1 – Castletown Cox, Co Kilkenny
(photo: Irish Architectural Archive)

Davis Ducart & Christopher Colles: architects associated with the Custom House at Limerick

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TODAY LIMERICK CUSTOM HOUSE, RECENTLY RESTORED AND THE HOME OF THE Hunt Museum, is an exemplary building. It is admirable for its fine stone work – the work of accomplished stone masons; its architectural detailing – the work of an architect who had devised a personal vocabulary within the language of classicism; for its confident presence on the River Shannon which it faces; and for the quality of its restoration and conversion. The most impressive building of its type in Ireland when it was built, it is still the finest Georgian building in a city which would, with the building of Newtown Pery in the following eighty years, acquire an infrastructure of Georgian terraces and warehouses, many of which still remain (Plate 2).

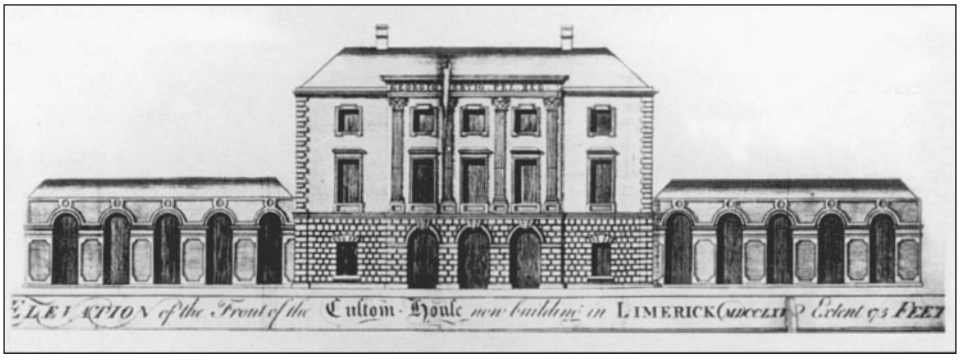
Yet such a model structure arose from uncertain or at least untested circumstances. The old custom house, situated on the city quay in the heart of the medieval city on King's Island, had burnt down in 1741. By 1758, the Corporation, responding to contemporary initiatives to extend the city outside its walls, revised the terms of a land grant at Mardyke to the Vincent family to allow for the enclosure of a quay and the construction of a custom house and collector's house. This site was on the far side of the Abbey River, adjacent to a proposed bridge connecting it to the medieval town. The land was marshy, and the commercial and infrastructural development of the succeeding years was still only conjecture: the quays along the Abbey River and the road south were proposed about 1761; Arthur's Quay, and the area around Rutland Street and Patrick Street would only be gradually constructed by merchant-developers; the plan for Newtown Pery was not conceived until 1765.

Two powerful agents, however, lay behind the scheme for a custom house. The government, who would fund the scheme, had, in the early eighteenth century, raised concern about the prevalence of fraud in the collection of customs and excise, passing several parliamentary acts aimed at controlling collection.[1] Although the acts made no mention of new buildings, the early eighteenth century did see the construction of custom houses in Dublin (1707, designed by the Surveyor-General,

Thomas Burgh), Cork (1724) and Waterford (shown on a map of 1745), all in what might be described as a restrained classical style, with cut-stone details around doors, windows and at cornice level. By the 1760s, when Limerick's new building was being contemplated, the money was available for an expensive, rounded essay in classicism, a bid perhaps for a more authoritative building. The supervisory function of the new development was reinforced through the construction of a surveyor's house downstream and four houses for boatmen.[2]

The quality of the custom house may also be ascribed to another influence – Edmund Sexton Pery (1719-1806). He was elected MP for the city in 1760, and was heir to large tracts of marshy ground known as South Prior's Land, stretching along the River Shannon south of the proposed custom house. In the 1750s, he had demonstrated a commitment to the development of the city, constructing a group of town houses for Co Limerick gentry at John's Square in 1751, and helping to secure infrastructural parliamentary grants for the city. Although not actively involved in the work of the Wide Streets Commissioners in Dublin, as an MP and resident on Luke Gardener's spacious and elegant Sackville Mall constructed in the 1750s and '60s, he was only too aware of their achievements in urban design. By the late 1750s, Dublin was also conspicuously punctuated by a number of impressive classical buildings, including Edward Lovett Pearce's Palladian Parliament House (1729), and Richard Castle's Tyrone House (1740), Leinster House (1745), and Rotunda (1751). Pery would try to emulate something of this in Limerick, employing the modestly talented, Clare-born architect, Francis Bindon, for the John's Square development, and introducing for the custom house and the new town plan the untried, Franco-Italian engineer-architect Davis Ducart, who would, in the following ten years, also design some of the more impressive country houses in Kilkenny and Cork.[3]

2 – Engraving of the Custom House, Limerick *(courtesy The Knight of Glin)*



If Pery's support of the custom house was inspired by his personal ambition to develop South Prior's Land, it was also influenced by the growth in the Irish economy. Perceivable from the late 1740s, growth had, by the 1750s, moved economic activity to a new threshold, benefitting landlords, whose potential income rose, and the ports, where the increase in exports was handled. In 1787, Ferrar noted that from 1759 to 1765 there had been a substantial increase in port revenues at Limerick.[4] Becoming increasingly alert to the economic opportunities being presented, and frustrated by the corrupt oligarchy within the Corporation, enterprising city merchants voted for Pery, an Independent, in 1760. Aristocratic and merchant interests were thus combined, and the city was poised to witness an expansion that would impress Arthur Young when he arrived in September 1776. The building of the custom house was at the heart of this, marking an initial stage of development, providing an impetus for further growth, and embodying in its graceful design the optimism that lay behind the new town. Turning to the two architects who were involved in the design and construction of the custom house, looking at their origins and influences, their conduct and other activities, Limerick Custom House can be placed in the wider context of infrastructural and architectural development in mid-eighteenth-century Ireland.

Although as the designer of the custom house Davis Ducart was the most important single person associated with the building, it is the background of his assistant and site architect, the young Christopher Colles, that reveals most about the cultural and economic antecedents of the custom house. Christopher was born into a Protestant family that had first come to Ireland in the early seventeenth century as government administrators. By 1739, the year of his birth, his branch of the family was settled in Dublin as merchants, on Skinner's Row. Another branch had established itself in Kilkenny. It was headed by his uncle, William Colles, who, born in 1710, possessed a town house in Patrick Street, Kilkenny, and a country house at Abbeyvale, a few miles outside the city.

William Colles is a significant example of how the English eighteenth-century spirit of enquiry, invention and development could find expression in Ireland. As a young man he wrote poetry and tragic plays, but he was only twenty when he also devised a machine for working stone, built a model, tested it in a stream, and, finding it successful, took out a lease on a quarry to the south east of Kilkenny.[5] This was the limestone quarry that David Roche had described in 1640 as the better of two which supplied the stone from which not only the houses but also the streets of Kilkenny were constructed. The quarry was, Rothe wrote, 'remarkable for the variety, solidity and abundance of its marbles' which were 'black, white or variegated with various hues...' Gerard Boate observed in 1726 that the quarry was a commonly held resource for the citizens. Colles's lease of 1730 implies that what had been

public property had now been privatised, but the subsequent application of his inventions to the cutting, polishing and boring of stone reveals the potentially close relationship of ownership and entrepreneurship at this period.[6]

The Dublin Society, set up in 1731 by forward-looking landowners with an eye on 'foreign improvements' to encourage research and its application in 'natural history', 'husbandry', agriculture, gardening and manufacture, was the place for an ambitious inventor to publicise his work.[7] And so, on 3 February 1732, William Colles wrote a letter to the Society informing them of his work. H.F. Berry, historian of the Society, summarised its contents:

> ...he had ten saws moved by water power, working night and day, which sawed the marble truly. An engine ground the marble with sand, to fit it for polishing, and Mr. Colles added that he employed thirty hands in turning out chimney pieces, tables, mortars, tombstones, etc. He had also brought to perfection the boring of marble pipes, which served to convey water underground and from the tops of houses. The firm had executed an order for a set of these at Mr. Sterne Tighe's in Ushers's quay, Dublin.[8]

