
Two Norman Chamber Blocks: Hemingford Grey Manor (Huntingdonshire) and the School of Pythagoras (Cambridge)

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Hemingford Grey Manor House and the School of Pythagoras are two rare surviving examples of Norman domestic buildings. Stone-built and of two storeys, such buildings were once identified as first-floor halls, but in recent decades have generally been recognised as chamber blocks. Detailed investigation and analysis of each building has been undertaken to put forward a new reconstruction of its original form. The Manor House at Hemingford Grey is a classic rural Norman chamber block of c. 1150, set at the edge of the village on a moated site. With the relatively complete evidence of its first-floor plan, it provides a good example of a small chamber block, one of the earliest survivals in England. It would have been accompanied by a ground-floor hall, though no evidence survives. The School of Pythagoras, dated here to c. 1200–1220, is a larger and more complex building in an urban context, the subject of considerable previous research, including recent archaeological excavation. Although much altered, its main features can be reconstructed with reasonable confidence. The ground floor had a fine, vaulted undercroft, and external steps led up to a principal chamber, with an inner chamber beyond, both with fireplaces. A key finding of the recent archaeological work (by others) was that the building stood alongside the ‘Cambridge Watercourse’, at the centre of a busy mercantile zone. It is therefore suggested that the closer comparable buildings are Norman townhouses, rather than rural chamber blocks. Built for Hervey Dunning, a leading burgess and Cambridge’s first mayor, the School of Pythagoras may have been a self-contained chamber block, without the ground-floor hall needed by a manorial lord.

Introduction

Surviving domestic buildings from the Norman period are a considerable rarity across England. In Cambridgeshire and Huntingdonshire, two such buildings exist, both recognised many years ago. The Manor House in the village of Hemingford Grey (Fig. 1, Plate 5) is a small building on a moated site in a rural location, one mile south-west of St Ives. The School of Pythagoras (Fig. 2, Plate 6), sometimes called Merton Hall, is in contrast considerably larger and situated within the city of Cambridge, to the rear of St John’s College. Both are two-storey stone-built struc-

tures, identified as first-floor halls by Margaret Wood in her classic study of Norman domestic architecture (Wood 1935). Wood, together with all other scholars (e.g. Faulkner 1958) until the late twentieth century, conceived of such first-floor halls as the principal part of a complete residential unit. Instead of having a ground-floor hall, these buildings were understood as having the principal public room, the hall, placed at first-floor level, often accompanied by adjoining, more private chambers on the same upper floor.

This position was overturned in 1993 by John Blair in a seminal article (Blair 1993). Using a combination of documentary, archaeological and architectural evidence, Blair concluded that ‘the storeyed stone buildings usually called first-floor halls are in fact chamber-blocks which were once accompanied by detached ground-floor halls of the normal kind’ (Blair 1993, 2). Blair traced archival and literary references to define the two main components of any substantial residence:

one communal, public and official, used for activities such as the holding of courts and the eating of formal meals, and the other private and residential: in Latin *aula* and *camera* ..., in modern English *hall* and *chamber*.

Blair’s thesis was reinforced by Impey, whose research in Normandy identified five sites with surviving evidence for a ground-floor hall and an adjoining chamber block (Impey 1993 and 1999). Later, at Boothby Pagnell (Lincolnshire), one of the archetypal earlier examples of the ‘first-floor hall’, Impey and Harris (2002) found the probable foundations of a large, independent ground-floor hall, indicating that the surviving building was a chamber block.

It is now generally accepted, for rural manor house sites, that the Norman ‘first-floor halls’ identified by Wood are chamber blocks, with lost ground-floor halls (Wood 1935, 209). The pattern is also being identified of surviving ground-floor halls which have lost their free-standing chamber block, such as at Oakham Castle (Hill 2013; Morris 2019) and Leicester Castle (Blair 1993, 6–9; Hill 2019). It has, however, been recently argued that the category of first-floor halls should not be entirely dismissed, with fifteen prob-



Figure 1. Hemingford Grey Manor House from the north-west. See also Plate 5.



Figure 2. The School of Pythagoras: south side. See also Plate 6.

able examples identified on high-status sites, dating from the late eleventh to the early thirteenth century (Hill and Gardiner 2017).

The 'hall and chamber' model has not, however, been successfully transferred to an urban context. In his PhD thesis, Harris focussed specifically on early urban buildings, and suggested that Norman town-houses, stone-built and of two storeys set on the street frontage, generally had no ground-floor open hall to the rear (Harris 1994, 273–8). Stocker, drawing in particular on examples from Lincoln, proposed that the principal room in such houses was on the first floor, with its windows overlooking the street, and that the ground-floor open hall may have been an introduction of the thirteenth century (Stocker 2002). Harris also, however, identified a sub-category of 'urban manor-like houses', set within spacious plots, which he believed once had a two-storey chamber block and an independent ground-floor hall (Harris 1994, 11–26). He included the School of Pythagoras in this category. However others, such as Pearson, have argued that twelfth-century urban houses 'owe little to their rural counterparts' and that their early development followed a quite separate path (Pearson 2009, 1).

For chamber blocks themselves, little comparative analysis has yet been published, beyond the initial work by Blair (1993) and Impey (1993, 1999), and a brief discussion by Grenville (1997, 72–77). This study sets out to analyse the two buildings of Hemingford Grey Manor and the School of Pythagoras, with a detailed reconstruction of their original form. The first building fits quite readily into the accepted 'hall and chamber' pattern of early rural houses. The second raises more interesting questions, suggesting that despite various similarities the urban context resulted in a quite different model.

Hemingford Grey Manor House

The first published study of the Manor House at Hemingford Grey was included within the Royal Commission's volume of 1926 on Huntingdonshire (RCHME 1926, 135–6), with a plan of the first floor. Inskip Ladds examined the building and the Victoria County History of 1932 included a brief description (Page *et al.* 1932, 309). Unfortunately the outbreak of coronavirus has prevented inspection for this article of Inskip Ladds' detailed records at the Norris Museum, St Ives. Margaret Wood gave a very brief account of the building in 1935, with a slightly revised first-floor plan (Wood 1935). She added a few additional notes on the site in later published work (Wood 1965, 1967 and 1974, 8 and 34–5). Dickinson (1946) included a note on the house in his village history. Pevsner described the house as a first-floor hall in 1968, though the updated edition of 2014 noted it as a 'solar wing' (Pevsner 1968, 262; O'Brien and Pevsner 2014, 511–12). A guidebook was produced in 2018 by the owner, Diana Boston, which includes a history of the manor by Mary Carter and a very useful account of the major restoration works of 1939 (Carter and Boston 2018).

Historical Background

The manorial history of Hemingford Grey is set out in the Victoria County History, from which this summary is taken (Page *et al.* 1932, 309–11). By 1086, the overlord of Hemingford was Aubrey de Vere, whose descendants became Earls of Oxford. Aubrey de Vere's tenant in 1086 was Ralf son of Osmund, who also held lands in Hemingford Abbots. Ralf was succeeded by his son Payn de Hemingford, who was recorded as owing a knight's service in 1166, and probably died shortly afterwards. He was evidently resident in Hemingford and the construction of the existing manor house in the mid-twelfth century has generally been ascribed to him. It seems he was a man of some substance, as he endowed the Priory of St Melan at Hatfield Broad Oak (Essex) with tithes from Hemingford and Yelling (Hunts.) The manor passed to his son William and subsequently to William's daughter Nichola, who married William Ruffus, a servant to King Henry II. Their second daughter Alice married Ralph de Turberville, who died before 1238. Throughout this period, the owners appear to have remained resident, the manor for a time taking the name of Hemingford Turberville. The manor subsequently passed via the female line to the family of de Grey, from which came the name of Hemingford de Grey. Although the de Greys, as powerful nobles, would no longer have used the manor house as a major residence, some direct connection seems to have continued. Reginald de Grey (first lord Grey of Wilton, d.1308) is recorded as transacting business here, and in 1321, his son John de Grey procured 'a chaplain to celebrate divine service daily in his chapel in his manor of Hemmyngford for the souls of Matilda de Grey, his mother, and all the faithful departed' (Calendar of Patent Rolls, Edward II 1321–4, 14).

The later history can be summarised briefly, being of less relevance to the Norman house. Absentee owners and lessees continued into the seventeenth century. By 1635 the Newman family were in occupation. In 1721 the property was bought by James Mitchell, whose son William was sheriff of Cambridge and Huntingdon in 1737. Around this time, the house was re-fronted in brick and a large extension was added to the west, forming a grand Georgian mansion. The extension was demolished around 1798, perhaps after a fire. A major restoration of the house, which included the uncovering of some Norman fabric, was undertaken in 1939 by Lucy Boston, an author who wrote children's novels about the house.

The Norman Building

The house is attractively situated on the western side of the village of Hemingford Grey, next to the river Ouse and 300m upstream from the parish church (Fig. 3). Three sides of the moat remain, with the fourth side visible as an earthwork to the north of the house. The moated platform is approximately 85m east to west and 66m north to south (see Scheduled Monument entry). The house is located close to the

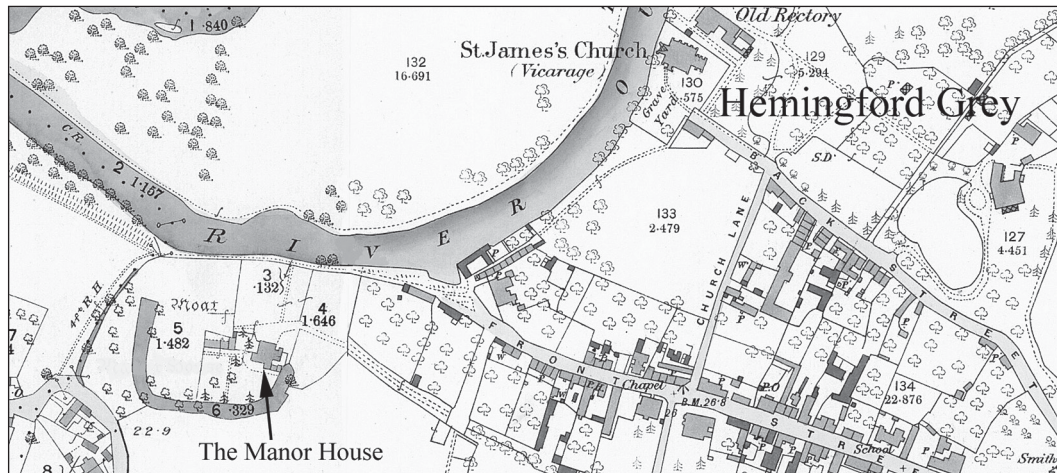


Figure 3. Hemingford Grey Manor House location plan (R. Ovens, based on 25-inch Ordnance Survey 1st Edition map of 1888, reproduced with the permission of the National Library of Scotland).

east side of the platform, leaving a spacious central area. There is no evidence of a causeway across the moat, so access was presumably via a bridge.

