DOWNLOAD PDF CHRISTOPHER WRENS ARCHITECTURAL PROJECTS IN OXFORD ROGER WHITE

Chapter 1 : All Souls under the Ancien RÃ©gime - S. J. D. Green; Peregrine Horden - Oxford University Pr

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Print this page The Middle Ages - and all that Architecture is about evolution, not revolution. It took the Norman Conquest of to bring back the light, and the Gothic cathedral-builders of the Middle Ages played an important part in the revival of British culture. The great cathedrals and parish churches that lifted up their towers to heaven were acts of devotion in stone However, the truth is not as simple as that. Romano-British culture - and that included architecture along with language, religion, political organisation and the arts - survived long after the Roman withdrawal. And although the Anglo-Saxons had a sophisticated building style of their own, little survives to bear witness to their achievements as the vast majority of Anglo-Saxon buildings were made of wood. Even so, the period between the Norman landing at Pevensey in and the day in when Richard III lost his horse and his head at Bosworth, ushering in the Tudors and the Early Modern period, marks a rare flowering of British building. The great cathedrals and parish churches that lifted up their towers to heaven were not only acts of devotion in stone; they were also fiercely functional buildings. Castles served their particular purpose and their battlements and turrets were for use rather than ornament. The rambling manor houses of the later Middle Ages, however, were primarily homes, their owners achieving respect and maintaining status by their hospitality and good lordship rather than the grandeur of their buildings. Fitness for purpose also characterised the homes of the poorer classes. These were dark, primitive structures of one or two rooms, usually with crude timber frames, low walls and thatched roofs. The structure was completed in , providing a colonial stronghold and a powerful symbol of Norman domination. The choir was extended in the Gothic style between and Muscular pillars and round-headed arches make Durham one of the most imposing Norman buildings in England. Haddon Hall, Derbyshire, was probably begun in the 12th century, but was remodelled and adapted at various times right through to the 16th century. It was then carefully restored in the early 20th century. Haddon shows the quality which characterises the great medieval house, in which function dictates form. Its foundation stone was laid in by Henry VI and the structure, with its lacy perpendicular fan-vaulting, was completed by during the reign of Henry VIII. The windows were installed in Top The Tudors - stately and curious workmanship In a sense, the buildings of the 16th century were also governed by fitness for purpose - only now, the purpose was very different. In domestic architecture, in particular, buildings were used to display status and wealth, as William Harrison noted in his Description of England Each one desireth to set his house aloft on the hill, to be seen afar off, and cast forth his beams of stately and curious workmanship into every quarter of the country. This stately and curious workmanship showed itself in various ways. A greater sense of security led to more outward-looking buildings, as opposed to the medieval arrangement where the need for defence created houses that faced inward onto a courtyard or series of courtyards. This allowed for much more in the way of exterior ornament. The rooms themselves tended to be bigger and lighter - as an expensive commodity, the use of great expanses of glass was in itself a statement of wealth. There was also a general move towards balanced and symmetrical exteriors with central entrances. In spite of this building boom the Renaissance was generally slow to arrive in England In addition there was progress towards more stable and sophisticated houses for those lower down the social scale. Stone, and later brick, began to replace timber as the standard building material for the homes of farmers, tradespeople and artisans. To quote Harrison again: Every man almost is a builder, and he that hath bought any small parcel of ground, be it never so little, will not be quiet till he have pulled down the old house if any were there standing and set up a new after his own device. Craftsmen and pattern-books did come over from the Protestant Low Countries, but by and large our relative isolation from the European cultural mainstream led to a national style which was a bizarre though attractive mixture of Gothic and classical styles. Longleat House, Wiltshire, which was completed in , exemplifies the confidence of Tudor craftsmen in a society that was more stable than that

of their medieval ancestors. It looks outwards rather than in on itself, whilst classical detailing such as the pilasters that flank the expanses of glass, and the roundels carved with busts of Roman emperors, show that Renaissance ideas were creeping slowly into Britain during the mid 16th century. Hardwick Hall, Derbyshire This is the archetypal late-Elizabethan house: Her descendants, the Dukes of Devonshire, made Chatsworth their principal seat, and left Hardwick more or less unscathed. Whilst Elizabethan houses in England concentrated on the conspicuous display of wealth, Scotland saw the building of castles and fortified houses continue well into the seventeenth century. Top Styles of the 17th century - a world turned upside down With the exception of Inigo Jones , whose confident handling of classical detail and proportion set him apart from all other architects of the period, most early 17th century buildings tended to take the innocent exuberance of late Tudor work one step further. But during the s and 50s the Civil War and its aftermath sent many gentlemen and nobles to the Continent either to escape the fighting or, when the war was lost, to follow Charles II into exile. The style is heavy and rich, sometimes overblown and melodramatic. As the century wore on, this resolved itself into a passion for the Baroque grandeur which Louis XIV had turned into an instrument of statecraft at Versailles. Formal, geometrical and symmetrical planning meant that a great lord could sit in his dining chamber, at the physical as well as the metaphorical centre of his world, with suites of rooms radiating out in straight lines to either side. His gardens would reflect those lines in long, straight walks and avenues. The British Baroque was a reassertion of authority, an expression of absolutist ideology by men who remembered a world turned upside down during the Civil War. The politics which underpin it are questionable, but its products are breathtaking. Greenwich Hospital was built from onwards. It was designed by Wren to replace the old cathedral which had been devastated during the Fire of London in Although built in the 18th century, the ideology behind Blenheim Palace in Oxfordshire lies firmly in the 17th century. A new style was needed for a new age, and the new ruling class, which aspired to build a civilisation that would rival that of ancient Rome, looked for a solution in antiquity. Or so it thought. Actually, the solution was found in an antiquity which had been heavily re-interpreted by the 16th century Italian architect Andrea Palladio By the end of the 18th century, the idea of a single national style of architecture had had its day. But architects soon found the Palladian search for an ideal architecture pointlessly limiting. The Cult of Styles had arrived. Kedleston Hall, Derbyshire , is a high point of British neo-classicism. The Palladian layout had already been established when the up-and-coming Scottish architect Robert Adam was asked to take over the project in by the owner, Sir Nathaniel Curzon. The austere, delicate interiors, with their remarkably unified decoration, show Adam at the height of his powers. Kedleston, the Glory of Derbyshire, was one of the most consistently praised of all Georgian houses. Over the next three decades Walpole transformed the uninteresting villa he had bought by the Thames at Twickenham into one of the landmarks of the Gothic Revival in Britain. Strawberry Hill aroused enormous interest - Walpole had to issue tickets to restrict the number of visitors coming to see it - and demonstrated that native medieval architecture could be every bit as valid as classicism. Top Victorian times - Merry England In the early 19th century, the French Revolution was recent enough to provide an awful example of what might happen if the upper classes lost control, whilst Peterloo and demonstrations against the Six Acts in were a reminder that it could happen here. The myth of Merry England, with its strictly ordered society and its chivalric code of values, had a strong appeal for a ruling elite which felt under threat from social and political unrest at home and abroad. The huge glass-and-iron Crystal Palace, designed by Joseph Paxton to house the Great Exhibition of , shows another strand to 19th century architecture - one which embraced new industrial processes. Mass production resulted in buildings and furnishings that were too perfect, as the individual craftsman no longer had a major role in their creation. Railing against the dehumanising effects of industrialisation, reformers like John Ruskin and William Morris made a concerted effort to return to hand-crafted, pre-industrial manufacturing techniques. Pugin, replaced the building destroyed by fire in It was originally designed for newly-weds William and Janey Morris. Castell Coch, near Cardiff , is a piece of inspired lunacy by William Burges, best known for his restoration of Cardiff Castle, an opium habit and the fact that he used to relax at home with a pet parrot perched on the shoulder of his hooded