Colles demonstrated in this letter the extent to which he was in tune with this optimistic and enterprising section of Irish society. He was exploiting a natural resource and reducing its price by efficient production, he was manufacturing it and diversifying his output, trading it, creating employment and making money. The implications for Irish building and the local economy were significant, as much of the potential suggested in the letter was realised in subsequent years. He developed a trading network in Ireland: there are records of a warehouse in Bachelor's Lane Dublin from which marble chimney pieces and furniture were sold, and of chimneys supplied to Limerick merchants in 1770. He was keen to develop trading links in Britain: a letter of 1742 in which he outlined what he stated were competitive prices for chimney pieces to a Bristol merchant survives. The flow of inventions was maintained. 'As to my improvements,' he wrote to a Dublin clergyman in 1743, 'in my way as I am always on new inventions for doing everything of marble wch can be done with it, I have ... contrived a very light, cheap and expeditious Handmill of stone for grinding apples for cyder which wil not only dispatch a great Quantity but grind them without leaving any part unground.' In the same letter he also mentioned a new method for making mouldings in marble 'by water without ye help of a Stone-cutter'. His one recorded failure were the marble pipes for which he had set up a machine in his works to produce different-sized bores in 1730. In Dublin the makers of timber and lead pipes were successful in dissuading the Corporation from buying Colles's marble pipes, even though they had proved superior in a trial on Aran Quay. And in Cork it seems that initial interest by the Corporation in 1764 was

similarly deflected. He supplied stone water pipes to Cork. In the latter part of his life he became increasingly active as a contractor: he was pricing the paving of St Canice's Cathedral in 1742 and requesting payment in 1763; he was building Woodstock in 1747 and worked on Bessborough; he built houses and the Tholsel in Kilkenny city and was putting the final touches to the two barracks in 1757; and after the great flood of 2 October 1763 in which many Kilkenny bridges were swept away he became involved in bridge building.[9]

Canal construction, which would eventually facilitate the transport of his stone, was another life-long preoccupation. Since the mid-eighteenth century, the Irish parliament had been encouraging public projects such as canal building, river navigation and bridge construction by granting large sums of revenue income. It was motivated by the tendency of the crown to plunder Irish revenue. To pre-empt this, it tried to keep local expenditure high.[10] Interestingly, this complemented Dublin Society initiatives for improvement. Five years after his letter to the Dublin Society, Colles was pushing for a parliamentary grant for a canal in the Nore basin, and he maintained the pressure for the next twenty years until grants were made available in 1755, 1767 and 1773. Colles then obtained a contract to widen, clear and deepen the bed of the river from Kilkenny to Thomastown.[11] He also actively promoted a linen industry in Kilkenny, adopting a Dublin Society concern that had led to linen becoming a major Irish export in the eighteenth century. This was unsuccessful.[12] By 1762, Colles conceded the local importance of wheat, and further expressed his optimism in some form of industrial future for Kilkenny by constructing a flour mill at Abbeyvale, appreciated as one of the largest industrial buildings in Ireland of its day.[13]

The result of Colles's vigorous life was respectability and status. He was city treasurer in 1746 and 1752-53, and mayor in 1756, and he had a wide circle of friends including Bishop Pococke, Samuel Prior and other members of the Dublin Society. He also used his influence to encourage others. He was one of the city counsellors responsible for the grants to the diocese to set up the Kilkenny Charter School and clothe its students, and he was a founder member of the Kilkenny Society in the 1740s. His respectability was nevertheless coloured by an alternative reputation which outlasted him; in 1818 he was still referred to as a necromancer. This expressed something of local suspicion for the fertile inventor who was also able to transform the landscape, but it was also a reputation which Colles did little to discourage with such schemes as the releasing into the river of a musical instrument resembling an Aolian harp that played by itself as it floated downstream.[14] The memorial inscription set on an outside wall of St Mary's Church of Ireland Church in Kilkenny by his son underlined his sense of public duty, referred to his enterprise, hinted at the ambiguous status he attained with his 'uncommon genius', and con-

cluded: 'His manner was inoffensive and his conduct always upright.' He died on 8 March 1770.

William Colles's life was a rich legacy for Christopher Colles, who, on the death of his father in 1749, came under the protection and influence of his uncle. William Colles, not himself a quaker, but, considering his independent-minded activities, not unpredictably drawn to the quaker's anti-establishment values, decided to send his nephew and son Billy to the quaker school at Ballitore in Co Kildare.[15] Here Colles was given a rational education where he learned passivism, religious toleration, the classics, and was encouraged not to read 'those authors who recommend in seducing language the illusions of love'. Back in Kilkenny, Christopher Colles seems to have come under the influence of Richard Pococke who became Bishop of Ossory in 1756.[16] Pococke had travelled in the Near East and in Ireland. His *Irish Tours*, which record these latter journeys, reveal an informed interest in all aspects of the Irish landscape – geology, archaeology, animal and vegetable life – as well as an appreciation for both wild scenery and the evidence of new forms of cultivation, experimental manufactures and new schools. It mirrored the Dublin Society mentality, unsurprising in one of its earliest members, and would for Christopher Colles have reinforced the ethos communicated by his uncle. Further, Pococke's non-judgemental attitude to religion would have underlined young Colles's school experiences. Pococke had the gentleman's interest in architecture expressed in his financing and close supervision of the restoration of St Canice's Cathedral in Kilkenny. He encouraged classicism in this Gothic cathedral, and probably in the process gave Christopher the grounding in architecture that enabled him subsequently to work as an architect.

Colles also acquired an education in mathematics, engineering and surveying, although there is no record of whether Colles received specific training in these areas beyond the experience and example offered by his uncle and his own receptiveness to the subjects.[17] There was plenty of opportunity for Christopher in Kilkenny in the years he lived there (*c*.1756 to 1765), for this was the period when many of William Colles's schemes were coming to fruition and, most importantly, the Nore navigation scheme had financial support. William had a contract for canal work by the late 1750s, and Christopher was given construction work on the Kilkenny to Thomastown reach. Soon, broader administrative and technical experience was offered when, in 1761, William Colles and Bishop Pococke used their influence to gain him an administrative post as pay clerk to the River Nore Navigation Board. William's activities may also have provided him with architectural experience; was his nephew the designer of the unattributed Tholsel, built in 1761, of the town houses, and did Billy Colles, William's son, ask his cousin to design Millmount, also built in 1761?[18]

Christopher's experiences allowed him to place an independent advertisement in *Pue's Occurrences* in May 1762, which presents the conscientious persona and eclectic interests of the young professional: his study of mathematics, his possession of 'proper instruments' for surveying land and taking water levels, his determination 'to be accurate', his ability 'also [to] make designs of buildings'.[19] A letter, written six months later by William Colles to his daughter, however, reveals another side of Christopher's character. 'Kit Colles has taken in his head to turn stone-blue maker,' he wrote, explaining that Christopher had acquired a going concern from 'the widow Keough in Coal Market' and was busy equipping it. '[He] thinks', he added, 'he will make great matters of this project in Kilkenny.' 'It is reported', he concluded, 'he is courting one of the Misses Keough.' [20] Christopher was 23, and this evidence of independent-mindedness, bordering on the reckless, worried his uncle: 'He neither advised with me nor any relative of his own on this project, but acts purely on his own self-sufficient opinion, which I am very apprehensive will at last bring him to destruction.' Christopher's 'self-sufficient opinion' would animate his career, and, although it did not bring him to destruction, it did not make him rich.

Christopher Colles married Anne Keough on 14 January 1764. Two years later he was working in Limerick, where he would remain for five years until he emigrated with his wife and four children to America. Whereas in William Colles the quixotic element of his inventiveness had soon been harnessed to economically viable schemes within a developing local context, in the nephew a restlessness predominated, taking him away from the connections that might have secured him work in Kilkenny. Interestingly, this young architect/engineer arrived in a city poised, in the 1760s, on the brink of a physical transformation, but was unable to find himself a niche. This may have reflected Colles's character. It may also have reflected the opportunities in a provincial Irish city at this period: a place where the newcomer found it difficult to make headway; a place, despite the volume of building construction, where engineers and architects were only intermittently needed, and where the inventor of mechanisms and initiator of schemes, the capacity in which Christopher operated in America, could not take root. Perhaps he was referring to this latter bent, as well as his failure in Limerick, when he wrote to his cousin in February 1771, 'I am convinced it [America] would be the proper place to make money in for one of my way.' In those five years in Limerick, Colles worked primarily as an architect, and his failure may also serve as a comment on the emerging profession of architect. For Colles, untravelled and from a relatively modest strata of Irish society, would not have been regarded as a well-qualified architect working in the classical idiom.

