The Study of China and Chinese Architecture in Restoration England

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Introduction

The story of the influence of China on the development of the 18th century English picturesque garden is well known.[1] The irregularity and assymmetry, or "Sharawaggi," of the Chinese garden with its temples, grottos, lakes, cascades, arbors, and wildernesses, was first admired by Sir William Temple as early as 1685, based on published descriptions by Jesuit missionaries and ambassadors and visual images on screens and vases and in prints.[2] Although Temple did not suggest emulating the Chinese garden, the specifics of which little was known in any case, later writers, including Addison in 1712 and Pope a year later, began to call for a new style of informal garden. Lord Burlington and his architect William Kent began to create it at Chiswick during the early 1730's using the views of the imperial palaces and gardens of Jehol, engraved by Father Matteo Ripa, who was attached to the Chinese court from 1711 to 1723 and was in London sometime after September 1724.[3]

Although Chiswick and other gardens of the 1720s and 30s drew on the irregularity and naturalness found in the composition of the land, plantings, and buildings shown in such scenes, the buildings themselves, tempiettos, obelisks, and the like, were in the Classical style. The first garden pavilion in the Chinese style appeared in the 1740s, but it was not until the House of Confucius at Kew gardens in 1749, designed by William Chambers for Frederick, Prince of Wales, that the new craze took off.[4] It was fed by the books of William Halfpenny, including New Designs for Chinese Temples (1750).[5] William Chambers designed the Temple of Confucius at Kew, as well as the 160 foot high pagoda constructed by 1763, based on direct knowledge of Chinese architecture, having been to Canton in the 1740s in the service of the Swedish East India Company. This knowledge was made available in his Designs of Chinese Buildings was published in 1757, but already the style had begun to decline in popularity in England. Instead Chamber's book had its greatest influence in France and Germany during the 1770s and 1780s on the development of the jardin anglo-chinois.[6]

Despite the fact that architectural chinoiserie was an 18th century phenomenon in England, there is evidence that much earlier, during the second half of the 17th century, the foremost architects of the day were fascinated by Chinese culture and architecture—Christopher Wren (1632-1723), Surveyor General, Robert Hooke (1635-1703), Surveyor to the City of London and Wren's collaborator, and John Webb (1611-72), assistant to Inigo Jones, and, after the Restoration, architect of Greenwich Palace. Furthermore, they studied China and Chinese architecture as part of the program of the Royal Society, the first English scientific institution founded in 1660, of which Wren and Hooke were members. The interest in China of these architects did not result in a recreation of the Chinese style, which would not appear for decades. Yet the example of this non-European society and its architecture did have an influence on speculations about the nature of architecture and style in relationship to culture in a period when the Classical was considered the only possible choice.

This paper will examine the study of Chinese culture and architecture by Wren, Hooke, Webb, and others tied to the Royal Society. By applying the new standards for scientific investigation, they were able to view Chinese architecture not as a style to be rejected or copied, but, more, as evidence of the nature of architecture as a cultural phenomenon. As a result, Wren formulated a theory of beauty that both accomodated forms of architecture like the Chinese and upheld the Classical ideal, and furthermore opened the door to the "styles," including the Chinese, of the next century.

The Royal Society's History of the Mechanical Arts

The study of architecture at the Royal Society took place within the context of its Baconian program to write a history of nature and the mechanical arts. In his writings, including the Great Instauration, Francis Bacon (1562-1626) called for the observation of the "facts" of nature "in course," but also of nature "altered or wrought."[7] These facts would be collected into histories and tested by experiments, and thus provide the basis for induction, the discovery of the laws underlying nature. Bacon's history of the mechanical arts or history of trades included architecture.

The society attempted to establish a systematic method for the collection of information for its history.[8] Sets of inquiries were established and sent out to a large and varied group of contacts all over the world. In response came information provided by scientists and scholars on the continent and by Englishmen and other Europeans who traveled or lived abroad, especially those who were Royal Society members. Their letters or reports were read and registered at meetings, and sometimes printed in the society's journal, the Philosophical Transactions. Even more direct than the inquiries were the accounts given by foreigners visiting London who had first-hand experience in remote countries and were invited to the society or visited by individual fellows.

In the end the methods instigated directly by the society were not as informative as published travel books, which often provided valuable information on the topography, natural and artificial phenomena, as well as the architecture and antiquities, of various countries. The Royal Society attempted to collect as many voyages as possible, including unpublished manuscripts.

Several fellows, for example Hooke and Wren, also amassed huge libraries of voyages.[9] Recent publications were reviewed in the Transactions. Furthermore, the society promoted the translation of foreign travel accounts, as well as the publication of new ones, and provided guidance to observers for the collection and presentation of material.