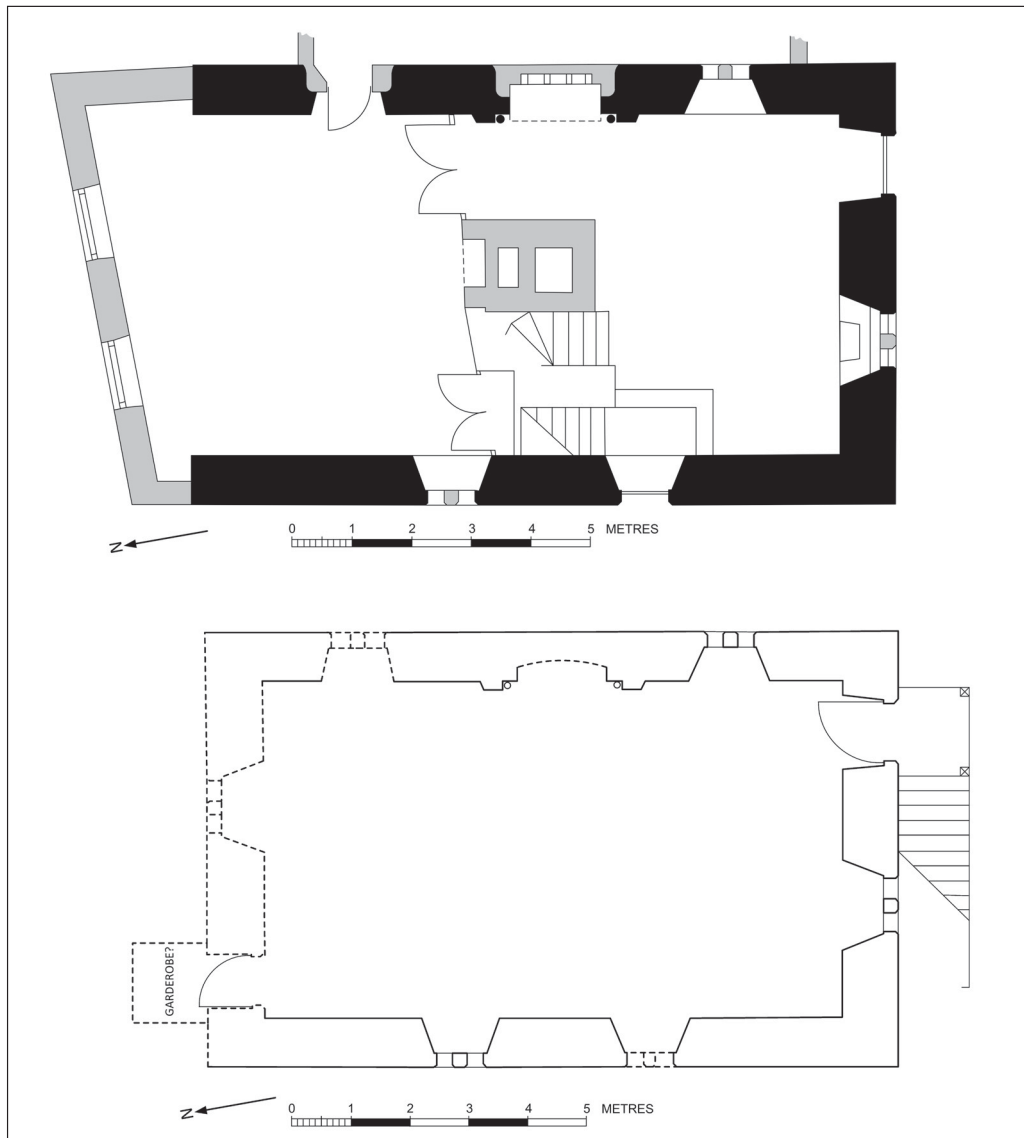
The Norman house formed a compact, rectangular block of two storeys, oriented north-south. It has thick stone walls with dressings of Barnack stone. The original walling stone is presumably of smaller rubble, but the walls are covered with plaster both externally and internally. Although the north gable wall has been lost, there are original quoins to full height at all four corners, and it is evident that the building was free-standing, not attached to another structure. The first floor survives in a relatively complete state, except for the loss of the north wall (Figs. 4 and 5). There was a single chamber, about 5.5m wide and 9.6m long, with an entry door at first-floor level in the south gable. There was a large lateral fireplace on the east wall, with original windows surviving in all three walls. In the late sixteenth or early seventeenth century a central chimneystack was inserted, creating a standard lobby-entrance plan form. The original lateral fireplace was replaced by an ovolo-moulded oak window, and the space divided into two rooms, with attic rooms above and a new clasped-purlin roof structure. The north wall was removed in the eighteenth century and a new brick façade was added, at an oddly skewed angle.

In the south gable wall (Fig. 6), the original first-floor entrance doorway is quite wide (970mm) and tall, with a round-arched head. There was presumably a timber external stair originally, though no evidence survives. Externally, the voussoirs and jambs are plain, with a small chamfer, though the render may conceal evidence for an original hood mould. Inside, the round rere arch is square-edged and there are heavy pintle hinges in the door rebate (Fig. 7). The south wall also has the best surviving window (Fig. 8). There are two round-arched lights, with a solid, semi-circular tympanum, all formed from a single, large piece of stone. The lights have a small chamfer, with knob stops where the arch meets the

central mullion. The head of each light had three rounded, projecting lobes, the side ones eroded here, but more complete to the south-east window. Wood thought this odd feature was 'probably to help keep the shutters in place' (Wood 1965, 346), but the lobes are clearly decorative rather than functional, as shutters would close against the flat face of the jambs and mullion (like the current, restored shutters). A hood mould runs around the tympanum, with chevron and pellets, though the decoration is rather crude and cut to an irregular pattern. The plain-chamfered mullion is (as elsewhere) a twentieth-century restoration, but the projecting, chamfered cill is original. Inside, the window-seat is also probably original, with a small, square seat cut into a heavy, chamfered cill.

Set near the centre of the east wall, the fireplace is the most impressive feature of the building (Fig. 9). It has a wide segmental arch and short, detached shafts to the jambs, with moulded bases and scalloped capitals. Unusually, the fireplace is projected forwards into the room, with splayed outer edges and a chamfered mantelpiece. The ashlar jambs of the hearth are square, but the fireback may well have taken the usual curved form of the period, which was lost when it was converted to a window around 1600. The arch (now restored) was also removed at this time, though the original springers remain to confirm its form. To the right of the fireplace, the window is similar to that in the south gable, except that its hood mould is simpler, with heavy, plain chamfering (Fig. 10). Its cill and lower jambs were removed when it was converted to a doorway, but it has now been restored. To the left of the fireplace, the current doorway has the splayed jambs of another original window, though the rere arch has been replaced with later jambs and a timber lintel.

There were two further windows of similar form in the west wall, set symmetrically towards the centre, opposite the fireplace. The northern window retains its round-arched head, though any evidence of a hood mould is covered by render. There are none



Top: *Figure 4. First floor plan as existing (after RCHME 1926).*

Above: *Figure 5. First floor plan reconstructed as original.*

of the projecting lobes to this window, though they could have been carefully dressed back. The southern window still has its internal rere arch and external jambs, but was converted into a doorway as part of the eighteenth-century alterations, and fitted with a re-used round-arched head.

On the ground floor (Fig. 11), only one certain original feature survives *in situ*, apart from the main walling. This is the rere arch and splayed jambs of a former window near the centre of the eastern wall. The strongly splayed reveals indicate that this would have been a narrow slit window, with an opening of 200mm or less. No doubt the ground floor was originally lit by further windows of this type, as found in the undercrofts of other chamber blocks. The fairly narrow splayed window in the south gable may represent the original opening, though it has an oak

lintel rather than the original rere arch. The splayed stone jambs to several other openings may be re-set from original window reveals. More clearly re-set is a round-arched doorway which has been inserted into the outer face of the original arched slit window (Fig. 12). This doorway is quite low and narrow, the opening only 690mm wide and 1420mm to the arch springing. It has a plain, wide chamfer to the heavily worn outer face, with a rebate for the door. Wood (1967) thought the doorway was part of a thirteenth-century extension, but the round-arched head and crude straight joints to either side indicate it is of twelfth-century date, roughly re-used here at a later date. The final feature to note is the head of another twelfth-century window of two, round-arched lights, now placed on the floor of the current entrance hall, though in 1926 outside in the garden (RCHME 1926).



Left: *Figure 6.* The south gable.
Below: *Figure 7.* First floor, looking south-east.
Above: *Figure 8.* The window in the south gable.





Figure 9. The first-floor fireplace.



Figure 10. Original exterior face of the first-floor window in the east wall.

