

Robert Hooke and Holland: Dutch influence on his architecture

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Introduction

Dutch classicism was a recent arrival in England when Robert Hooke made his first architectural designs in the late 1660s.¹ Prior to the construction of Hugh May's Eltham Lodge in 1663-'64, the first example of Dutch classicism in England, classical elements straight from Italy and via Flanders had been used in English architecture for nearly a hundred years. Initially these had been mainly of a decorative nature but with the construction of Inigo Jones' Banqueting House (1619-'21) there was a dramatic change in the way classicism was adapted to English architecture. Jones drew on the examples of Palladio and Scamozzi in his architecture using both Palladio's treatise, *I quattro libri*, personal knowledge of his architecture and, in the case of Scamozzi, personal contact. He applied their conceptions of proportion and beauty, combining these with elements from English architecture. Hooke, together with May and Sir Roger Pratt, was one of a younger generation of architects who assumed Jones' astylar classicist version of town and country house building from the 1660s onwards.² In order to put Hooke, his architecture and his use of Dutch models into context, we shall first examine in brief the introduction of classicism into England and cross-fertilization in architectural ideas between England and the Netherlands.

Classicism in England and the Netherlands

In England, as in the Netherlands, the first development towards classicism was the recognition of the importance of the application of mathematical principles in architecture³. In England this had first been publicized through Leonard Digges' *A Booke Named Technicon* (1556) and John Shute's *First and Chief Groundes of Architecture* (1563),⁴ the latter based on Serlio's *Regole generali di architettura* (1537). Decorational elements derived from classicism had arrived in England from Antwerp via Hans Vredeman de Vries' *Architectura* (1563) and *Compertimenta* (1566). Strapwork designs, for example, proved to be particularly influential. Added decorative influence came also from Wendel Dietterlin's *Architectura von Aufsteilung, Symetria und Proportion der Fünff Seulen...*, published in Nürnberg in 1593.⁵ Wollaton Hall, designed by Robert Smythson in 1588, is a superb example of the adaptation of designs of Serlio and the decorational elements of Vredeman de Vries.⁶

The use of these publications by English architects and artisans and the design of Wollaton Hall were not based on any first-hand personal impression of classicism in Italy. This had to wait for the emergence of Inigo Jones as architect. His visit to Italy in 1613-'14 in the entourage of Thomas Howard, 2nd Earl of Arundel, his close interest in Roman antiquities and intimate knowledge of Palladio's drawings are most dramatically exemplified in his Banqueting House of 1619-22. Not only, however, has Jones here used Palladian "vocabulary"⁷ but he has combined it with the application of Scamozzian orders, the Composite being superimposed on the Ionic. This combination of Palladian elements with Scamozzian also influenced the beginnings of Dutch classicism.⁸ Jones' design was not only a major innovation in England but it also inspired Jacob van Campen in his first architectural commission in Amsterdam, the Coymans House built in 1625. The relatively flat façade with just a slight central focus, the use of no pediment but rather an attic (Jones uses a balustrade), the Scamozzian orders and the use of alternating pediments are all elements similar to the Banqueting House.⁹ Van Campen's design so impressed Salomon de Bray that he included it as the model of true architecture among Hendrik de Keyser's works in his *Architectura Moderna* (1631).¹⁰ De Bray's work, which was the first Dutch architectural treatise, was enormously influential in the Netherlands. However, although it was known in England, it seems to have exerted little direct influence.¹¹

In England, as in Holland, the interest in the correct application of the orders as the main form of classicism used in town and country houses was to give way during the 17th century to the idea of harmonious proportions and rhythm, underlined by the correct relationship of the fenestration to the wall surface. In Jones' other royal projects, such as the Queen's House, the emphasis was in this direction. In country houses Inigo Jones instituted this trend with astylar designs such as that for Maltravers House, 1638. In Holland, after the Coymans House was built, Jacob van Campen was already turning to the more essential harmony of classicism at Huis ten Bosch, Maarssen, in 1628. In the course of their careers Pieter Post and Philips Vingboons also moved away from using orders to astylar façades with a subtle articulation.¹² The tendency to move away from the traditional ground plan in country houses towards a compact block with symmetrical layout based on Palladian villas was also common to both England and Holland.¹³

Dutch classicism in England

The prototype for Dutch classicism in England is Eltham Lodge, designed by Hugh May, 1663-4. (afb. 1)¹⁴ It is interesting that May should have chosen as his principal model the Mauritshuis (1633-'44) by Van Campen, which, together with the Huygenshuis (1634-'37), was to determine the style of Dutch architecture from the 1630s onwards.¹⁵ May must have looked very closely at examples of Dutch classicism on his visits to Holland in the 1650s.¹⁶ In addition to the Mauritshuis, elements of Van Campen's Huis ten Bosch in Maarsse also appear in Eltham Lodge. Another architect on whose work May drew to a lesser extent was Arent van 's Gravesande.¹⁷ May's compact block house constructed almost entirely of brick with a pedimented façade on the front elevation seems at first sight to copy one of the façades of the Mauritshuis. Like the Mauritshuis Eltham Lodge has seven bays on the front and rear façades, the front façade being articulated by the fenestration and the four colossal Ionic pilasters, which break slightly forward from the façade. On closer examination it is clear that the colossal Ionic pilaster order, which Van Campen used for the first time in 1628, and the accent he placed on the slightly wider middle window in the frontispiece, have also been used by May in Eltham Lodge. The shallow and plain cut of the windows is also derived from Huis ten Bosch. The reflection of the front façade in the symmetry of the hall and the two adjacent rooms in Eltham Lodge is akin to that of Huis ten Bosch, the earliest example of such symmetry in Holland.¹⁸ A detail used by Van Campen at Noordeinde, The Hague, (1639-'47) together with Ionic pilasters, which is replicated by May at Eltham Lodge, is the *cornicione architravata* (no frieze). However, whereas Van Campen has used it with his Ionic pilasters on the ground floor level, May has combined it with the colossal Ionic order.¹⁹ Also from Noordeinde comes the idea of the heavy modillioned pediment with the coat-of-arms cartouche framed in festoons. On the side façades the idea of alternating round-headed



Afb. 1. Hugh May. Eltham Lodge, Eltham, Kent, 1663-4. Photo by W. Stoesser.

niches with windows could have been derived from the end façades of the wings of Van Campen's Noordeinde Palace. From Arent van 's Gravesande's Sebastiaansdoelen (1636), also in The Hague, May derived the use of garlands on Ionic capitals and the shape of his roof, which springs slightly inwards from the edge of the cornice.²⁰

The combination of correct application of orders and sober façades and the use of the ideas of more than one Dutch architect, represented by May in Eltham Lodge, reappear in Robert Hooke's work. Whereas May, however, had first-hand knowledge of Dutch classicist architecture, Hooke had to rely on printed sources and personal contacts, one of whom was May himself. Through this approach Hooke was, in addition to Van Campen and Van 's Gravesande, to become familiar with the works of Pieter Post, Daniel Stalpaert and Philips Vingboons. Before we look at the impact these had on Hooke's work in detail, a word should be said about Hooke, his life and his milieu.

Hooke's life

Hooke was born the son of a curate, John Hooke, in Freshwater, Isle of Wight, on July 18 1635. As a child, apart from a love of tinkering, he had an aptitude for drawing and, at the age of thirteen, equipped with an endowment of £100 after the suicide of his father, he was apprenticed to the painter, Sir Peter Lely. This proved not to his taste and he then enrolled as a pupil at Westminster School, London, which Sir Christopher Wren also attended later. In 1653 he went on to Christ Church College, Oxford University, where he became the assistant of Dr. Thomas Willis. Through Willis Hooke came to the attention of Robert Boyle, who made him his "assistant for chemical experiments" and introduced him to the circle of *virtuosi*, the "experimental philosophical clubbe", which was to become the Royal Society. In 1662 or 1663 he graduated with an M.A.

While he was still at Oxford, he experimented with inventions for finding longitude, the pendulum and the spiral spring for use in pocket watches, over which he and the Dutch scientist, Christiaan Huygens, were later to clash. This was one of many Dutch connections in Hooke's world. Hooke's contact with Boyle was to determine his career both scientifically and architecturally, for it was through his recommendation that in 1662 Hooke was appointed Curator of the Royal Society, a post he was to hold for forty years, and that he became known not only to fellow members of the Society but also to potential patrons at large. In 1663 he was made a Fellow of the Royal Society and became a resident at Gresham College, where the Society held its meetings. In 1665 he became Professor of Geometry at Gresham College. 1665 also saw the publication of his most important scientific work, the *Micrographia*. Apart from its scientific merit the book revealed his artistic capabilities in the beautiful engravings accompanying the text.²¹ On occasion Hooke proved

through his scientific experiments the usefulness of a theory's application to architecture, an example of this being his demonstration that the catenary curve is the most effective form for a cupola. This information was to prove essential to Wren in arriving at a solution for the dome of St. Paul's Cathedral.²²

The Great Fire of London in 1666 gave Hooke the opportunity to pursue other directions in his career, namely those of surveyor²³ and subsequently architect. On Sept. 19, 1666, seventeen days after the Fire began, Hooke submitted his plan for rebuilding the city. In contrast to the plans of Wren and John Evelyn, which relied heavily on French and Italian models, Hooke used a gridiron module. On the basis of the plan Hooke was selected, together with Edward Jerman and Peter Mills, by the City of London as one of their three surveyors to conduct a survey to establish the right of ownership or tenancy to land and buildings affected by the Fire and assess the correct value of the sites. King Charles II also appointed three surveyors, Sir Christopher Wren, Hugh May and Sir Roger Pratt. Hooke was to become a close friend and collaborator of Wren in the planning and rebuilding of London, particularly the City churches.²⁴

While acting as surveyor, Hooke continued his scientific duties at the Society and gradually acquired architectural commissions, the earliest of which seems to have been a new building for the Royal Society in 1668. In 1670 he received the commission to design the new Royal College of Physicians. From 1671-'76 he worked with Wren on the design of the Monument to commemorate the Great Fire. Hooke's close involvement with Wren in the City churches has led to difficulties in attributing any works to him. However, two which are certainly his designs are St. Benet's Paul's Wharf (Thames Street) (1678-84) and St. Edmund the King and Martyr (1670-4). From 1673 to 1680 Hooke worked on a wide variety of projects, which took in town and country houses, hospitals, schools, churches and livery companies. From 1680 onwards Hooke's architectural work was spread beyond London and included commissions for country houses, a church, almshouses and possibly a commission from the Navy Commissioners in Plymouth. From 1691 to c.1696 he was appointed Surveyor to the Dean and Chapter of Westminster and was involved in repairs to Westminster Abbey.²⁵

After his death in 1703 Hooke's reputation as a scientist, surveyor and architect passed virtually into eclipse. Nevertheless Hooke left his mark on every branch of science then known: in addition in surveying he made a vast contribution to the rebuilding of the City of London after the Fire and in architecture produced designs for a wide range of different types of buildings. In all these fields his endeavours were marked by what was the most practical solution to a problem and he used any source which he considered appropriate to this end. In architecture this meant that he drew on French, Italian and Dutch models but, since Hooke never left

England, these were only available to him through treatises or prints, of which he was a passionate collector, and through his vast network of contacts in the Royal Society and the City.²⁶

Hooke's milieu and contacts with the Netherlands

Through his crucial role as Curator of the Royal Society, Hooke had contact with a great many of its members (Fellows), who comprised of doctors, scholars, aristocrats and gentlemen. Among Fellows whom Hooke knew were at least three who had a personal knowledge of the Netherlands and an interest in architecture. These were John Evelyn, who had toured the Netherlands in 1641, Sir Robert Moray, who had spent three years in exile in Maastricht from 1657-1660, and William Winde, who had been brought up in Bergen-op-Zoom.

On his visit to the Netherlands Evelyn had seen the cities of Amsterdam, Leiden and The Hague and in his *Diary* particularly mentions "the incomparable quarter of the Towne, called Keisersgracht, or Emperors Streete", the Zuider and Westkerken and the city gates; in Leiden, the Anatomy School with its adjoining repository, and in The Hague, Honselaersdijk and nearby Rijswijk. On the Keizersgracht he would have seen Hendrik de Keyser's Huis met de Hoofden (1621-'24) with its Renaissance façade richly decorated with sculptured heads and, in contrast, built only a year later in 1625, Van Campen's façade for the Coymanshuis, the first example of Dutch classicism. Evelyn admired Hooke's scientific expertise and also had a generally high opinion of his architecture. It is, therefore, more than likely that Hooke occasionally discussed architecture with him.