For the purposes of creating a Baconian history this method of information-gathering proved to fall far short in providing a well-organized and comprehensive system. Nevertheless some informative accounts were produced—primarily the work of society members who applied scientific method to their studies. By emphasizing direct observation, accurate record-taking, and verification by experiment, by comprehensively gathering but also assessing the reliability of information given at second-hand, and by maintaining a skepticism at all times, valuable records were made of facts and processes related to certain natural and artificial phenomena.[10]

Descriptions of architecture were produced in the context of gathering information on the mechanical arts of particular countries. While much of it related to regions that had been occupied by the ancient Greeks and Romans, and hence concerned monumental Classical architecture, descriptions of dwellings and public buildings of non-western cultures were also included—primitive huts, Islamic architecture, as well as Chinese architecture.

For China and her architecture, the Royal Society continued to make use information that had been produced for nearly a century by two kinds of travellers—diplomats and missionary Jesuits. Leaving aside the medieval accounts beginning with Marco Polo in the 13th century, the voyages of discovery beginning two hundred years later brought about renewed contact with the Far East, which was hampered however by the isolationism of many of the Chinese emperors. Nevertheless there were travellers, many of them priests, who successfully conducted embassies to the Court of Heaven and produced accounts which were widely read and translated. The books of the Franciscan friar Juan Gonzalez de Mendoza (1585), the Portuguese Jesuit Matteo Ricci (1616), and Alvarez Semedo (1643)[11] provided glowing reports of the architectural splendors of China and other wonders of its culture. It was not however until the 1665 publication of Jan Nieuhoff, a member of the Dutch embassy of 1655, that a visual record was provided of Chinese culture, including her architecture. The recognized value of Nieuhoff's book is indicated by the production of an English edition in 1669 by John Ogilby.[12] On the heels of Nieuhoff was the China Monumentis Illustrata of 1667, written by the Jesuit polymath Athanasius Kircher, which, like Nieuhoff's book, was important for its visual images. Other accounts appeared during the second half of the 17th century.[13] A large number were known to the Royal Society membership, especially Hooke who presented summaries of voyages to China and Japan taken from travel books on the Far East, many of which he owned.[14]

Some of the most important records of travel and of natural phenomena were made by missionary Jesuits. A few of them served as official correspondents of the society.[15] Their publications provided a wealth of information on natural history of almost all areas of the world, especially the annual letters written from the missions from 1580 until around 1660, a selection of which were reprinted in the Transactions.[16] Several Jesuit works on travel to the Far East and the natural philosophy of the Chinese were reviewed or translated.[17]

Information on China came to England primarily through publications, but there were attempts at the Royal Society to contact directly people who had travelled there. In 1668/9 Henri Justel, a French member of the Royal Society, obtained information from a man who had lived in Japan and China on behalf of the society.[18] There is also one instance of a Chinese traveller to England. In 1684 the Belgian Jesuit missionary Father Philippe Couplet returned from China with a famous Chinese convert, Xin-fo-Cum or Mikelh Xin, from Nanking. This Chinese boy, who was able to communicate in Latin, was presented to Louis XIV and to the Pope, and in 1687 was brought to England. He visited London, where his portrait was painted by Kneller, and Oxford. Hooke hoped to contact Couplet or Xin, but it is unknown if he was successful.[19]

The Mechanical Arts and Architecture of China

The documents related to the Royal Society indicate that Chinese subjects were intermittantly discussed by the membership at large or pursued by individuals. Yet the seriousness of the society's interest is demonstrated by the decision to devote an entire issue of the Transactions, Number 180 from March and April 1686, to China, presenting accounts of voyages, the language, and the abacus.[20] Taken as a whole, the documents dating from the society's first few decades record the study of various topics relating to China, primarily the mechanical arts, including architecture, and language.

In 1681 Wren discussed the perfuming of a Chinese cabinet and the next year described the medical practice of feeling the pulse in diverse parts of the body to indicate disease.[21] During the 1680's Hooke treated several subjects related to China. He presented a discussion on a Chinese cart with one wheel and a Chinese perspective box.[22] In July 1685 he was asked to have Roman and Chinese abacuses made for the repository. The next year he published a discourse on the abacus in the Transactions[23] and discussed the material and construction of Chinese ships.[24]

For the study of Chinese architecture, the scant evidence indicates that visual records were of greater interest than the enthusiastic but vague descriptions found in most travel accounts. The architectural images found on screens, vases, and other decorative arts provided some information. According to his diary, the virtuoso John Evelyn (1620-1706), founding member of the Royal Society, was able to see examples of Chinese landscape paintings on at least two occasions.[25] In 1664

One Tomson a Jesuite shewed me such a Collection of rarities, sent from the Jesuites of Japan & China to their order at Paris ... Also prints of landskips, of their Idols, Saints, Pagoods,

of most ougly Serpentine, monstrous & hideous shapes to which they paie devotion: Pictures of men, & Countries, rarely painted on a sort of gumm'd Calico transparant as glasse: ..."