medieval robe. Mackintosh was uncompromising in his rejection of historicism, and his buildings have more in common with the vertical geometry and sinuous curves of Art Nouveau work in France, Belgium and Austria. But his decadent approach to design met with hostility in Britain and, a few years after the School of Art was completed in , he gave up architecture. Top Styles of the 20th century - conservatism and change The most important trends in early 20th century architecture simply passed Britain by. Whilst Gropius was working on cold, hard expanses of glass, and Le Corbusier was experimenting with the use of reinforced concrete frames, we had staid establishment architects like Edwin Lutyens producing Neo-Georgian and Renaissance country houses for an outmoded landed class. In addition there were slightly batty architect-craftsmen, the heirs of William Morris, still trying to turn the clock back to before the Industrial Revolution by making chairs and spurning new technology. Only a handful of Modern Movement buildings of any real merit were produced here during the s and s, and most of these were the work of foreign architects such as Serge Chermayeff, Berthold Lubetkin and Erno Goldfinger who had settled in this country. Local authorities, charged with the task of rebuilding city centres, became important patrons of architecture. After the Second World War the situation began to change. The use of prefabricated elements, metal frames, concrete cladding and the absence of decoration - all of which had been embraced by Modernists abroad and viewed with suspicion by the British - were adopted to varying degrees for housing developments and schools. This represented a shift away from the private individuals who had dominated the architectural scene for centuries. Since the War it has been corporate bodies like these local authorities, together with national and multinational companies, and large educational institutions, which have dominated British architecture. By the late s the Modern Movement, unfairly blamed for the social experiments implicit in high-rise housing, had lost out to irony and spectacle in the shape of post-modernism, with its cheerful borrowings from anywhere and any period. But now, in the new Millennium, even post-modernism is showing signs of age. It was hailed as one of the most magnificent examples of civic planning in Britain but, in retrospect, its deeply conservative architecture also seems both arrogant and strangely out of touch with contemporary building in the rest of Europe.

Chapter 2 : Wren Office Drawings - St Paul's Cathedral

All Souls College in Oxford is a unique academic institution and has had a unique history. But its history has been little known and its fortunes in the period have been viewed, if at all, through the eyes of the Victorian university reformers.

It was while they were living at East Knoyle that all their children were born; Mary, Catherine, and Susan were all born by but then several children were born who died within a few weeks of their birth. Their son Christopher was born in then, two years later, another daughter named Elizabeth was born. Mary must have died shortly after the birth of Elizabeth, although there does not appear to be any surviving record of the date. A previous son of Dr. Wren, also named Christopher, was born on 22 November and died the same day. He was first taught at home by a private tutor and his father. During this time period, Wren manifested an interest in the design and construction of mechanical instruments. It is anachronistic to imagine that he received scientific training in the modern sense. The Wilkins circle was a group whose activities led to the formation of the Royal Society , comprising a number of distinguished mathematicians, creative workers and experimental philosophers. He was provided with a set of rooms and a stipend and was required to give weekly lectures in both Latin and English to all who wished to attend; admission was free. Wren took up this new work with enthusiasm. He continued to meet the men with whom he had frequent discussions in Oxford. They attended his London lectures and in , initiated formal weekly meetings. He undoubtedly played a major role in the early life of what would become the Royal Society; his great breadth of expertise in so many different subjects helping in the exchange of ideas between the various scientists. In fact, the report on one of these meetings reads: Memorandum November 28, And after the lecture was ended they did according to the usual manner, withdraw for mutual converse. In addition to being a founder member of the Society, Wren was president of the Royal Society from to His scientific works ranged from astronomy , optics , the problem of finding longitude at sea, cosmology , mechanics , microscopy , surveying , medicine and meteorology. He observed, measured, dissected, built models and employed, invented and improved a variety of instruments. It was also around these times that his attention turned to architecture. Making a trip to Paris in , Wren studied the architecture, which had reached a climax of creativity, and perused the drawings of Bernini , the great Italian sculptor and architect. A week later, however, the Great Fire destroyed two-thirds of the city. Wren submitted his plans for rebuilding the city to King Charles II, although they were never adopted. Wren was personally responsible for the rebuilding of 51 churches ; however, it is not necessarily true to say that each of them represented his own fully developed design. Wren was knighted 14 November This honour was bestowed on him after his resignation from the Savilian chair in Oxford, by which time he had already begun to make his mark as an architect , both in services to the Crown and in playing an important part in rebuilding London after the Great Fire. Additionally, he was sufficiently active in public affairs to be returned as Member of Parliament for Old Windsor in , and , but did not take his seat. In the year-old Wren married his childhood neighbour, the year-old Faith Coghill, daughter of Sir John Coghill of Bletchingdon. Gilbert, a sickly child given to convulsions, born October ; the infant died not quite a year-and-a-half old. The second child, also a son, named Christopher after his father, was born February The younger Christopher was trained by his father to be an architect. Faith Wren died of smallpox on 3 September She was buried in the chancel of St Martin-in-the-Fields beside the infant Gilbert. In , 17 months after the death of his first wife, Wren married once again. Robert Hooke , who often saw Wren two or three times every week, had, as he recorded in his diary, never even heard of her, and was not to meet her till six weeks after the marriage. Like the first, this second marriage was also brief. Jane Wren died of tuberculosis in September Wren was never to marry again; he lived to be over 90 years old and of those was married only nine. Holder had been a Fellow of Pembroke College, Oxford. An intellectual of considerable ability, he is said to have been the figure who introduced Wren to arithmetic and geometry. Although Wren was appointed to the Fifty New Churches Commission in , he was left only with nominal charge of a board of works when the surveyorship started in On 26 April , on