Sir Robert Moray, a fervent Royalist, Privy Councillor and founder member of the Royal Society, had been forced into exile after the execution of Charles I and only returned to England with the accession of King Charles II. While in Holland, Moray was on good terms with Frederick Magnus, Rijngraaf of Salm, the Governor of Maastricht, and was asked to give advice on the building of the new Town Hall, designed by Pieter Post. In public recognition of his services he was given freedom of the city by the City Council. Moray, who was an eminent Free-Mason, was later to write a *History of Masonry*. He was instrumental in Hooke being named Curator of the Royal Society in 1662 and Hooke had frequent contact with him in both official and unofficial capacities. He would have been an important source of information for Hooke on Dutch classicism.

William Winde, who knew the Dutch-born Huguenot courtier and architect Sir Balthasar Gerbier well and who completed the Earl of Craven's house at Hampstead Marshall left unfinished by Gerbier's death in 1667 may have been less useful to Hooke as his own architecture seems to have been heavily influenced by Hugh May and Roger Pratt rather than direct Dutch examples of classicism.

At least two Fellows of the Royal Society whom Hooke knew well had studied medicine at Leiden University and this would have been potentially advantageous when Hooke was designing the anatomy theatre at the Royal College of Physicians. These were Sir William Petty, whom Hooke had known since his Oxford days, and Theodore Diodati, whom Hooke frequently met in one of the many London coffee-houses.²⁷ In addition to English members of the Society two Dutch members with whom Hooke was in frequent contact were the scientists, Christiaan Huygens and Anthoni van Leeuwenhoek. Sir Cornelius Vermuyden, the Dutch drainage engineer, was also a Fellow of the Society. While working on the improvement of the Fleet Ditch and the Thames Water-Line after the Great Fire, Hooke may have turned for advice to Vermuyden, who had done extensive drainage work in the Fens and repaired a breach on the River Thames.

His work as City Surveyor brought him into contact with a totally different group of people, namely other architects on the Commission for Rebuilding the City and City aldermen, principally merchants, many of whom would also have had contacts abroad, including the Netherlands. Some of the artists, stone-masons, sculptors and other craftsmen, with whom Hooke had intimate contact, had strong Dutch connections. Through his fascination with cartography Hooke also had contact by correspondence and personally with Dutch publishers. On his almost daily visits to booksellers Hooke was kept up-to-date with any new architectural treatises or prints on the market.

Hooke also had regular contact with the three King's Surveyors, Sir Christopher Wren, with whom he had a very close relationship, Hugh May, the Paymaster-General, and Sir Roger Pratt, the architect. May had spent some time in Holland in exile with the 2nd Duke of Buckingham in the 1650s and then again with Sir Peter Lely in 1656 and, as we have seen, was strongly influenced by Dutch classicist architecture. Pratt had studied architecture in France, Italy, Flanders and Holland between 1643 and 1649. Although Dutch influence is not so strong in his architecture, he evidently had an interest in new publications on it as he acquired the edition of Van Campen's *Stadthuys van Amsterdam*, before it was officially published.²⁸ Since Hooke freely lent and borrowed books, it is quite possible that he made use of Pratt's collection.

One of the master masons with whom Hooke had frequent contact and who had been to Holland was Abraham Story. Story had seen the new Lutheran church and new synagogue in Amsterdam in July 1674 and informed Hooke of his impressions. Hooke noted the measurements of both in his *Diary*. Hooke also knew the sculptors, Caius Gabriel Cibber, Willem de Keyser and Grinling Gibbons. Cibber, who had trained in Amsterdam under Pieter de Keyser, Hendrik de Keyser's son, was responsible for the dado of the Monument and also the figures of Melancholy and Raving Madness, which were to grace the entrance gate of Bethlem Hospital.

Willem de Keyser, another son of Hendrik, worked for the City in 1671, as the City records show, and must have been known to Hooke, who was at this time closely involved in the rebuilding of the City churches. Hooke also came into contact with Grinling Gibbons, born in Rotterdam of English parents. Gibbons was influenced by the Quellinus family, who were responsible for the sculptures for the Amsterdam Town Hall. The painter, Abraham Hondius, another Rotterdam *émigré*, worked for Hooke in providing hangings for the Guildhall and paintings for the Royal College of Physicians.²⁹

Since Hooke had no direct personal knowledge of Holland, he had to rely on printed sources for a good deal of information. These included the contemporary written personal impressions of visits to Holland and treatises. Two travel journals which he owned were those of Edward Brown, also a Fellow of the Royal Society, who was so impressed by the Amsterdam Town Hall that he sent his father, Sir Thomas Brown, the "profile" of it, and Balthasar de Monconys, who describes the orders used correctly but finds it nevertheless just a square stone block with a very ugly entrance.³⁰

Although Hooke owned some theoretical works, such as the highly erudite commentaries of Daniele Barbaro and Claude Perrault on Vitruvius and Alberti's virtually unillustrated *De re aedificatoria*, a large proportion of his collection was devoted to books with plans and elevations of buildings which could be adapted to practical use, such as Jean Marot, Palladio, Rubens, Serlio and Vingboons. He also owned two editions of Vignola, the 1643 edition, the *Reigles des cinq Ordres d'Architecture de Vignole*, revenues par Le Muet... which contained plagiarised plates of Philips Vingboons' work, and the 1648 edition, published in Amsterdam. In the catalogue of books in Hooke's collection made after his death in 1703, only the 1665 reprint of the first edition of Vingboons (1648) is mentioned; in his *Diary* entry for Nov.7 1674, however, he mentions having bought Vingboons and immediately showing it to Sir Christopher Wren. This would imply that it was the second edition, which he had just bought hot off the press. Just as he was to use Vingboons' designs directly in his own architecture, so too was he able to access Simon Stevin's ideas on city planning and architecture in his copy of Stevin's *Oeuvres*. Although these works are both in Dutch, Hooke had made the effort to learn the language and by 1680 was translating Van Leeuwenhoek's letters for other Fellows of the Royal Society.³¹

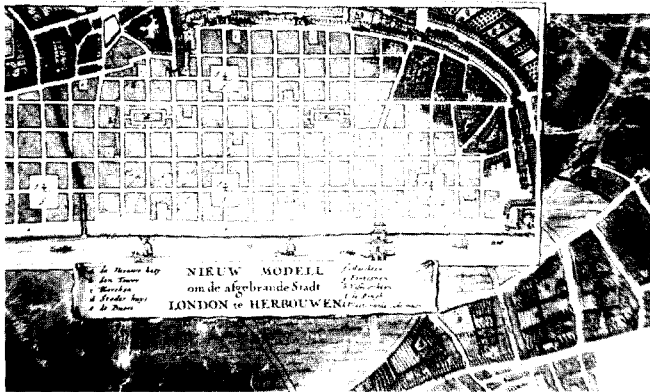
One omission in the inventory of his collection is of a work which he certainly used: that of Vincenzo Scamozzi's *Idea della architettura universale* (1615). In his plan of the City there are elements which could only have been taken from this work.³²

There is no doubt that, through both his contacts and book and print collection, Hooke had wide access to the current trends in Dutch classicist architecture, as well as those of France and Italy.

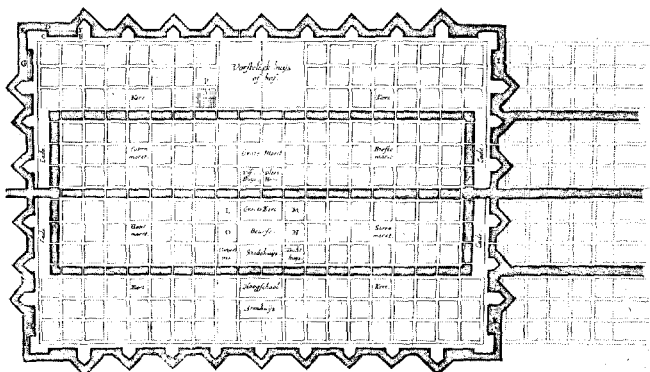
Hooke's city plan

Hooke's earliest use of Dutch models was in his plan for rebuilding the City of London centre after it had been destroyed by the Great Fire in 1666. Hooke's plan in contrast to those of Wren and Evelyn, which used diagonal axes and sweeping vistas based on French and Italian models, was based on a grid system. There is some dispute as to whether Hooke's plan is still extant. The map published by Marcus Doornick in Amsterdam in 1666 showing the extent of the Great Fire has a grid plan in the upper left-hand corner (afb. 2).³³ Given Hooke's contacts with the cartographic world in Amsterdam and the sophistication of the sources used for the map, it is not unreasonable to presume that this might be by his hand. If so, it is relevant in the Dutch context, as it reveals similarities with Simon Stevin's ideal plan (afb. 3), published posthumously by his son, Hendrick, in *Materiae politicae* in Leiden in 1649.³⁴ Hooke was familiar with Stevin's work owning copies of several of his books, mentioning these several times in his *Diary*.

In his plan Hooke, like Stevin, uses a block system, the units of which are combined, depending on their use. Hooke has provided for some of the same conveniences and public build-



Afb. 2. Robert Hooke. City plan in Marcus Doornick's *Platte Grondt der Verbrande Stadt London*. 1666. Guildhall Library, Corporation of London.



Afb. 3. Simon Stevin. City plan. *Vande oirdeeningh der steden*. 1649.

ings as Stevin (churches, markets and a town-hall), which are symmetrically placed, and for public squares. He has omitted Stevin's use of canals, which allowed for sewage disposal and good traffic flow and were optimal sites for spacious, well-appointed houses. Hooke was, of course, considering an actual situation rather than a hypothetical one. For this reason, on the periphery of his plan the blocks have assumed an irregular shape, due to the contours of the remaining streets, which have had to be linked up with the new grid pattern in the plan. Hooke interspersed Stevin's regular blocks with the use of Scamozzi's combination of four blocks together with a square with the same dimensions as one block in the middle in his design for Palmanova.³⁵ Hooke shows his practical bent in the provision of a built-up embankment of the Thames, a project which was to be initiated by the City and on which both he and Wren subsequently worked. He has left the Fleet River open with bridges over it to facilitate traffic flow. The markets have all been placed close to the Thames for easier loading and unloading of food stuffs, the fish markets being directly on the quay. They have also been allocated an area in a square, a step which was taken in the actual rebuilding. The town-hall and stock exchange are equidistant from the River Thames and have the same area allocated but the Exchange has an open square in front, thus giving it a more impressive emphasis.

Although Hooke's plan was highly thought of by the City, unfortunately for Hooke, neither his plan nor those of Wren, Evelyn and others submitted, were used. The City was in a hurry for re-development and quicker and more ad-hoc solutions had to be used. The plan's influence, though, may be seen in the more uniform type of building allowed, the wider streets to allow ease of access and the attempt at the efficient use of waterways. In this respect London bears comparison with the new developments in planning in Amsterdam in the two stages of the "grachtengordel".³⁶

Hooke's architecture

Hooke's combination of ideas from a variety of sources was also a constant feature of his architecture. A selection of works where Dutch influence is dominant will be discussed and emphasis will be necessarily laid on those ideas and components taken from Dutch classical architecture.³⁷ Unlike the repeated assertion that Hooke used French planning and Dutch detail it will be demonstrated that his use of Dutch sources was much wider, namely, for the elevations, the internal organization of the building, the plans and decorative elements.³⁸ These were not necessarily all used together in one building but as and when Hooke felt that they suited his purpose. Hooke derived his ideas from engravings authorized by the architects themselves, such as the designs of Jacob van Campen, Pieter Post, Daniel Stalpaert and Philips Vingboons, as well as other artists' impressions of Dutch buildings. However, Hooke never copied a building or façade slavishly, often changing details to invent a new design. Frequently he

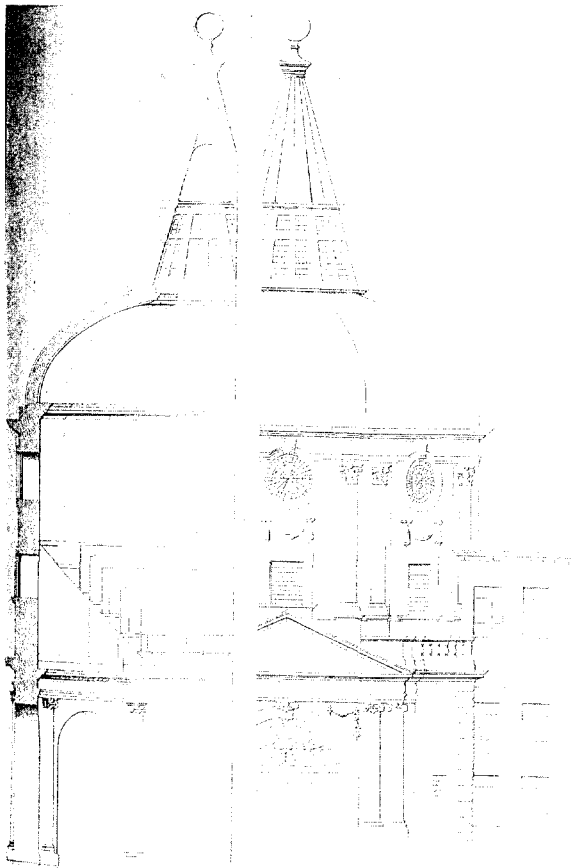
would use the façade of one type of building for a different type. For convenience, his works are divided into three categories: firstly, institutional buildings, such as societies and hospitals, secondly, town and country houses, and thirdly, churches.