Years later Evelyn remarked on how "[Mr Bohune's] whole house is a Cabinet of all elegancies, ... the Landskips of the Skreenes, representing the manner of living, & Country of the Chinezes, &c."

More important however were two books that together constituted a large set of images of important monuments and various building types used by the Chinese. It appears that both books were known to Wren, Hooke, and Webb. John Aubrey (1626-97), F.R.S., records that he had it from Christopher Wren that "The Chineses have great Mausolea of Earth, which fashion is more ancient than the Romans."[26] It is very likely that Wren's information came from John Ogilby's English edition of Nieuhoff's 1655 journey, entitled An Embassy from the East-India Company of the United Provinces to the Grand Tartar Cham, Emperor of China, where such tombs are described. John Ogilby (1600-76) was royal cosmographer from 1671 and one of sworn viewers of city of London after Great Fire under Robert Hooke. His book was published in 1669, the second edition in 1673. The first part of the book contained a translation of Nieuhoff's 1665 Dutch account.[27] In the appendix was a translation of parts of Athanasius Kircher's China Monumentis Illustrata, published in Amsterdam in 1667 and translated to French in 1670. Kircher (1602-80) was a Jesuit, a polymath and professor of mathematics at the Roman College. He compiled his book from the writings of Jesuit missionaries to China and from information provided by returning missionaries he met in Rome.[28] Ogilby translated various sections of Kircher's book, some of which included descriptions of buildings along with the fifth book on the mechanical arts which included architectural matters. Kircher's original edition was known to Royal Society fellows through a review in the Transactions that was concerned mainly with the fourth book, on matters "belonging to our Sphere," namely, "the Curiosities and Productions of Nature and Art," and the fifth book on the mechanical arts. The Transactions reproduced two plates from Kircher's book—a bridge in China and the "China Wall."[29]

Not only Wren and Hooke but also John Webb knew the works of Nieuhoff and Kircher. The original editions of 1665 and 1667 respectively were a major source for Webb's publication on the Chinese language of 1669 where he briefly discussed Chinese architecture.[30] From Kircher Webb related that China contained 150 cities, all built in a square figure, and with houses mostly of timber, generally one story high, rude on the outside, but splendid within. From Nieuhoff he discussed the "floating Islands," dwellings floating on bamboo rafts on rivers. He wrote, "Much might be said of their Architecture; for Palaces and Publique works especially, which are stupendious and prodigious rather, than magnificent and great." Webb wrote more in a manuscript for an expanded version of his book, where he described the houses of the governors and the emperor's court at Peking, taken from Nieuhoff.[31]

Nieuhoff's work gave probably the most complete description of Chinese architecture available at the time. It is clear that Wren knew his passages on the tombs of noble and wealthy families. They were of marble or stone, of a size depending on "the greatness of the Person," and made up of "Little rooms" enclosed by a wall "surrounded with artificial Groves of Cypress Trees." Very wealthy people spent vast sums to create tombs like palaces, with several apartments contained within and triumphal arches standing before them. Moreover in Xansi province there were "very Artificial and well-wrought Sepulchres" built "upon some solitary Hills," which were not natural, "but to make the work more stupendious and considerable, were cast up with the Spade, and raised to almost an incredible height." Nieuhoff included an illustration showing a large gate with three doors, through which one entered to ascend steps to the entry of a manmade hill. He also described the "several well-built Tombs" of the emperors outside of Nanking and Peking.[32] When the wealthy built their tombs in the mountains, they were very concerned about "the shape and nature of the Hill" and searched for one that resembled "the Head, Tayl, or Heart of a Dragon" because they brought good fortune. There were even people who claimed to tell fortunes by the form of hills.[33]

Nieuhoff's description of Chinese architecture ranged from the simplest dwellings to palaces, temples, gates, and gardens. Along the Yellow River, he saw "several floating Islands," platforms made of bamboo twisted together, supporting "Hutts, and little Houses of Boards, and other Light Materials" which could house as many as 200 Chinese families.[34] In his "General Description of the Empire of China," Nieuhoff discussed the handicrafts of the Chinese, including architecture. Their edifices were not expensive, but also not durable because "they dig no Foundations at all, but lay the Stones even with the surface of the ground, upon which they build high and heavy Towers; and by this means they soon decay, and require daily reparations." Moreover, their houses "are for the most part built of Wood, or rest upon Wooden Pillars." Nevertheless they "are contrived commodiously within, though not beautiful to the eye without."

