

= Harmondsworth Great Barn =

Harmondsworth Great Barn (also known as Manor Farm Barn) is a medieval barn on the former Manor Farm in the village of Harmondsworth , in the London Borough of Hillingdon , England (previously part of the historic county of Middlesex) . It is north @-@ west of fields and the A4 next to Heathrow Airport . Built in the early 15th century by Winchester College , it is the largest timber @-@ framed building in England and is regarded as an outstanding example of medieval carpentry . It was described by the English poet John Betjeman as the " Cathedral of Middlesex " . A similar though smaller barn is part of the Manor Farm complex in Ruislip .

The barn was briefly in royal ownership but passed into the hands of three families who continued to use it for agricultural purposes until as late as the 1970s . It was subsequently owned by a property development company which redeveloped the farm complex . After the company went bankrupt in 2006 , the barn was bought by property speculators betting on its compensation value if the nearby Heathrow Airport was expanded . The barn fell into disrepair and was closed to the public for all but one day a year . English Heritage stepped in , using a rare legal procedure to carry out repairs without the owner 's consent , and eventually purchased the barn in January 2012 . It is now open to the public from April to October on the second and fourth Sunday of each month under the management of the Friends of the Great Barn group .

= = Structure = =

The barn measures 58 @. @ 55 metres (192 @. @ 1 ft) long , 11 @. @ 3 metres (37 ft) wide , and 11 @. @ 9 metres (39 ft) high , with twelve bays , running in a north ? south direction . It occupies a footprint of about 661 square metres (7 @, @ 110 sq ft) and has an internal volume of about 4 @, @ 890 cubic metres (173 @, @ 000 cu ft) . There are three doors on the east side to permit the entry of wagons . The exterior of the barn is weatherboarded , with a hipped tiled roof . It was originally a much larger structure , with two wings , but the north wing was dismantled in 1774 and rebuilt in the now @-@ demolished hamlet of Heathrow , on the site of the modern airport . The vast majority of the surviving structure is original ; it has been estimated that 95 per cent of the timbers , including the external weatherboarding , have survived from the original building . It has been described by English Heritage as " a supreme example of late @-@ medieval craftsmanship ? a masterpiece of carpentry containing one of the best and most intact interiors of its age and type in all of Europe . "

It is an outstanding example of a late medieval aisled barn and is the largest timber @-@ framed building in England . Barns of this type were based on a longitudinal frame , with two rows of posts connected by arcade plates . Because such barns tend to be both long and high , they experience high structural loads from the wind . They therefore have numerous internal braces , acting in much the same way as buttresses , to strengthen the structure . This gives the barn its distinctive internal appearance , with a lattice of beams and braces holding up the roof . The techniques used in its construction are similar to those employed on the great cathedrals being built at the time , and some of the same craftsmen were probably involved .

The barn 's main posts are made of oak . Each is about 14 inches (36 cm) square and sits on a block of Reigate sandstone , a common building material in medieval London . The posts were cut into shape using axes , adzes and saws , the marks from which can still be seen in some instances . The builders cut and fitted the timberwork together on the ground and scratched Roman numerals , called assembly marks , on the joints to indicate where pieces of timber were to be combined . Some of the pairs of main posts were made from the trunks of very large individual trees which were cut in two . They were all placed upside down , relative to the original direction of the tree . This was because the bottom of a tree is always wider than the top ; the greater width was needed to accommodate the joints with the beams that support the roof . Despite the care that the builders took to get the joints right , they may have made some mistakes along the way , as some of the timbers have holes for pegs and mortises that were never used . Alternatively , the timbers may have been reused from another construction .

The rows of arcade posts support tie beams , with curved braces to strengthen the frame . The collar beam , which supports the opposing principal rafters , is supported by the crown post . Roof purlins run the length of the barn and are tenoned into the principal rafters , with additional support from curved wind braces . Some aspects of this design are unusual , both in the way that they are executed and in terms of their early date . A number of features in the barn 's carpentry are described by English Heritage as " experimental , precocious and regionally unusual , " which is attributed to the very high level of skill of the master carpenters who built it .

The use of aisles enabled the barn 's architects to increase its width and by doing so , provided the maximum space for threshing floors . The longer the barn was , the more threshing floors could be provided . English barns went through an evolution in the number of threshing floors ; the earliest had just one central floor , a design that became the commonest to be found in Britain . Harmondsworth Great Barn is unusual in having three threshing floors , allowing much more grain to be threshed at one time .

The boards on the exterior of the barn are made from a mixture of oak , elm and softwoods such as pine and fir . Some are of modern or relatively modern origins ; those on the south end of the barn are noticeably lighter in colour than the rest and are the result of the repairs made after the 1972 fire . Each side of the barn 's roof holds 92 tile courses and a total of around 76 @,@ 000 tiles , which were originally held in place by oak pegs . Many of the tiles have been replaced over the years and the oak pegs have been replaced by galvanised peg nails due to the effects of decay .

The floor of the barn was originally made of hard @-@ packed flint gravel held together with iron panning , excavated from a local gravel deposit , which was used as a more readily available alternative to stone . In subsequent years it was repaired with brick , tile and , ultimately , cement , obscuring the original appearance of the floor . An indication of how it would have looked can still be obtained from the outside of the west side of the barn .

The design of the barn has provided inspiration to a number of architects in the 19th and 20th centuries who were involved with the Gothic Revival movement . Sir George Gilbert Scott visited the barn in 1850 and sketched it , using its design as the basis for proposals for the new ChristChurch Cathedral in Christchurch , New Zealand . The library of Mansfield College , Oxford designed by Basil Champneys in the late 1880s also owes its inspiration to the barn . Bedales School 's library , completed in 1922 and designed by Ernest Gimson , may also have had its origins in the barn 's design .