1. Institutional buildings

The Royal College of Physicians, Warwick Street, London, 1669-79; destroyed by fire in 1876.

Due to inadequate facilities in their old premises, the Royal College of Physicians had already looked into acquiring a site for a new building on Warwick Lane, directly behind Newgate Prison in 1669.³⁹ The site was irregular in shape and the wall of the Prison was common to the College property. In Feb. 1670 Hooke was appointed architect.⁴⁰

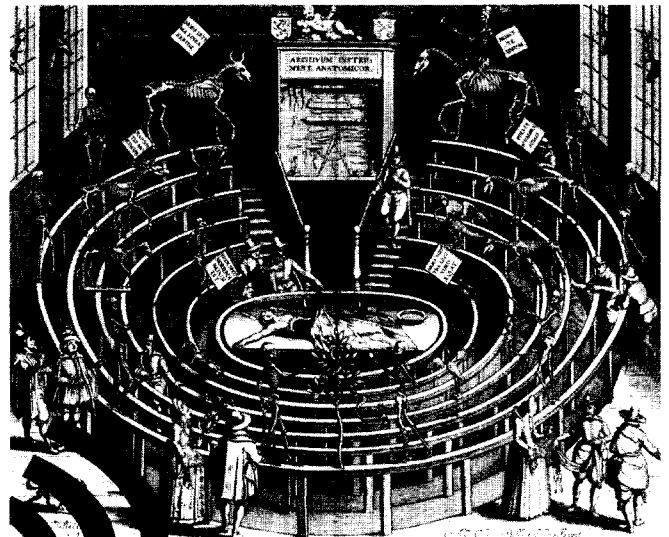
Hooke's finished version of the College consisted of a *corps de logis* in which the main offices and services of the College were located, two wings in which the fellows, the chemist and beadle resided, and the anatomy theatre placed over the entrance gate. The arcade of the theatre led into a quadrangular



Afb. 4. Robert Hooke. London, Royal College of Physicians, Anatomy theatre, 1670-9. Elevation and section. J. Britton and A.C. Pugin. *Illustrations of the public buildings of London*. London, 1825-8, v.2, pl.1, between p.52-3, Guildhall Library, Corporation of London.

courtyard, the entrance gate being on the same axis as the main entrance of the seven bay *corps de logis*, which opened on to the hall where the poor were given advice. To the right of the entrance were the candidates' room and library. Above the hall and candidates' room was the sumptuously decorated Court Room, where meetings of the Fellows were held every quarter and candidates examined. There was no cohesion between the exterior articulation and interior distribution.

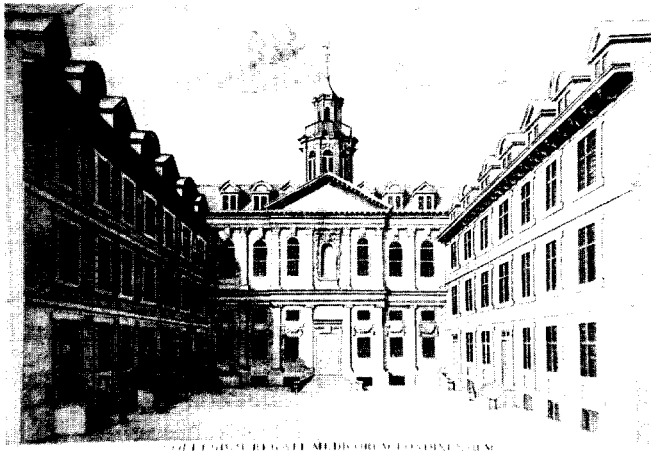
The idea of a *corps de logis* with a *cour d'honneur* and wings connecting to the wall of the main entrance and an impressive gateway is derived from French town and country houses.⁴¹ With its monumental entrance gate, octagonal superstructure and cupola, the College entrance is very close in principle to that of the Palais du Luxembourg. However, the design of the anatomy theatre (afb. 4) is drawn directly from a Dutch model, that of the Leiden Anatomy Theatre. Renowned as a place for studies in Europe, together with Basle and Padua, Leiden was the second medical school to build an anatomy theatre.⁴² In Leiden the theatre was inserted into the apse of an old monastery church, the Faliiede Bagijnkerk. It was an area of approximately 9m. x 9.80m. and consisted of a circular arena structure with six tiers of seats which could be reached by two steep stairways cut side-by-side into the circle. The first row was reserved for professors and visiting dignitaries, the next two for surgeon-barbers and medical students and the last three for other interested spectators. In the centre at the level of the lowest seats was placed the operating table (afb. 5).⁴³ Engravings were made of the theatre in use both in winter for dissections and in summer as a repository for rarities and skeletons of animals.⁴⁴ Hooke would have been aware of both the engravings and also the personal experiences of some of the Royal College of Physicians' fellows who had studied in Leiden. Hooke copied the form and dimensions of the theatre almost exactly, his theatre being slightly larger at



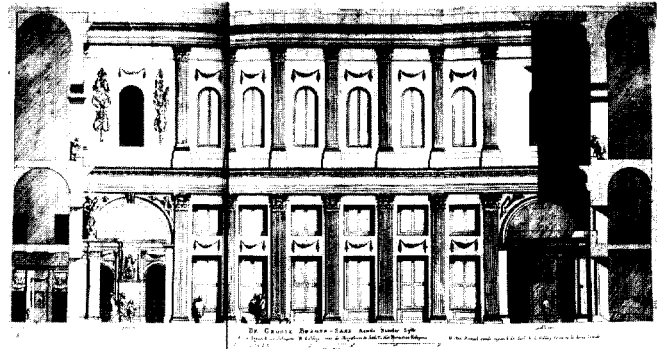
Afb. 5. Leiden, Anatomy theatre. Summer session. Engraving, W. Swanenburg after J.C. Woudanus, 1610. Leiden, University Library.

12m. in diameter, but placed it in a building resembling the earliest Protestant churches in the Netherlands. These were either circular or octagonal in form and usually crowned with a cupola and lantern. Hooke probably used the example of the Oostkerk, Middelburg, which had been first engraved by H. Udemans in 1657 and later by P.H. Schut for the octagonal form of his theatre.⁴⁵ He also copied the idea of pilasters on the corners of the structure from the Oostkerk.⁴⁶ The capitals on this church are Ionic but Hooke has made these into Corinthian capitals, in line with the Serlian superimposition of the Corinthian on the Ionic. One of the features in his theatre for which there is no direct model is Hooke's lantern. In his own design he has, however, recognized the importance of good lighting, a characteristic for which Leiden's theatre was renowned.⁴⁷ In the entrance gate Hooke used coupled Ionic columns, an idea which he could have taken from either Dutch or French models. In the entrance to his Hofje van Nieuwkoop, The Hague, Pieter Post used this form with an archway but without a pediment.⁴⁸ A French example, the town house of M. Iabba, engraved by Jean Marot, shows an entrance with coupled Doric columns flanking an archway and topped by a triangular pediment. As Post had done, Hooke chose the Scamozzian Ionic, the form also preferred by Van Campen and Vingboons, but added Vignolan garlands.

Whereas Hooke used the ideas of various Dutch architects for his anatomy theatre, the façade of the *corps de logis* (afb. 6) very much reflects the influence of Jacob van Campen. Although not mentioned in his library, Hooke must have had access to the 1661 edition of engravings of the Town Hall by Jacob Vennekool.⁴⁹ With its large rectangular windows below and small half-height windows above, its round-headed windows on the second floor and articulation through pilasters across the whole façade, it resembles the interior wall of the Burgerzaal in Van Campen's Amsterdam Town Hall (afb. 7).⁵⁰ The decorative element in the form of swags between the rectangular and upper half-height windows also



Afb. 6. Robert Hooke. London, Royal College of Physicians, *corps de logis* and side wings. David Loggan. Engraving, 1677. Guildhall Library, Corporation of London.



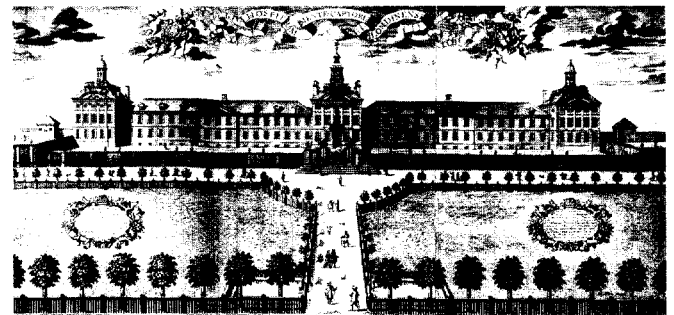
Afb. 7. Jakob van Campen. Amsterdam Town Hall, 1648-65. Burgerzaal. J. Vennekool. Engraving, 1661. Utrecht University Library.

recalls the Town Hall. In his use of orders Hooke differs, however, from Van Campen by using the Corinthian superimposed upon the Scamozzian Ionic, as he has for the entrance and theatre. On the inner wall of the Burgerzaal Van Campen had used the Corinthian order superimposed on itself. This is in line with Hooke's penchant for varying the elements from his models and adapting them to fit the purpose of the design.

Bethlem Hospital, Moorfields, London, 1675-'76; demolished in 1815 (afb. 8)

The commission to design Bethlem came through Hooke's contacts with the City. He knew Sir William Turner, a former Lord Mayor, and President of the old Bethlem Hospital. Hooke first mentions his new commission in his *Diary* on April 14 1674 and the new Bethlem, or Bedlam as it was more familiarly called, was built within two years between 1675 and 1676.

Bethlem was only one of a handful of hospitals to be built specifically for "distracted persons"⁵¹ since the 15th century.⁵² Previous hospitals, such as the Amsterdam Dolhuys



Afb. 8. Robert Hooke. London, Bethlem Hospital, 1675-6. Robert White. Engraving, 1677. Guildhall Library, Corporation of London.

(1562), the most recent hospital to be built before Bethlem, had followed the cloister-like plan of the monasteries, which had been the first recipients of the mentally ill.⁵³ The Dolhuys was much more modest in scale, accommodating only 11 patients in comparison to the 120 envisaged at Bethlem. In this respect Hooke's design was a radical departure from the

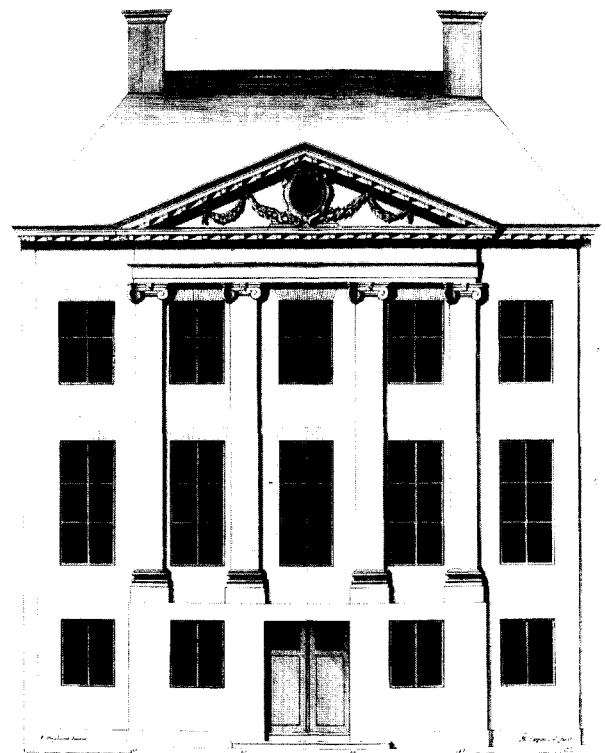
topos. His building, consisting of a long range of approx. 540 ft., was devised as a 'single pile' with galleries on two floors and cells behind. It was to prove the model on which later such hospitals would be based, such as St. Luke's Hospital and Bethlem's replacement in 1815.⁵⁴