Nieuhoff described the Chinese palaces with their series of large courtyards, going from the most public to the most private, surrounded by audience halls, reception rooms, and apartments, and with extensive gardens.[35] He gave a detailed account of the most magnificent of all, the Imperial Palace in Peking, including a bird's eye view of the whole palace, drawn by himself.[36] Nieuhoff incorrectly assumed the complex was square, with two series of immense courtyards crossing at the center, which contained, he believed, the throne room and residence of the emperor. He described and showed a perspective of the inner court. The buildings were of wood, covered with shining colored lacquer, and the roofs with glazed yellow clay tiles fastened with gilt nails so that they glistened like gold. The rest of the complex contained the residences of the royal family and staff and gardens fed by a water channel flowing through the entire complex.

Nieuhoff included information on Chinese "Idol-Temples."

Not only did he include them in his views of Chinese cities, he depicted a typical temple with its pagoda and briefly described particular temples and the images within them.[37] His illustrations of several temples indicated that a variety of forms were used. Two well-known plates depict the temple complex of Paolinxi near Nanking, which included "a Purceline Tower," a large nine story wooden pagoda whose walls were "all Glazed over and Painted with several Colours, as Green, Red, and Yellow."[38] Along the Yellow River near the first Royal Canal, there was a six-story pagoda with a larger ground floor, "built after the Chinese fashion."[39] Near Xantsui there was another temple called Teywanmiao built on a rectilinear plan with strong walls of gray stone and a roof covered with yellow tiles.[40] In Lincing there stood a famous octogonal nine story pagoda rising over 120 feet, with the stairs located between double walls. It was covered with porcelain and marble, and was "full of Fret-work."[41] Outside of Sinkicien in an open field stood another remarkable temple in the form of a three story hexagonal pagoda on a base of stone, ornamented with "great Gates," "most curious Pillars and Columns," and "Fret-work."[42] Nieuhoff also described but did not depict "a very Antient Tower" of stone built on the mountain Hiaiken to a height of 180 paces "with infinite labour, industry, and expence."[43]

According to Nieuhoff the Chinese built "triumphal arches" or commemorative gateways in their cities, as well as "stately Towers, and Pyramids, made of Stone or Marble." He included an illustration of one in Canton. They were generally of three stories, with "three Roofs, the biggest in the middle, and on each side a small one, underneath which Men pass as through a very broad Gate." The ornaments consisted of "Lyons and other Images, curiously cut out of Marble, and fixed thereto," and "small Images cut out of Stone" with great skill.[44]

One of the most remarkable works Nieuhoff admired in China were "Stone Cliffs made by Art," found in the gardens of palaces. He drew one that was forty feet tall. Made of stone, and sometimes of marble, they were "rarely adorned with Trees and Flowers" and contained chambers and antechambers. "There is not any thing wherein the Chineses shew their Ingenuity more," he declared, "then in these Rocks or Artificial Hills, which are so curiously wrought, that Art seems to exceed Nature."[45]

In his China Monumentis of 1667 Kircher discussed architecture in the context of "the various Habits, Manners, and Customes of the Chinese." The most populous cities were generally "built four Square" and "all fortified with Walls, Works, and Trenches." Within were one story wooden houses, "poor and rude without," and with no windows, the Chinese having "more regard to their conveniency then Splendour or Ornament." The interiors however were splendid because a "Gum which they call Cie," that is, lacquer, was used on every surface, creating a sheen that was "tempered with divers Colours, and beautified with Birds, Flowers, and Dragons, the several Effigies of Gods and Goddesses, and other Figures drawn to the life."[46] Kircher gave a description, similar to Nieuhoff's, of the splendid and costly palaces of magistrates or mandarins, complexes as large as four or five courtyards.[47]

According to Kircher, "there is nothing they more labour in, then the business of Sepulchre." Kircher discussed, like Nieuhoff, the Chinese belief that the shape of the mountain where a tomb was built was important. In a manner similar to western astrologers, the Chinese scrutinized mountains, even their interiors, "to find a fortunate spot of ground which they fancy resembles the Head, Tail, or Heart of the Dragon," which they believed would ensure that the deceased would be happy and his family properous.[48]