the pretext of failing powers, he was dismissed in favour of William Benson. Death The Wren family estate was in the area of Hampton Court. It had been bought by Wren many years before as part of a legacy for his son Christopher Wren, Jr. On one of these trips to London, at the age of ninety, he caught a chill which worsened over the next few days. On 25 February a servant who tried to awaken Wren from his nap found that he had died. Reader, if you seek his monument - look around you. Elected from Wadham into fellowship of All Souls Professor of Astronomy Gresham College London Surveyor General till April President of the Royal Society He experimented on terrestrial magnetism and had taken part in medical experiments while at Wadham College , performing the first successful injection of a substance into the bloodstream of a dog. Wren also studied and improved the microscope and telescope at this time. He had also been making observations of the planet Saturn from around with the aim of explaining its appearance. His hypothesis was written up in De corpore saturni but before the work was published, Huygens presented his theory of the rings of Saturn. Immediately Wren recognized this as a better hypothesis than his own and De corpore saturni was never published. In addition, he constructed an exquisitely detailed lunar model and presented it to the king. Also his contribution to mathematics should be noted; in , he found the length of an arc of the cycloid using an exhaustion proof based on dissections to reduce the problem to summing segments of chords of a circle which are in geometric progression. As Savilian Professor, Wren studied mechanics thoroughly, especially elastic collisions and pendulum motions. He also directed his far-ranging intelligence to the study of meteorology: Although this is incorrect, it was at least founded upon observation and may mark a new outlook on medicine: Another topic to which Wren contributed was optics. He published a description of an engine to create perspective drawings and he discussed the grinding of conical lenses and mirrors. These results were published in In subsequent years, Wren continued with his work with the Royal Society, although after the s his scientific interests seem to have waned: Robert Hooke had theorized that planets, moving in vacuo , describe orbits around the Sun because of a rectilinear inertial motion by the tangent and an accelerated motion towards the Sun. Halley took the problem to Newton for advice, prompting the latter to write a nine-page answer, De motu corporum in gyrum , which was later to be expanded into the Principia. He also studied other areas, ranging from agriculture , ballistics , water and freezing, light and refraction, to name only a few. Since the early years of the 17th century it was not unusual for the well-educated gentleman, virtuosi , to take up architecture as a gentlemanly activity; a pursuit widely accepted as a branch of applied mathematics. This is implicit in the writings of Vitruvius and explicit in such 16th century authors as John Dee and Leonard Digges. In he was approached by his cousin Matthew with a royal commission, as "one of the best Geometer in Europe", to direct the re-fortification of Tangier. Wren excused himself on grounds of health. By this time, he had mastered and thoroughly understood architecture. Unlike several of his colleagues who took it up as a set of rules and formulas for design, he possessed, understood, and exploited the combination of reason and intuition, experience and imagination. The second was the design of the Sheldonian Theatre in Oxford , completed in This, the gift of Archbishop Sheldon to his old university, was influenced by the classical form of the Theatre of Marcellus in Rome, but was a mixture of this classical design with a modern empirical design. His association with it spans his whole architectural career, including the 36 years between the start of the new building and the declaration by parliament of its completion in Wren had been involved in repairs of the old cathedral since It was accepted in principle on August 27, Wren was most likely at Oxford at the time, but the news, so fantastically relevant to his future, drew him at once to London. Between 5 and 11 September he ascertained the precise area of devastation, worked out a plan for rebuilding the City and submitted it to Charles II. Others also submitted plans. However, no new plans proceeded any further than the paper on which it was drawn. A rebuilding act which provided rebuilding of some essential buildings was passed in A second rebuilding act was passed that year, raising the tax on coal and thus providing a source of funds for rebuilding of churches destroyed within the City of London. This plan was accepted, and demolition of the old cathedral began. By , however, this design seemed too modest, and Wren met his critics by producing a design of spectacular grandeur. This modified design, called "Great Model",

was accepted by the King and the construction started in November, However, this design failed to satisfy the chapter and clerical opinion generally; moreover, it had an economic drawback. Wren was confined to a "cathedral form" desired by the clergy. In he produced the rather meagre Classical-Gothic compromise known as the Warrant Design. However, this design, called so from the royal warrant of 14 May attached to the drawings, is not the design upon which work had begun a few weeks before. The house is located in between The Globe Theatre on its left and Tate Modern on its right The cathedral that Wren started to build bears only a slight resemblance to the Warrant Design. In , the first service was held in the cathedral when Wren was There was still, however, no dome. Finally in the cathedral was declared complete, and Wren was paid the half of his salary that, in the hope of accelerating progress, Parliament had withheld for 14 years since The cathedral had been built for 36 years under his direction, and the only disappointment he had about his masterpiece was the dome: This diluted the hard edge Wren had intended for his cathedral, and elicited the apt parthian comment that "ladies think nothing well without an edging".

Chapter 3 : The Queen's College, Oxford - Wikipedia

I have published in many journals including The Journal of the Society of Architectural Historians (December,) and Architectural History ().. My first book, Architects and Intellectual Culture in Post-Restoration England, will be published by Oxford University Press later this year.

From Italy he travelled to Denmark where he worked for King Christian on the design of the palaces of Rosenborg and Frederiksborg. Between and , he was responsible for staging over performances, collaborating with Ben Jonson for many years, despite a relationship fraught with competition and jealousy: Jonson ridiculed Jones in a series of his works, written over a span of two decades. This development suggests a second visit to Italy, circa , [6] influenced by the ambassador Henry Wotton. His architectural work was particularly influenced by Palladio. His surviving sketchbook shows his preoccupation with such artists as Parmigianino and Schiavone. He is also known to have met Vincenzo Scamozzi at this time. Jones gave priority to Roman antiquity rather than observing the contemporary fashion in Italy. He was probably the first Englishman to study these Roman remains first hand and this was key to the new architecture Jones introduced in England. Fortunately, both James I and Charles I spent lavishly on their buildings, contrasting hugely with the economical court of Elizabeth I. With the foundations laid and the first storey built, work stopped suddenly when Anne died in It was finished in as the first strictly classical building in England, employing ideas found in the architecture of Palladio and ancient Rome. Interior of Banqueting House, with ceiling painted by Rubens Between and , the Banqueting House in the Palace of Whitehall was built, a design derived from buildings by Scamozzi and Palladio , to which a ceiling painted by Peter Paul Rubens was added several years later. The Banqueting House was one of several projects where Jones worked with his personal assistant and nephew by marriage John Webb. Parts of the design originate in the Pantheon of ancient Rome and Jones evidently intended the church to evoke the Roman temple. These buildings show the realisation of a mature architect with a confident grasp of classical principles and an intellectual understanding of how to implement them. He was commissioned by the Earl of Bedford to build a residential square, which he did along the lines of the Italian piazza of Livorno. The Earl felt obliged to provide a church and he warned Jones that he wanted to economise. Jones is also thought to have been involved in another country house, this time in Wiltshire. Wilton House was renovated from about onwards, at times worked on by Jones, then passed on to Isaac de Caus when Jones was too busy with royal clients. He then returned in with his student, John Webb , to try and complete the project. Jones, as the pioneer in his era, had strong influence during their time. His revolutionary ideas even effect beyond the Court circle, and today, many scholars believe that he also started the golden age of British architecture. His property was later returned to him c. He was, however, closely involved in the design of Coleshill House , in Berkshire, for the Pratt family, which he visited with the young apprentice architect Roger Pratt, to fix a new site for the proposed mansion. A monument dedicated to him was destroyed in the Great Fire in Legacy[edit] He was an influence on a number of 18th-century architects, notably Lord Burlington and William Kent. A document of the Old Charges of Freemasonry.

Chapter 4 : CHRISTOPHER WREN | FREEMASONRY

Sir Daniel Dun, All Souls College, and the civil law / R.H. Helmholz --Sir Richard Steward and the crisis of the Caroline Regime / Robert Franklin --All Souls from civil war to glorious revolution / Scott Mandelbrote --Christopher Wren in midcareer / Jim Bennett --Christopher Wren's architectural projects in Oxford / Roger White --Clarke.

What do we have to show for our journey through those pages of the AD calendar? Was that year worth our time on Earth? Was that year one of fruitful service to our Lord? Thinking about these questions reminded me of robins and wrens, for reasons that follow. English settlers, seeing what we call the American Robin Turdus migratorius , were reminded perhaps nostalgically of the European Robin, which is also a thrush-like brown-and-grey-backed bird with orange breast coloring. The American Robin is larger, and its coloring is less intense, but it is not hard to understand why the English settlers were reminded of the European Robin they knew from their native land. Like other thrushes, American Robin juveniles have spotted breast coloring. The American Robin adult females have dull orange breast coloring, and dull brown backs, in contrast to the brighter almost brick-red breast coloring and darker brown backs of the adult males. Robins love to eat berries in winter. European Robin juveniles, like their American counterparts, have spotted buff-colored bellies. Males and females look alike, unlike their Yankee cousins. These birds are known for hopping along the ground, with drooped wings, often pausing upright and alerted. Common year-round residents in the British Isles, these robins have a year-round range that includes most of Western Europe, except most of Norway and Sweden host them only during the mild months of summer. Even birds can be granted great privileges during their little avian lifespans! The tail is routinely cocked almost upright, as if flying a flag. Wren tails often are brown with black parallel stripes, with brown backs and wings, and white or ivory bellies. When not flying, here or there, wrens hop, creep, climb, and scurry. Soon the female will be incubating eggs as her mate brings food to her. Often two broods will be hatched and fledged during the spring-to-autumn months. When we walked out our front door the nervous mother wren would flutter and fly away, as we tried to gently shut the door so that the nest was not unnecessarily jostled. Baby wrens were hatched and fledged from the wreath on our front door! This arrangement worked nicely, for us and for the wren family, for weeks if not months. But one day Mama Wren got confused, as someone opened the door â€” she flew into the house â€” and then panicked as she tried to discern how to undo what she had done! Eventually we coached her out â€” she never tried that again! Obviously robins and wrens are delightful birds. Milne saw at the London Zoo. Milne, had a son named Christopher Robin Milne, obviously the source of Mr. It is inferior to treasures laid up in Heaven, which neither corrupt nor disappear to human thievery. Sir Christopher Wren was an expert in engineering science, a science professor and better known as the leading architect of his generation. Here in its foundations lies the architect of this church and city, Christopher Wren, who lived beyond ninety years, not for his own profit but for the public good. Reader, if you seek his monument â€” look around you. Thus his greatest professional accomplishment, the grandiose design and successful construction of St. But lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal. For where your treasure is, there will your heart be also.