It was William Colles, recognising Christopher's need to make his own way

in the world, who had, by August 1766, secured him a post as site architect on the custom house in Limerick. He had used his connection with Davis Ducart with whom he had corresponded five years previously, advertising his marble water pipes to Ducart who was engaged in devising a scheme to supply Cork city with water.[21] Christopher seemed to regard the post as a short-term job, almost immediately buying an interest in a local quarry and employing men to dress and transport stone, a venture touchingly similar to his uncle's, and one he had attempted, unsuccessfully already in Kilkenny.[22] His uncle, however, seems to have regarded his employment with Ducart as an opportunity to become a professional architect/engineer. He wrote to his nephew warning him that Ducart doubted the profitability of his undertaking, adding, 'consider seriously whether any business you can engage in at Limerick will be more certain than your employment under Mr Dukart at present, and the prospect of what he may promote you to in the future which he seems to have much at heart, and expresses great friendship for you.' [23] Christopher was disarmingly acquiescent, writing a week later full of good resolutions: 'I received your kind and affectionate advice which I promise you I will observe most punctually[,] & that I shall loose no time in withdrawing myself from these things I am engaged in since tis not agreeable to Mr Dukart, & since he proposes to move me to the North I will make what haste I can with this building that I may be there early in the season.' [24] The North was a reference to Ducart's canal schemes in Co Tyrone, which he was in the process of consolidating in 1767.

Work had begun on the Limerick custom house on 9 June 1765, and within a year £5000 of the final £8000 had been spent. The building was completed in 1769.[25] Colles's design input as executant architect would have been limited. A comparison between the relatively elaborate surviving engraving illustrated in plate 1 and the final building suggests that Colles may have presided over a project that had to be simplified in a few details – the intended inscription ('Georgio Tertio Fel: Reg:') did not appear on the river front, the chamfered panels shown decorating the wing piers were realised as plain rectangles. However, no vermiculation decoration for the wings was shown on the engraving, but if its presence between some of the arches does represent Colles's initiative, it was an impulse that carried little conviction: the vermiculation is unfinished and sparse (Plate 3). It was probably through Colles, who acted as an agent for Kilkenny marble in Limerick (recorded as selling chimney pieces to the wealthy merchant James Browne of Main Street and Mr Edward Wright, who both refused to pay for its carriage), that Kilkenny limestone is used on the river front. [26] The split-faced limestone facing Rutland Street is local, and may have come from Colles's Limerick quarry.

Ducart, preoccupied with consolidating his own career, proved unreliable as a patron, and on 23 December 1769 Colles was writing resignedly to his cousin,

'Dukart and his schemes are quite laid aside.' The completion of the custom house had not, however, left Colles unemployed. Maybe it was with the help of Ducart that he had, by August 1769, obtained a salaried post as Director of Inland Navigation of the Shannon.[27] The Limerick Navigation Company, set up by act of Parliament in 1767 to make the Shannon navigable from Limerick to Killaloe, and thus completing work that had started in 1755 when a short canal was cut to the east of Limerick, had granted £6,000 to the Corporation. It had spawned a Company of Undertakers in 1768, to which local merchants, gentry and professionals subscribed – an example of the recent official decision to encourage both public and private investment in such schemes. Colles was given a house at Gillogue Lock, and his tasks, which probably included the construction of nearby Clonlara Bridge which incorporated a sheela-na-gig and the date 1769, kept him busy in the summer of 1770.[28] Unfortunately, in a reversal of the contemporary trend to employ professional engineers on construction schemes, and with the result that an 1801 report concluded that the unsupervised work was well below standard,[29] the post was regarded as dispensable, and on 3 November 1770 Christopher was writing to his cousin that they had given him notice: 'I thank God it is not for any fault but because they think my sallary [sic] too large.' Armed with a certificate of good behaviour and ability, he wrote to his uncle Barry Colles for recommendation for a post on the Navigation Board in Dublin.

Meanwhile, he had been engaged in surveying the city and suburbs of Limerick. Hugh, Earl Percy, a colonel in the army, MP for Westminster from 1764 until 1776 when he inherited his father's title of Duke of Northumberland, had paid for the survey.[30] His particular interest in Limerick is obscure, although his father was Lord Lieutenant of Ireland from 1763 to 1765, and may have initiated the project. In August 1769 Lord Percy was in Limerick, receiving the Freedom of the city and formally presenting the fifty guineas for the survey.[31] Christopher took this opportunity to launch a small commercial venture, issuing on the same day a proposal for publishing the map by subscription: 'Embellished with the arms and an elegant perspective view of the said City, with a comprehensive and concise Historical Account from its foundation to the present time'. The plan would be engraved in London and be the same size as 'LeRoque's [sic] Plan of Cork'. Colles, in his advertisement, referred to this map as fine art. Some hyperbole is to be expected in public announcements, but the description may also reflect a confidence that he was now embarking on an architectural career. He was living on the main street of Englishtown, rubbing shoulders with well-established city merchants, and in close proximity to the better shops and city institutions. He was the only architect listed in Ferrar's directory of 1769. Two versions of his map have survived. One, an engraving, was printed in the 1787 edition of Ferrar's *History*. Ferrar acknowledged

3 – Detail of Limerick Custom House showing unfinished vermiculation
(photo: Judith Hill)

that the map was based on the survey of 1769 by Colles, but changes, unacknowledged, had been made. There was the addition of the arms of the Duke of Northumberland, and the streets and buildings of the new town had been added in a less confident style, which delineates strips of building rather than the plots. The other map, a watercolour, which differs in its treatment of detail from the Ferrar map (scales, shading, key, street identification), contained all the elements promised in the 1769 advertisement, including the new streets and buildings near the Abbey River. It also presented the proposed gridded layout of Newtown Pery which Ducart had designed in 1765.[32] This would suggest some continuing connection with Ducart and with Pery's extensive plans for Limerick. With its perspective, cartouche, coat of arms and potted history, it belongs to the new genre of civic maps – distinguishable from military or estate maps – that were appearing in the eighteenth century: a form realised in more detail by Rocque and with more panache by Scalé, both foreigners, in Dublin, but in its novelty an achievement for Colles nevertheless.

December 1770 was a low point for Christopher: 'Since my last I have left the house at the Navigation and am now in lodgings. I have not yet entered on any new business or employment, this being the dead time of the year...', he wrote to his cousin. His uncle had died in March 1770, but Billy, William's son, seems to have taken on responsibility for Christopher. This was one source of help, offered when

the navigation job was lost. Christopher's maturing self-sufficiency was expressed in his reply:

> I received your kind and affectionate Letter which I shall remember with gratitude while I live. I am fully convinced you are deeply concerned for me[,] however[,] God who has already brought me through many Difficulties will (I trust in his providence) protect and direct me still. Your kind offer I could by no means think of, at least while God gives me health and abilities to endeavour for myself...

Meanwhile, he had a sanguine faith in local contacts: '[I] hope soon to fall into something as I have several friends to recommend me...' [33] By February 1771 this confidence seemed to have bourne fruit: 'I am at present drawing plans etc. for our new Bishop, who intends to lay out 5 or 6 thousand pounds for a new See House.' It may have been this design which was used by the succeeding bishop who built the house that still stands in Henry Street.[34] A four-bay, three-storey house with a Kilkenny marble door to a pattern book design, the interior has been largely stripped of its original features. The surviving architraves to the doors with their pronounced shoulders and feet suggests Ducart's backward-looking influence, while the elaborate leaf designs on the ends of the staircase treads and the delicate flow of the one remaining ceiling rose pay tribute to the local craftsmen of the 1780s. Colles's letter to his cousin continued: 'I am angry with myself for not pushing for buildings etc while I was in the Navigation,' and he resolved, '[I] am now determined to go to every gentleman who I hear intends building, and give him plans and proposals, nor will I ever tie myself to any man or body of men while I live...'