In his discussion of the idolatry of the Chinese, Kircher described and illustrated the "Novizonian Pyramid," a nine-story octogonal stone pagoda in Fokien province, based on Martini's Novus Atlas Sinensis (1655). The stairs were located "within the doubled walls." The exterior was "adorned with carved and painted figures" made of porcelain and "gilded Iron Grates" on the balconies, while the interior was covered with polished "party-coloured marble."[49]

The mechanical arts of the Chinese included highways, quais, and canals, many of them remarkable and well-built.[50] Kircher described several bridges, and provided an illustration reproduced in the 1667 Transactions of a bridge "built on one Arch from Mountain to Mountain," the so-called "flying Bridge."[51] For the Great Wall he used the description in Martini's book of 1655 and an image made by Albert D'Orville and Joannes Gruberus in 1661/2 when the monument was "most diligently observed and drawn by them." This same plate was also reprinted in the Transactions. Kircher discussed the history of the wall's construction, its form and dimensions, and its length and course. It had passages for roads, "contrived Arch-wise like Bridges, or through Vaults under ground," and "high Towers, and strong Gates, or Sally Ports," along with "convenient Fortresses" nearby.[52]

Conclusion

The written descriptions and especially the visual images of Chinese architecture provided by Nieuhoff and Kircher, readily accessible through Ogilby's English edition, provided the architects of Restoration England with enough information to reconstitute, should they choose, this foreign style in their own country. Indeed, the use of the Chinese style in garden structures beginning in the 1740s was based on very little more information than what was available during the late 17th century. At the same time certain characteristics of Chinese architecture—order, symmetry, and hierarchical composition—being the basis of Classical architecture as well, could have appealed to Restoration architects and justified for them the use of the Chinese forms in their own work.

Furthermore, the descriptions of the architecture of the China and other aspects of its culture demonstrated that it was equal to the ancient empires of the west, and even might have derived from them. In their contemporary arts, Kircher wrote, "as Architecture, Sculpture, and Weaving, if you except the Knowl-

edge of Proportion and Opticks, they come not behind the Europeans," while Chinese monuments and temples "at least equalize the antient Greeks and Romans, if not excell them."[53] Kircher believed that the Chinese had adapted their writing and ceremonies from the Egyptians, and shared the same deities. The form of the pagodas were borrowed from "the Egyptians, Persians, and others."

> ... The Egyptians always adored the figures of the Pyramids with a certain Divine honour, the tracts of which sort of worship continue in China; for they have also Pyramids, which they call Chinees....[54]

Other scholars suspected that the reverse might be true, that the Chinese might predate western culture. For example John Webb, in his book on the Chinese language, stated that it was the original of all the others.[55]

Robert Hooke, in his discourse on "the Character and Language of the Chinese" did not go so far, but did admit "The AEgyptian Mummys and Obelisks prove a great Antiquity of the Hieroglyphicks, but yet the Chinese Chronology (if to be credited) outstrips the AEgyptian in pretence to Antiquity."[56] Moreover, Hooke believed the architecture itself suggested this. In western Asia and in the Far East were found the same sort of manmade mountains, used for defense or worship, which led him to conclude that cultures like the Chinese "have as good Reason to pretend to Antiquity, and possibly better than AEgypt, AEthiopia, Chaldea, &c."[57]

For Restoration architects, the forms and compositions of Chinese architecture were understood and, due to a few compositional similarities to the Classical, somewhat familiar. Chinese architecture was considered to be of high quality and of great antiquity, whether predating the Egyptian and hence Classical architecture, or postdating the Egyptian and hence on par with Classical architecture. Nevertheless neither Wren, Hooke, nor Webb ever considered the possibility of the Chinese style having any place in their own culture, even in modest, ephemeral works like garden pavilions. Instead their knowledge of Chinese architecture, formed according to the scientific standards of the Royal Society, proved the impossibility of doing so.

Although based on incomplete information, Chinese architecture was considered the product of an alien, but at the same time highly accomplished culture. As such it could not be dismissed, but had to be explained somehow in relationship to long-standing ideas about the history of architecture and the nature of beauty that had been developed in terms of the Classical style. Wren, in his theoretical writings, developed a theory of beauty that accounted for the existence of monumental forms of architecture independent of the Classical tradition, including the Gothic, and also, although he does not specifically address it, the Chinese.[58] The "customary causes" of beauty, as the name suggests, are the customs of a particular society and the prejudices of individuals, which force us to see beauty in objects that are not naturally beautiful, that is, are not geometrical, uniform, and proportional in appearance. The customary causes are therefore outside influences existing at a particular time and place which appeal to the fancy or imagination and impede the judgement or reason in its determination of beauty. As a result certain forms are accepted as beautiful, and they become, Wren writes, "Modes and Fashions," which give the architecture of a particular culture its distinctive style and form.