Chapter 5 : The Temple Church in London â€“ History, Architecture, Art | National Churches Trust Blog

The black and white photographs are interesting, particularly a group taken in taken by the architectural photographers Bedford Lemere, which give some idea of what the church looked like in high Victorian times.

Others play at ball According to Francis Osborne â€” It was the fashion of those times Now in regard of the universal there happened little that did not first or last arrive here And those news-mongers, as they called them, did not only take the boldness to weigh the public but most intrinsic actions of the state, which some courtier or other did betray to this society. In his play Englishmen for my Money, William Haughton d. It is a heap of stones and men, with a vast confusion of languages; and were the steeple not sanctified, nothing liker Babel. The noise in it is like that of bees, a strange humming or buzz mixed of walking tongues and feet: It is the great exchange of all discourse, and no business whatsoever but is here stirring and a-foot It is the general mint of all famous lies, which are here like the legends of popery, first coined and stamped in the church. Under Henry VIII and Edward VI , the Dissolution of the Monasteries and Chantries Acts led to the destruction of interior ornamentation and the cloisters , charnels , crypts , chapels , shrines , chantries and other buildings in the churchyard. In , in an attempt to end inappropriate practices taking place in the nave, the Lord Mayor decreed that the church should return to its original purpose as a religious building, issuing a writ stating that the selling of horses, beer and "other gross wares" was "to the great dishonour and displeasure of Almighty God, and the great grief also and offence of all good and well-disposed persons". According to a newsheet published days after the fire, the cause was a lightning strike. The poet Henry Farley records the king comparing himself to the building at the commencement of the work in My workmen looke like him they call Muldsacke after sweeping of a chimney. It must be concluded that the Tower from Top to Bottom and the adjacent parts are such a heap of deformaties that no Judicious Architect will think it corrigible by any Expense that can be laid out upon new dressing it. September 3rd â€” I went and saw the whole south part of the City burning from Cheapeside to the Thames, and Paules now a sad ruine, and that beautiful portico Thus lay in ashes that most venerable Church, one of the most antient pieces of early piety in the Christian world. While it might have been salvageable, albeit with almost complete reconstruction, a decision was taken to build a new cathedral in a modern style instead, a step which had been contemplated even before the fire. Wren declared that it was impossible to restore the old building. He added, "You are so absolutely necessary to us that we can do nothing, resolve on nothing without you. Demolition of the Old Cathedral proved unexpectedly difficult as the stonework had been bonded together by molten lead. Eventually, Wren resorted to using a battering ram instead. Building work on the new cathedral began in June Members of the clergy decried the design as being too dissimilar from churches that already existed in England at the time to suggest any continuity within the Church of England. They were unfamiliar, un-English.

Chapter 6 : BBC - History - A History of British Architecture

Wren's first two architectural projects gave him a foundation that proved critical to his future work, both undertaken in Pembroke Chapel at Cambridge and Shel- donian Theater at Oxford.

Member the Waikato Lodge of Research No. Grand Steward, Freemasons New Zealand. Paper first delivered to the Research Lodge of Southland No. Engraved on a simple slab set in the floor of St. It is the epitaph of Sir Christopher Wren, who lies entombed in the southeast corner of the crypt below alongside his daughter Jane, his sister Susan Holder and her husband William. It was an era that saw the struggle for power between parliament and the monarchy that resulted for awhile in a dictatorship. Wren outlived six British monarchs and lived to see a seventh commence his reign. He had lived to see one monarch beheaded and another exiled and he himself knew the pain of belonging to a family caught up in the political conflicts and persecutions of the age. Century England, was not just an era of political change, it was also an era of scientific discovery and of exciting developments in the arts and philosophy. The era saw changes in fashion, important developments in medicine, new products, materials and foodstuffs from faraway places, the introduction of newspapers, improvements in manufacturing, new mechanical inventions, the development of the telescope and microscope and major breakthroughs in mathematics and astronomy. Christopher Wren was born in the Wiltshire village of East Knoyle on 20th. October , the son of Dr. Christopher Wren, rector of that parish and Mary Cox, the daughter of a local landowner. Baby Christopher had two brothers who died at birth and nine sisters, only six of whom survived into adolescence. It is typical of the Wren family that virtually nothing is known about the women in the family, whether mothers, wives or daughters. As well as East Knoyle he was rector of Fonthill Bishop, also in Wiltshire, and due to the influence of his prominent brother Matthew, was earmarked for greater things. Christopher Wren succeeded his brother as Dean of Windsor and Registrar of the Order of the Garter, adding the living of Great Hasely in Oxfordshire to his portfolio of parishes. It is therefore necessary to elaborate upon the origins of this struggle that had such an impact on the Wren family and on the intelligent mind of Christopher Wren the younger. The liturgy was still recognizably similar to the Catholic Mass and it was left to the individual churchgoer whether he believed or not in the doctrine of transubstantiation, although it was officially repudiated. Calvin systemized Protestant doctrine and organized its ecclesiastical discipline with emphasis on the sovereignty of God, the Bible as the sole rule of faith, the doctrine of predestination and justification by faith alone. During his domicile in Geneva, he demonstrated how it was possible, through his College of Pastors and Doctors and his Consistorial Court of Discipline, to establish a theocracy which could direct all the affairs of a city or state and to control the social and individual life of the citizens. It is not therefore surprising that monarchs, who had spent centuries beating off Papal claims of feudal superiority, should regard Calvin with deep suspicion. Suspicion turned to hostility when the Calvinists became more Calvinistic than Calvin himself. Equally suspicious of the Calvinists were the bishops and clergy who supported the episcopal system of church government that recognizes the spiritual authority of bishops as successors of St. Peter and their sole right to ordain clergy. Of the broadly Calvinist groups in England and Scotland, the Puritan faction within the Anglican Church was more concerned with pure theology and the simplification of the liturgy, but the Presbyterians were opposed to episcopacy and more inclined to push for secular as well as spiritual government by a church court comprised of elders and ministers. The Calvinists placed emphasis on preaching and on the use of a simple table, cups and plates for communion. They abhorred the used of images of any kind. Although the Calvinists were committed to bringing about reform within the Anglican Church both Puritans and Presbyterian factions hitched their wagon to parliament as a means to furthering their aims and thus, for the first time, linked parliamentary politics with religion. Queen Elizabeth I and her successor James I had successfully preserved the episcopal system in England, but Scotland eventually adopted the Presbyterian system. But all was far from well in the Anglican Church. By the time of Charles I accession the reaction of some of the bishops against Puritanism had taken the turn of a