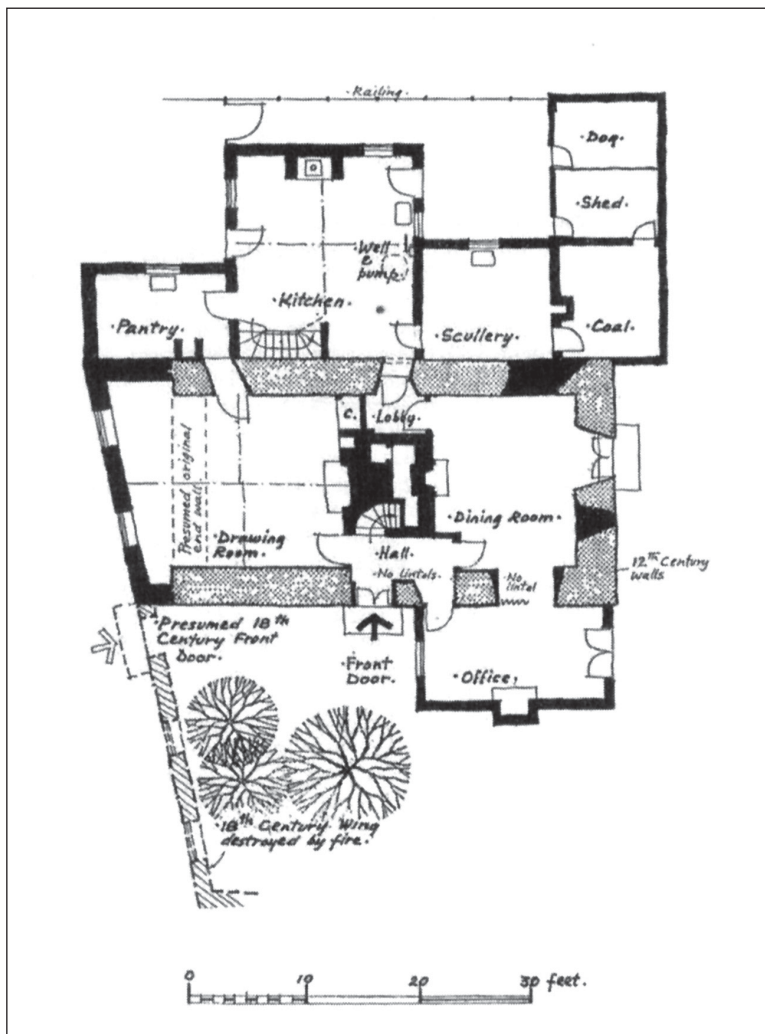


Figure 11. Plan of the ground floor in 1938, before alterations (Peter Boston).



Figure 12. Twelfth-century doorway re-set in the ground floor east wall.

The window was clearly of similar form to the others, but slightly different, the double arch and round-top tympanum formed of two stones, rather than a single piece, and with a rebate for shutters on the inner face.

Discussion

With the relatively complete evidence of its first-floor plan, Hemingford Grey Manor provides a good example of a small chamber block, one of the earliest survivals in England. The building form, with all four corners intact, indicates that it was a freestanding block. The central location of the fireplace proves that there was only a single chamber, with no subdivision. The first-floor entrance door was in the south gable, rather than the side wall, a location noted as unusual in several previous accounts (Wood 1935; Grenville 1997, 74–5; O'Brien and Pevsner 2014). It is well-established that entrance doorways are generally located towards one end of a lateral wall in early ground-floor and first-floor halls (Wood 1935; Hill and Gardiner 2017). For rural, free-standing chamber blocks, it is difficult to judge how exceptional Hemingford Grey may have been, as there are so few comparable buildings that retain clear surviving evidence. The archetypal example at Boothby Pagnell,

Lincolnshire (Impey and Harris, 2002) has its first-floor entrance near one end of the side wall, as does the chamber block at Hatfield Manor, South Yorkshire (Birch and Ryder 1988).

Three *ex-situ* features require discussion. First is the small doorway, re-set in the east wall of the ground floor (see Fig. 12). Wood (1967) says:

A 13th-century wing making an L-plan with it on the east is now represented by a doorway (a 12th-century window enlarged) and by foundations extending almost to the moat, replaced by 16th-century and later extensions on this side. Here was probably the chapel mentioned in a document of 1321.

Dickinson (1946) also notes these foundations, discovered during the works of 1939, which lay to the north and east of the current, more recent extension to the north-east. These foundations may well relate to the chapel noted in 1321, which could have been added in this location in the thirteenth or early fourteenth century. However, as described above, the doorway is evidently original twelfth-century fabric roughly inserted, not an integrated piece of thirteenth-century work.

A more likely original function for a narrow, low

doorway would have been to serve a garderobe. A possible location is shown on the reconstructed first-floor plan, in the north gable wall (though a location near the moat would have been more convenient for drainage). The doorway would have been removed in the early eighteenth century when the north gable was demolished, and subsequently re-used to connect to the minor service rooms on the east side. The *ex-situ* round-arched head of an original window was also probably removed from the north gable at this time, or from the opening in the west wall, now altered to a doorway to connect to the eighteenth-century extension. The round-arched head of this doorway may well have formed the original ground floor doorway, perhaps also from the north gable.

The date accorded to the original building by the Royal Commission (1926) was mid-twelfth century, and Wood (1935) gave it as *c.* 1150. The architectural details are generally plain and any decorative detail, such as the chevron of the hood mould over the entrance door or the capitals of the fireplace jamb shafts, are rather chunky and unsophisticated. The fireplace does not have a projecting hood, a feature that appeared towards the end of the twelfth century, as Wood states (1965, 261–2). A date of *c.* 1150 thus seems reasonable, with the builder as Payn de Hemingford. Two other chamber blocks, Portslade Manor House (Sussex) and Saltford Manor House (Somerset), were dated by Wood (1965, 32) to *c.* 1150. Both had two-light chamber windows with more sophisticated mouldings, though other details and the plan form are unclear (Packham 1934 and Martin 1993; Penoyre 2005, 92–93).

The form and compact nature of the surviving building confirm it as a chamber block, so there would originally have been a separate ground-floor hall, larger than the chamber block and perhaps timber-framed. The spacious moated platform, presumably contemporary with the chamber block rather than later, allows a generous space for the other buildings that would have been necessary: a kitchen, stables, other service buildings, perhaps even some of the manorial farm buildings. The main approach to the site (apart from river transport on the Ouse) would have been from the north-east, with a principal axis towards the village church. A bridge at the centre of the lost northern arm of the moat may have led directly towards the entrance door to the hall, with the chamber block set more discreetly to its east. The chamber block is very much squeezed into the east side of the moated platform. A doorway would have led out of the ‘high’ end of the hall towards the stair access to the chamber. If the hall was located towards the south, it would help explain why the chamber block stair and entrance are on the south gable, rather than the west side.

The School of Pythagoras

The School of Pythagoras has been the subject of much more historical attention and research than

Hemingford Grey Manor. Engravings were made of it for the Buck brothers in 1730, for Richard West in 1739, and by Sparrow in 1777 (see below), though it was noted only briefly by Turner and Parker (1851, 53). A very detailed study of the history of the building has been undertaken (Gray 1932). Wood (1935, 178) gave only a brief account of the building, but a full description and analysis, together with survey plans, were produced by the Royal Commission (RCHME 1959, 377–9). Another detailed analysis of the building was published in 1968, together with very useful details of the restoration works and internal excavations of that time (Graham-Campbell 1968). Harris included a discussion of the original form of the building in his PhD thesis, with reconstructed floor plans (Harris 1994). The most recent study is a detailed report on archaeological excavations around the building and inside the north wing, together with a new analysis setting the site within its urban context (Newman 2013). Despite this extensive research, fundamental questions still remain about the building.

Historical Background

The ownership of the property was traced by Gray (1932). The Dunning family were established as landowners in Cambridge by the mid-twelfth century. The builder of the School of Pythagoras was probably Hervey Dunning, who died around 1240, leaving his son Eustace as heir. In later deeds the property is referred to as ‘the stone house in which Eustace ... formerly dwelt’ (Gray 1932, 37). Hervey inherited extensive lands around Cambridge from both his father and his uncle and claimed knightly rank, producing a seal showing a mounted knight. The earliest reference to Hervey Dunning is in a suit over land rental in 1195/6 (Gray 1932, 41). Over the next decade, Hervey was regularly in court pursuing claims to land and his disputed inheritance, which in two cases even led him to demand settlement by wager of battle (Gray 1932, 3). Hervey was evidently one of the leading burgesses of the town, serving as both alderman at the head of the Gild Merchant and as Mayor, though the documents which record him in these roles, as a witness, are undated (Roach 1959, 38). The Gild Merchant was established in 1201 by a charter of King John, and a second charter of 1207 established the post of *prepositus*, often seen as the emergent Mayor. Hervey was also a liberal benefactor to the nunnery of St Radegund, where his sister was a nun. It is interesting to note that, unlike Hemingford Grey, Hervey’s property although very extensive was not the centre of a manorial estate. No courts were held at ‘the stone house’ until after 1270, when it was taken over by Merton College.

Hervey’s son Eustace fell into debt after 1257 and the property became heavily mortgaged. Although his son Richard Dunning continued to live in ‘the stone house’ he was eventually forced to sell the property to Walter de Merton in 1271 (Gray 1932, 8). With other lands around Cambridge, the property was now managed by bailiffs on behalf of Merton

College, Oxford. It was often leased out, and the warden does not even seem to have stayed overnight in the building (now known as Merton Hall) on his annual 'progress' around the college estates (Gray 1932, 26). Nevertheless, in 1375 an extensive programme of repairs was carried out, costing over £30 (Gray 1932, 52). The contract with two masons, Adam Mathie and John Meppushal, stated that the whole west wall and eighteen feet of the south wall were to be rebuilt, together with the broken vault (*volta*). Four buttresses were to be built, and the door (*hostium*) under the vault was to be rebuilt, together with the steps leading up to the hall (*aula*).

Despite these repairs, neglect of the building recurred, with the roof of the *aula* in a bad state of decay by 1504 (Gray 1932, 29). A major timber-framed extension was built to the north in 1517 (Arnold *et al.* 2010). The curious name of the School of Pythagoras first arose in the late sixteenth century, a mythological attribution probably based on the building's ancient appearance and early connection with Merton College. By the late eighteenth century the stone building was in use as a cider store. The columns and vaulting recorded by West in 1739 were removed around 1800. The building was eventually repaired for domestic use in the early twentieth century (Gray 1932, 30). St John's College purchased the property from Merton College in 1959 and it was converted for use as a theatre in 1968. Further works were carried out in 2012–14, when the building became the Archive Centre for the College.