For Wren, the Classical style was a product of the customary causes that were in force during ancient Greek and Roman times. It transcended fashion however due to its adherence to the natural causes and its structural stability based on geometrical principles. Furthermore, the five Classical orders had a single natural and divine origin in the Tyrian order, a stone replica of the mature tree, used in the earliest Biblical buildings, including the Temple of Solomon. From the Tyrian successively developed the Greek and Roman orders, each initially a fashion of the times, but ultimately a legitimate, eternal form of building because of the greatness of the civilization that made it.

Whereas the Classical style achieved complete beauty, Wren believed that the Gothic did not. Wren's surveys of English cathedrals indicated that for the most part it used geometries that caused a lesser beauty and resulted in serious structural defects.

How Wren specifically assessed Chinese architecture within his theoretical framework is unknown. It is clear however that he and other architects and thinkers in Restoration England, by taking a scientific approach to the subject of architecture, understood it as a distinct form of building with unique characteristics, which, like the other mechanical arts of China and its language, was the product of the particular conditions, customs, and preferences of that culture. As a result, although it was admired, the Chinese style had no place in Restoration England and architects made no attempt to adopt it. Interestingly enough, that awareness of the link between architectural form and society did nothing to impede their creation of a monumental architecture in the Classical style, essentially a style imported from abroad, now rationalized as the only style with eternal validity. Yet at the same time architects including Wren sometimes strayed from their Classical agenda and created designs in the Gothic style, bowing to the demands of society and custom in favor of a long-standing, native form of building that had never completedly disappeared from usage.

The existence of Chinese architecture as a phenomenon could only have activated Wren and others even further to question the adoption of the Classical ideal in a society that, in the investigation of natural and mechanical phenomena, had already shed the burden of ancient authority in favor of reason and experience. By the 1740's a solution was found—the recognition and implementation of many styles, including the Classical, the Gothic, and the Chinese. While the development of a deeper understanding of more and more styles and the cultures that made them, fueled by the values and methods of modern science, would enable English architects to ever more skillfully adopt these styles, this same understanding would continue to provide the best reason for not doing so.

NOTES

[1] In addition to what is cited below, see Eleanor von Erdberg, Chinese Influence on European Garden Structures (Cambridge, 1936, New York: Hacker, 1985); Arthur O. Lovejoy, "The Chinese Origin of a Romanticism," Essays in the History of Ideas (Baltimore: Johns Hopkins Press, 1948), 99-135; Hugh Honour, Chinoiserie: the Vision of Cathay (New York: Harper and Row, 1961), 143-63; Oliver Impey, Chinoiserie: the Impact of Oriental Styles on Western Art and Decoration (New York: Scribners, 1977), 142-59. Patrick Conner, Oriental Architecture in the West (London: Thames and Hudson, 1979), 26-84.

[2] William Temple, Upon the Gardens of Epicurus: or of Gardening, in the Year 1685. Nikolaus Pevsner and S. Lang, "A Note on Sharawaggi," Studies in Art, Architecture, and Design, I (New York, 1968), 103-6.

[3] Joseph Addison, Spectator, 4th ed. 1718, VI, No. 414 (25 June 1712): 70-1. Alexander Pope, Guardian, 1714, II, No. 173 (29 Sept. 1713): 493-4. David Watkin, The English Vision: The Picturesque in Architecture, Landscape and Garden Design (London: John Murray, 1982), 2-8. Rudolf Wittkower, "English Neo-Palladianism, the Landscape Garden, China and the Enlightenment," Palladio and English Palladianism (London: Thames and Hudson, 1974), 184-90. See also Dawn Jacobson, Chinoiserie (London: Phaidon, 1993), 123-9, 151-64.

[4] Watkin, 31-8.

[5] Eileen Harris, British Architectural Books and Writers 1556-1785 (Cambridge: Cambridge University Press, 1990), 218-28. William Halfpenny also published Twenty New Designs of Chinese Lattice (1750) and Chinese and Gothic Architecture Properly Ornamented (1752). Other writers on Chinese ornament of this period include Robert Morris, Matthias Darly, Abraham Swan, Charles Over, P. Decker, and J. Jores. See Harris.

[6] Harris, 155-64. William Chambers also published Plans, Elevations, Sections, and Perspective Views of the Gardens and Buildings at Kew (1763) and A Dissertation on Oriental Gardening (1772).