As a model for monumentality and grandeur Hooke certainly had in mind the recently built *Hôtel des Invalides*, begun in 1670⁵⁵, but this has a much more elaborate detailing on the *corps de logis* than Bethlem, for which Hooke turned to Dutch examples for inspiration. The desire to make a statement about such a building's function was not new. Even at the Dolhuys this wish was evident and was accomplished by integrating a richly decorated portal into its plain façade, although the actual entrance was to the side of the building. The Dolhuys was very much on the tourist circuit of institutions, together with the Rasphuis and Spinhuis, which had become popular attractions since the 1630s.⁵⁶ Bethlem was to follow in this tradition.⁵⁷

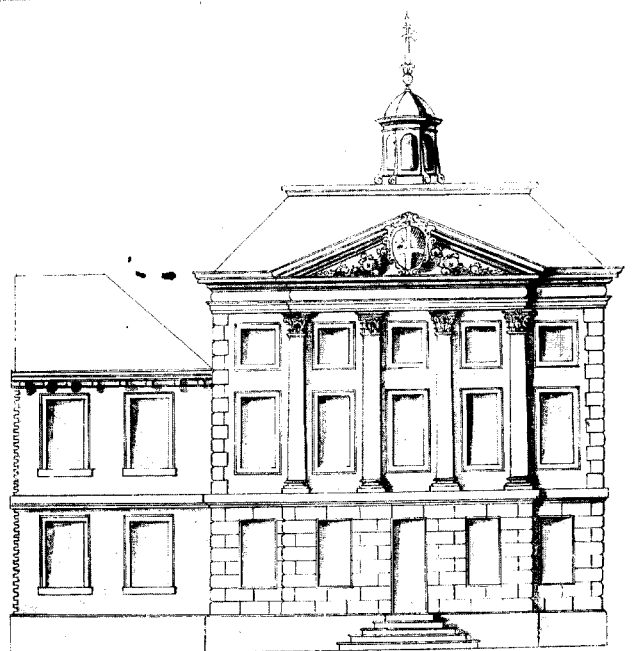
The building itself consisted of two main blocks both of seventeen bays linked with a centre and two end pavilions, all of which had five bays and broke forward from the two blocks. The three pavilions also had balustrades, lanterns and cupolas on hipped roofs and were greater in height than the main blocks, thus creating a break in the roof line. The aspect of the main façade on the North, although closed off by an 8 foot high wall, was deliberately made visible through open areas in the wall which were covered with ornamental iron work. This allowed visitors the opportunity to look into the front yard.⁵⁸ The aspect to the South was directly on to London Wall, a mere 9 ft. away.

Inside the building had two floors of galleries, each 193 ft. long, 13 ft. high and 16 ft. broad facing the park and behind the cells for the patients, each 12 ft.6in. x 8 ft. On the ground floor on each side of the entrance hallway were the Steward's room and an examination room for patients on admission and discharge. On the first floor was the Governors' room with its own balcony, also facing the park.⁵⁹ By the standards of the time the design conception was humane with good lighting and air with outside exercise areas on the sides of the hospital and as an alternative in bad weather the galleries. However, in practice, the patients often remained in their cells and in some cases were chained to their beds.⁶⁰

Despite the impression of French monumentality mentioned above, Hooke used as his models works by the two architects, Philips Vingboons and Pieter Post. The façade of the pavilions is based on a design by Vingboons for a gentleman's house (Vingboons II, 72, afb. 9). In his preliminary drawing, now in the British Library, Hooke follows Vingboons' instructions for the house to be built in brick with stone pilasters, bases and capitals, quoins and ornament⁶¹. (afb. 10) He has, however, already changed the Ionic pilasters depicted by Vingboons to Corinthian. The double door has become a

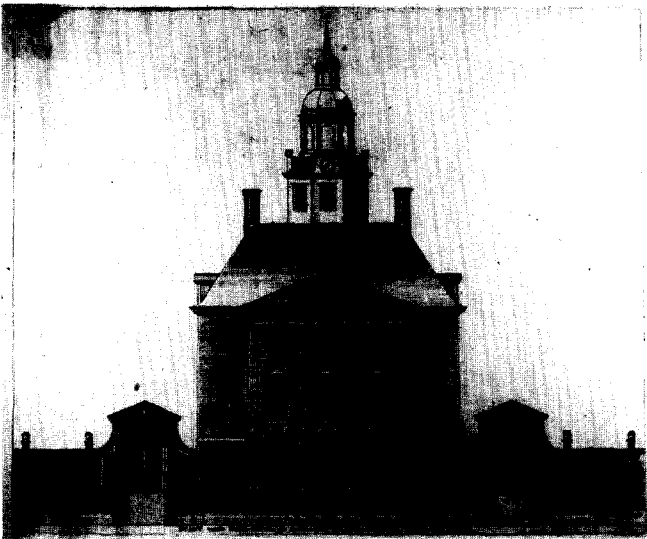


Afb. 9. Philips Vingboons. *Gentleman's house*. II, 72.



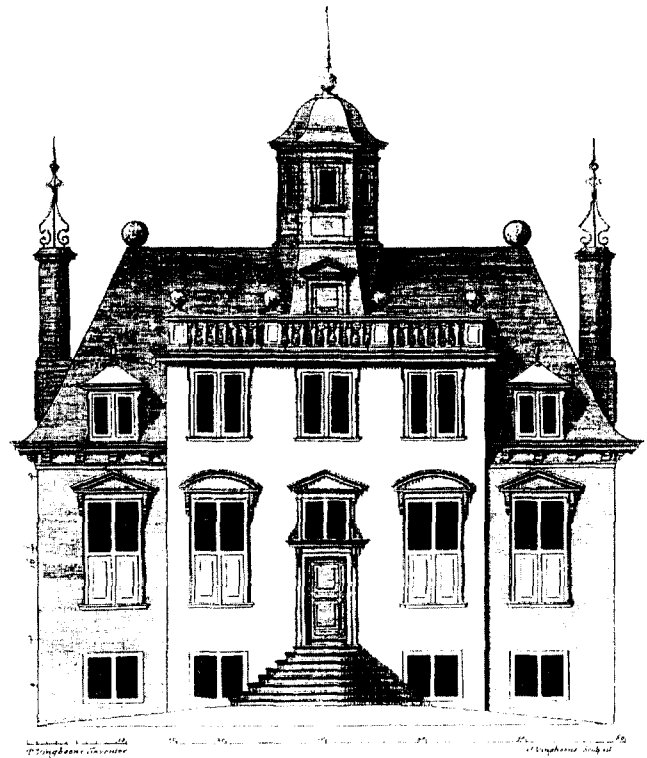
Afb. 10. Robert Hooke. Drawing. Preliminary design of end pavilion. Bethlem Hospital. British Library. Add. 5238, f.55.

single door and the small windows on the ground floor have been moved to the half attic, with the full-height windows of the third floor becoming those on the ground floor, thus raising this floor in relation to the rest of the façade. The ground floor is to be treated in rusticated stone instead of brick. In the final version Hooke changed the triangular pediment to a segmental one on all three pavilions and faced their façades with stone. The double lantern and cupola on the top of the central pavilion with its high base resemble that of the façade of Swanenburg, designed by Pieter Post between 1645 and 1648. The pediments with coats of arms and garlands follow Post's usage. Hooke could easily have been aware of the engravings of Post's house by Jan Mathijs, published in 1654 (afb. 11).⁶² The flared shape of the lantern domes on the end pavilions resembles that of Elsenburgh House (Vingboons I,2) (afb. 12) and the use of balustrades to surround these and

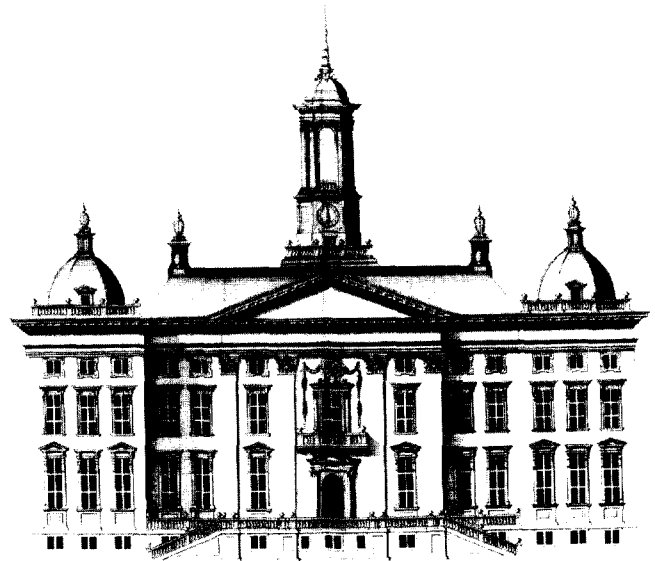


Afb. 11. Pieter Post. *Halfweg, Swanenburg, 1645-8. Front façade and entrance gates. J. Mathijs in Pieter Post's Ouwages, 1715.*

the lantern and dome on the central pavilions are reminiscent of the balustrade at the base of the lantern for Vingboons' design for the Amsterdam Town Hall (Vingboons I, 61, afb. 13). Batten and Downes have remarked on the French nature of the separation of the pavilion roofs from those of the main blocks but this feature was also to be found in Dutch palaces, such as that of Rijswijk, which was frequently engraved.⁶³ The use of stone for the pavilions also creates a direct contrast with the brick highlighted with string-courses and stone quoins on the *corps de logis*. This was a feature of both French and Dutch architecture in the early 17th century. In Paris both at the Place Royale (Place des Vosges), begun in 1605, and the Place Dauphine, begun in 1607, the houses had brickwork contrasting with stone quoins and *chaînes*.⁶⁴ In the Netherlands Van Campen used a restrained contrast between stone and brickwork in his Coymans House in the 1620s and it was used again to imposing effect in his Mauritshuis.⁶⁵ Derived from the Mauritshuis, it had also appeared in Anglo-Dutch



Afb. 12. Philips Vingboons. *Elsenburgh House, 1637. I, 2.*



Afb. 13. Philips Vingboons. *Design for Amsterdam Town Hall. I, 61.*

architecture, particularly Hugh May's Eltham Lodge (1664). The restrained astylar treatment of the main blocks, the frontispieces of which are crowned by triangular pediments, is similar to that used by Daniel Stalpaert, Van Campen's successor as city architect in Amsterdam, in his Admiralty Storehouse, Amsterdam (1656). Hooke has integrated these

into the alternating rhythm of the giant segmental pediments on the pavilions. The same alternating sequence is echoed in the pediments on the small dormer windows, a pattern already used at the Royal College of Physicians.

Mention has already been made of the Corinthian pilasters on the pavilions. In his design for Bethlem Hooke applied a refined use of the orders by integrating them into a scheme which includes the front entrance gates. On the outside gate post sit a lion on the left side and a unicorn on the right, the royal heraldic beasts. Hooke omits the Doric order but coupled Ionic columns, above which is a broken segmental pediment, are used on either side of the ornamental iron gate. This is followed through by the giant Corinthian pilasters on both the central and end pavilions. This kind of scheme was also used at the Mauritshuis and Huygens House, although in both cases Van Campen followed Scamozzi's order of Doric, Ionic, Composite, rather than that of Serlio, as Hooke has done.⁶⁶

2. Town and county houses

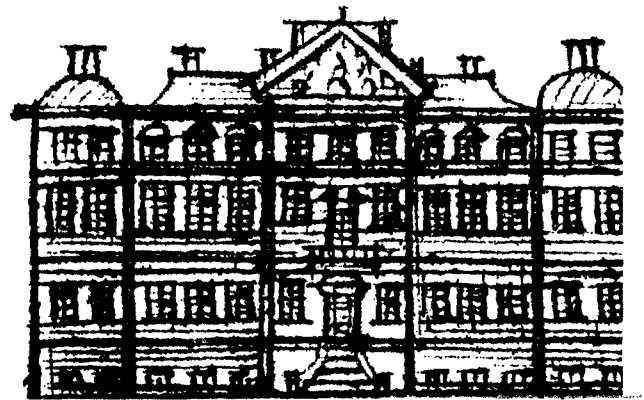
Concurrent with his commission for Bethlem, Hooke was called on to produce a design for the most extravagant town house built in London in the last quarter of the 17th century.

Montagu House, Bloomsbury, London 1st house, 1674-7; destroyed by fire 1686; 2nd house, 1687; demolished 1850.