Colles's problems, resolutions and very modest success in early 1771 were in fact experienced not in the context of trying to establish himself in Limerick, but against a decision to emigrate to America. This was delayed by lack of money. America had become attractive to many groups in Irish society in the eighteenth century, particularly Ulster Protestants searching for religious freedom and hoping to exploit the economic opportunities offered by the established flax and linen trade between Ulster and Pennsylvania.[35] In the South, it tended to be unattached young men from places where structural change was counterbalanced by restricted economic growth; Dublin, Cork and Limerick were not expanding as rapidly as might be expected. Colles fitted loosely into this group, although his wife and four children would have been conspicuous on the ship. From March until May 1771, Colles's letters to his cousin were concerned with the details of the impending journey: gathering the necessary finance, obtaining advice from Kilkenny friends, and letters of introduction from Richard Shackleton to friends in Philadelphia 'which I look upon as of the greatest consequence to me...' By mid-May the family were in

Cork, and Christopher had made contact with a captain sailing for Philadelphia. Two weeks later it seemed that the family would be bound for Baltimore, but the family bible records that they eventually arrived in Philadelphia on 10 August 1771, having buried their youngest child at sea.

In America, Colles continued to pursue a self-directed but never very lucrative or, indeed, successful career based now on his engineering interests, animated by his prolific inventiveness and moderated by the need to make a living. It was a relatively precarious existence, although at least two portraits were painted of him.[36] He was made superintendent of the American Academy of Fine Arts, and his numerous proposals for engineering schemes were published. When he died at the age of seventy-seven, a contemporary remarked on his natural cheerfulness and buoyancy, a propensity for pensiveness, but freedom 'from any corrosive melancholy. His ample front, his sparse white locks, his cavernous gray eyes.' [37]

Almost on disembarkation in Philadelphia, on 26 August, Colles advertised himself in *The Pennsylvania Chronicle* as a hydraulic engineer, surveyor, architect – 'Buildings of several kinds ornamented in the Grecian and Roman Manner, designed and superintended on reasonable Terms' – and as a tutor in the 'different branches of Mathematics and Natural Philosophy'. He stayed only briefly, moving to New York in 1774, where he gradually made a name for himself as a hydraulic engineer. He proposed a public water scheme for the city which replaced dependence on wells and springs with a reservoir and conduits. He was appointed contractor for the scheme until the War of Independence interrupted work. In 1783, during the war in which he supported the Patriots, he proposed a canal with locks around the falls on the Ohio River. A year later he had a scheme for linking the Great Lakes to the Hudson River, which resulted in a bill in both Houses of the state legislature and high-level political support for Colles, but which unfortunately did not materialise in a contract, although the scheme was substantially carried out after his death in 1816. In 1808 he proposed the construction of a canal between New York and Philadelphia. A more successful venture was the South Hadley Canal, whose directors employed him in 1792 to make a survey and recommendations. He did not, however, secure the job of engineer on the final scheme.

For seven years, from 1787 to 1794, he was engaged in mapping the roads from Albany, New York, to Williamsberg, Virginia, for private subscribers, having failed to attract the support of the US Congress. The map, drawing on an Irish example which was probably sent out to him, was based on Taylor and Skinner's *Maps of the Roads of Ireland* of 1778. This was the first road map to be published in America, just as his ideas for canals, his proposals for steam engines and waterworks had often been original in the American context. He also attempted business ventures – the manufacturing of traps, colours, paper hangings and fireworks in

New York in 1796; maintained a flow of inventions – he designed a metal hydrometer sometime between 1774 and 1789, and, during the war in 1812, he promoted a semaphoric telegraph for coastwide communication; and received the support of friends – he gained an appointment in the customs service testing the specific gravity of imported alcoholic drinks.[38]

Whereas Ireland seemed unable to sustain the somewhat erratic talents of Christopher Colles, the purposefully professional architect/engineer, Davis Ducart, had more success. His type was not unknown. Richard Castle, born in Hesse, Germany, and trained in a Franco-Dutch Palladian tradition, had made a name for himself in Ireland as a designer of public buildings and private houses from the late 1720s until his death in 1751, inheriting the position, though not displaying the genius, of Edward Lovett Pearce. He had also engaged with engineering problems – he designed the first stone lock in Ireland (on the Newry canal) – published an essay on supplying Dublin with water (1736), and written on artificial navigation. Castle, as he became known, was the ascendant architect of this period, outshining such gentlemen architects as the painter-architect, Francis Bindon, John Ahern and Nathaniel Clements. Ducart would briefly replace Castle in Co Cork and Kilkenny as a fashionable architect in the late sixties and early seventies, while also following a parallel career as a canal engineer in Co Tyrone.

Little is known of the origins, training and experience of Ducart prior to his arrival in Ireland. His will (dated 30 November 1780 and proved 29 March 1786) gives his name as Daviso de Arcort, and he himself, in a report on inland navigation, referred to the 'hilly parts adjacent to the Alps ... so often visited by the English Nobility and Gentry' as the 'country [where] I was born and bred in as an Engineer', suggesting Piedmont or Lombardy.[39] It has been suggested that Ducart was brought to Ireland by Pery or the architect Thomas Penrose. His first commission was as an engineer: Cork Corporation employed him to take the levels of the River Lee and draw up plans for a city water supply in 1761. Two years later, a committee was formed to commission a mayoralty house, and in 1764 John Morrison had published a design.[40] However, whether the Corporation had seen Ducart's plans for Limerick custom house or been persuaded by his costings, it was Ducart who entered into an agreement with the Corporation to carry out his design for a new mayoralty house for £2,000 on 6 May 1765. He was to receive 5% on this amount, although further expenditure would be considered by the committee. So Ducart began to establish himself as an architect in the area.

The work on the Cork mayoralty house (now the Mercy Hospital) was carried out simultaneously with the Limerick custom house. Ducart was not a familiar figure on either site. Surviving Corporation minutes for Cork indicate that here Ducart did not employ an executant architect. Instead there were two overseers,

appointed from the committee, one of whom was the alderman, Henry Wrixon. They administered the construction, furnishing accounts to the committee. Payments were made to them, as well as to tradesmen and suppliers, directly by the client committee. That Ducart was expected to be more involved in the day-to-day running of the project was articulated in the progress report of 29 May 1767 which stated that 'Ducart did not give due attention to the building ... whereby the Masons and Carpenters were often idle for want of his being in Corke to give them directions.' This observation was made in the context of a case to dismiss Ducart: more that £2,000 had been spent, the work was unfinished, and, the report concluded, 'this Board is of opinion that Ducart when he gave the plan was conscious that it would cost much more and that his estimate was to induce said committee to go on with the plan.' This final point suggests that the foreigner was vulnerable, too easily the object of suspicion. It also points to the committee's confidence in their ability and that of the overseers to make decisions about design and materials. Thus, in July and October 1767, the committee was ordering furniture for the interior. In January 1768 they were appointing the stuccodore, Patrick Osborne,[41] and ordering the overseers 'to agree with him' for staircase, lobby and drawing room, to 'agree with ... the proper person for erecting four marble chimney-pieces; also for erecting a portico and proper entrance to the said house; also for finishing all carpenters [sic] work that remains to be done, painting and doing outside stucco work.' The construction of the portico was deferred until April 1773 when the committee ordered the building of 'a frontispiece of the Doric order ... pursuant to a plan and estimate before the Council,' a detail which suggests that it may not have been part of Ducart's original design. Thus, we are given a picture of the overseers finding tradesmen and craftsmen with whom they agreed fees, the committee choosing designs, and the stone masons, carpenters and stuccodore left to execute their own designs.

This ties in with research done by Kenneth Severens on the rebuilding of St Werburg's Church in Dublin in the 1750s, which, he concluded, 'is a testament to the expertise of the contemporary building trades and the ability of craftsmen to proceed without coordinated architectural supervision'.[42] Such a situation was aided by the engineering, architectural and building manuals that were arriving on the Irish market in increasing numbers; whereas four such books have been found for the 1740s, there were twenty-one in the 1750s. Although ten of these dealt with inland navigation, there were seven dealing with bridges and four with practical building issues.[43] The committee for St Werburg's Church was also able to follow precedents established in the earlier building. However, something similar was at work in town houses, even quite substantial ones such as the mayoralty house in Cork, for clients were not interested in individuality on the exterior and were content with what stuccodores, carpenters, painters and paper hangers had to offer for

the interior. Christopher Colles, offering architectural services for the builders of such houses, was misguided. Davis Ducart, aiming higher, did not make the same mistake.