move towards Catholic liturgical practise and of following the doctrines of Jacobus Arminius. It was possible to resist grace and loose faith; thus it was a doctrine of free will. The doctrine was close to that held by the Church of Rome. The Arminians placed emphasis on the sacraments, especially communion. Spearheaded by William Laud, the determined and authoritarian Archbishop of Canterbury, the Arminian bishops and clerics, - Matthew and Christopher Wren amongst the most ardent of them, - placed their altars against the east wall behind railings, donned priestly vestments and with their backs to the congregation performed what looked to the scandalized Puritans like a Catholic Mass. The majority of Anglicans at that time tended towards Calvinism, it was thus the Arminians who were the revolutionaries within the Anglican Church. King Charles, however, made clear his support for the Arminians, thus abandoning the more even-handed policy of his father James I. Young Christopher Wren was thus born and raised in an Anglican environment that had become polarized. In an age when religion and politics had become intertwined and in a society wherein the welfare of notable families was usually dependent on the political appointment of its members to lucrative positions, he was to witness the rise and fall of family and friends according to the changing fortunes of the political camps they supported. But, as we shall see, Christopher Wren himself, no doubt fully aware at a young age of the consequences of political enthusiasm, scrupulously avoided partisanship and consequently made friends of many and enemies of very few. On the other hand, he owed his fame and fortune, not to his friends and contacts, or to political loyalties, but to his intellectual ability and his personality alone. He was moreover, a physically small and somewhat frail person who no doubt learned at an early age how to stand up for himself without provoking those capable of doing him harm. Until the age of nine, Christopher Wren was educated by his father and a domestic tutor, the Reverend William Shepheard, at the Deanery at Windsor. Then, in , at the age of ten he was went as a boarder to Westminster School which was run by the notorious disciplinarian and staunch Royalist, Richard Busby. He remained there until, in he left to rejoin his family, which by that time had been reduced in circumstances as a consequence of the civil war. In King Charles, having ruled without Parliament for nine years, made a blunder when he tried to force Arminianism and the Anglican Prayer Book on to Scotland. This upset the modus vivendi achieved by James I, whereby the Church of Scotland maintained a combination of Episcopal and Presbyterian government. Charles was constrained to sign the Treaty of Ripon in which he agreed to pay the Scots army L a day whilst it occupied English soil. Forced to recall Parliament to fulfill the Treaty, Charles found instead that it was stacked with Puritans and Presbyterians who were intensely resentful of years of Arminianism and Royal rule. The constitutional crisis came in when Parliament, by its Grand Remonstrance, demanded what amounted to total control of state and church. When war broke out, Windsor Castle was held for Parliament by Colonel Venn who did nothing to bother Dean Wren and his family, but in October a Captain Fogg turned up and promptly looted the Deanery and the Treasury of its plate, the records and registers of the Order of the Garter, and the personal possessions of the Wren family. The family decamped to East Knoyle only to find that Parliamentarian raiders had extorted the parish rents. At last, in , Dean Wren was deprived of his position and after trying to make a living as a schoolteacher, he abandoned East Knoyle and took his family to live in the rectory of Bletchingdon in Oxfordshire, which was owned by his son-in-law William Holder. Wren was allowed into the meetings and it must have made an impression on him that the group comprised of both Royalists and Parliamentarians. The group agreed to keep off matters of theology and state affairs. In , at the age of 17, Wren entered Wadham College at Oxford. Oxford was a natural choice for someone from a Royalist background even though two years prior the Parliamentary Commissioners purged between and members of the university and sacked all but three heads of colleges. As a Fellow, Wren first began to demonstrate his remarkable intellectual ability in the science of medicine. He carried out several experimental splenectomies on dogs but, more importantly, he carried out pioneering work on intravenous injections, also on dogs. These experiments were publicized by Robert Boyle and led directly to the first attempts at blood transfusion. But this was not all. He invented a double-writing instrument, a ribbon weaving machine, a cheap method of embroidering bed hangings, a weather clock, new musical instruments, water pumps, new surveying techniques and a speaking organ. He

was temperamentally inclined towards practical problem solving and one cannot help but compare him with Leonardo da Vinci. Bishop Wren had been imprisoned in the Tower of London in and remained there until In association with this brains trust, Wren continued with his inventions and demonstrated a growing interest in astronomy. He drew up the lunar map on a globe that he made himself, which he eventually presented to King Charles II. He collaborated with Wilkins in the construction of an 80ft telescope which, however was never completed. Among his other inventions was a glass walled beehive intended to reveal how bees made honey and an instrument for measuring the moistness and dryness of air. It must be remembered that astronomy was at the forefront of the scientific revolution that was in the process of challenging the old Aristotelian philosophy held by the Church, Catholics and Protestants alike. As late as Giordiano Bruno had been burnt at the stake for postulating that there are other worlds in the universe and Galileo had been imprisoned by the Inquisition. He also supported the Copernican theory that the Earth and the planets orbited the Sun and denied the Aristotelian theory that the whole universe orbited the Earth. His response to attacks by the Church was that no scientific position should ever be made an article of faith. He was put under permanent house arrest in Of more recent developments, the first map of the moon had been published in by Michel Florent van Langren, followed by a better one by Johannes Hevelius of Danzig in Once again John Wilkins, William Petty, Robert Boyle and Sir Paul Neile were involved once again the group was comprised of a mixture of Parliamentarians and Royalists who scrupulously avoided discussion of religious or political matters amongst themselves. It was this group that was to form the core of the Royal Society in , following the restoration of the monarchy. In the meantime England was in the grips of Oliver Cromwell and his cabal of radical military officers. English historians of the 19th. King Charles was portrayed as an arrogant, foolish fop who received his just deserts from the hands of the levelheaded, selfless Parliamentarians who were fighting for the democratic rights of the common man. The truth was very different. Both trials had been a travesty of justice. They had abolished the House of Lords and entrusted the government to a Council of Sate of just 41 persons and a Parliament of under 60 members. They had committed ruthless massacres in Ireland and Scotland. In England was placed under marshal law administered by twelve major generals with despotic powers. High Church Anglicans and Roman Catholics were severely repressed. Thousands of opponents, or perceived opponents of the regime were executed, imprisoned or deported into slavery without trial. Eventually, in Cromwell abolished Parliament altogether and ruled with the assistance of a small military cabal that created a police state, the most hated regime in English history. May the same year. The restoration of the monarchy in in the person of Charles II was a fresh start for England and an opportunity for the Gresham group to establish a more formal foundation. They appointed Wilkins as chairman, Balle as secretary and William Croone as registrar. They drew up a list of forty interested parties judged willing and worthy to be admitted to their company. William Croone, who was appointed registrar in absentia, made a thirteenth member. Further members were rapidly enlisted and Sir Robert Murray approached the king for some means of Royal recognition. This came with the formation of the Royal Society on 4 September confirmed by royal charters in and the King himself becoming a member. A man Council administered the Society. That there were both Freemasons and Rosicrucians amongst the founders of the Society has led to claims that Freemasonry has Rosicrucian origins. The other initiate on that occasion was Artillery General Alexander Hamilton. Ashmole was initiated in Warrington in Lancashire on 16 October

Chapter 7 : Christopher Wren & the architecture of the brain | ScienceBlogs

Old St Paul's Cathedral was the medieval cathedral of the City of London that, until , stood on the site of the present St Paul's www.nxgvision.com from to and dedicated to Saint Paul, the cathedral was the fourth church on the site at Ludgate Hill.

