History of Architecture Presented to Rudolf Wittkower*, ed. Douglas Fraser, Howard Hibbard and Milton J. Lewine (London, 1967), pp. 214–16.

37 A Frederick Jury, merchant, lived in London in the later eighteenth century. His will, proved in 1807, specifies that he was from Potsdam (TNA, PROB 11/1466/216).

38 A coloured Chambers drawing of the Pagoda at the Royal Institute of British Architects (RIBA, SC54/1), which appears to show colours such as blue and yellow on the balconies, cannot be corroborated by any of the paint sequences from the building, and is now believed to reflect a chemical reaction to a later restoration of the drawing: Ian C. Bristow, *Architectural Colour in British Interiors 1615–1840* (London, 1996), p. ix. See also John Gage, *Colour and Culture: Practice and Meaning from Antiquity to Abstraction* (London, 1993).

39 Bristow, *Architectural Colour in British Interiors.*

40 TNA, Work 5/102.

41 Emile de Bruijn, 'Found in Translation: The Chinese House at Stowe', *Apollo*, 165.544 (2007), pp. 52–59.

42 Roger Morris, *The Architectural Remembrancer, Being a Collection of New and Useful Designs of Ornamental Buildings and Decorations for Parks, Gardens, Woods, &c* (London, 1751), postscript, p. xiv.

43 See William Hogarth, *Analysis of Beauty* (London, 1753), and Robert Dossie, *The Handmaid to the Arts* (London, 1763).

44 William Chambers's letter books, letter dated 23 November 1772 from Amesbury (Wilts), BL, Add MS 41134, ff. 13r–14r.

45 A contemporary print (Royal Museums Greenwich, PU6488) notes that it was 40 ft long, displacing 50 tons, and had a grand room of 20 ft by 14 ft.

46 *Passages from the Diaries of Mrs Philip Lybbe Powys of Hardwick House, Oxon: AD 1756–1808*, ed. Emily J. Climenson (London, 1899), p. 114.

47 'To Temple of Confucius, fitting, sewing and nailing on canvas to roof', June 1778 (TNA, Work 5/66).

48 *The Chinese Pavilion. Boughton House, Northamptonshire*, ed. Rosemary Bowden-Smith (London, 1988). See also Johan Termans, Peter Meehan and Timothy Hayes, 'The Conservation of an Eighteenth-Century Chinese Pavilion', in *Gilding and Surface Decoration* (papers given at a conference held by the United Kingdom Institute for Conservation of Historic and Artistic Works of Art, 16 October 1991), pp. 30–35. They concede that the external roof canvas is likely to have been renewed.
49 Stephen McDowall, 'Imperial Plots? Shugborough, Chinoiserie and Imperial Ideology in Eighteenth-Century British Gardens', *Culture and Social History Journal*, 14.1 (2017), pp. 17–33 (p. 20). His source is a sketch by John Parnell, produced for 'Journal of the Tour thro Wales and England, Anno 1769', London School of Economics and Political Science Library Collection, Coll Misc.0038, vol. 1, f. 52r.
50 *The Autobiography and Correspondence of Mary Granville, Mrs Delaney: With Interesting Reminiscences of King George the Third and Queen Charlotte*, ed. Augusta Hall, Baroness Llanover, 3 vols (London, 1861), III, p. 462.
51 See Pamela Lewis, 'Paint Analysis', in *The Chinese Pavilion*, ed. Bowden-Smith, pp. 40–44. This analysis was limited in its scope, but further observations of the presence of yellow ochre and bright green were made in 1990 as the pavilion was prepared for exhibition in London. See Termans, Meehan and Hayes, 'The Conservation of an Eighteenth-Century Chinese Pavilion', p. 32.
52 The original account survives: London, V&A Library, R.C.Q. 20, transcribed and reproduced in Christopher Gilbert, *The Life and Work of Thomas Chippendale*, 2 vols (London, 1978), I, p. 245.
53 Osvald Sirén, *China and Gardens of Europe of the Eighteenth Century* (New York, 1950), p. 134.
54 Elenor Von Erdberg, *Chinese Influences on European Garden Structures* (Cambridge, MA, 1936), p. 187.
55 George Lyttleton, First Baron Lyttleton, letter of 11 August 1759, BL, RP2377 (i), letter 2. See also Matthew Reeve, 'Dickie Bateman and the Gothicization of Old Windsor: Gothic Architecture and Sexuality in the Circle of Horace Walpole', *Architectural History*, 56 (2013), pp. 97–131.
56 Discussed in John Harris, 'A Pioneer in Gardening – Dickie Bateman Re-assessed', *Apollo*, 138.380 (1993), pp. 227–33.
57 Walpole also helpfully estimated the cost of the building at £12,000. See Horace Walpole, 'Journals of Visits to Country Seats, &c', ed. Paget Toynbee, *Walpole Society*, 16 (1927–28), p. 24. In his treatise, Chambers notes that 'The Towers called by the Chinese Taa, and which the Europeans call likewise pagodas, are very common in China'. He then notes that they are 'nearly alike, being of an octagonal figure, and consisting of seven, eight, and sometimes ten stories, which grow gradually less in height and breadth all the way from the bottom to the top' (*Designs of Chinese Buildings*, p. 5).
58 Aldous Bertram, 'Cantonese Models for the Great Pagoda at Kew', *Georgian Group Journal*, 21 (2009), pp. 47–57.
59 Letter from John Chambers to William Chambers, 3 July 1756, London, Royal Academy Letters, CHA/1/2.
60 See Johan Nieuhof, *An Embassy from the East-India Company of the United Provinces to the Grand Tartar Cham Emperour of China*, 2nd edn (London, 1669), and Jean-Baptiste du Halde, *Description Geographique, Historique, Chronologique, Politique et Physique de L'Empire de la Chine et de la Tartarie Chinois, etc* (Paris, 1735).
61 Plate by Nieuhof. Another example is Allain Manesson Mallet, from *Descripte de l'Univers* (Paris, 1683).
62 'Sinkocien' may be the modern city of Shijiazhuang. See the map that Nieuhof produced for the East India Company embassy that he accompanied in 1656: *Reys-Kaerte Vande Ambassade der Nederlandse Oost Indise Compagnie door China aen Den Grooten Tartersen Cham* (1665). The description of the roofs with their dragons does not occur in the English translation, but remains in the original Dutch: *Het Gezantschap Der Neerlandtsche Oost-indische Compagnie, aan den Grooten tartarischen Cham* (Amsterdam, 1665), p. 150 ('en op de daken, die aan de hoeken Klene kopere schelletjes hadden hangen, lagen kunstighgehouwen Draken en andere Landgedrochten').
63 A surviving pavilion with swept Chinese roofs at Blackheath has also been attributed to him, but without strong evidence. See Neil Rhind and Philip Cooper, *Montague House and the Pagoda* (London, 2012).
64 In addition to the Alhambra, John Harris has characterised the mosque as a conflation of Fischer von Erlach's Imperial Baths at Buda and the Sultan Orcana mosque at Bursa. See Harris, *William Chambers and Kew Gardens*, p. 65.
65 David Porter, *The Chinese Taste in the Eighteenth Century* (Cambridge, 2010), p. 27.
66 *London Magazine or Gentleman's Intelligencer*, 43 (August 1774), p. 360.
67 Hugh Honour, *The Vision of Cathay* (London, 1961), p. 154.