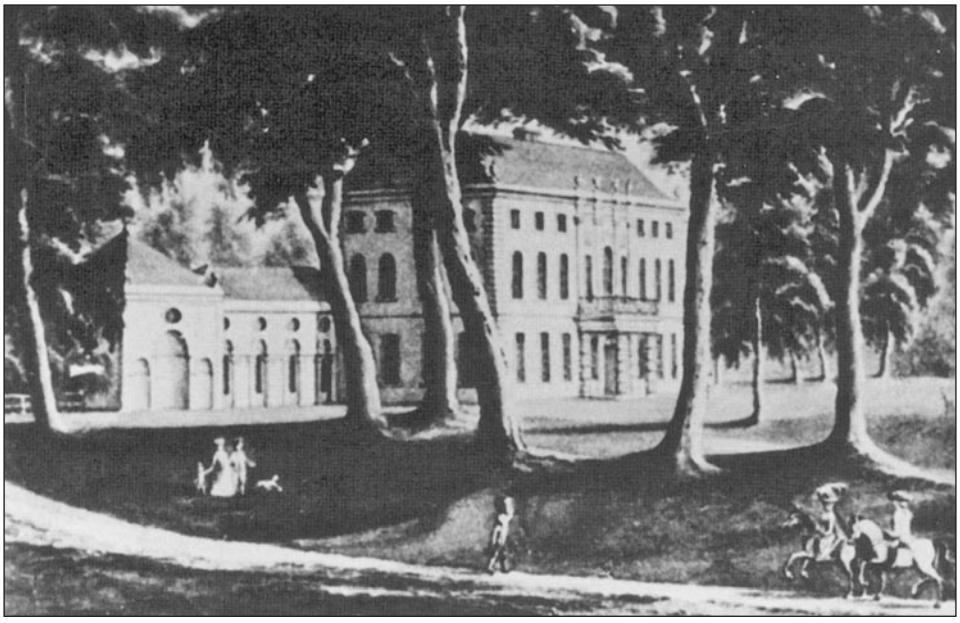
The reason why Ducart could not give his undivided attention to the two urban public buildings was that he was designing country houses for wealthy clients, most of whom had Cork connections. While designing and negotiating the contracts for the two city buildings, Ducart was in contact with Abraham Devonsher (1725-83). He had been born into a Cork Quaker merchant family, had become a banker, but, as Member of Parliament for Rathcormac, had moved away socially from his origins.[44] In 1765 work began on his impressively large and expensively decorated country house, Kilshannig, near Fermoy, Co Cork. Two years later work began on Castletown Cox, Co Kilkenny, an even more expensive and very carefully judged building which Ducart designed for Michael Cox. He too, from Dunmanway, had Cork roots, but as the youngest son of Sir Richard Cox, Lord Chancellor of Ireland in 1703 and a baronet (since 1706), he had high ambitions, and when Ducart worked for him he was Archbishop of Cashel. He had inherited the Kilkenny estate from his first wife, although, as Desmond Guinness has pointed out, it is, notably, the arms of his second wife that impale his on the garden front of the house.[45] Robert Rogers, the inheritor of the Lota estate near Glanmire, Co Cork, was, like Devonsher, a quaker. He commissioned Ducart to redesign the house in 1768.[46] Ducart was also architect for the Earl of Roden (1731-97), who, from 1750, was the auditor-general of Ireland, designing his house, Brockley Park in Co Leix, in 1768 (now demolished).

In all these buildings, Ducart displayed an appreciation of the architecture of the late-seventeenth and early eighteenth century, especially as practiced in France and Italy – the architectural environment of his formative years. He also derived ideas from published designs such as *Vitruvius Britannicus*. Picking freely from these unfashionable sources and bringing them together with some panache, Ducart was an eclectic, whose work bears a highly individual stamp.

One inspiration for Ducart was Palladio's design for country estates in which the villa was linked to wings containing farms by arcades (Plates 1, 4, 5, 6). Whereas contemporary English designers kept the farm at a discreet distance from the house, and incorporated domestic rooms in any wings, Ducart gave Kilshannig and Castletown arcades which linked the house to pavilions and rear wings which incorporated kitchens and stables. These complexes of buildings had something of a baroque character, especially when, as was the case in Kilshannig and Castletown, the pavilions had octagonal domed roofs. For the custom house in Limerick, Ducart adapted this model, designing a central block connected to two arcades. This was more of a linear concept, well suited to the gatherings of people and goods that a

4 – The garden front of Castletown Cox, Co Kilkenny

5 – Detail from a watercolour of Lota House, Co Cork, by William Osborne Hamilton (c.1772), before the pediment was added *(photos: Irish Architectural Archive)*



custom house would need to shelter, and giving the building, approached from the river, an open, welcoming aspect.

As an eclectic, Ducart was unhampered by the idea of correctness. For the custom house, he designed a frontispiece without a pediment for which he seems to have drawn on Gabriel's contemporary Petit Trianon at Versailles, a building he may have seen before he came to Ireland. For the arcades, however, decorated with panels, he was remembering early eighteenth-century French buildings.[47] He applied a similar detail at a smaller scale on the cut-stone surrounds to the Mayoralty House (Plate 8). At Lota, he introduced a concave-sided porch and balcony supported by banded Doric columns – an overtly baroque feature (Plate 9). This exuberance was matched inside by an imperial staircase, entered through an elaborately vaulted arch and marked by clusters of columns. Each of these elements had different sources but, together with the mellifluous plasterwork, produce a harmonious and unique design.[48]

Another feature of this house was the oval, a detail found in late-seventeenth and early eighteenth-century buildings. Along with the roundel, it was used almost as a trademark by Ducart. This, however, did not preclude it from being well integrated into his architecture. At Lota, the oval theme is carried from the façade, where oval windows are found above Venetian windows, to the interior, where plasterwork ovals decorate the upper walls (at one point, in a baroque-inspired gesture, interrupting the cornice) and the undersides of the staircase. The ceiling plasterwork, composed of the delicately detailed trailing forms, rococo in their airiness (similar to that in which Osborne and the Lafranchini excelled), provides the final flourish to the theme. In the arcades of the Limerick custom house, roundels sit neatly over the arches in keeping with the general air of restraint of this building. At Kilshannig, an exuberance lay at the heart of the design. On the front façade this was simply architectural – decorative roundels were set over exuberantly protruding keystones. In the hall, architecture and plasterwork conspired in spatial illusion: Ducart designed a rectangular hall to appear elliptical, with columns, frieze and elliptical ceiling, while the Lafranchini covered the coving and arches above the frieze with stucco decoration unrestrained by borders, dematerialising the surface.

The workmanship in Ducart's buildings is striking, and suggests that he sought out the best available craftsmen. At Castletown Cox, each façade of the main block was given equal attention, and the fine cutting of the dressed sandstone and unpolished Kilkenny marble of the façade, as well as the large fluted monolithic columns in the entrance hall, have been frequently commented on.[49] At Lota, Ducart used the different qualities of limestone and sandstone to good effect, framing the reddish sandstone walls of the front façade with white limestone quoins and cornice. Above the exuberant limestone porch over the door is a curiously carved limestone

6 – North front of Kilshannig, Co Cork (photo: Irish Architectural Archive)

panel depicting palms and a lion, set between the eccentrically detailed sandstone pilasters of a breakfront. In the Limerick custom house, the fine exterior stonework originated from William Colles's efficient marble works. Ducart designed a subtle variety of textures for the river front, where there is the ashlar ground floor of the frontispiece with the projecting vermiculated keystones over the arches and the flush details over the windows, the fluted pilasters with their crisply carved Corinthian capitals, the projecting architraves around the first-floor windows harbouring the most discreet Chinese fretwork friezes in light relief, only visible at close quarters. The unexpected, though not necessarily unique, details such as the fluting of the pilasters and the upward break in the architrave of the second-floor windows (often used by Castle,[50] and repeated in the custom house in the interior doors and windows) relied on good-quality carving for their effect (Plate 7).

While the stuccodores who worked with Ducart were amenable to changes in fashion, Ducart himself displayed no ambition to be fashionable and metropolitan. For his most expensive, prestigious building, Castletown Cox, he deliberately went to a well-known, early eighteenth-century building as a source for the front façade – the much-imitated Buckingham House by William Winde of 1703, published in *Vitruvius Britannicus*. Such sources were regarded as unworthy by the followers of neo-classicism, which was coming into vogue in England, and, with Sir William Chambers' very expensive, strictly classical Casino at Marino, Co Dublin, built for the Earl of Charlemont in 1769, it was a style that was beginning to arrive in Ireland.