From the Colosseum to the Kabba, these famous buildings are amazing. Shares Anyone with a creative bone in their body cannot fail to be inspired by famous buildings. Much like a photograph, architectural designs record details of specific moments in time. The former imperial palace is now home to the Palace Museum, and was declared a World Heritage Site in The deconstructivist â€" or new-baroque â€" architecture forms an unusual dancing shape thanks to 99 concrete panels, each a different shape and dimension. It has nine sides, nine doors, and can accommodate 2, people. Its surface is made of white marble from Mount Pentelicus in Greece, the same marble used to build the Parthenon. Since its completion in it has become one of the most visited buildings in the world, attracting over million people. Work did not resume until the s, and it was finally finished in Later work follows the original medieval plan faithfully. It is renowned as a Gothic masterpiece and houses many works of art as well as the Shrine of the Three Kings, which is traditionally believed to hold the remains of the Three Kings. Built by Caliph Abd al-Malik between and , the octagonal plan and the rotunda dome of wood are of Byzantine design. The Persian tiles on the exterior were added by Suleiman I in ; the interior decoration was added to later with marble, mosaic and faience. The oldest extant Islamic monument, the Dome of the Rock has served as a model for architecture and other artistic endeavors for over a millennium. His unique approach to the Art Nouveau movement generated some of the most creative buildings the world have ever seen. And La Pedrera is no exception. One of the most imaginative houses in the history of architecture, this is more sculpture than building. The original church on the site was founded in the year AD. Work on the present English Baroque church began in the 17th Century by Christopher Wren as part of a major rebuilding program after the Great Fire of London. The buildings, which held the title of tallest in the world between , are an iconic landmark of the capital city. In Hoban submitted a plan for the presidential mansion and subsequently got the commission to build the White House. Construction began in and was completed in Leaning Tower of Pisa Due to restoration work carried out in , the tower currently leans at just under 4 degrees. Building work on the tower began in and went on for over a whopping years. There has been much controversy surrounding the true identity of the architect behind the tower â€" the design was originally attributed to artist Bonnano Pisano but studies have also implicated architect Diotisalvi. A most sacred place in Islam, the Kabba is elegantly draped in a silk and cotton veil. Every year millions of Muslims travel to the Kabba for the hajj, an annual Islamic pilgrimage to Mecca. The small square building is about 45 feet high and its walls are a metre wide, with its total size occupying roughly square feet. The Shard, London The Shard is an storey skyscraper, which sits in the heart of London Also referred to as the shard of glass, The Shard is an storey skyscraper, which sits in the heart of London. This motto was clearly taken on board by a fox, nicknamed Romeo, that was found on the 72nd floor towards the end of construction. The famous landmark, shaped to resemble the flame of a bonfire rising into the sky, is located just outside the Kremlin gates and marks the geometric centre of the city. Built between and , the cathedral was erected during the reign of Ivan IV Ivan the Terrible. Built between and , the building also features 12 exterior lifts, which were the first of their kind in the UK. Colosseum, Rome The Colosseum is the largest Roman amphitheatre ever built. The stadium was capable of seating at least 50, spectators and used mainly for gladiatorial games. Construction â€" mainly using concrete and stone â€" began around 72AD and finished in 80AD. The design and shape of the Colosseum has been the inspiration for many modern day stadiums. The Taj Mahal is regarded as one of the finest examples of Mughal architecture â€" an amalgamation of Persian, Turkish and Indian styles. Construction on the mausoleum began in and was completed in The surrounding buildings and gardens took around five more years to finish. Joris Van Rooden In the early part of the 20th Century, people

everywhere were in a race to build the tallest building. Just a year later the Empire State Building was erected. Designed by architect William Van Alen , the skyscraper was commissioned by car manufacturer Walter P Chrysler, hence its name. Sydney Opera House Sydney Opera House is the most famous Australian architectural icon The Sydney Opera House is widely regarded as one of the greatest architectural works of the 20th century. The beautiful building comprises of three groups of interlocking shells, which cover two main performance halls and a restaurant. A masterpiece of modern architecture, the opera house has become an iconic symbol of both Sydney and the Australian nation. Space Needle, Seattle 40 years after its construction, the Space Needle remains a popular visitor destination. The famous landmark stands at m high and 42m wide at its widest point. The building was originally constructed between AD and AD and due to many factors, including being burned down in riots and earthquakes, the ancient cathedral has been rebuilt many times since. Despite this, Hagia Sophia is widely recognised as one of the great buildings of the world. The building also features in the opening scenes of the Bond film, Skyfall. Since then, various architects have worked on the building to make it what it is today, including John Nash and Edmund Blore. The palace also had to undergo extensive work after being bombed no less than nine times during World War II. Fallingwater Frank Lloyd Wright created this unique design for the Kauffman family in Well, the unique design makes it look like the house stretches out over a 30ft waterfall, with no solid ground beneath it. It became famous instantly and is now a natural historic landmark. Pantheon, Rome Built approximately years ago, the Pantheon continues to inspire architects all over the world Rome is home to many amazing buildings, and the Pantheon is no exception. And, like the city itself, it was not built in a day. Destroyed twice and rebuilt each time, the building started as a rectangular structure, which, over time, evolved into the gorgeous dome building seen today. Guggenheim Museum, Bilbao Architect Frank Gehry developed the unique concept for the museum after winning an architectural competition to design the building The Guggenheim museum Bilbao is one of the most admired works of contemporary architecture. Canadian-born American architect Frank Gehry created the unique concept after winning an architectural competition to design the building. Since the museum doors opened in , it has been hailed one of the most important buildings of the 20th century. The distinctive triangular shape allowed the building to fill the space located at the intersection of Fifth Avenue and Broadway. The property was built between and and, after surviving several demolition plans, was designated as an official French historical monument in The mammoth skyscraper and magnificent centerpiece of Downtown Dubai stands at a whopping Construction began on the floor building in with its doors opening six years later in

Chapter 8 : Robin Usher | University of Cambridge - www.nxgvision.com

Sir Christopher Wren was the architect of St Paul's Cathedral in London Wren was a founder of the Royal Society (president), and his scientific work was highly regarded by Sir Isaac Newton and Blaise Pascal.