Ralph Montagu, the second son of Lord Montagu of Boughton and twice ambassador to France, who commissioned Montagu House, was known for his luxurious and exacting tastes.⁶⁷ Montagu wanted a house to rival Southampton House next door, the home of Thomas Wrioththesley, the fourth Earl of Southampton, his father-in-law.⁶⁸ It seems then an irony that the design of this magnificent aristocratic town house was based on a municipal building, namely, that of Vingboons' unexecuted design for the Amsterdam Town Hall. For this association we have to rely on the engraving of the south front of Montagu House on Morgan's Map of 1682, as there are unfortunately no extant plans or drawings for the house. Morgan shows a thirteen bay three-storied astylar house with a basement, a pedimented frontispiece and two corner pavilions with cupolas (afb. 14).⁶⁹ The similarities with Vingboons' design are unmistakable. The Town Hall also has thirteen bays, although they have been apportioned slightly differently. Hooke's pavilions have two bays each and the *corps de logis* with frontispiece nine bays. Vingboons' pavilions have three bays each and the central block, therefore seven bays. Vingboons also uses a giant Corinthian order, which is not present in Hooke's design. However, Hooke's use of cupolas over the pavilions, a separate hipped roof over the *corps de logis* and a triangular pediment over the frontispiece like Vingboons make it certain that Hooke derived these features from Vingboons' engraving (I, 61) in his *Afbeeldsels der voornaemste Gebowwen* (afb. 13).⁷⁰ Despite this, there are undoubtedly French elements in Hooke's design. As with the Royal College of Physicians he follows the example of French *hôtels* with their *cours d'honneur*, wings

attached to the *corps de logis* and a walled entrance with an imposing gate. Since Montagu was ambassador in Paris during the period when the house was built, the connection with France was particularly strong and the artists who decorated the interior were almost exclusively French or had worked in France.⁷¹

The life of the first Montagu House came to an abrupt end in 1686 when it burned down. Contemporary witnesses, such as Evelyn, contended that on the night of Jan. 19. 1686 "was burnt to the ground (my italics) my Lord Mountague's Palace in Bloomsbery".⁷² It is certain, however, that the gate-house and the street screen from this house, as can be seen on Morgan's map of 1682, *London &c actually survey'd*, survived into the design of the second house, as it is illustrated in Colen Campbell's *Vitruvius Britannicus* of 1715.⁷³ Hooke had re-used the design of the gate-house from the Royal



Afb. 14. Robert Hooke. Bloomsbury, London, Montagu House, 1674-7. First design. W. Morgan. *London &c. actually survey'd*, 1682. Guildhall Library, Corporation of London.

College of Physicians and added a colonnade with Ionic columns on the inside of the screen. The capitals of the columns were garlanded in the same way as those on the gate-house for the College. The curious pavilions with their concave pointed roofs and high chimneys reappear in a drawing for a house by Hooke, now in the Wren Collection, All Souls' College, Oxford.

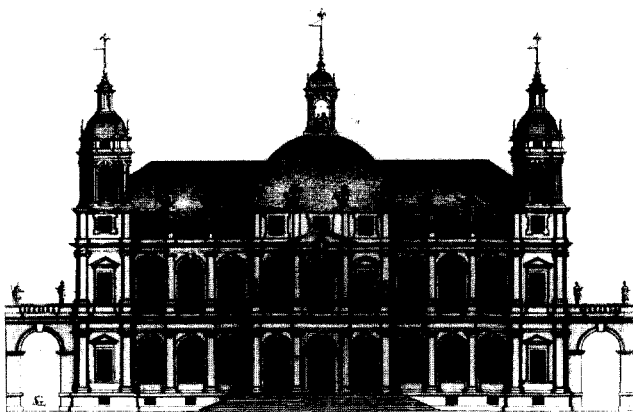
The second Montagu House, built with surprising speed in 1687, has been attributed since the 18th century to a Monsieur Pouget, identified as Pierre Puget, a French sculptor and architect, who designed the Marseille Town Hall and an arsenal for Toulon. However, the style of these buildings bears no relation to that of Montagu House. A drawing in the British Library by Hooke is identical to the elevation of the second Montagu House (afb. 15), except that in the house as executed, the frontispiece and its cupola are quoined in the French manner, as are also the corner pavilions. Also on the south front the roofs have been mansarded and the windows in them changed. The basement windows have also been

altered. On the north (garden) front, with the exception of the change in the cupola and the mansard roof with its *oeils de boeuf*, the windows remain the same as in Hooke's design.



Afb. 15. Robert Hooke. Drawing of second design, Montagu House, 1687. North front? British Library, Add. 5238, f.56.

The most radical change has been to raise the height of the cupola to replace Hooke's attic on the centre pavilion plus cupola. Apart from a giant Corinthian order on the upper floor of the centrepiece, the building has an astylar façade. This is in line with the withdrawal from the use of the classical orders reminiscent of Vingboons' late designs. The centrepiece with its cupola has strong similarities with an anonymous design for the Amsterdam Town Hall, which has been attributed to Constantine Huygens or the monogrammist SCL/SGL (afb. 16). This design was engraved by Pieter Nolpe and published by Clement de Jonge, who also issued the 1665 edition of Vingboons, which Hooke owned. It is possible, therefore, that Hooke knew of its existence. The design shows a centrepiece with a four-sided dome. On the upper floor of it a round-headed window with a triangular pediment is flanked by two smaller rectangular windows, above which are half-height windows. This constellation is also used by Hooke. He, however, applied a giant pediment and order over the whole unit. Four-sided domes were also used in France and the closest comparison to Hooke's design would be that of Le Vau for the Louvre.



Afb. 16. SCL/SGL Monogrammist. Design for Amsterdam Town Hall, c1647. P. Nolpe. Engraving. Amsterdam, Gemeente Archief.

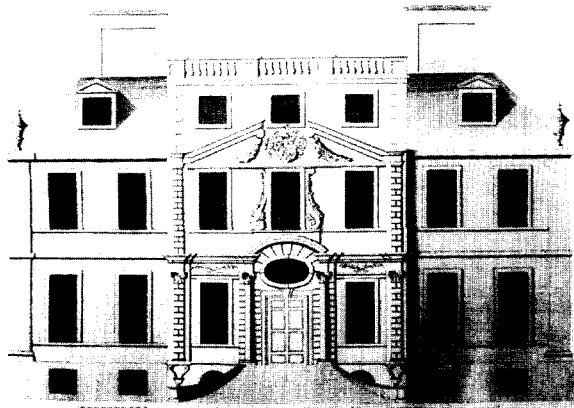
Since the first Montagu House had been universally admired, it seems strange that Montagu would have replaced Hooke as architect. The speed at which the second version was built would also mitigate against a new architect. Although the final version, of which an 18th century engraving exists, appears French, this can be attributed largely to the cosmetic changes to Hooke's design for an enlarged seventeen bay building. Despite this first impression, Dutch models played a major part in the design of the exterior, French influence being restricted to the general concept of the *hôtel* layout and applied detail. Hooke's original design is less influenced by French design. His strongest use of French influence is confined to the entrance gate and street screen.

Escot House, Devonshire, c.1680-'88; destroyed by fire in 1808 (afb.16)

The only house completed by Hooke, where a ground plan by a Dutch architect was applied, was Escot House, designed for Sir Walter Young [Yonge], Baronet. Hooke mentions the commission in his *Diary* in 1677 but it was 1680 before construction began. Apart from the second version of Montagu House, it is the only house by Hooke which was illustrated in Colen Campbell's *Vitruvius Britannicus*, published in 1715.⁷⁴ The elevation shows a seven bay house with two bays on either side of the frontispiece of the type so favoured by Vingboons. The attic storey over the frontispiece with its balustrade reveals the use of Vingboons' design for Elsenburch House (1637) (1, 2) (afb. 12). The elevation has the sober treatment of the façade, the so-called Flat Style, with a concentration of detail on the frontispiece typical of developments in the 1660s in the Netherlands. Here Hooke follows the trend of Vingboons' later designs to use ideas from the *hôtels* in Paris, which began to appear from the 1640s onwards.⁷⁵ This change is reflected in the heavier use of rustication and the use of broken pediments, as exemplified by Antoine le Pautre's *Hôtel de Beauvais*, Paris. For the sculptural decorative elements Hooke uses swags and volutes taken from Dutch gables.⁷⁶ In Escot House Hooke has ignored the system of books of orders by placing Doric pilasters on top of Composite ones. The plan for the ground floor (afb. 18) combines the idea of Huygens and Van Campen in the Huygens House and Mauritshuis of having an entrance hall leading to a grand staircase and symmetrical distribution of rooms on either side with the French system of *antichambre*, *chambre*, *cabinet*.⁷⁷

3. Churches

The last category of buildings by Hooke which we will consider are his churches. Hooke worked closely with Sir Christopher Wren on the rebuilding of 51 of the 86 churches destroyed in the Great Fire of 1666. It is evident from Hooke's *Diary* that Wren and Hooke were friends on intimate terms who discussed many details and problems of architecture. It is, therefore, still not always clear which churches were Wren's design, which were done in collaboration with Hooke and which Hooke alone designed. In some cases the extant drawings

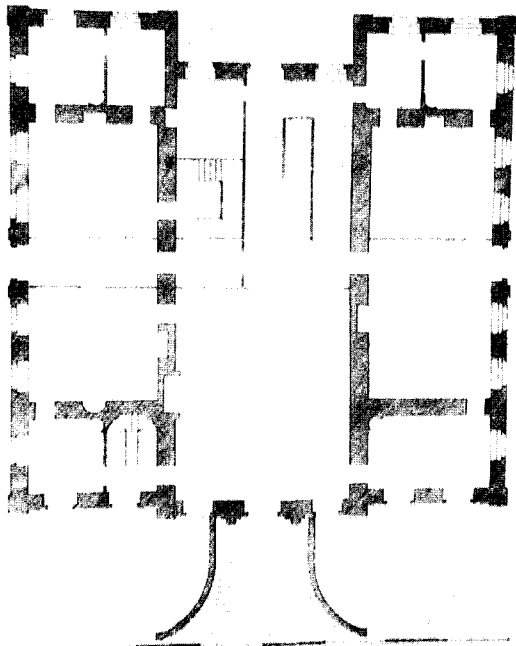


Afb. 17. Robert Hooke. Otterbury Manor, Devon, Escot House, c.1680-8. Front elevation. Colen Campbell, *Vitruvius Britannicus*, London, 1715, C1, pl.78. Guildhall Library, Corporation of London.

establish beyond doubt the architect; in others the conception of the design can give weight to either Wren or Hooke. The church chosen for consideration here, however, is without doubt by Hooke.

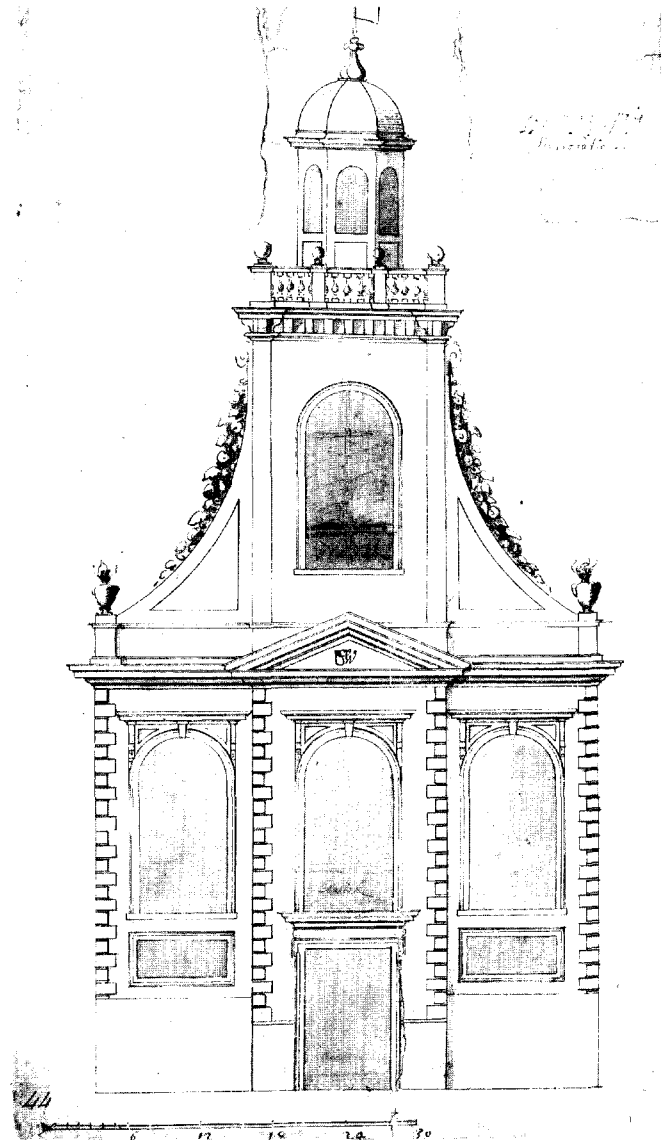
St. Edmund the King and Martyr, Lombard Street, London, 1670-'74