It made Ducart's architecture look distinctly European, an attribute that may have been the attraction for his Irish patrons, for a divergence in taste in the late 1760s and '70s is detectable in Ireland. In the provinces, patrons were reacting

7 – Detail of river front, Custom House, Limerick, showing an upward break in the architrave of the second floor window (photo: Judith Hill)
8 – A ground-floor window of the Mayoralty House, Cork (photo: The Knight of Glin)

9 – Detail of the porch at Lota House, Co Cork (photo: The Knight of Glin)

against a slavish following of the vicissitudes of English fashion by welcoming the exotic Ducart. In Dublin, anti-English feeling could find expression in the ambition to make Dublin bigger and better than London [51] rather than in a rejection of neo-classicism. In fact, as Gandon's custom house of 1781-91 demonstrated, neo-classicism was used in Dublin to achieve this. Dublin patrons, inclining to a doctrinaire embracing of neo-classicism, were critical of Ducart. This attitude was heavily tinted with xenophobia in the pages of the *Freeman's Journal*. In 1769 an article on the Royal Exchange competition, most probably referring to Ducart, evoked

> one ... with all the address and volubility of a Frenchman [who] has got at the right side of several of our noblemen and gentlemen in this kingdom, and who draws designs such as our forefathers (that might have lived in Vitruvius or Palladio's time) never saw, while he is utterly ignorant of the given rules and proportions of architecture; though he contrives to make five or six hundred pounds a year by it as his profession...[52]

Four years later, the author of an article commenting on the Blue Coat Hospital plans currently being exhibited in Dublin, allowed resentment and scorn to colour his account of 'our French architect' who 'was possessed of as much solid sense, perhaps, as Mr. O__r [Omer], yet he never could bring any thing to perfection'. Referring to 'his insipid, uncouth taste', and accusing him of ignorance 'of the common rules and proportions of architecture', the criticism seems also to be based on a dislike of his style. The article concluded gloatingly that he had 'quitted the profession he had no sort of claim to'.[53]

This reveals another bias of the journal at a period when the practice of architecture was changing. Previously, architecture as a separate profession practised by talented and knowledgeable individuals had barely existed. There were few architects, fewer still who had travelled, and those who made a name for themselves had usually had government posts which required engineering as well as architectural skills: Pearce had been Surveyor-General to the Ordnance Department, which later became the Barrack Board. Now, with the growing popularity of the Grand Tour, and with architectural competitions, a larger pool of architects with a classical education was being created in Ireland, and they were being given the opportunity to consider the design of large public buildings. Many of these were amateur gentlemen architects, but some, like Chambers or Gandon, were professionals who made their names as stylists. The *Freeman's Journal*, the champion of Protestant Ascendancy patriotism, also expressed support for aesthetic standards. Ducart, as much an engineer as an architect, and an architect of conservative taste, was disregarded and misrepresented as an incompetent. He himself seems not to have discriminated in favour of either of his skills, content to draw on the aesthetics and

mechanics learned in Italy, apparently unconcerned by fashion, interested in status insofar as it was the wealthy who were his potential clients, but looking only to make a living for himself. That apostle of improvement, Arthur Young, would have understood Ducart's practical attitude, and, meeting him in the North, seems to have taken to him, describing him as 'Mr. Dularte, an Italian engineer and very ingenious architect', and sympathetically recording his lack of official support 'which he thinks necessary to any thing effectual'.[54]

Thus, in the 1760s, when Ducart was making a name for himself as an architect, he was also designing a bridge over the River Foyle for the Earl Bishop of Derry,[55] and was involved in the Tyrone canal project. His success in finding work (though not always resulting in successful projects) [56] conspicuously contrasted with Colles's failure, and may be attributed to his ambition. This is evident in his mobility – living in Dublin by 1767, he was established in College Green by 1769, and he bought property in Drumlea, Co Tyrone – and in his contacts; not only did he attract influential clients, but he was a consultant to the Irish parliament. He also presented an efficient image, revealed in his report to the Irish House of Commons on the Tyrone canal, published in the Irish parliamentary journal in November 1767. This is evident when his statement is read in conjunction with that made by James Fetherston, against whom Ducart was arguing. Ducart writes directly and logically, extracting five points from Fetherston's more ambling account, and countering Fetherston's arguments – which often rely on 'it is as certain', 'it is self-evident', and are interspersed with 'faith' and 'now Sir' – with accounts of his own measurements and observations, mechanical examples, and carefully worked-out alternatives.

Much of Ducart's engineering work in the North was centred on the northern and eastern extension of the Coalisland Canal, known as Ducart's Canal. This was part of a much larger project, originally proposed by Thomas Prior in 1727, to bring Irish coal from the Co Tyrone collieries at Drumglass and Dungannon to Dublin by water – navigable river and canal to Lough Neagh and then to Newry, and sea to Dublin.[57] The Newry navigation, which Ducart was also involved in, was started in 1731 and opened in 1742. The Co Tyrone navigation was much more problematical. The engineer, Thomas Omer, started work on the extension of the Coalisland Canal in 1761, handing the project over to the British architect, Christopher Myers, in June 1762. The design had not been finalised, and Myers was asked to make a proposal. Ducart was asked for a second opinion, and his scheme, involving tunnels and costed at £14,457, seems to have been adopted: the 27 June to 1 July issue of *Finn's Leinster Journal* invited excavators, stone masons and bricklayers to apply to Ducart in connection with canal works in Co Tyrone and on the River Boyne. By November 1767, Ducart had spent £3,839. However, in 1767 he submitted another proposal to the Irish parliament, the one published in the November issue of the

Irish parliamentary journal, in which he offered to solve the problem of constructing canals in hilly areas by drawing on his memories of the Alpine canals. He argued for the construction of aqueducts instead of building locks. He also proposed taking the coals from upper to lower levels by inclined planes – called dry hurries – which would be the first canal structures of their kind to be built in the British Isles. This is probably the scheme costed at £26,802, which was now adopted and which he ran. Although Ducart's canal was completed by 1773, when Arthur Young visited the region, the inclined planes were not finished (they were completed in 1777), having run into mechanical difficulties, and the stretch south of Coalisland would not be finished until 1787. Young memorably described the frustrations of the scheme:

> ...what with the impositions of the people employed, the loss of some that were able and honest, the ignorance of others, and the jobbing spirit of some proprietors, Parliament, after granting enormous sums, both to the canal and collieries, had the mortification, instead of seeing coals come to Dublin, nothing but gold sent from Dublin...[58]

In a 1787 report, Ducart's canal was designated a failure – it was short of water and the hurries were inoperable. But Ducart's aqueduct at Newmills, executed in 1768, was drawn by Thomas Penrose, inspector on the Tyrone navigation, and exhibited at the Society of Artists in Ireland in 1773. With its precisely cut stone blocks, important both from an engineering and aesthetic point of view, its low arches, and its simple architectural details – cornice, and the roundels and panels found on Limerick custom house – it is now a good example of engineering construction in the period.[59]

There is a mid-nineteenth-century engraving of Custom House Quay, Limerick, which shows the custom house in its heyday – the calm, welcoming point of entry to Limerick, set amid ships' rigging, gaunt warehouses and the parade of horses, people and cargo on the quay. Here is architecture presented as the rational centre of a chaotic world. By 1858, the port, with its state-of-the-art docks, had opened downstream, and the custom house was left – an office in a decaying area of the city, attracting graffiti, acquiring an obscuring balcony, generally ignored. It is only in the last ten years, with economic recovery, that this area, along with others, has been revived, and the custom house renovated and transformed into the Hunt Museum.

As the harbinger of revival, the building resumed its original role, for initially it presaged and indirectly promoted growth, constructed as it was at the northern extremity of Newtown Pery. And in a city where the public buildings – the exchange, courthouse, gaol, House of Industry – were simple cut-stone buildings, designed with approximate classicism without architects, the custom house, with its finely carved Corinthian pilasters and arcades, stood out. Nationally, too, it was exemplary at the time, for outside Dublin, architects were rarely employed for pub-

lic buildings in the mid-eighteenth century. But the building can, as this study of those involved in its design and construction suggests, also be appreciated from other perspectives. Its architect, although the designer of some beautiful and important country houses, had old fashioned tastes; the custom house was not, as Gandon's Dublin custom house would be, in the vanguard of style. And, as a foreigner and an engineer, Ducart was not well thought of in sophisticated metropolitan circles. He never acquired the government posts that ensured the architectural careers, although modest, of men like Myers and Penrose.[60] Colles, too, failed to sustain himself as an architect and an engineer. His experience reflects further on the nature of late-eighteenth-century Limerick, where the architect-engineer was not needed. It would not be until the mid-nineteenth century, when Limerick's bridges were redesigned and the First Fruit churches built, that Limerick would sustain a resident architect. The custom house was essentially a unique event in the city for many years. But its display of craftsmanship and artistry in a place with a long history of stone construction, and which would acquire finely worked Georgian detailing, was not unprecedented or unique. And, as the final repository of the artefacts collected by John and Gertrude Hunt, this stands out as perhaps the most enduring theme.