The Norman Building

The original building forms a substantial rectangular block of two storeys, oriented south-west to north-east, but simplified here (as in previous accounts) as west-east (Figs. 13–17). A small two-storey wing

projects from the north-west corner. Despite the rebuilding of the west end in 1375, with its four new buttresses, and the later loss of the first-floor vault, the form of the Norman building remains fairly clear. The main block had an undercroft of six vaulted bays probably lit only by slit windows, with the principal accommodation on the first floor, where two fine two-light windows survive. The exterior had a chamfered plinth (now partly below ground) and regular pilaster buttresses along the north and south walls, rising only to first-floor level, with a moulded string course above. The original corner buttresses survive at the east end, of full height and two stages, with replacements of 1375 at the west end. The original exterior dressings are principally of Barnack stone, but softer local clunch has been used inside and for the two first-floor windows, now heavily eroded. The ground floor generally has walling stone of small, irregular limestone rubble, with clunch rubble above. The roof structure, now hipped, is a later replacement.

On the ground floor, the lost vaulting is shown most clearly by the West engraving of 1739 (Fig. 18), but fragments were exposed in the excavation of 1967 (Graham-Campbell 1968; Newman 2013) and various details remain visible. A row of five circular columns, on quite tall, moulded circular bases, supported the quadripartite vaulting, with plain ribs. Along the walls, the ribs were supported on flat, chamfered pilasters with chamfered bases. Two round attached shafts survive in the north-east and south-east corners with eroded moulded bases and chamfered three-sided abaci (Fig. 19). These surviving shafts and abaci allow a cross-section to be reconstructed (Fig. 20), which indicates that the vaulting was indeed round-arched, as in the West engraving. The original floor level was around 300mm lower than the current one (Newman 2013, 27), so the undercroft had quite good headroom. The remains of one capital, with part of a

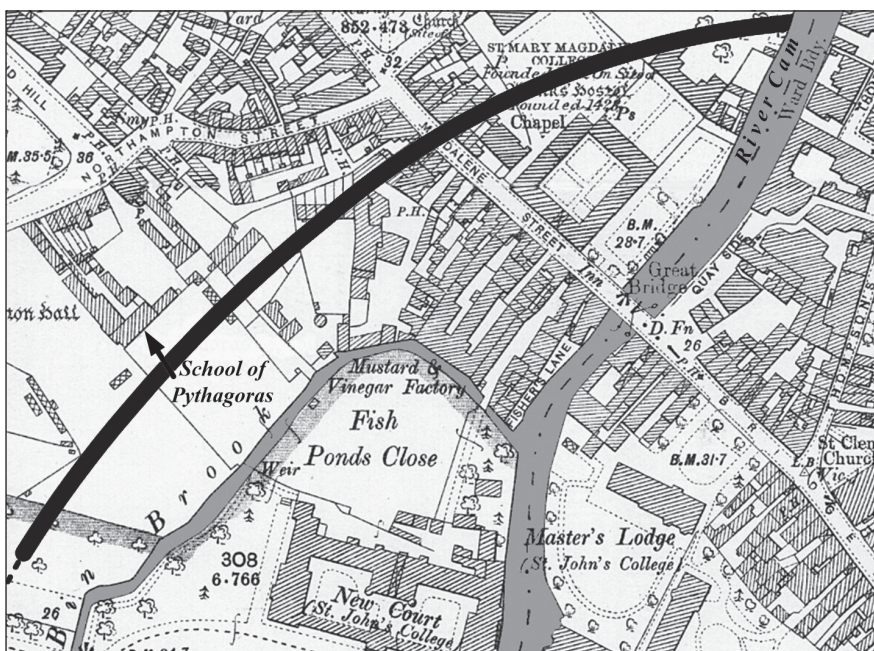
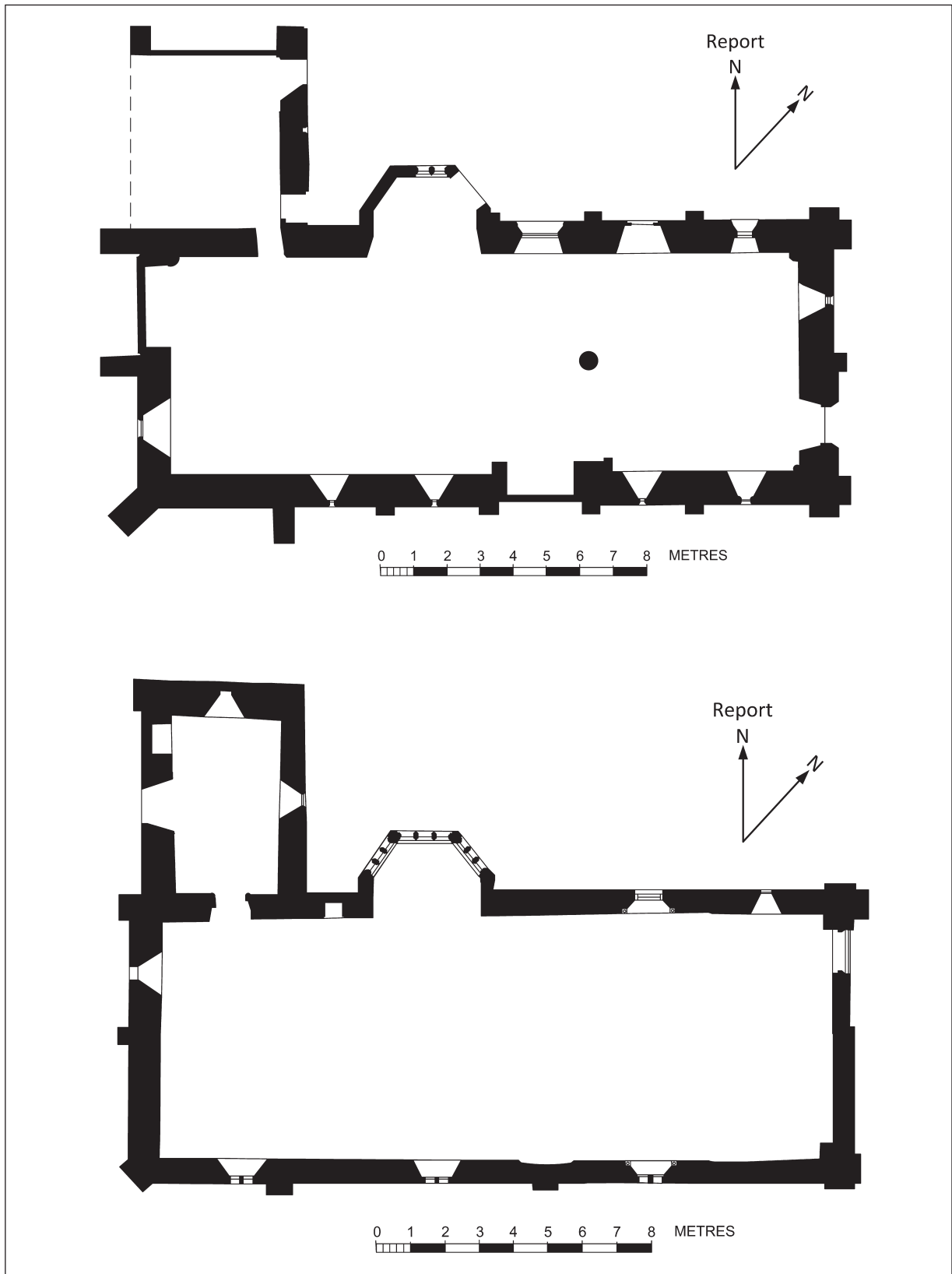
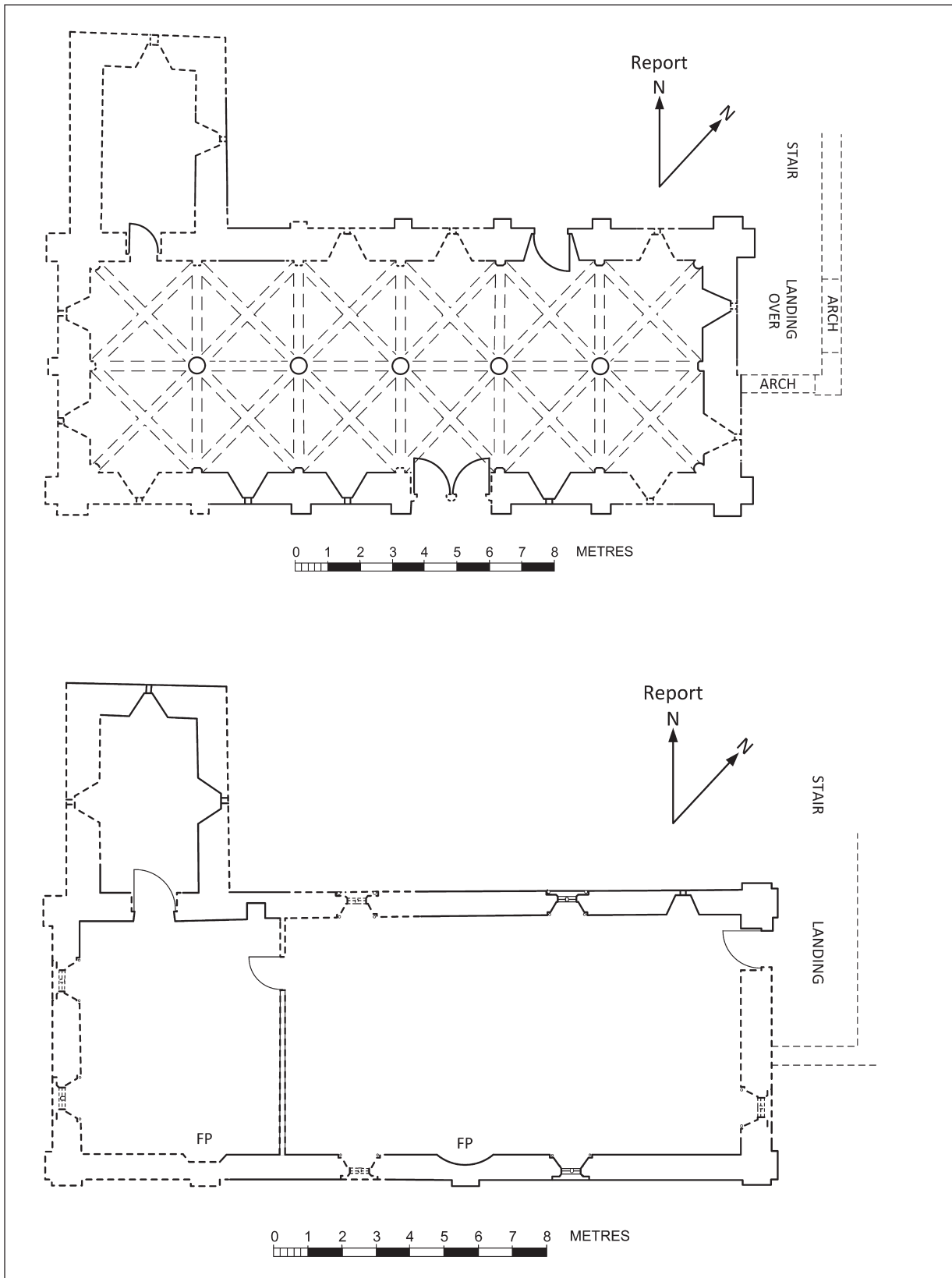


Figure 13. School of Pythagoras location plan (R. Ovens, based on 25-inch Ordnance Survey 2nd Edition map of 1903, reproduced with the permission of the National Library of Scotland). The 'Cambridge Watercourse', as identified by Newman (2013), is shown as a solid black line.