St. Edmund the King was one of the earliest churches to be replaced after the 1670 Act for the Rebuilding of the City Churches and was completed by 1674. It has, however, been

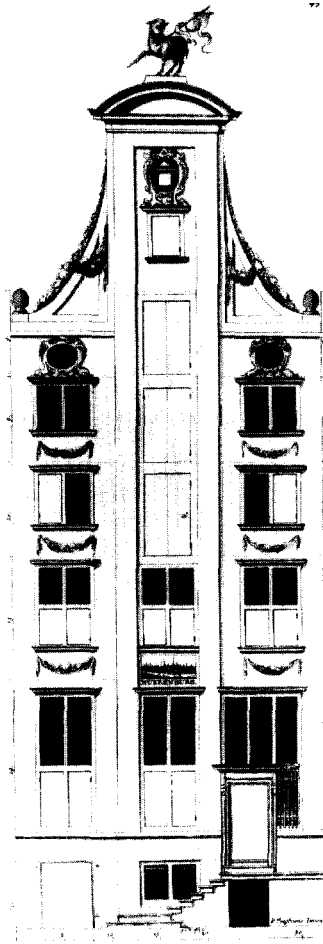


Afb. 18. Escot House. Plan. *Ibid.*, pl.79. Guildhall Library, Corporation of London.

subject to changes in the original design. The distinctive neck gable form used on the façade is still in place; the steeple was replaced in 1706-'07, at which time the balustrade at its base was removed, as were the festoons from the gable.⁷⁸ The design by Hooke, now in All Souls' College, Oxford (afb. 19), and initialed by Wren as approved, shows that the gable was copied from Vingboons' Huis Nuerenburg (afb. 20).⁷⁹ Vingboons was the first to use such a gable on a town-house in Amsterdam, that of Michael Pauw in 1638, although it had been illustrated in the 16th century in Serlio's *I sette libri dell'architettura*, Bk. 4, published in 1584, where it was used for a monumental gate. In this form it had also been used in England occasionally, as in the Gate of Honour, Caius and Gonville College, Cambridge.⁸⁰ Hooke follows precisely



Afb. 19. Robert Hooke. Drawing. London, St. Edmund the King and Martyr, Lombard Street, 1670-'74. Oxford, All Souls' College, Codrington Library, Wren Drawing, II.44.



Afb. 20. Philips Vingboons. Huis Nuereburg. II, 45.

Vingboons' idea of emphasizing the gable as a monumental element in its own right but diverges completely from the proportions of Huis Nuereburg by giving the gable the dominant role in the facade.⁸¹ The All Souls' College drawing also shows a lantern and cupola similar in version to Van Campen's design for the Amsterdam Town Hall. Two earlier designs by Hooke show that he experimented with a larger lantern and cupola above a balustrade, akin to that on Coleshill, Oxfordshire, c.1650, designed by Sir Roger Pratt, and a smaller one on top of a short crenellated tower.⁸² Hooke also experimented with the use of lisenés and quoins and with triangular and segmental pediments above the large windows on either side of the entrance. In the final design quoins and round-headed windows under straight hoods on brackets were used and a triangular pediment was placed at cornice level above the entrance.

Conclusion

The above selection of works which can be certainly associated with Hooke is intended to show how deep Dutch influence on Hooke's architecture was. Robert Hooke lived and worked at a time when contact between England and the Netherlands was stronger than at any other time in modern history, particularly in trade, the arts and sciences, including architecture. The interchange in architectural influence between the two countries and Hooke's contacts with the Netherlands have been reviewed in the text. The article has put prime emphasis on the Dutch sources which Hooke used and disputed the fact that he always used French planning and Dutch models only for detail. However, it cannot be ignored that Hooke drew on influences other than Dutch, when he felt it appropriate, namely French and Italian. In addition Hooke proposed practical solutions for problems where there were no prototypes. This practical approach, conditioned by his years of experience as Curator of the Royal Society and his work as Surveyor for the City of London, and an eclectic use of sources was the basis of Hooke's thinking on architecture.

Hooke designed buildings of many different types and those with particular use of Dutch models have been discussed in the three categories of institutional buildings, town and country houses, and churches. Attention was paid to the layout of the whole building or complex, the ground plans of individual buildings, the elevations, the use of orders and the detail of ornament.

With regard to institutional buildings and houses the judgment that Hooke designed in a French way seems to have been largely based on John Evelyn's opinion on Bethlem and Montagu House. On closer examination this only reflects part of the truth. The dimensions of Bethlem Hospital show that he was thinking in terms of French monumentality but his approach to combining architectural elements remains fundamentally Dutch. The design of the Royal College of Physicians, although based on the typical plan of a French *hôtel*, is in every other aspect derived from Dutch models. In his town and country houses Hooke also made extensive use of Dutch models. With Montagu House the façade of the house itself is a virtual copy of Vingboons' unexecuted design of the Amsterdam Town Hall. At Escot House Hooke introduces the layout used by Constantine Huygens at the Huygens House and Van Campen at the Mauritshuis of the vestibule leading to the grand staircase. He also drew extensively on the repertoire of cartouches, festoons and other ornamental elements of Van Campen, Pieter Post and Vingboons.

In all his work Hooke showed an awareness of the changes which took place in the development of Dutch classicism. Firstly he used the giant order across the whole façade or with a three bay interval on the frontispiece, the heavy modillioned triangular or segmental pediment to give emphasis to the frontispiece, the hipped roof, the raised basement and the decorative swags of Jacob van Campen of the 1630s and 1640s. Secondly, the flatter and astylar style used by Vingboons on his houses after 1660 and his use of lisenés in the 1670s have counterparts in Hooke's designs. The plain treatment of the large blocks at Bethlem is reminiscent of Daniel Stalpaert's handling of the East India Company Storehouse in Amsterdam of 1661. Lastly, he made use of Vingboons' introduction of an astylar façade with a heavy concentration of rusticated decorative detail at Escot House.

For most of his designs Hooke used the source book most easily available to him, which was Vingboons' *Afbeeldsets der voornaemste Gebowwen*, published in 1648 and 1674. His use of the inner façade of the Burgerzaal of the Van Campen's Amsterdam Town Hall shows that he was familiar with J. Vennekool's *Afbeelding van 't Stadhuis van Amsterdam*, published in 1661. Through prints and engravings he must also have been aware of the designs of the Huygens House and Mauritshuis, the work of Pieter Post and Daniel Stalpaert and the Oostkerk, Middelburg, a detail of which he used for the Anatomy Theatre at the Royal College of Physicians. This would also apply to the engravings that were available of the Anatomy Theatre at Leiden.

Although he was not always successful in combining the elements he absorbed from such a variety of sources harmoniously, his works, in particular his institutions and country houses were examples to later architects. The plan and monumentality of Bethlem were a model for later institutions of this type and the appearance of Escot and Montagu House in Colen Campbell's *Vitruvius Britannicus* is a measure of their success. Hooke's design for St. Edmund the King and Martyr shows his ability to adapt a Dutch classicist town house façade to a very particular need, in this case, the City of London church rebuilding programme. Despite the fact that Hooke did not introduce Dutch classicist architecture to England, he was the only architect there to use such a variety of sources from the Netherlands for his architecture and for so many different types of buildings. In this respect Hooke was unique.

Noten

- 1 I would here like to thank all those who were willing to give me the benefit of their expertise, in particular, Prof. Cooper, Prof. Downes, Dr. Geraghty, Prof. K.A. Ottenheim. In addition I wish to acknowledge the friendly cooperation of the All Souls' College Library, Oxford, the Bodleian Library, the British Library, the British Museum Map Room, the Guildhall Library, London, the Museum Boerhaave, Leiden, RIBA Drawings Collection, the Royal College of Physicians, the Royal Society, University College Library, London.
- 2 G. Worsley, 'Der Palladianismus in England', J. Bracker, ed., *Bauen nach der Natur - Palladio: die Erben Palladios in Nordeuropa*, Ostfildern, 1997, pp.100-126, p.103. This influence can be seen most prominently in Hooke's design for Ramsbury Manor, Wiltshire, 1681-6.
- 3 In the Netherlands this development had begun with the publication of Simon Stevin's *De Thiende* in 1585. See K.A. Ottenheim, *Philips Vingboons (1607-1678) architect*, Zutphen 1989, p. 159 and note 382.
- 4 J.A. Bennett discusses in detail early English mathematical treatises and their application to architecture in his article, 'Architectural and mathematical practice in England, 1550-1650', J. Bold, and E. Chaney, jt. eds. *English architecture public and private: essays for Kerry Downes*, London 1993, pp.23-29.
- 5 For Vredeman de Vries and Dietterlin, see J. Summerson, *Architecture in Britain 1530 to 1830*, New Haven 1993, p.54. (9th ed.)
- 6 *Ibid.*, pp.63-64.
- 7 For a discussion of Jones' tour with the Earl of Arundel, interpretation of Palladio in the Banqueting House and the use of the term "Palladian vocabulary", see *Ibid.*, p.108-9, p.111-115 and 115 respectively. The continuing influence of Jones' classicism on English 17th and 18th century architecture is analysed by G. Worsley, *op.cit.*, p.100-126 and G. Worsley, *Classical architecture in Britain: the heroic age*, New Haven 1995. In his review "Palladianism in northern Europe", *Burlington Magazine*, v.141, no.1157, Aug. 1999, p.494, of the exhibition of the same name, D. Hemsoll underlines the dominant influence of Palladio on Jones. Mowl and Earnshaw, on the other hand, find much more of Scamozzi's influence on Jones than "the less tractable designs of Palladio". See T. Mowl and B. Earnshaw, *Architecture without kings: the rise of Puritan classicism under Cromwell*, Manchester 1995, p.26.
- 8 The importance of Scamozzi's influence in the Netherlands is argued by J.J. Terwen, 'Mag de bouwkunst van het Hollands classicisme 'palladiaans' genoemd worden?', *Nederlands Kunsthistorisch Jaarboek*, v.33 (1983) pp.169-189. Ottenheim, on the other hand, emphasizes that Palladio and Scamozzi were only a means to arriving at the true architecture according to Vitruvius in the early years of Dutch classicism and that study of Vitruvius himself was indispensable. K. A. Ottenheim, 'Architectuur', J. Huisken, K. Ottenheim, G. Schwartz, jt.eds, *Jacob van Campen: het klassieke ideaal in de Gouden Eeuw*, Amsterdam 1995, pp.155-199.
- 9 Jones' influence on Van Campen and Van Campen's use of Jones' ideas are all mentioned by K. Ottenheim, *Ibid.*, p.160. For Constantijn Huygens' part in the transmission of Jones' influence to Van Campen and the Dutch-English link between Hendrik de Keyser's sons and Nicholas Stone see *Ibid.*, p. 160. For a more detailed survey of English-Dutch architectural relations in the first half of the 17th century, see H. Louw, 'Anglo-Netherlandish architectural interchange c. 1600-1660', *Architectural History*, v.24 (1981) pp.1-23.
- 10 Van Campen's design is defined as the "toonbeeld van de ware bouwkunst". K.A. Ottenheim and Q. Buvelot, 'Historiografie en mythevorming', J. Huisken, K. Ottenheim and G. Schwartz, jt. eds. *op.cit.*, p.13.
- 11 Summerson, *op.cit.*, p.156 is cautious about its influence and can discern no direct application of it in English architecture; W. Kuyper, *Dutch classicist architecture: a survey of Dutch architecture, gardens and Anglo-Dutch relations from 1625 to 1700*, Delft 1980 sees the influence of De Keyser's designs on London architecture particularly in archways and also as a general pattern book, p.30 and 33 respectively.
- 12 G. Worsley, 'Der Palladianismus in England', Bracker, *op.cit.*, p. 102. Ottenheim defines the three stages of classicism used in the Netherlands as the correct use of orders, attention to the proportional arrangement of the building and the re-application of classical types of building for contemporary buildings. See K.A. Ottenheim, 'Classicism in the northern Netherlands in the seventeenth century', *Palladio and northern Europe: books, travellers, architects*, Milan 1999, pp.150-167, p.152. The contrast between the treatment of Coymans House and Huis ten Bosch, Maarssen, is discussed by Ottenheim in 'Architectuur', J. Huisken, K. Ottenheim, G. Schwartz, jt. eds. *op.cit.*, p.161-3. For the sober façades of Post, see *Ibidem*, p.136. For Vingboons and the essence of the Flat Style, see K.A. Ottenheim, *Philips Vingboons (1607-1678) architect*, Zutphen 1989, pp.99-102.
- 13 For example in Jones' or Pratt's design of Coleshill, c. 1650, a 'double-pile' house with a central corridor running the breadth of the house and the rooms in front and behind the corridor laid out symmetrically on either side of the Hall and Great Parlour. See Summerson, *op.cit.*, p. 139 for the plan of Coleshill. This contrasts with the H and U plans popular in during James' I's reign. *Ibid.*, p.85. In Holland the completely symmetrical plan had already been introduced by Constantijn Huygens in the Huygenshuis, 1634-7 and simultaneously by Van Campen in the Mauritshuis, 1634-44. For a discussion of this development, see K.A. Ottenheim, 'Architectuur', J. Huisken, K. Ottenheim, G. Schwartz, jt. eds. *op.cit.*, p.163-4 and p.166. Of the three prominent architects contemporary with Van Campen, Pieter Post, Arent van 's Gravesande and Philips Vingboons, only Vingboons was forced to use the traditional ground plan in his Amsterdam town houses due to space considerations. See K.A. Ottenheim, *Philips Vingboons (1607-1678) architect*, Zutphen 1989, pp.75-76.
- 14 The work of Roger Pratt is frequently mentioned in the context of the influence of Dutch classicism in England. However, Coleshill, the house most cited, does not show any strong resemblance to Dutch models. N. Schless, who sees a similarity in Coleshill's ground plan to that of Huygenshuis, makes the mistake of reversing the plan of Coleshill so that the hall is at the back of the building with a vestibule in front like the Huygenshuis whereas in actual fact the hallway at Coleshill is at the front of the building. See N. Schless, 'Dutch influence on the Governor's Palace, Williamsburg', *Journal of the Society of Architectural Historians*, v. 28 (1969), pp.254-270, fig.5, p.258. For the plan of Coleshill and the description of its layout by Celia Fiennes in the 1690s, see C. Platt, *The great rebuildings of*