Fellow of All Souls College, Oxford, Professor of Astronomy at Gresham College, Savilian Professor of Astronomy at Oxford, Deputy Surveyor of the Royal Works, , then Surveyor, Member of the Commission to rebuild London, , author of a radical plan rejected, of course to rebuild on a modern plan that discarded the old streets, and then architect of the new St. He resigned the Savilian chair when the work on St. He was also in charge whatever the title of Windsor Castle, and Surveyor of Westminster Abbey, Obviously Wren owed all of these positions to patronage, but they carried salaries and I list them under governmental employee. However, he did also have a number of private commissions. Wren was a director of the Hudson Bay Company for a number of years. In , along with one Roger Jackson, he undertook a housing development along the northern fringe of rebuilt London. In he received exclusive rights to publish engravings of St. Retired to Hampton Court, In Wren gave his model of the moon, with surface features in relief, to Charles, who kept it with his curiosities and liked to show it to visitors. In the early 60s he frequently entertained Prince Rupert in his laboratory at Oxford, and Rupert put him on the list to receive annually wine from his Rhenish estate. Wren had a number of ecclesiastical patrons. Seth Ward employed him to survey Salisbury Cathedral. Sancroft commissioned a new chapel at Emmanuel College, Cambridge. The Earl of St. James, Piccadilly, about A year later, now in Oxford, he presented Charles, Elector Palatine, with several mechanical instruments and devices of his own invention. Wren later presented a number of these projects to the Royal Society. There is a problem with him; how far did he carry many of these projects? Since many of them show up several times, since they are not general Baconian talk but specific inventions or projects, and since I want to capture the whole range of his utilitarian, technological enterprises, I am listing inclusively. There is no one else in the catalog whose range of technological involvement was so broad. He can be listed validly in all but four of my categories. He developed a micromenter, and he attached telescopic sights to astronomical instruments. He devised an adjustable aperture. By developing measuring techniques, he helped transform the telescope into an instrument of quantitative astronomy. He worked at measuring arcs to seconds, and he invented a double, hinged telescope for measuring angles of separation precisely. All sorts of meteorological instruments and some surveying instruments. Navigation, especially the determination of longitude, was a preoccupation from undergraduate days until his death. He explored all of the methods that seemed feasable at the time, including watches. He also devised a sounding device. Cartography was a less pronounced occupation, but he did a map of the moon and a map of burned out London, and he invented surveying instruments, including a new level. All sorts of mechanical devices--watches, windlasses to raise weights, an improved carriage, and experiments in harnessing the force of gunpowder to lift weights and bend springs. There is enough mention of agricultural interests that I am justified in listing this--a youthful machine, horse drawn, to plant grain, a box hive for bees, a hothouse to grow tropical plants. I am listing medicine as well. A good half at least of his interest in meteorology was medically connected, governed by the theory that there were epidemic seasons that could be identified. He also developed a method to fumigate and purify sick rooms. In the early 60s, Charles wanted to commission Wren to build the fortifications and port works at Tangier. Wren managed to beg off, but military engineering bulks fairly large in the Oxford topics, and he was consulted on the works at Tangier. In the standard areas of civil engineering, such as building bridges, he did not participate that I can find. He did write on methods of building under water for moles and quays , and his novel trusses to support the span across the Sheldonian Theatre classify as civil engineering. Wren did not do much hydraulic engineering. However, Sprat mentions improved waterworks, and Wren wrote a tract unpublished, like nearly everything on the improvement of navigation by joining rivers. He proposed a major diversion of the Cam to St. He was concerned peripherally, I think with the New River project and with the

water it furnished to St. Royal Society One of the members of the philosophical club in Oxford. Later, it was after a lecture he gave at Gresham College in November that those present decided to organize what became the Royal Society. He was of course one of the original members, and he was on the Council named in the first Charter and many times thereafter. Sources Dictionary of National Biography repr. Oxford University Press, , 21, Biographia Britannica, 1st ed. London, , 6. Weld, History of the Royal Society, London, , pp. For my purposes, this is the best source on Wren that I have come across. Bryan Little, Sir Christopher Wren: Its Origins and Founders, London, Lawrence Weaver, Sir Christopher Wren: Scientist, Scholar, and Architect, London, His Life and Times, London, Harold Hutchinson, Sir Christopher Wren: Kerry Downes, Christopher Wren, London, Whinney, Christopher Wren, London, There is an enormous literature on Wren, most of it naturally concentrating on his architecture. In the end I got tired of reading it. This list does not exhaust it.

Chapter 9 : Porters' Lodge - Piercy&Company

Wren's greatest secular work would have been an entirely new Whitehall, but as imaginative artefacts his large drawings for two alternative projects (now at All Souls, Oxford) have a place in his work analogous to the Great Model.

His paternal grandfather, Francis Wren â€" , was a London mercer, but the family came from Durham and, they believed, originally from Denmark. He was first taught at home by a private tutor, the Revd William Shepheard, and by his father, a man of scholarly aspirations and wide interests including natural philosophy, mathematics, and architecture. The Laudian high Anglicanism which brought Dr Wren preferment in was to become an embarrassment. He was more fortunate than his elder brother Matthew Wren â€" , bishop of Ely, imprisoned for twenty years, but in the autumn of parliamentary soldiers searched the Windsor deanery, seizing the treasury of the Order of the Garter of which the dean was registrar, and many personal effects. He took refuge at Knoyle and, while it supported the king, at Bristol. According to Aubrey, Sir Christopher determined to give his son the public education he himself had not received. Although, according to Aubrey, in adulthood he was no great reader, Wren received a thorough grounding in Latin; he also learned to draw. Some youthful exercises are preserved or recorded though few are datable ; his earliest talents were for Latin composition and for devising graphic and other visual aids. In his tenth year he wrote a new year greeting for his father in Latin prose and verse, directed E musaeo meo , while from his early teens two projects survive for hand-signing alphabets for deaf people. He assisted Scarburgh in his anatomical studies, and in a letter of Wren acknowledged his gratitude to the physician not only for his teaching but also, in a recent unspecified illness, for saving his life. Wren entered Wadham College, Oxford, on 25 June The curriculum was still based on the study of Aristotle and the discipline of the Latin language, and it is anachronistic to imagine that he received scientific training in the modern sense. Election to a fellowship at All Souls on 3 November ensured the continuation of his research, although he was often in London. John Evelyn visited him in Oxford in July notingâ€"as did othersâ€"his close collaboration with Wilkins, who shared and fostered his interest in mechanical devices and demonstrations. In they built an 80 foot instrument for observing the whole face of the moon. Early in his fellowship Wren developed a perspectograph or scenographic apparatus, in which, by a movable sight linked to a pen, a view could be traced on paper; later, in , he showed this device to the Royal Society, and prototypes were built. Wren continued to divide his time between Oxford and London, as he would do well into the s. On 7 August he was appointed to the chair of astronomy at Gresham College in the City of London, apparently on the recommendation of Wilkins to Oliver Cromwell, whose widowed sister Wilkins had recently married. Cromwell intervened personally in the appointment, Rooke, the current holder, being assigned the chair of geometry to accommodate him. Gresham was noted for mathematical study, especially applied mathematics including navigation, which Wren was required to teach. He subsequently lectured on light, Saturn, and Johannes Kepler, and on dioptrics, the nascent science of lenses named by Kepler and amplified by Descartes. Both versions are carefully composed. His tributes to the founder, Sir Thomas Gresham, to previous professors, to the City, and to the muse of astronomy are gracious, well turned, and apt; Wren enumerated, with examples familiar to an educated audience, the practical applications and benefits of his discipline, especially to trade and industry. This, Wren claimed, had liberated all the sciences from the intellectual constraints of ancient Greek and Roman thought, but astronomy was particularly firmly supported: However, although by the mid-seventeenth century it was commonplace both to acknowledge Bacon and to disown Aristotle, Wren did neither, not even mentioning Bacon. He also repudiates the occult science of his time, in which several of his colleagues showed more than a passing interest. Little weight, therefore, can be placed on his occasional interest in strange phenomena he once cured a sickness by eating dates after dreaming of them or from his attendance at the Oxford chemistry classes of the hermetist Peter Staehl; most of his circle did likewise. Growing reputation Wren was in contact with Parisian scholars by , when Blaise Pascal challenged the mathematicians of Europe with two problems concerning differential