[7] Francis Bacon, The Advancement of Learning (1605), James Spedding, R. L. Ellis, D. N. Heath, eds., Francis Bacon, Works, London (1857-74), II, 330. Parasceve ad historiam naturalem et experimentalem (1620), Spedding, IV, 253. De dignitate et augmentis scientiarum (1623), Spedding, IV, 294. Instauratio Magna (1620), Spedding, IV, 29.

[8] For a detailed discussion of what follows, see Lydia M. Soo, "Reconstructing Antiquity: Wren and His Circle and the Study of Natural History, Antiquarianism, and Architecture at the Royal Society," Ph.D. dissertation, (Princeton University, 1989), 73-82.

[9] See volume IV for Wren and XI for Hooke in Sale Catalogues of Libraries of Eminent Persons, ed. D. J. Watkin (London: Mansell Publishing/Information Ltd. and Sotheby Parke-Bernet Publications, 1972).

[10] See Barbara Shapiro, Probability and Certainty in Seventeenth-Century England: a study of the relationships between natural science, religion, history, law, and literature (Princeton: Princeton University Press, 1983), 18-27.

[11] Juan Gonzalez de Mendoza, Historia ... del gran Reyno de la China (Rome, 1585), Engl. trans. R. Parke, The Historie of the Great and Mightie Kingdome of China (London, c. 1600). Father Matteo Ricci, Histoire de l'Expedition Chréstienne au Royaume de la Chine (Lyon, 1616). Father Alvarez Semedo, Relatione della Grande Monarchia della Cina (1643), Engl. trans. A History of the Great and Renowned Monarchy of China (1655).

[12] Jan Niewhof, Gesandshap der Neederlandische Oost-Indische Compagnie aen de grooten Tartarischen Cham, den Keyzer von China (Amsterdam, 1665). French edition, L'Ambassade a la Chine de la Compagnie Orientale des Provinces-Unies vers l'Empereur de la Chine (Amsterdam, 1665). Jan Nieuhoff, An Embassy from the East-India Company of the United Provinces to the Grand Tartar Cham, Emperor of China, ed. John Ogilby (London, 1669).

[13] G. de Magalhaens, Nouvelle Relation de la Chine Composée en l'année 1668 (Paris, 1668) (Engl. ed. Ogilby, 1688). Father Grueber, China and France or Two Treatises. The One of the Present State of China from the observations of two Jesuits lately returned from that Country (London, 1676).

[14] 5 January 1687, Thomas Birch, History of the Royal Society of London, 4 vols. (London, 1756-7), IV, 516. He translated an abstract of a Dutch voyage by Adam Brand from Moscow to Peking, see 20 and 27 October and 3 November 1697, Journal Book of the Royal Society, Royal Society, London, IX. Adam Brand, Journal of the Embassy from their Majesties John and Peter Alexievitz, Emperors of Muscovy, ... over Land into China (London, 1698). Original German edition (Frankfurt, 1697). Dutch edition (Hamburg, 1698). Hooke owned at least fourteen books on China and the Far East, see his library.

[15] See Conor Reilly, "A Catalogue of Jesuitica in the Philosophical Transactions of the Royal Society of London," Archivum Historicum Societatis Jesu, XXVII, n. 339 (1958): 340. Also see Conor Reilly, "Jesuits and the Royal Society 1665-1715," The Month, XVIII, n. 2 (August 1957): 108-11.

[16] Letters known collectively as Annuae litterae societatis Jesu. Some are in Lettres edificantes et curieuses or Lettres de quelques missionaires de la Compagnie de Jesus, ecrites de la Chine, et des Indes Orientales (Paris, 1702-8). Edward G. Cox, A Reference Guide to the Literature of Travel, 2 vols. (Seattle: University of Washington Publications in Language and Literature, vols. 9 (November 1935) and 10 (May 1938)), I, 28-9. Another collection of letters, originally printed in Paris in 1713 and translated to English as The Travels of several Learned Missioners of the Society of Jesus into divers Parts of the Archipelago, India, China, and America (London, 1714). Cox, I, 12. Reprints of letters, Philosophical Transactions, nos. 71, 317, 318, 337. See Reilly, 358 on identity of some of these missionaries.

[17] Kircher, 1667 (PT, n. 26), Verbiest, 1683 (trans. in PT, XVI, n. 180 (March/April 1686): 63-78), Tachard, 1686 (PT, n. 185), Le Comte, 1697 (PT, n. 229), Couplet, 1687 (PT, n. 189). See Reilly for list.