Top: Figure 14. Ground floor plan as existing (after RCHME 1959).

Above: Figure 15. First floor plan as existing (after RCHME 1959).



Top: **Figure 16.** Ground floor plan reconstructed as original.

Above: **Figure 17.** First floor plan reconstructed as original.

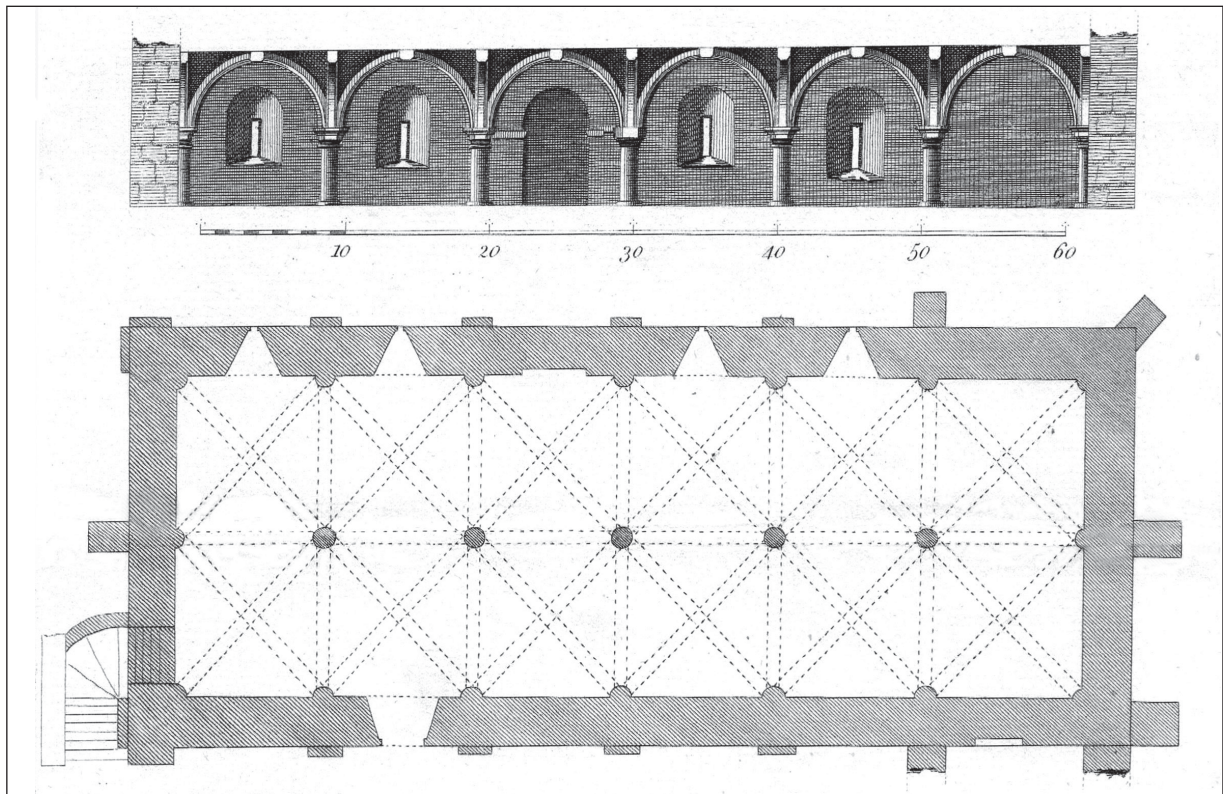


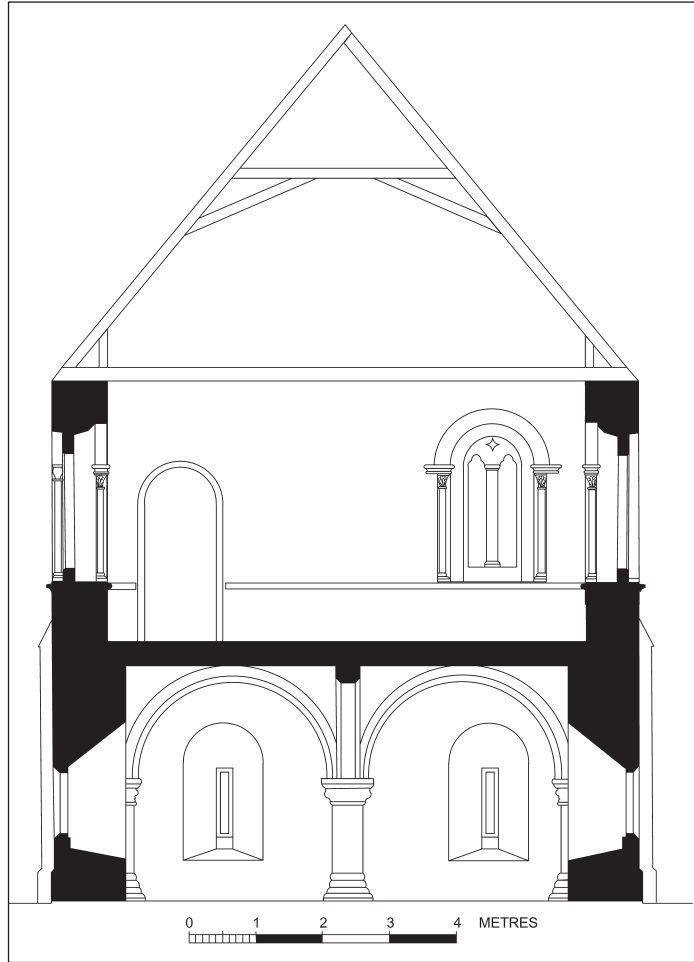
Figure 18. Richard West's plan and section of 1739, with the undercroft vaulting (Kilner, © Society of Antiquaries of London).

cavetto moulding, suggest that the capitals were of circular-moulded or stiff-leaf form. The capitals of the main columns were described in the late eighteenth century as 'of the plain style of the unornamented sort' (Gray 1932, 30), and were compared with other examples of early scalloped or cushion capitals, but the mouldings may have already been eroded. Of the four slit windows shown by West in the south wall, the two central ones survive intact and a third retains most of its original jambs, though the rere arch has been rebuilt. There were probably further slit windows at either end, but no evidence survives here. In the east gable, the round rere arch and one jamb of a slit window remain, and there was probably another to the south, until the insertion of the current large late medieval doorway. The north wall (Fig. 21) probably also had slit windows, but these openings have all been re-worked. The second bay from the east end had an original entrance doorway, with a segmental rere arch of clunch, splayed reveals and a rebated segmental outer arch of Barnack. The west end was rebuilt, with larger buttresses in 1375 (Fig. 22).

The first floor forms an impressive space, originally around 19m long and 7m wide. The original floor level was reinstated in 1968 (Graham-Campbell 1968, 251). The best surviving original features, despite severe erosion, are the two windows in the north and south walls (Figs. 23 and 25). Both windows are of the same size with two lights and simi-

lar details, except that the north window was rather grander, having an outer order with shafts and stiff-leaf capitals. The lights were described as trefoiled in the 1950s (Pevsner, 1954; RCHME 1959), but only faint traces now remain to the north window. The trefoil cusps were evidently quite shallow, with the arch head tall and rather rounded, rather than fully pointed. The round tympanum is pierced by a lozenge with four curved sides. The jambs and arches are chamfered, but the north window retains at its head an eroded decorative feature with crossed ribs, rather like a single dog-tooth moulding – an unusual design, not noted in previous accounts (Fig. 24). The south window preserves its original mullion, a single piece of Barnack stone with three lobes and a flat back. Its moulded base, capital and abacus of clunch are heavily eroded. Inside, the windows have round rere arches with rebates for shutters and splayed, shafted jambs (Fig. 26). Although the shafts have been replaced, evidence survives of fine stiff-leaf capitals with an unusual cavetto-moulded impost block (Fig. 27). The stiff-leaf carving is of early form, with short stalks and open, fleshy trefoil leaves, spreading in one instance onto the adjoining jamb.

The other first-floor windows are of 1375 or later, except for a small, single-light window to the north-east with a plain-chamfered, pointed head, which is probably original. The south wall has the remains of a fireplace, set a little to the east rather than centrally,



Above left: **Figure 19.** Shaft and capital in the south-east corner of the ground floor.

Above right: **Figure 20.** Cross-section reconstructed as original, looking east.

with a shallow, curved back and cut-back corbels from a former projecting hood. The fireplace opening would have been 1.6m wide and around 1.7m high, an unusually tall proportion. The original chimneystack has an external projection at first floor level, carried on plain square corbels. Importantly, evidence also survives for a second fireplace, further to the west. Only the lower part of the east jamb, angled here rather than curved, survived the rebuilding of 1375, but interpretation as a fireplace seems fairly secure. Another feature indicating the quality of the interior is a moulded dado string course which ran around all three original walls at window-cill level. It has mainly been hacked back, but its bullnose and cavetto profile survives intact in the north-east corner. A cupboard recess with rebate for a door, set towards the west in the north wall, is well-integrated with this string course and other surrounding masonry, so is probably original. Like the similar feature to the ground floor of Boothby Pagnell, there is no evidence that hinges were ever fitted, so it may have been an open niche rather than a cupboard with doors.