curves. The first was the calculation of line, area, and other quantities of a cycloidâ€”the arc traced by a point on the circumference of a travelling wheel. The second was to derive, from given dimensions, the length of a chord across an ellipse. Wren partly solved both problems, which were germane to the understanding of planetary orbits. However, in the first he substituted simpler values than those specified, and in both he offered not the numerical solutions required but geometrical constructions from which they could be derived. Pascal commended his work but withheld the prizes, as Wren had not satisfied the conditions. He was still working in London and Oxford; in he was a bursar of All Souls, and designed and set up the sundial, carved by William Byrd, on the south wall of the chapelâ€”reset in on the Codrington Library H. Simmons, All Souls, , 70â€” Wren found it prudent to stay in Oxford when, in the anarchy after the resignation of Richard Cromwell, Commonwealth troops occupied Gresham College in October , not a year earlier as often assumed. Life at Gresham returned to normal with the Restoration, but within a year Wren had resigned his chair: On 12 September he received a DCL. The Restoration brought other changes. In May the society forwarded a royal command to accomplish two projects he had begun, based on optics. From telescopic observations he was modelling a relief globe of the moon, as big as a human head; he was also the first Englishman to make microscopical drawings of minute creatures. Neither project survives, though both were completed; the drawings of insects hanging at Whitehall in probably perished in the fire of In the autumn of Wren assigned his microscopy to Robert Hooke, who in Micrographia acknowledged him as its originator. Wren excused himself on grounds of health, and a military engineer was subsequently engaged. But in he lectured on spheres, on the date of Easter De paschate, not on Pascal as often stated , and on navigationâ€”appropriate topics when mathematics was increasingly seen as the key to all scientific knowledge. Later Oxford lectures are unrecorded, but Royal Society and other sources show the drift of his studies in the next three years: He also worked on a theory of elastic impact from the collision of balls suspended by threads, on respiration and the vital principle of air a subject not fathomed until the discovery of oxygen over a century later , and on tracking the comets of â€”5, then believed to travel in a straight line. In he was incorporated MA at Cambridge. First steps to architecture It was not unusual for the well-educated to take up architecture as a gentlemanly activity, widely accepted in theory as a branch of applied mathematics; this is implicit in the writings of Vitruvius and explicit in such sixteenth-century authors as John Dee and Leonard Digges. He arrived at Gresham with a far from casual eye, having in Oxford absorbed intuitively the fundamentals of architectural design. It remained only for him to realize that architecture could be the supreme demonstration of the truths he had championed in his Gresham lecture. The reward offered was certainly significantâ€”the reversion of the surveyorship of the royal works on the death of Sir John Denham â€” In later years Wren complained to his son that Charles had done him a disservice in making him an architect, and that he would have made a better living in medicine. By the early s he had mastered architecture and understood it thoroughly. Several colleagues might have taken it up as a set of rules and formulas for design, but he aloneâ€”and to a lesser extent Hookeâ€”possessed, understood, and exploited the combination of reason and intuition, experience and imagination essential to what we call genius. He incidentally avoided most of the plague, but he had made plans months earlier; his motives reflect his range of interests. His name was known and respected in Paris, and for a distinguished member of the Royal Society, armed with useful introductions, the strengthening of foreign correspondence would have been sufficient reason to travel. Another was more cogentâ€”first-hand study of contemporary European architecture. Early architectural commissions By Wren was confident enough, and well enough known to close associates, to put theory into practice with two commissions. In his uncle Matthew gave Pembroke College, Cambridge, a new chapel, a modest building whose interior extended in by George Gilbert Scott is conventional, with classically inspired plasterwork and joinery of a high standard. Contemporaries associated this building with the Royal Society, to whom Wren showed a wooden model now lost of his design on 29 April That design, always said through a misreading of Parentalia, p. Site work began the following spring, and on 26 July the foundation stone was laid for a different design. There is no stage, and the big high windows, raked seating, and unobscured vision proper to

an anatomy theatre make an ideal setting for the real spectacle of academic ceremonial. His restriction of the classical orders outside to the entrance front thus stemmed from scepticism of received ideas rather than from ignorance or inexperience. To span the interior without intermediate pillars he devised a system of modified king-post trusses connected by bolts and scarf joints, widely believed by contemporaries to reflect the latest mechanical theories but actually derived from traditional roof carpentry. The theatre was inaugurated on 9â€"10 July ; Evelyn, who attended, recorded the ceremonies in his diary. Trinity College built to his design a detached range of rooms in the garden â€"8 ; the core of this remains, with later additions. With Sancroft in London and Wren either there or in Oxford, progress was at first slow. The cloister closes the back of the first court, with a gallery above and the west end wall of the chapel based on the earlier one at Pembroke forming the centrepiece. Wren again followed the spirit rather than the letter of classical design, producing an original solution where neither the nature of the site nor the repertory of antiquity offered an obvious precedent. An established architectural career Wren might never have been more than the first of a line of Oxford scholars with architectural interests, but for two circumstances: However, Charles II had engaged him privately in to make a design for rebuilding Whitehall Palace. Wren received an official house in Scotland Yard, where he lived and worked until On 7 December he married, at the Temple Church, Faith â€" , the daughter of Sir Thomas Coghill; as her family home was Bletchingdon they had probably known each other for some years. Wren never abandoned his scientific interests, and although he attended fewer Royal Society meetings he often spoke. During the later s and early s he addressed the society on topics including the mechanics of muscular action, the physiology of flies, and an improved friction brake for winding gear. In June he demonstrated a machine for grinding aspherical lenses; optical theory showed that these would gain better performance from the limited range of glass types available, but the practical problems were not overcome until the advent of computer-controlled machines in the late twentieth century. As vice-president of the society in â€"80 he attended regularly; in January he was elected president when Boyle declined the office, and he served for two years with energy and distinction. An ideal plan and a document for discussion, the failure to implement it has been lamented ever since, but its completely new street pattern would have taken too long, and cost too much, when the revival of trade and commerce depended on the utmost speed. His real part in the rebuilding was less spectacular. As the most distinguished of the surveyors chosen by crown and City soon after the fire to deal with practical problems, he helped frame the and London Building Acts, whose precautionary regulations transformed the fabric of the City; the most significant was the prohibition of timber construction. As royal surveyor his first task was the new custom house in Thames Street â€"71, rebuilt With an eye to recent Dutch commercial architecture he made a warehouse resemble a royal palaceâ€"appropriately for a building representing the crown within a city jealous of its independence. The case of Temple Bar â€"72 is similar. To compel the City to rebuild its ceremonial western entrance, the king arranged for the money to be provided, his surveyor naturally producing the design. The fire affected the whole nation, and work on the new Greenwich Palace designed by John Webb had been abandoned. His principal work was administrative, but any doubt of his fitness, although relatively inexperienced, to rebuild the churches and cathedral would have been forestalled by his official position. The City churches A cathedral was so large and costly that neither its commencement nor its completion could be hurried, but on 17 May Wren took charge of a small office, modelled on the office of works, under the commissioners for rebuilding the churches. He was responsible for about fifty new churches in place of the eighty-six destroyed or severely damaged in the fire; the total remains inexact because, where a church only needed repairs, his office merely handled the payments, funded by a tax on all coal coming into London. In the few seventeenth-century buildings new ideas had seldom been taken up, and the fire offered the opportunity of building specifically for the liturgy of the Book of Common Prayer and at the same time for proclaiming the reformed faith in a modernâ€"classicalâ€"style of architecture. Four decades later another building programme opened. All should be able to see and hear clearly both the preacher in the pulpit and the celebrant at the communion table, which should be decorously but not dramatically emphasized. Internal supports are few and slender. Large clear-glass windows give ample light,

and galleries on three sides increase the accommodation. Other sites were far from idealâ€”small, irregular, cramped by secular neighbours. Some smaller churches are simple halls, rectangular or nearly rectangular St Edmund the King, Lombard Street ; often old foundations were reused at the expense of geometrical purity. Others have a single side aisle, sometimes with a gallery St Margaret, Lothbury. Four others had round domes for example St Mary Abchurch and another four derive from a Byzantine type known to Wren by repute and used in the protestant Netherlands; in this, the arms of a Greek cross are defined within a square by four large columns as in St Martin Ludgate.