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The subject of this essay was suggested to me by the Knight of Glin, who, while writing the introduction to the 1993 Hunt Museum catalogue, *Fifty Treasures from the Hunt Museum*, became interested in Christopher Colles and researched his life and work. He made available to me the resulting material, and discussed the work of the custom house architects. I would like to thank the Hunt Museum for commissioning the article and for giving me permission to publish it here. I would also like to acknowledge Richard Colles Johnson of the Newberry Library, Chicago, who made the Colles archive available for research; the architectural historian, Kenneth Severens, for generously sharing information taken from contemporary newspapers and for his comments on a preliminary draft; David Griffin of the Architectural Archive; and Dr Ted Nevill of UCC.

ENDNOTES

1 This culminated in the act of 1763 (3 Geo II C21).

2 John Ferrar, *History of Limerick*, 2nd ed. (1787). Ferrar's 1769 directory lists the custom house personnel, which included the Collector, Caleb Powell, surveyors, tide-waiters, land carriage officers, riding surveyors, coast officers and boatmen.

3 John's Square has been attributed to Bindon on stylistic grounds by the Knight of Glin, and Pery is the most likely agent for Ducart's appearance in Limerick.

[4] T.W. Moody and W.E. Vaughan (eds), *New History of Ireland* (Oxford 1986) iv, chapter vii.

[5] J.C.J. Murphy, 'The Kilkenny Marble Works', *Old Kilkenny Review*, no. 11, 1948, 14-19.

[6] Rothe, quoted in W.G. Neely, *Kilkenny, An Urban History, 1391-1843* (Belfast 1989) 69. Neely often draws on William Tighe, *Statistical Observation relative to the County of Kilkenny* (Dublin 1802) for information about William Colles. G. Boate, *A Natural History of Ireland* (Dublin 1726). Ted Nevill has identified the quarry Boate described as that leased by William Colles and known as the Commons Quarry, today disused (private communication).

[7] See Terence de Vere White, *The Story of the Royal Dublin Society* (Tralee 1955) 15.

[8] H.F. Berry, *A History of The Royal Dublin Society* (1915) 19-20. Barry noted that the Society approved both the enterprise and success, and expressed an interest in encouraging the Irish marble industry.

[9] Advertisement for Kilkenny marble warehouse in *Faulkner's Dublin Journal*, 23 November 1734 (courtesy David Griffin). Reference to chimney pieces sent to Limerick in letter from Christopher Colles to William Colles, 15 November, 1770, is in the Newberry Library, Chicago. See Prim MSS, NLI for: letter quoting export prices for chimneys to Bristol in a letter to Thomas Pattye, 1 May 1742; letter about his inventions to Rev John Perry, 15 November 1743; letter about Dublin and Cork pipes to Mr Kevane, 12 December 1764 (there is a note on Irene Calvert's transcription (possession of The Knight of Glin) of the manuscript to say that the agreement does not seem to have been carried out); letters relating to St Canice's Cathedral 29 January 1742-3 and 12 March 1763; letter to Thomas Eyre about the barracks 18 October 1755 and15 January 1756; letter to Christopher Colles about the flood, 5 October 1763. See John Prim, *Journal of the Royal Society of Antiquarians of Ireland*, 4, 1856-7, for discussion of his involvement in building Woodstock and Bessborough, designed by Francis Bindon. See P. O'Keefe and T. Simington, *Irish Stone Bridges* (Dublin 1991) 236-7, for John's Bridge, designed by the engineer George Smith, and Green Bridge. See J. Hogan, 'The Three Tholsels of Kilkenny', *Journal of the Royal Society of Antiquaries* (*JRSAI*) 15 (1879-82) for the tholsel, and K. Lanigan and G. Tyler (eds), *Kilkenny: Its Architecture and History* (1977) for Kilkenny town houses. They also suggest that he was the contractor for the remodelling of St Mary's Church of Ireland Church.

[10] W.A. McCutcheon, *The Canals of the North of Ireland* (London 1965) 65-7.

[11] Neely, *Kilkenny*, 192-4. Colles was paid £1200, but his work was unfinished. Other contractors worked the bed to Inistioge.

[12] Conditions in Kilkenny were unfavourable for linen manufacture; the fertile soil was too good for flax, and the local gentry tended to restrict their ambitions to politics. This did not prevent Colles from pursuing the project in all its stages: in 1751 he won a Dublin Society premium for the greatest quantity of flax grown in that year; in 1754 he won a further premium for the greatest quantity of flax scutched, hackled and sold; he invented a water-driven machine to process flax, and he established a factory employing forty people. In 1745 he had entered into partnership with the Kilkenny Linen Company in which he was conspicuously active in finding a Dublin market for Kilkenny linen: Neely, *Kilkenny*, 181-4.

[13] Neely, *Kilkenny*, 210.

[14] See Prim MSS, NLI for letter referring to the Charter School, 15 November 1743, and the awarding of premiums for linen handkerchiefs, 'Stuff', serge, 'druggett', 'rug' and worsted on 12 December 1743 by the Kilkenny Society. For Colles's harp, see Murphy, 'The Kilkenny Marble Works'.

[15] See letters from Colles, an archive collected by Richard Colles Johnson, annotated by Gerard Koeppel, and later referred to as Colles Johnson Archive. Colles Johnson Archive, letter to Colles' cousin, Billy, 18 April 1771 mentioning 'our old schoolmaster Richard Shackleton'. Son of Abraham Shackleton who founded the school in 1726, Richard took over when his father retired: Olive Goodbody, *Guide to Irish Quaker Records 1654-1860* (Dublin 1967) 122. Koeppel notes that he was sent in 1753.

[16] Christopher J. Colles, 'Ancestry of Christopher Colles in Ireland', *The Journal of The American Irish Historical Society*, xxix (1930-1), 67-71, records that Colles was recommended as Pay Clerk to the River Nore Navigation Board by his patron Dr Pococke. He also quotes a letter, dated November 1762, which refers to the bishop's assistance of Colles.

[17] See advertisements offering his services as an architect, hydraulic engineer, and surveyor in *The Pennsylvania Gazette*, 26 September 1771; as a teacher of 'different Branches of the Mathematics and Natural Philosophy' in T*he Pennsylvania Gazette*, 5 March 1772, and for a water-powered furnace for extracting iron ore in *The Pennsylvania Gazette*, 29 Sept. 1773.

[18] Frederick O'Dwyer, 'Making Connections in Georgian Ireland', *Bulletin of the Irish Georgian Society*, xxxviii (1996-7) 7-23. O'Dwyer also suggests that Colles may have designed Castle Blunden, Co Kilkenny, and Cuffesborough, Co Laois, both built of Kilkenny limestone and dated *c*.1770. However, letters from this period, when Christopher was living in Limerick, and in which he discusses his work situation with his cousin (see below in the text: Colles Johnson Archive) do not mention either of these houses, or Mount Juliet, also tentatively attributed to him. Millmount is illustrated in Maurice Craig, *Classic Irish Houses of the Middle Size* (London 1976) 129.

[19] *Pue's Occurrences*, 18-22 May 1762, one of a list of several newspaper references compiled by Kenneth Severens.

[20] November 1762, in Colles, 'Ancestry of Christopher Colles in Ireland'.

[21] Colles Johnson Archive, letter, 22 November, 1761. Cork Corporation, 28 October 1761, ordered payment of £25 'to Mr Davis Ducart, Engineer, for his trouble in taking the level of the river Lee and drawing several plans of waterworks to supply this City with water'. R. Caulfield (ed.), The Council Book of the Corporation of the City of Cork (1876) 752.

[22] Colles Johnson Archive, letter, 17 January 1767, William Colles to Christopher Colles.