- Tudor and Stuart England: revolutions in architectural taste*, London 1994, pp.38-39. In addition, given that Coleshill may have been designed by Inigo Jones and not by Pratt, it seems less likely that a Dutch model would have been used. For the re-attribution of Coleshill to Jones, see Mowl and Earnshaw, op.cit., pp.48-59.
- 15 K.A. Ottenheim, 'Architectuur', J. Huisken, K. Ottenheim, G. Schwartz, jt. eds., op.cit., p.163.
- 16 May told Samuel Pepys, the diarist, that he been in the service of the 2nd Duke of Buckingham for twenty years "in all his wants and dangers". He was an agent in the sale of works of art in Holland from York House, the Duke's residence, in the 1650s and was certainly there in the service of Peter Lely in 1656. Information from H. Colvin, *A biographical dictionary of British architects, 1600-1840*, New Haven 1995, p.646. (3rd ed.)
- 17 This is my own interpretation. There are as many different views of which Dutch architects influenced May as there are authors. Kuyper, op.cit., p. 118 claims the strongest influence to be Van 's Gravesande's Sebastiaansdoelen; N. Schless, op.cit., p.262 also favours Sebastiaansdoelen, as does N. Cooper, *Houses of the gentry, 1480-1680*, New Haven, 1999, p.242. M. Whinney and O. Millar, *English art, 1625-1714*, Oxford 1957, p.142 mention the Mauritshuis as the main model. Mowl and Earnshaw, op.cit., p. 67 include the influence of Huygenshuis with that of the Mauritshuis.
- 18 For information on Huis ten Bosch, Maarssen, see note 12.
- 19 For Van Campen's use of the *cornicione architravata* based on Palladio and Scamozzi, see K. Ottenheim, 'Architectuur', J. Huisken, K. Ottenheim, G. Schwartz, jt. eds. op.cit., p.176. For a mention of its use by May, see Summerson, op.cit., p.174.
- 20 Kuyper, op.cit., p.90 mentions the springing of the roof curving inwards but not its connection with Eltham Lodge. The motif of Ionic capitals with garlands is ultimately derived from Michelangelo's Palazzo dei Conservatori, which was illustrated by Vignola in later editions. See Terwen, op.cit., p.177.
- 21 Information on Hooke's life has been taken from the contemporary sources of J. Aubrey, *Brief lives*, ed. by O. Lawson-Dicks, London, 1949 and R. Waller, *The posthumous works of Robert Hooke*, London, 1705. Aubrey and Waller were both friends of Hooke's. Other information has come from M. 'Espinasse's lively biography of Hooke, *Robert Hooke*, London 1956. His activities at the Royal Society are related in *The diary of Robert Hooke, M.A., M.D., F.R.S., 1672-1680*, ed. by H.W. Robinson and W. Adams, London, 1935 and *The life and work of Robert Hooke*, pts. I, II, IV, ed. by R.T. Gunther, (Early science in Oxford, v,VI, VII, X), Oxford, 1930, 1935. Pt. IV contains Hooke's Diary for 1688 to 1693. The Robinson and Adams edition will be henceforth referred to as the *Diary*.
- 22 The experiments for the catenary curve are mentioned in Gunther, op.cit., v.VI. p.371-373 and 384 and Wren's use of it in Hooke's *Diary*, June 5 1675, p.163: "[Wren] was making of my principle about arches and alterd his module [St. Paul's] by it". R. Mark, however, is sceptical of "Hooke's input on 'catenaries'. See R. Mark, 'Christopher Wren and great Renaissance domes'. C.E. Hauer, jr., ed. *Christopher Wren and the many sides of genius; proceedings of a Christopher Wren symposium*, Lewiston N.Y., 1997, pp.157-170, p.170, note 18.
- 23 Hooke's surveying activities are discussed in detail by M.A.R. Cooper in his article, 'Robert Hooke's work as surveyor for the City of London in the aftermath of the Great Fire', *Notes and records of the Royal Society, London* v. 51, no.2 (1997) and v.52, nos. 1 and 2 (1998) respectively.
- 24 Waller, op.cit., p.xii mentions Hooke's plan. For the appointments of the King's surveyors and those of the City, see T. Reddaway, *The rebuilding of London after the Great Fire.*, London 1951[1940], pp.55-58.
- 25 For a list of Hooke's architectural commissions, see Colvin, op.cit., p.508-510.
- 26 A recent general work on Hooke is R. Nichols, *Robert Hooke and the Royal Society*, Sussex 1999. For an assessment of Hooke's work as a scientist, see M. Hunter and S. Schaffer, *Robert Hooke: new studies*, Woodbridge 1989. For his contributions to geology, see E.T. Drake, *Restless genius*, London 1996. The only work devoted exclusively to Hooke's architecture till now is M. I. Batten's 'The architecture of Dr. Robert Hooke, F.R.S.', *Walpole Society*, v.25 (1936-7) pp.83-113. P. Jeffery's *The City churches of Sir Christopher Wren*, London 1996, gives Hooke greater credit for work on the City churches than has been the case hitherto. There is still, however, a tendency to give Wren recognition for work where collaboration between him and Hooke was involved, as is indicated by J.E. Moore's article, 'The Monument, or, Christopher Wren's Roman accent', *Art Bulletin* v.80, no.3 (1998) pp.498-533. The influence of Dutch classicist examples on Hooke's architecture is discussed for the first time in any detail in Kuyper, op.cit. Hooke's architectural drawings are examined in A. Geraghty's Ph.D. thesis, *The architectural drawings for the Wren City churches*, Univ. of Cambridge 1998.
- 27 Evelyn describes his visits to Amsterdam, Leiden and The Hague in his *Diary*, ed. by E.S. de Beer, London 1959 particularly pp.28-32. For information on Sir Robert Moray and his association with Pieter Post, see K.A. Ottenheim, 'De bouwgeschiedenis van het Stadhuis van Pieter Post te Maastricht', *Bulletin KNOB* 96 (1986) pp.151-152. Winde is mentioned by Summerson, op.cit., p.245 and by Kuyper, op.cit., p.191. Reference to the medical studies of Petty and Diodati in Leiden can be found in W. Munk, *The roll of the Royal College of Physicians*, London 1878, v.1, p.270 and 333 respectively.
- 28 Mentioned in N. Schless, op.cit., p.258 and note 24.
- 29 Both the earlier and later sections of Hooke's *Diary*, published by Robinson and Adam and Gunther respectively, give valuable information on his contacts, although the information is terse in the extreme. Hooke records meeting Story in the *Diary* entry for July 7 1674, p.111: Cibber is mentioned on Dec.16 1674, p.136; Hondius on June 29, July 25 and Sept. 14 1674, p.109-10, 114, 121 respectively. For a new review of Gibbons see D. Esterly, *Grintling Gibbons and the art of carving*, London 1998, and for his work for Hooke at Ragley Hall and Ramsbury Manor, *Ibid.*, p.74. For a recent discussion of Hooke's relationship with Hondius, see M. Peyser-Verhaar's article, 'Abraham Hondius: his life and background', *Oud Holland*, 112 (1998), p.151-6. Guildhall Library, London, MS. 25548 records Willem de Keyser's work for the City. My thanks to A. Geraghty for pointing this out to me.
- 30 C.D. van Strien, *British travellers in Holland during the Stuart period: Edward Brown and John Locke as tourists in the United Provinces*, Leiden 1993, p.262 and note 113 and B. de Monconys, *Journal des voyages*, Lyon 1666, pt.2, p.160.
- 31 Hooke's efforts to learn Dutch are recorded in the *Diary*, Dec. 11 1672, p.16 and his translations of Van Leeuwenhoek's letters are mentioned in Gunther, op.cit., v.VII, p.539 and 541-2.
- 32 A facsimile of the auction catalogue of Hooke's books at his death in 1703, the original of which is in the British Library, is published in L. Rostenberg, *The library of Robert Hooke: the scientific book trade of Restoration England*, Santa Monica 1989.
- 33 Marcus Willemsz. Doornick, *Platte Grondt der Verbrande Stadt London*, 1666, with explanations and titles in English, French and Dutch. Batten, op.cit., p.86 and Jeffery, op.cit., p.19 say that the map has been lost. On the other hand, Porter feels that Doornick's map may contain Hooke's plan. See S. Porter, *The Great Fire of London*, Stroud 1996, p.102.
- 34 For a detailed discussion of Stevin's plan, see E. Taverne, *In 't land van belofte*, Maarsen 1978, chap. 2. Een Nederlandse variant van de 'città ideale', Simon Stevins *Vande oordeningh der sieden*.
- 35 Ideal city (Palmanova) in V. Scamozzi's *L'idea della architettura universale*, Venice 1615, Pt.1, Bk.2, Chap.20, pp.166-7.