[18] Henri Justel obtained information from this man for Oldenburg. Justel-Oldenburg, 20 May and 3 June 1668, The Correspondence of Henry Oldenburg, ed. A. R. Hall and M. B. Hall, 11 vols. (Madison and London, University of Wisconsin Press, 1965-77), IV, 418, 442 and 23 January and 13 February 1669, CHO, V, 350, 402 and PT, IV, n. 49 (19 July 1669): 983-6.

[19] 11 January 1688, JRS, VII. See Pevsner, 105-6.

[20] PT, XVI, n. 180 (March/April 1686): 63-78. Grew brought in samples of the Chinese character to the Royal Society on 19 July 1682, Birch,

IV, 156.

[21] 23 March 1681, Birch, IV, 76. 18 January 1682, Birch, IV, 120. Feeling of the pulse was described by Athanasius Kircher, China Monumentis (Amsterdam, 1667).

[22] Cart, 1 April 1663, Birch, I, 216. Perspective box, 26 July 1682, Birch, IV, 157.

[23] Abacuses, 22 and 29 July 1685, Birch, IV, 422. PT, XVI, n. 180 (March/April 1686): 63-78.

[24] 4 August 1686, Birch, IV, 496.

[25] Evelyn, Diary, 22 June 1664, 30 July 1682, quoted in Pevsner, 106.

[26] John Aubrey, Monumenta Britannica, Bodleian MS Top. Gen. c. 24 and c. 25, facsimile ed. R. Legg, et al., 2 vols. (Sherborne, Dorset, Dorset Publishing, 1980 and 1982), II, 678/9.

[27] Jan Niewhof, Gesandshap der Neederlandische Oost-Indische Compagnie aen de grooten Tartarischen Cham, den Keyzer von China (Amsterdam, 1665). French edition, L'Ambassade a la Chine de la Compagnie Orientale des Provinces-Unies vers l'Empereur de la Chine (Amsterdam, 1665).

[28] Joscelyn Godwin, Athanasius Kircher: A Renaissance Man and the Quest for Lost Knowledge (London, Thames and Hudson, 1979), 50-55. On sources, see Baleslaw Szczesniak, "Athanasius Kircher's China Illustrata," Osiris, X (1951): 385-41.

[29] PT, II, n. 26 (3 June 1667): 484-8.

[30] John Webb, An Historical Essay endeavouring a Probability That the Language of the Empire of China is the Primitive Language (London, 1669), 116.

[31] MS in Library of Wells Cathedral. The dedication to the king is dated 29 May 1671. See John Bold, "John Webb: Composite Capitals and the Chinese Language," Oxford Art Journal, IV, n. 1 (July 1981): 12-13.

[32] Jan Nieuhoff, An Embassy from the East-India Company of the United Provinces to the Grand Tartar Cham, Emperor of China, ed. John Ogilby (London, 1669), 206-7.

[33] Ibid., 239.

[34] Ibid., 96.

[35] Ibid., 233.

[36] Ibid., 128-9.

[37] Ibid., 225-6.

[38] Ibid., 83-4.

[39] Ibid., 87-8.

[40] Ibid., 102.

[41] Ibid., 104.

[42] Ibid., 110.

[43] Ibid., 227.

[44] Ibid., 228, 37-8.

[45] Ibid., 64, 129.

[46] Athanasius Kircher, Appendix to Jan Nieuhoff, An Embassy from the East-India Company of the United Provinces to the Grand Tartar Cham, Emperor of China, ed. John Ogilby (London, 1669), 83, 101-2.

[47] Ibid., 99.

[48] Ibid., 83-4.

[49] Ibid., 76-7.

[50] Ibid., 101.

[51] Ibid., 97-8. PT, II, n. 26 (3 June 1667).

[52] Ibid., 36, 100.

[53] Ibid., 99, 83.

[54] Ibid., 76.

[55] John Webb, An Historical Essay endeavouring a Probability That the Language of the Empire of China is the Primitive Language (London, 1669). Reviewed in PT, IV, n. 48 (21 June 1669): 973-5. See Ch'en Shou-yi, "John Webb: A Forgotten Page in the Early History of Sinology in Europe," The Chinese Social and Political Science Review, XIX, n. 3 (October, 1935): 295-300.

[56] PT, XVI, n. 180 (March/April 1686): 64.

[57] PT, XX, n. 244 (September 1698): 344-6.

[58] The discussion that follows is more fully developed in Lydia M. Soo, Wren's "Tracts" on Architecture and Other Writings (New York, Cambridge University Press, 1998), 119-52.