[23] *ibid*.

[24] *ibid*., Colles Johnson Archive, letter, 25 January, 1767.

[25] Ferrar, *History of Limerick*.

[26] Colles Johnson Archive, letter, Christopher to Billy, 15 November 1770. James Browne subscribed £250 for Shannon Navigation. The curate of St John's was the Rev Edward Wright.

[27] In an advert for map subscriptions, 7 August 1769, he signed himself Director of Inland Navigation of the Shannon. See Colles, 'Ancestry of Christopher Colles in Ireland'.

[28] Colles Johnson Archive, letter, 10 September, 1770. See C. Murphy, 'The Limerick Navigation Company, 1697-1836', *North Munster Antiquarian Journal* (*NMAJ*) xxii (1980) 43-61; E. Rynne, *NMAJ*, x (1966-7) 221-2. The bridge was demolished in 1974 and the sheela-na-gig was incorporated into the new structure.

[29] The practice of employing 'two credible persons, who can read and write' to supervise engineering works, rather than relying on master masons, was officially recognised in the 1774 act on roads and bridges, O'Keefe and Simington, *Irish Stone Bridges*, 79; Brownrigg Report (1801), see Murphy, 'The Kilkenny Marble Works'.

[30] A comparison with William Eyres's 1752 map of Limerick indicates that Colles was not relying on predecessor's work; the castle, for example, is more accurate. In Judith Hill, *The Building of Limerick* (1991) 185, n.2, the patron of the map was erroneously cited as Earl Pery.

[31] *Pue's Occurrences*, 8-12 August 1769, visit dated 7 August (Kenneth Severens' list, see note 19 above).

[32] See leases listed in 1907 catalogue of the sale of the estate. The map is now in British Museum; there is a copy in Limerick Museum.

[33] Colles Johnson Archive, letter, December, 1770.

[34] Colles Johnson Archive, letter, 14 February, 1771. This referred to John Averill, Dean of Limerick, who was promoted to the bishopric in December 1770 and was consecrated on 6 January 1771. He died in September the same year when Colles was in America. Lenihan states that the Bishop's Palace on Henry Street, next to Pery's house (which appears on Colles's survey of 1769, published in Ferrar's 1787 edition, loc. cit.) was built by the Rev William Cecil Pery, Edmund Sexton's brother, who was bishop from 1784-94. Did he use Colles's design?

[35] C.J. Houston and W.J. Smyth, 'The Irish Diaspora: Emigration to the New World, 1720-1920', B.J. Graham & L.J. Proudfoot, *An Historical Geography of Ireland* (London 1993). Northern Catholics from urban communities also emigrated.

[36] One by John Wesley Jarvis (1816), now in possession of the New York Historical Society; one by James Frothingham (1809) in the Metropolitan Museum of Art, New York, mentioned in Kenneth L. Williamson, 'The South Hadley Canal' in Jill A. Hodnicki (ed.), *Locks, Stocks and Barrels: The South Hadley Canal at 200 Years* (Mount Holyoke College Art Museum, South Hadley, MA, 1996) 42.

[37] Quoted in Williamson, op. cit., 41-2.

[38] For Colles in America see David N. Doyle, *Ireland, Irishmen and Revolutionary America, 1760-1820* (1981); A. Johnson and D. Malone, *Dictionary of American Biography* (New York, 1930); 'An Outline History of New York's Water Supply', *Quarterly Bulletin of The New York Historical Society*, i, no. 3 (October 1917); W. Ristow (ed.), *A Survey of the Roads of the United States of America 1789 by Christopher Colles* (Cambridge 1961); Williamson, op. cit. The hydrometer is in the Henry Francis duPont Winterthur Museum, Philadelphia.

[39] *Irish Parliamentary Journal*, November 1767, reproduced in W.A. McCutcheon, *The Industrial Archaeology of Northern Ireland* (1980) 61. Ducart's name is also spelt Dukart (Irish parliamentary paper, *Finn's Leinster Journal*, 27 June 1767), Ducarte (*Proceedings of the Dublin Society*, 30 May 1771, who, on 18 March 1773, spell it Dukart).

[40] The committee was composed of mayor, sheriff, aldermen and members of the Court of D'Oly Hundred; see S. Petit, *This City of Cork* (Cork 1977) 68-81, for an account of the building of the mayoralty house taken from the Old Corporation Minute Book. John Morrison published his essay on the Cork mayoralty house in the *Dublin Magazine*, September 1764.

[41] It is also probable that Osborne, who also worked with Ducart on Castletown Cox, was recommended by the architect. See S. O'Reilly, 'Patrick Osborne, an Irish Stuccodore', *Irish Arts Review 1989-90*, vol. 6 (Dublin 1989), 119-27 for an assessment of Osborne.

[42] Kenneth Severens, 'A New Perspective on Georgian Building Practice: The Rebuilding of St Werburgh's Church, Dublin (1754-59)', *Bulletin of the Irish Georgian Society*, xxxv (1992-3) 3-16. Although, O'Dwyer, 'Making Connections in Georgian Ireland', argues that an architect

was fully involved.

43 Christine Casey, 'A List of Works Pertaining to Architecture, Building and Engineering Published in Ireland Between 1700 and 1780', *Bulletin of the Irish Georgian Society*, xxxv (1992-3) 25-37.

44 Brian de Breffny and Rosemary ffolliott, *The Houses of Ireland* (London 1992) 143.

45 D. Guinness, W.H. Ryan, *Irish Houses and Castles* (London 1971) 77.

46 The Knight of Glin, 'A Baroque Palladian in Ireland: The Architecture of Davis Duckart-I', *Country Life*, cxlii, 28 September 1967, 735-9, and 'The Last Palladian in Ireland: The Architecture of Davis Duckart-II', *Country Life*, cxlii (5 October 1967) 798-801, for an assessment of Ducart's architecture. Coole Abbey, Co Cork, is attributed to Ducart on stylistic grounds, and the arcaded wings, pavilions and rear L-shaped offices at Florence Court, Co Fermanagh. Ducart's will mentions two other Cork commissions, though they are undated: 'a difficult roof' for Richard Longfield at Castle Mary and the rebuilding of a house for a Mrs Wallis.

47 *Ibid*.

48 Clusters of columns, ovals and panels are features of the Synagogue at Cavaillon, Provence, S France (illustrated *The World of Interiors*, January 1998) of 1772-4, suggesting the possibility that Ducart may have been drawing on the architecture of his home region.

49 Guinness and Ryan, *Irish Houses and Castles*, 222.

50 The Knight of Glin, 'A Baroque Palladian in Ireland...'

51 Edward McParland, 'Eclecticism: The Provincial's Advantage', *Irish Arts Review, 1991-92*, vol. 8 (1991), 210-3.

52 *Freeman's Journal*, 13-16 May 1769 (Kenneth Severens' list, see note 19 above). In a letter to the Bishop of Derry (13 February, 1769) about the design of his bridge, Ducart wrote: 'I shall have no objection to their being perused or examin'd by people of Taste & Knowledge' (Peter Rankin, *Irish Building Ventures of the Earl Bishop of Derry 1730-1803* (Belfast 1972) 11), implying an awareness of alternative, authoritative opinion.

53 *Freeman's Journal*, 2-4 February, 1773 (Kenneth Severens' list, see note 19 above).

54 A.W. Hutton (ed.), *Arthur Young's Tour of Ireland (1776-9)* (London 1892) 126-7.

55 This was in 1769. See Rankin, *Irish Building Ventures of the Earl Bishop of Derry 1730-1803*, 11. It is possible that the design was based on the bridge at Schaffhausen in Switzerland, for the bishop had been looking for someone with a knowledge of that design. If this is true it suggests Ducart's continuing use of designs from the general region of his birth.

56 The bishop's bridge remained unbuilt; Ducart's designs for the Tyrone navigation were difficult to construct and failed mechanically.

57 McCutcheon, *The Canals of the North of Ireland*, 62-71.

58 Hutton (ed.), Arthur Young's Tour of Ireland.

59 See O'Dwyer, 'Making Connections in Georgian Ireland', 16. The aqueduct is illustrated in McCutcheon, *The Industrial Archaeology of Northern Ireland*.

60 Christopher Myers was appointed architect and inspector of civil buildings for the Barrack Board in 1767, Penrose succeeded Cooley in the same post in 1784 until his death in 1792.

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