The first floor has a former entrance doorway in the north-east corner, with an external staircase indi-

cated here on the West engraving. The masonry of the doorway has been much altered and renewed, and Harris thought it a later insertion. However, despite much later alteration, close analysis of the east gable wall does indicate that it was built with a first-floor doorway and external staircase from the beginning. Just north of the ground floor doorway there is evidence for a wall projecting eastwards from the main gable (Figs. 28 and 29). An impost block with cavetto and bead moulding supports the projecting voussoir of a lost arch. The shallow radius indicates that the arch, presuming it was round, had a wide span of 2m to 2.5m. The ashlar facings of the reveal of the arch remain below the impost block, and there is a straight joint above with keyed ashlar quoins. This indicates that the projecting wall rose to first floor level, and probably taller, to align with a remaining section of the original string course. To the north side of the wall, the original ground floor masonry is set back, with quoins keyed into the north-east buttress. The first floor masonry above this recessed panel is corbelled out, and the corbel moulding would have terminated neatly against the projecting wall. Below the existing first-floor doorway, a short section of an



Figure 21. The north side.



Figure 21. The west end, rebuilt in 1375.



Top: *Figure 23.* Northern first floor window.
 Above: *Figure 24.* Detail of northern window, with
 crossed rib decoration to arched heads and pierced
 spandrel.

Top: *Figure 25.* Southern first floor window.
 Above: *Figure 26.* Interior of northern window.



Figure 27. Stiff-leaf capital and moulded impost to interior of northern window.



Figure 28. East gable with reconstruction of original arched stair platform.

original arch rises out of the buttress at the north-east corner, forming the support for the doorway's north jamb (rebuilt in recent times), as the upper wall is corbelled out (Fig. 30). All these features clearly form part of the original masonry, not a later alteration. The original gable incorporated a stone, arched base for an external stair leading up to a first-floor doorway, with a spacious landing. The wide-arched structure would have allowed light to reach the slit window underneath the stair. Most external stairs to chamber blocks or first-floor halls seem to have been plain structures, often of timber. The spacious staircase and landing at the School of Pythagoras, with its stone-arched construction, would have formed an unusually elegant architectural feature, clearly designed to impress. Presumably it was this stone stair, leading up to the hall above, that the masons contracted to rebuild in 1374.

The north wing has been the subject of debate, with some (e.g. Wood 1935) considering it a later addition. The matter has now been settled with the recent archaeological excavation, which showed that the foundations of the north wing were formed at the same time as those of the main block (Newman 2013, 27 and 104). On the ground floor, the only visible early evidence is an area of rubble walling with an uncovered old slit window. However, the first floor has a complete surviving slit window with round-arched light in the north wall, blocked when the extension was added around 1517. Another original window, with its round rere arch and splayed jambs, remains in the east wall, though the outer masonry has been replaced. The offset location of a cupboard recess with a pointed arch, inserted around 1375, suggests there may always have been a window in

the centre of the west wall, as indicated on the Buck engraving of 1730. The most intriguing feature of the north wing, however, is the doorway connecting it to the first floor of the main block (Fig. 31). This has an impressive round-arched opening on the south side, 1195mm wide and 2185mm tall to the arch springing. Around the arch was a cavetto hood-moulding, which appears to have extended down the jambs to link with the dado string course. The reveals are slightly splayed, with brick linings that may conceal a door rebate, set around 250mm back from the face. If this was a door rebate, there must have been a fixed timber tympanum over the door, as the rebate does not extend around the arch. The remainder of the reveals and the north face of the doorway have been altered or covered up, so further details of this unusual feature are unclear. An inner doorway with a four-centred head was inserted here (probably around 1375), but was relocated in 1968 and now connects the ground floor of the main block to the north wing (see Graham-Campbell 1968, Fig. 6).

Discussion

The evidence allows a reasonably confident reconstruction of the original building, though some problems remain (see Figs. 16 and 17). The ground floor had a low, vaulted undercroft, a single undivided space probably lit only by slit windows. There was an entrance doorway in the north wall, and another feature, perhaps the principal entrance (see below) in the south wall. The small north wing, integral with the original building, also probably had slit windows and a connecting doorway. The grander rooms on the



Figure 29. Detail of former archway, with impost block.

first floor were approached by a stone staircase leading to the entrance doorway in the east gable. The evidence for two fireplaces indicates that the main block was divided into two rooms by a timber partition, which did not interrupt the moulded stone dado. The bigger room (around 13m by 7m) had a large, hooded fireplace on the lateral south wall, set away from the entrance rather than centrally. Besides the two surviving finely carved windows, there were probably two more, as well as the smaller single-light window near the doorway. The room would have been lofty, and open to the roof with close-set common rafter couples (like all roofs of such early date), probably with regular tie-beams to control outward thrust, as the buttresses on the side walls extend only up to first-floor level. The smaller inner room was more private, with its own fireplace and a cupboard for storage of personal possessions in the north wall. An unusually large arched doorway led into a further small room in the north wing, lit by slit windows.

Although larger, the School of Pythagoras is thus of similar form to a classic chamber block such as Boothby Pagnell. The poorly lit vaulted undercroft was used for service or storage use, and served to



Figure 30. The arch rising out of the north-east buttress, to support the north jamb of the original first-floor doorway.

raise the principal room to an impressive, elevated level (with no defensive purpose). The principal room on the first floor was used for fine living and entertaining, with good-sized windows and a fireplace as the focal point on the lateral wall, away from the entrance doorway. The inner room would have been used for withdrawal and sleeping. One would very much expect the north wing to have formed a wardrobe to serve the bedchamber, perhaps with a wardrobe as well as a latrine. However, the grand doorway and lack of a latrine pit or drain (see below) indicate this was not the case. A chapel or oratory would be another possibility, though the orientation is to the north-west, not east, and the end gable window is unimpressive.

In terms of date, the overall form of the building, together with pilaster buttresses, the use of round arches and a hooded fireplace, indicate a date not far from 1200. The details of the first-floor windows provide more specific guidance. With their deeply chamfered trefoiled lights and dogtooth-like ornament, pierced tympanum and early stiff-leaf capitals, a date of c. 1200–1220 is indicated. A further stiff-leaf capital, a fragment discovered in the 1967 excavation



Figure 31. The first-floor doorway into the north wing.

(see Newman 2013, Fig 28D), although of plainer type, also conforms with this dating. The date seems to fit well with the career of Hervey Dunning, who would have constructed this building when at the height of his powers in the early thirteenth century, an impressive demonstration of his wealth and status.

Remaining problems

As noted, the original function of the north wing remains puzzling. In the 2013 excavations, Newman exposed parts of the buried ground floor wall faces, and could find no evidence for any original doorways, despite searching. The excavation also proved there was no internal pit or drain for a latrine. Newman concluded (2013, 105) that the ground floor may have been a secure storeroom or strongroom, with the only access from the floor above (presumably via a floor hatch and ladder). This, however, seems unlikely. The wide arched doorway into the first floor of the north wing is not consistent with locating a secure space below, and such strongrooms are generally found only in castles or fortified houses, usually of later date (Brears 2008, 17–22), not chamber blocks or first-floor halls of the twelfth to thirteenth century. The ground floor wall between the main block and the north wing has been heavily altered at various periods, and it seems more likely that there was an original connecting doorway. A very different theory was put forward by Harris (1994). He proposed that the north wing formed a two-storey porch housing an enclosed staircase which led up to the first floor, with entrance via the tall, arched doorway. Harris argued that, because of the doorway's slightly splayed

reveals, any door must have opened into the main block, as would normally be the case. However, this seems unlikely here, as a door in the face-fixed position advocated by Harris would have sat clumsily against the projecting hood mould. In such a case, a rebate would surely have been provided, but there is none. In any case, the evidence for an entrance doorway and stairs to the east gable (which Harris dismisses) makes a main stair and entry door in the north wing impossible.

Evidence uncovered in the excavation of 2013 raises a different question. Fragments of two treads from a stone newel staircase were found in a re-used context in the north wing (Newman 2013, 45 and 74). Newman considered these are very likely to have formed part of the earlier building, perhaps from an original spiral staircase at the west end of the main block, which could have given rise to the structural failure recorded in 1374. Perhaps, before the rebuilding of 1375, there was a secondary stair connecting the ground and first floor internally. A secondary vice stair of this type can be seen built into the corners of the twelfth-century chamber blocks at Burton Agnes Manor (Wood 1974, 54–6) and Christchurch Castle (Wood 1965, 17–18).

The most intriguing problem is the lost feature of the ground floor south wall. West's engraving of 1739 (see Fig. 18) shows a large round-arched recess internally, and Gray (1932, 31) assumed this was a blocked doorway. However Graham-Campbell (1968, 248) subsequently reported that a second chimney flue had been discovered within the first-floor chimneystack, and suggested that West's engraving actually shows a ground-floor fireplace which has lost its

hood, like that on the floor above. Such a fireplace, within the vaulted undercroft of a chamber block (or first-floor hall) would be an unexpected feature. Also, for an original ground floor fireplace, one would expect the external chimneystack to extend down to ground floor level and to be of larger dimensions, to readily accommodate two flues. West's engraving, which shows a tall, neatly formed round-arched recess with rather irregular impost blocks to either side is not a good match for the remains of a hooded fireplace. After removal, the recess of such a fireplace would have been built flush, perhaps leaving some jambs visible and a high relieving arch, of segmental form and built of rubble stone. Such was the evidence of the first-floor fireplace as recorded by the Royal Commission in 1959, before the later unblocking and exposure.

There is also the evidence of the Bucks' engraving of 1730 (Fig. 32). This shows a strange feature with two pointed arches supported on a central column and moulded shafts to either side, apparently a blocked double doorway. The only other possibility is that it was a decorative blind arcade, but that seems out of place and extremely unlikely. The Buck evidence was dismissed as artistic licence by Gray (1932, 31) and has otherwise been ignored. However, it seems most unlikely that the Bucks would have invented such a peculiar feature, and the other extant details on their engraving are portrayed with reasonable accuracy. Also, Sparrow's engraving of 1777 (Fig. 33) confirms the existence of a double arch, though the drawing is more picturesque and shows only plain voussoirs. Perhaps the moulded stonework had disappeared by this time.