- 36 K.A. Ottenheim. 'The Amsterdam ring of canals: city planning and architecture', *Rome-Amsterdam: two growing cities in seventeenth century Europe*, Amsterdam 1997, pp.33-49.
- 37 For further examples, see my thesis, *Robert Hooke and Holland: Dutch influence on Hooke's architecture*, Univ. of Utrecht 1997. Unpublished.
- 38 For example, Batten, op.cit., p.87, who sees Bethlem as essentially French in conception but Dutch in its detail and Colvin, op.cit., p.508. K. Downes, *English Baroque architecture*, London 1966, p.5 notes in regard to Bethlem Hooke's interest in French models but also his use of Holland as "the direct source for the elevations of his pavilions". He finds (p.57) Montagu House "to be markedly French in style". Kuyper, op.cit., p. 116, however, sees a "fusing of Dutch and French taste" in Bethlem and Montagu House. He also notes the use of the Burgerzaal at the Amsterdam Town Hall as a model for the façade of the *corps de logis* of the Royal College of Physicians. Jeffery, op.cit., p.35 concludes that Hooke only used Dutch decorative elements in his City church designs.
- 39 The College had no anatomy theatre of their own and had been using the Barber Surgeons' Theatre, designed by Inigo Jones in 1636. My thanks to Geoffrey Davenport, Historical Resources Manager, Royal College of Physicians, for this information. Jones' theatre was of oval shape, had four tiers of seats and a dome painted on the inside with the constellations and was, therefore, not the model for Hooke's new theatre, discussed in the text. See D.F. Rowan, 'A neglected Jones/ Webb theatre project: Barber Surgeons' Hall writ large', *New theatre magazine*, v.9, no.3 (1969) pp.6-15; J. Harris, S. Orgel, R. Strong, eds. *The King's arcadia: Inigo Jones and the Stuart Court: a quatercentenary exhibition held at the Banqueting House, Whitehall from July 12th to sept. 2nd, 1973*, London, 1973, no.350, p.156. Jones' plan and elevation are illustrated in A. Cerruti Fusco's *Inigo Jones: Vitruvius Britannicus: Jones e Palladio nella cultura architettonica inglese, 1600-1740*, Rimini 1985, p.342. Cerruti Fusco also shows another plan and elevation attributed to Jones and believed to be for the Royal College of Physicians Theatre, which is circular in shape and with six tiers but, since it was never executed, it is unlikely that Hooke would have seen it. See *Ibid.*, p.344.
- 40 Information on the site and progress of building is taken from the Royal College of Physicians. *Annals*, Bk. 4, 1647-90, translated from the original Latin, pp.147-164.
- 41 There are several illustrations of such in Jean Marot, *Recueil des plans, profils, élévations des plusieurs palais....*, Paris c1670, no pagination.
- 42 The earliest anatomy theatre was in Basle (1544), then followed Leiden (1593) and a year later Padua. See T.A. Markus, *Buildings and power: freedom and control in the origin of modern building types*, London 1993, p.229.
- 43 For information on the theatre dimensions and structure, see T. Lunsingh Scheerleer, 'Un amphithéâtre d'anatomie moralisée', T. Lunsingh Scheerleer and G.H.M. Posthumus Meyes, *Leiden University in the seventeenth century*, Leiden 1975, pp.216-7.
- 44 Leiden's theatre was a renowned tourist attraction and engravings were made as souvenirs for visitors. The earliest was by Bartholomeus Dolendo, based on a drawing by Jan Cornelisz. van 't Woudt, or Woudanus, in 1609. In 1610 a series of engravings of the University, including the theatre, by Willem Izaacsz. Swanenburgh based on Woudanus' drawings was published. Both engravers showed the winter and summer functions of the theatre but took liberties with their conjunction. See Museum Boerhaave Leiden, *Van vernuftelingen en professoren*, Leiden 1989, p.10.
- 45 Pieter Hendriksz. Schut was a prolific illustrator for Claes Jansz. Visscher and later Nic. Visscher. His print of the Oostkerk, Middelburg, was probably originally published in the 1660s, as he died some time after 1660 in Amsterdam. See U.Thieme and F. Becker, *Allgemeines Lexikon der bildenden Künstler*, Leipzig 1977 [reprint ed.] v.30, p.348 and A. von Würzbach, *Niederländisches Künstler-Lexikon*, Vienna 1910, v.2, p.594. A copy of the print is in the British Museum Map Room, bound in C. Beudeker's *Schoutonmeel van het Grafschaft Zeeland*, Amsterdam 1718, Pt.1.
- 46 My thanks to K. Ottenheim for pointing this out to me.
- 47 Lunsingh Scheerleer, op.cit., p.217.
- 48 See J.J. Terwen and K.A. Ottenheim, *Pieter Post (1608-1669) architect*, Zutphen 1993, p.151 (illus. 179).
- 49 Sir Roger Pratt, Hooke's colleague on the City Re-Building Committee, had a copy and possibly Edward Brown, a Fellow of the Royal Society. For Pratt, see Schless, op.cit., p.258 and note 24. For Brown, see Van Strien, op.cit., p.262.
- 50 Kuyper, op.cit., p.116 was the first to recognize this resemblance.
- 51 From the description of Bethlem in the cartouche of R. White's engraving of 1677, copies of which are in the Guildhall Library and the British Museum Print Room.
- 52 C. Stevenson in her contribution to J. Andrews et al, *The history of Bethlem*, London 1997, p.255, note 48 quotes D. Jetter, *Grundzüge der Geschichte des Irrenhauses*, Darmstadt 1981 as saying that the second Bethlem was the third purpose-built mental hospital to be built after Valencia (1409, destroyed 1512) and Amsterdam's Dolhuys (1562). Jetter certainly sets this out as such in his Chronology II of European, Asian and American hospitals, p.221 but Stevenson overlooks the fact there is a Chronology I for German-speaking countries in which the Hessisches Hohes Landesspital in Haina (1533) is listed, p.220. Apart from Amsterdam Jetter also mentions in Holland the hospitals at Zutphen (1425), Hertogenbosch (1442) and the Dolhuis in Utrecht (1461) but it is unclear from the text whether these were purpose-built or not, p.148. For a more recent review of mental hospitals, see I. Mans, *Zin der zotheid: vijf eeuwen cultuurgeschiedenis van zotten, onnozelen en zwakzinnigen*, Ph. D. thesis Utrecht, Amsterdam 1998.
- 53 Jetter, op.cit., p.5.
- 54 See Jetter on the three versions of St. Luke's, p.83 (1718, 1751, 1782-6) and on the 1815 Bedlam, *Ibid.*, p.99-101. On its value as a model, see Royal Commission of Historical Monuments in England, *English hospitals, 1660-1948: a survey of their architecture and design*, ed. by H. Richardson, London 1998, p.155.
- 55 Many writers have compared Bethlem to the Louvre and the Tuileries but, in my opinion, the Hôtel des Invalides is a more apt comparison. For a list of writers, see C. Stevenson, 'Robert Hooke's Bethlem', *JSAH*, v.55, no.3 (1996) p.271, note 23.
- 56 For the Dolhuys, see H.J. Zantkuijl, *Bouwen in Amsterdam*, Amsterdam 1993, p.128; for the Dolhuys as a tourist attraction, see S. Schama, *The embarrassment of riches*, N.Y 1988, p.21.
- 57 Prior to the building of the new Bethlem, visitors with no connection with the inmates had been allowed to come but the emphasis was on philanthropic interest. In the new Bethlem, however, there was an increasing tendency to view the inmates as a freak attraction show in the Dutch manner. For this change in developments, see C. Stevenson, 'Robert Hooke's Bethlem', *JSAH*, v.55, no.3 (1996), p.254.
- 58 White's engraving shows spectators looking through the fence.
- 59 C. Stevenson, 'The architecture of Bethlem at Moorfields', J. Andrews et al, *The history of Bethlem*, London 1997, pp.230-259, p.242.
- 60 Royal Commission of Historical Monuments in England, op.cit., London 1998, p.155.
- 61 Vingboons' engravings from his *Afbeeldsels der voornaemste Geborwen* will be referred to as I and plate no. for the 1648 ed. and II and plate no. for the 1674 ed. These are reprinted in K.A. Ottenheim, *Philips Vingboons (1607-1678) architect*, Zutphen 1989. Hooke's drawing is in the British Library, Add. MS. 5238, f.55. Schless, op.cit., p.265 suggests that Hooke has here copied Pieter Post's Swanenburgh House but this is unlikely, as, although Post uses a three bay frontispiece separated by four colossal Ionic columns, this is supported underneath by a three bay arcade. The frontispiece also

- projects prominently, which is not the case with either Vingboons' design or Hooke's drawing. My thanks to K.A. Ottenheim for pointing this out. Schless also places Swanenburg near the German border. It is in fact in Halfweg between Haarlem and Amsterdam.
- 62 For publishing details of the engraving, see J. Terwen and K. Ottenheim, *Pieter Post*, Zutphen 1993, p.245.
- 63 Batten, op.cit., p.87 mentions the example of Jacques Lemercier's Château de Richelieu. She assumes that Hooke had an engraving by Perelle of the latter. Although Hooke owned Perelle's engravings, he does not say which ones and, since he only bought them in 1677, this would have been too late to have had any influence on his design of Bethlem. On June 10 1677 Hooke records buying 15 of 'Perill's prospects 3s.1 1/2d'. See Hooke's *Diary*, p.295. Downes, op.cit., p.5 points out the French origin of the juxtaposition of low blocks with taller pavilions but notes the Dutch nature of the elevation of the pavilions. The earliest print of the Huis ter Nieuburg, Rijswijk, made in 1644, clearly shows this constellation. See W. Kuyper, *The triumphant entry of Renaissance architecture into the Netherlands*, Alphen aan den Rijn 1994, v.1, p.200.
- 64 Information from A. Blunt, *Art and architecture in France, 1500-1700*, 4th ed, New Haven 1993, p.160 and 163.
- 65 Van Campen's use of contrast, however, is secondary to the correct use of orders, the proportions of the building itself and the use of forms derived from classical prototypes. For a discussion of these principles, see Huisken, Ottenheim, Schwartz, eds., op.cit., p.157-8.
- 66 See K. Ottenheim, 'De correspondentie tussen Rubens en Huygens over architectuur (1635-'40)', *Bulletin KNOB* 96(1997) p.3-4. Ottenheim emphasizes the logical structure of this approach, according to Vitruvian principles, at the Huygens House, by defining it as "dit toonbeeld van volmaakte, vitruviaanse bouwkunst". Ibidem, p.4. For its use at the Mauritshuis, see Ibidem, note 28.
- 67 He became heir to the title on the death of his brother in 1665 and was ambassador in 1669 and again from 1675-8. Once Montagu House was built he entertained twice a week "on a lavish scale". For further details of his pursuit of rich heiresses as wives and his entertaining, see C. Sykes, *Private palaces*, London 1985, p.51 and 57.
- 68 Sykes, op.cit., p.47 and 51.
- 69 K. Downes, *English Baroque architecture*, London 1966, p.57 says that this depiction is accurate and this is confirmed by the correct portrayal of the gate-house, wall and pavilions, which survived the fire in 1686 and were later depicted in 18th century engravings and in John Buckler's drawings in the 19th century, the latter now in the British Library.
- 70 John Evelyn was unaware of this influence as he wrote in his *Diary*, May 1676: "went to see Mr. Montagu's new palace, neere *Bloomsberry* built by mr. *Hooke*, of our Society [Royal Society], after the French manner" and on another visit in Oct. 1683: "...in summ 'tis a fine palace, built after the *French* pavilion way..." Evelyn, however, criticized the fact that "the fronts of the house [were] not answerable to the inside". See Evelyn, op.cit., p.625 and 757 respectively.
- 71 For example, Antonio Verrio, whom Montagu brought over from France in 1672. Other painters who worked on Montagu House were Charles de la Fosse, Jacques Rousseau, the landscape painter, Jean-Baptiste Monnoyer, the flower painter, and James Parmentier. See Downes, op.cit., on Verrio, p.57 and the others, p.58.
- 72 Evelyn, op.cit., p.686
- 73 The notes for the exhibition, *Building the British Museum*, held at the British Museum in April 1999 also confirm that the first Montagu House was not totally destroyed.
- 74 C. Campbell, *Vitruvius Britannicus*, London 1715, v.I. Pl.78. Plans of principal and chamber storeys; Pl.79. Front elevation
- 75 For details of this development introduced to Amsterdam by Vingboons and to The Hague by Pieter Post, see K.A. Ottenheim, *Philips Vingboons (1607-178) architect*, Zutphen 1989, p.108-109.
- 76 Swags became an influential decorative element through Jacob van Campen. See F. Vermeulen, *Handboek tot de geschiedenis der Nederlandsche bouwkunst*, The Hague 1941, v.III, p.91. Volutes appear on many of Vingboons' neck gables. See for example, Vingboons I, 10, N. Soyhier's house, Herengracht 237, Amsterdam; I, 15, G. Croot's house, Oudezijds Achterburgwal, Amsterdam.
- 77 Based on her study of the records in the Somerset Record Office, B. Clarke has come to the conclusion that William Taylor, a carpenter by trade, made and carried out the design of Escot House. See B. Clarke, 'William Taylor: new discoveries', *Georgian Group Journal*, v.8 (1998) pp.1-11. However, if he did have a part in the design, he must have had close contact with Hooke and had the advantage of his academic knowledge of Dutch and French models. For this point of view, see also J. Harris, 'William Taylor: further attributions', *Georgian Group Journal*, v.8 (1998) p.12-18, p.17.
- 78 P. Jeffery, *The City churches of Sir Christopher Wren*, London 1996, p.240.
- 79 All Souls' College drawing II.44 was first identified by John Summerson as being by Hooke. See Summerson, op.cit., p.237. E.F. Sekler, *Wren and his place in European architecture*, London, 1956, p.98 had already pointed out the resemblance of the gable to Vingboons' design.
- 80 For information on the first use of the neck gable in Amsterdam and its function as a "zelfstandig en centraal gevelelement", see K.A. Ottenheim, *Philips Vingboons (1607 1678) architect*, Zutphen 1989, p.32 and 33; p.77. Zantkuijl maintains that Vingboons' innovation lay in its application to a façade only three bays wide.
- 81 My thanks to A. Geraghty for pointing this out.
- 82 My attention was drawn to these drawings, which are in the Warwickshire County Record Office, CR2017, B1/1 and 2, by A. Geraghty.