The details of the pointed arches, with a central column, moulded capital and side shafts suggest a thirteenth-century date. As this would be a very un-

likely feature for later insertion, and must certainly pre-date the alterations of 1375, it seems likely to date with the original building, despite the determinedly pointed form of the arches. The tentative conclusion is that the second flue discovered in 1968 was a result of later alterations, and that the original building had a double doorway in this position. The exterior of the chimneystack has been much patched, and the west side has been moved inwards towards the top. The double doors would have been awkward and narrow, with a single wide door a much more practical option. Presumably the enhanced architectural effect outweighed such functional considerations.

Conclusion

Hemingford Grey Manor House is a relatively straightforward example of a rural chamber block. With an original first floor internal area of only around 53m², it is one of the smallest and earliest surviving Norman chamber blocks. The first floor had only one chamber, rather than the archetypal plan-form of Boothby Pagnell, which had a smaller, inner chamber. Portslade Manor of c. 1150 and Charleston Manor, West Dean of c. 1180 (both in Sussex) had floor areas of over 60m² (Martin and Martin 1993 and 2005). Burton Agnes Manor of c. 1170–80 (Yorkshire) was considerably larger at 95m² (Wood 1974, 54–6), similar to Boothby Pagnell of c. 1200. With its relatively modest-sized single chamber, Hemingford Grey would clearly have required a main freestanding hall to be able to function as a manorial establishment.

Although much smaller than the School of Pythagoras (around 150m² with its three rooms), the two buildings do have certain features in common, as found in other Norman chamber blocks (Fig. 34).

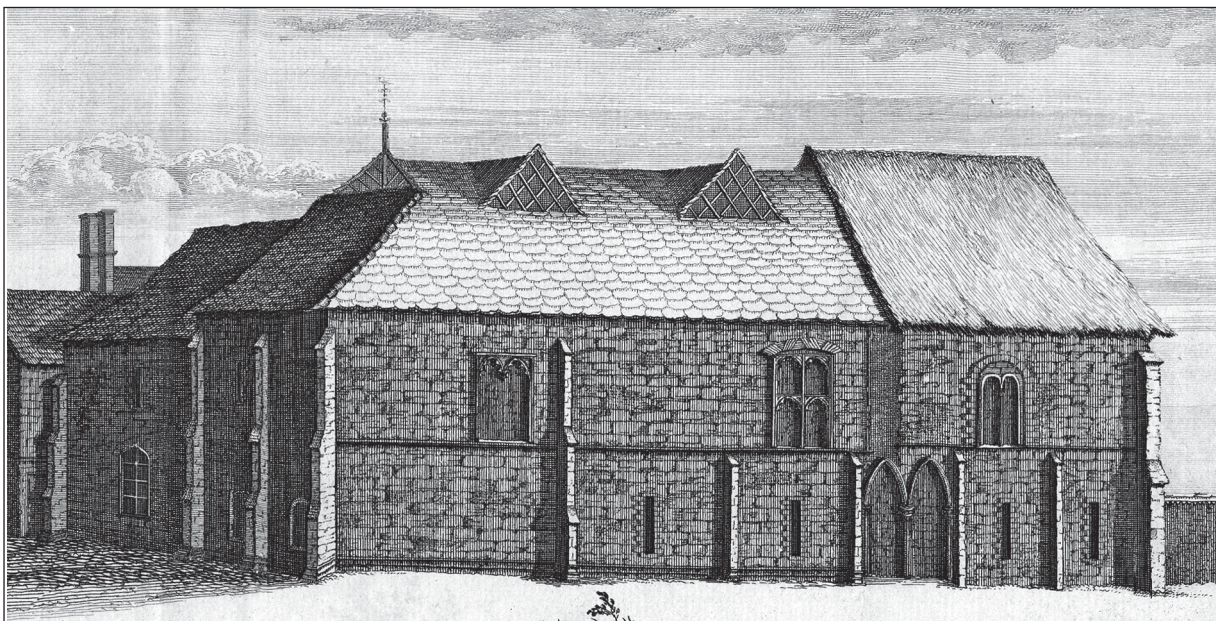


Figure 32. The Buck brothers engraving of 1730 (Kilner, © Society of Antiquaries of London).

Both buildings have thick stone walls, making use of high quality limestone from Barnack, though the Cambridge building, further from the quarries, also uses the cheaper local clunch. Both had an undercroft lit by slit windows, and an external staircase leading up to the first floor, where the principal space was well-lit, with fine windows. Both have the entry doorway in the gable end, rather than at one end of a side wall. A good quality fireplace was located on the lateral wall, near the centre of the main chamber, with windows to either side. The masonry mouldings and carving at Hemingford Grey are relatively crude in comparison with the School of Pythagoras, though that may be at least partly explained by the half century which separates the two buildings, and the use of the more easily carved clunch in Cambridge.

The final question which arises over Hemingford Grey Manor is: was this building typical for other rural Norman manor houses, or was it always unusual? For urban buildings, Harris managed to assemble evidence, often fragmentary or revealed by excavation, for 71 Romanesque townhouses, generally of two-storied, stone-built form (Harris 1994, 9; see also Quiney 2003, 143–52 and 173–86). He was thus able to demonstrate that such buildings were a regular feature of Norman towns. For rural manor houses, below the level of castles or other major seigneurial sites, a thorough compilation of the evidence of stone-built

chamber blocks is still awaited. Only around a dozen examples of standing buildings have been identified so far, with a few more from excavation (Wood 1965; Blair 1993; Grenville 1997, 69–78). It may well be that many chamber blocks have been demolished and their masonry removed for re-use. No doubt further discoveries will be made of fragmentary survival, as in the surprising uncovering of a probable chamber block in the excavations at Wharram Percy, Yorkshire (Thorn 1979; Everson and Stocker 2012). The surviving buildings, however, are generally of useful domestic form and durable construction, eminently re-useable by later generations. Perhaps Payne de Hemingford's building work was indeed an unusual enterprise for a manorial lord of the twelfth century.

Unlike the rural Manor House of Hemingford Grey, the School of Pythagoras is located within the town of Cambridge. Most discussion of the building, however, whether considered as a first-floor hall or a chamber block, has compared it with other examples from a rural context (Wood 1965; Grenville 1997; Impey 1999). Even Harris, whose focus was specifically on townhouses, included the School of Pythagoras within his category of 'urban manor-like houses' which he thought formed 'a house type indistinguishable from its rural counterpart' (Harris 1994, 10). Three other examples of these 'urban manor-like houses' are given: Frewin Hall, Oxford; Staple



Figure 33. Sparrow's engraving of 1777 (Grose, © Society of Antiquaries of London).

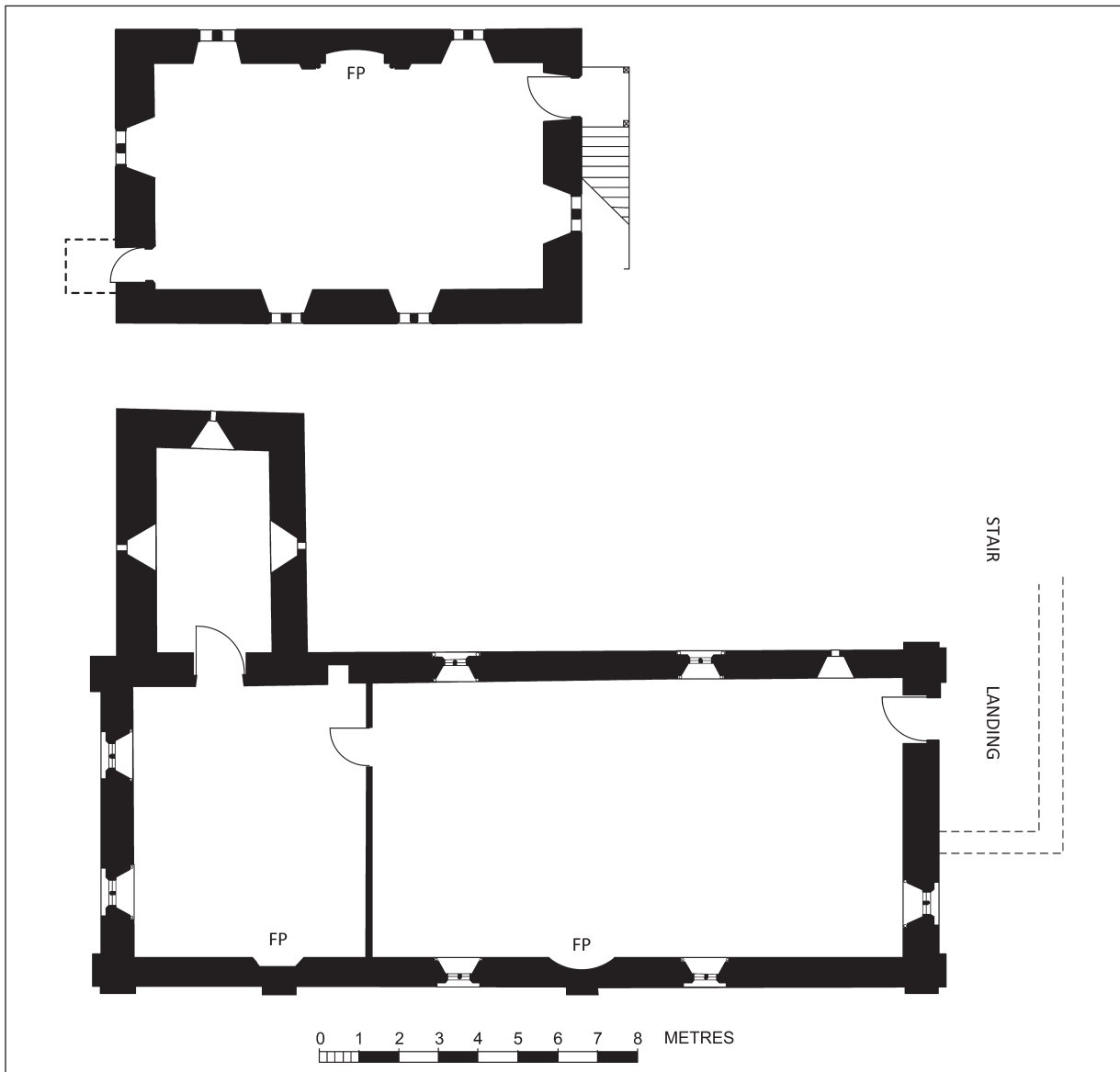


Figure 34. Reconstructed first-floor plans of Hemingford Grey Manor House and the School of Pythagoras, at the same scale

Gardens, Winchester; and Deloraine Court, Lincoln (Harris 1994, 11–26; Blair 1978; Jones *et al.* 1990, 67–85). The first two sites had the remains of stone-built undercrofts, but no evidence was found of an accompanying ground-floor hall. Deloraine Court is a more substantial survival, and now has a two-storey chamber range, with an adjoining ground-floor hall, set at right angles. However, the form of the original building is unclear, as the early stone columns in the chamber undercroft appear to have been re-set. The lower part of a circular chimneystack survives, similar to that at Boothby Pagnell, indicating that the complex had a first-floor chamber of later twelfth-century date, but the ground floor hall now has a ‘short principal’ roof (similar to a base cruck), which can be no earlier than the later thirteenth century (Meeson 2019). However, despite these difficulties over Harris’s cat-

egory of ‘urban manor-like houses’, a distinguishing feature of all three buildings is that, although located in the heart of the town, they are set on large plots and a considerable distance back from the main street front, with space available for an original freestanding ground-floor hall. This contrasts sharply with the twelfth-century commercial properties of two-storeyed stone-built type that formed Harris’s main focus, which are set on or near the street front, and on much less spacious plots.

In its current setting, across the river from the main town, the School of Pythagoras appears to be at some distance from the urban centre. While acknowledging that the early town, with its Norman castle, also occupied land on the north side of the River Cam, Harris considered that the School of Pythagoras was on the western fringe of the town, and that its

location, set back over 50m from Northampton Street, indicated that the building had a non-commercial role. He thus included it within his 'urban manor-like house' category. In his recent archaeological report, Newman put forward a very different interpretation of the building's context. His excavation work revealed a substantial watercourse running directly in front of the School of Pythagoras, following the line of a natural palaeo-channel. Newman assembles convincing evidence, using both historical and more recent research, to show that this was the 'Cambridge Watercourse', linked to the River Cam and running southwest past the School of Pythagoras (see Fig. 13). By the early thirteenth century, Cambridge had established itself as the leading *entrepôt* in the county, and this waterway formed an important focus of the town's river trade. It seems that the waterfront zone around the School of Pythagoras was an important commercial hub, and 'probably comprised one of the most desirable pieces of real estate in 12th century Cambridge' (Newman 2013, 106). The School of Pythagoras was built parallel to the waterway, and set back only around 13m, probably with a landing stage along the waterfront.

This commercial setting suggests that parallels for the School of Pythagoras should be sought among fully urban Norman townhouses rather than rural manor houses. A well-recognised Norman townhouse type is the street-front property, with a shop-front on the ground floor and the principal chamber above. The Jew's House and the much larger Norman House in Lincoln are well-known examples (Johnson and Jones 2016). However, although two-storeyed, with a principal chamber on the first floor, such buildings are different from the School of Pythagoras. Set on busy town-centre streets, their ground floors were built with shop windows, to service passing customers.

A rarer type of Norman townhouse is seen at St Mary's Guildhall, Lincoln (Stocker 1991). Set beside a main road, some distance from the city centre, this forms a substantial residential complex, dating from c. 1150–70. Its west range was of comparable size to the School of Pythagoras, with a fine principal chamber over a vaulted ground floor, but the two buildings were otherwise rather different. At St Mary's, the main range fronted directly onto the street, and a central arched gateway led into an enclosed courtyard behind. A lost northern range of similar size to the front range was an integral part of the original complex, forming an L-shaped plan of considerably greater extent than the School of Pythagoras. The northern section of the undercroft was not merely for storage use, but had a fine fireplace, a separate door to the street, and a vice stair connecting to the chamber above. The southern section of the undercroft may have been similar, but has been rebuilt from the foundations. The first floor may have formed a single chamber without subdivision, with two fireplaces on the lateral wall, though only one survives. Stocker suggests that the lost southern end was a mirror image of that to the north, with a second internal

vice stair, rather than the more generous external staircase found at most chamber blocks and first-floor halls, and as at the School of Pythagoras. Surviving architectural fragments suggest that the lost north range may have included a chapel, and there may also have been a small ground-floor hall, though the main reception room was always on the first floor of the west range (Stocker 2002). The quality of the masonry and carved ornamentation at St Mary's is quite exceptional, and Stocker suggests that it was built specifically to accommodate Henry II's crown-wearing ceremonies in 1157. Certainly, St Mary's was an élite residential complex, with no commercial or warehouse use. It is located in the prestigious suburb of Wigford, some distance away from the city centre or any commercial zone. A similar high-class residence, the twelfth-century St Andrew's Hall, was formerly located just across the road. Demolished in c. 1783, this building also had a principal chamber over a vaulted undercroft, set on the street frontage (Jones *et al.* 1990, 145–6; Stocker 1991, 3–4). An arched doorway at one end probably led to the main stair, though nothing is known of what lay behind the front range.

A third type of Norman townhouse, seen at King John's House, Southampton, provides a different comparison (Faulkner 1975, 83–5). This mid-twelfth century building, of two parallel ranges, had an undercroft with several wide doorways opening onto the harbour quay, and two large chambers above. This was evidently the property of a wealthy merchant, with commercial warehouse storage on the ground floor and fine residential accommodation above. Although the building form is rather different from the School of Pythagoras, and King John's House is set within a long row of other warehouses, the commercial waterfront location has some similarity. If the lost feature below the first-floor chimneystack at the School of Pythagoras did form a double doorway, this could have provided access from the waterfront into a warehouse store, though one would expect large doorways, rather than the ornate and constricted doubled archway. If, as seems likely from its waterfront location, the undercroft did have a commercial function, it may have served as a sort of showroom (like some other Norman urban undercrofts), rather than just a utilitarian warehouse. The well-developed architecture of the undercroft, with its central row of moulded columns and rib vaulting, would suit such a purpose.

Redefining the School of Pythagoras as a building set on a busy waterfront, at the heart of a mercantile zone, also opens up a re-appraisal of the motives of its original builder, Hervey Dunning. As head of the Gild Merchant, Hervey was one of the leading early bourgeois of the town, directly involved in the control of trade and commerce. Although, as noted above, he held quite extensive lands, and laid claim to knightly rank, he had no status as a manorial lord, and had no feudal seat. The School of Pythagoras was not built as the focus of a lordly manor, but rather, it seems, as the impressive establishment of one of Cambridge's lead-

ing merchants, in a flourishing commercial centre.

So was the School of Pythagoras originally accompanied by a ground floor hall, which has disappeared? The earliest reliable map of the area (John Hammond, 1592) shows plenty of space all around the building, except for the northern extension of 1517 and later (Newman and Dickens 2011). Archaeological investigation of the surrounding area has been very limited, but no evidence of other early buildings has been found (Newman 2013). With the stairs and entry to the chamber block in the north-east gable, one might expect any hall to have been located to the north-east of the existing building.

However, while most late medieval townhouses included an open hall (see Pearson 2009), the evidence suggests this may not have been the case for early townhouses built before c. 1200 (Stocker 2002), with the possible exception of rare 'urban manor-like houses' as defined by Harris. In Lincoln, neither the Jew's House nor, more significantly, the much larger Norman House had any evidence for a ground-floor open hall. St Mary's Guildhall may have had a small ground-floor hall, but the first-floor chamber was the largest and most impressive room. King John's House, Southampton had two large interlinked first-floor chambers, with no evidence for an open hall. Two further early houses in Southampton, Canute's Palace and the Norman House, Cuckoo Lane, seem to have had a principal first-floor chamber, heated by a fireplace, rather than a ground-floor open hall (Faulkner 1975, 86–94). The School of Pythagoras, as noted above, was not the centre for a manorial estate, so Hervey Dunning would not have held manorial courts here, nor was there a need to accommodate a feudal retinue.

For the townhouse of a leading merchant of the period, such as Hervey Dunning, it therefore seems that a first-floor chamber fulfilled the necessary requirements, without a ground-floor hall. The principal chamber, with a floor area of c. 90m², would have provided plenty of space for generous hospitality and reception. This was significantly larger than the main chamber of most rural chamber blocks, such as Boothby Pagnell, at 67m². The central row of supports in the undercroft enabled a wider span, as at two other large chamber blocks, Burton Agnes Manor with a chamber of 95m² and Hatfield Manor, of c. 105m² (Wood 1974, 54–6; Birch and Ryder 1988). Unlike these two, the School of Pythagoras had in addition a separate, inner chamber with a fireplace, which would have provided private space for withdrawal and sleeping. At c. 90m², the principal chamber at the School of Pythagoras compares well with what is known of other Norman townhouses. The principal chamber at King John's Palace, Southampton was c. 95m²; that at the Norman House, Cuckoo Lane, Southampton was c. 110m²; and that at St Mary's Guildhall, Lincoln c. 125m² (if it formed a single chamber). The overall first-floor space at these other sites, however, was significantly larger than the c. 150m² at the School of Pythagoras. The total first-floor space at King John's Palace, Southampton was

c. 180m²; that at the Norman House, Cuckoo Lane, Southampton was c. 210m², possibly much more; and that at St Mary's Guildhall, Lincoln c. 240m². Hervey Dunning's chamber, however, did have a feature that seems to have been absent from any of these other townhouses, even St Mary's Guildhall, with its proposed royal connection. At the School of Pythagoras, the spacious external stair and its landing, set over stone arches, would have formed an impressive approach to the first floor, with views over the adjoining waterfront.

While it may well have lacked any accompanying ground-floor hall, the School of Pythagoras was a chamber block, rather than a first-floor hall. As recently argued, one of the defining characteristics of the first-floor hall was a central, open hearth, in contrast to the wall fireplace found in chamber blocks (Hill and Gardiner 2017). The central hearth of an open hall, whether ground or first-floor, was a key signifier of the hall as a formal, public and communal space. Hervey Dunning's chamber would have been a different sort of space, heated by a fireplace on the lateral wall, and more suited for the reception of his fellow merchants. This distinctive original purpose of the upper room, however, was not to endure. In the contract for the major repairs of 1375, the rebuilt steps led up to a room described as an *aula*, not a *camera*.

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