= = History = =

The manor of Harmondsworth was owned before the Norman Conquest by King Harold Godwinson , but was seized by William the Conqueror after Harold 's death at the Battle of Hastings in 1066 . Three years later , William granted it to William FitzOsbern , one of his close confidants . It was subsequently transferred to the Abbey of Rouen . In 1391 , it was acquired from the abbot and prior by William of Wykeham , the Bishop of Winchester . He gave it to Winchester College , which he had founded in 1382 , as part of his endowment of that establishment . Its revenues went towards supporting the college .

There was already a " Great Barn " on the site , and as early as 1110 a manor record shows that men who were not wanted for ploughing were required to " thresh in the Great Barn until sunset " . A granary was recorded in a survey conducted in 1293 ? 4 and a further survey of 1324 recorded the existence of a monastic grange in addition to the granary . The wheat barn at Harmondsworth was damaged in a storm in 1398 and records from Winchester College show that two carpenters were sent to make repairs , for which a large quantity of tiles , nails and other roofing materials was purchased . By this time , however , the existing barn was evidently becoming inadequate . The college 's records indicate that in 1426 ? 7 it commissioned two men , William Kypping (or Kipping) and John atte Oke , to obtain timbers from Kingston upon Thames to use for a new barn at Harmondsworth . This date matches an early fifteenth @-@ century origin for the Great Barn 's timbers , which has been established through dendrochronology . The architect is not known , but it is possible that William Wyse may have been involved . He was the main carpenter for New College

, Oxford and the master carpenter at Windsor Castle in 1430 , and worked on repairing the aisles at the church of St Mary 's in Harmondsworth , practically next door to the manor . Carpenters from Ickenham and Uxbridge were also involved and a tiler appears to have been employed by the college at the same time . Once completed , the barn would have been used to thresh and store grain from the manor farm .

In 1544 , the manor was taken by King Henry VIII to add to his hunting estate around Hampton Court but he does not appear to have used it , and shortly afterwards he granted it to the Paget family . It remained in their hands until 1869 . During the first half of the 20th century the manor was owned by the Ashby family . The last Ashby to farm there died in 1948 and the farm was sold in 1950 to Peter Purser , who died in the late 1970s . It was already a Scheduled Monument and was given Grade I listed building status in March 1950 when new heritage protection legislation was brought into force . The barn continued to be used for agricultural purposes until as late as the 1970s . It had a couple of narrow escapes during the 20th century ; during the Second World War a German V @-@ 1 flying bomb flattened a nearby barn , but only managed to dislodge a few roof tiles on the Great Barn . The barn 's southern bay was seriously damaged by fire in 1972 but it was subsequently restored . The building was greatly admired by the Poet Laureate Sir John Betjeman , who dubbed it " the cathedral of Middlesex " . It underwent a detailed eighteen @-@ month survey in the late 1980s by the craftsman Peter McCurdy (who later went on to rebuild Shakespeare 's Globe theatre) , supported by the Museum of London .

= = Neglect and rescue = =

The barn and the surrounding Manor Farm property were purchased in 1986 by the John Wiltshier Group , a builder / property developer which aimed to restore the barn to serve as a showcase for the company . The farm underwent major changes , with several of the more dilapidated buildings demolished and a new L @-@ shaped office building constructed facing the barn . Planning permission was granted on the basis that income from the new offices was supposed to pay for ongoing repairs to the barn , following an initial renovation carried out in 1989 . However , in 2006 , the company went into receivership . The other buildings were individually sold to new owners but the receiver 's attempts to sell the barn separately fell through .

The receiver offered the barn to Hillingdon Council and English Heritage for £ 1 , but both refused the offer . Instead , a Gibraltar @-@ based company calling itself Harmondsworth Barn Ltd bought the barn . The company had no other assets and it was reported that it was seeking to speculate on obtaining compensation from a proposed expansion of Heathrow Airport . Such compensation would be paid should the land be required and the property demolished , although the barn fell just slightly outside the area required for a new runway . The new owners made no effort to maintain the barn , which fell into disrepair and was closed to the public apart from an annual one @-@ day opening in conjunction with the Open House Weekend each September .

The Society for the Protection of Ancient Buildings (SPAB) raised the alarm in a 2009 edition of its magazine , Cornerstone , in which the deteriorating condition of the barn was highlighted as the magazine 's cover story . The magazine reported that on a recent visit " more than a dozen gaps in the tiled roof were seen , some large . The site appeared to lack fire @-@ fighting equipment or alarms , and could be easily accessed . Plants have taken root in the stone @-@ and @-@ brick plinth , and have begun to damage the medieval blocks upon which the barn stands . " English Heritage issued a statement saying : " The absentee owner of the barn has declined to engage with English Heritage (and the local authority) for some years despite our offers of help , support , advice and grants . It should be noted that the Heathrow expansion area would surround the site of the barn on three sides but would not , according to plans we have seen , propose its demolition or removal . However , this still leaves question marks over the barn 's future and in particular , the issues of viability and setting . "

Following the publication of the Cornerstone article , English Heritage stepped in to begin legal proceedings that would lead to the compulsory purchase of the barn . It carried out emergency repairs of the barn in November 2009 , without the owners ' consent , under an Urgent Works Notice

. The agency carried out an unusual legal manoeuvre to speed up the works , declassifying the barn from a scheduled monument to a Grade I listed building . This enabled the notice to be issued more speedily , overriding the owners ' objections .

The repairs mainly involved fixing holes in the roof and preventing the ingress of rain water , as well as repairing the weatherboards on the sides . The intervention by English Heritage led to a protracted dispute over the £ 30 @,@ 000 cost of the repairs that was scheduled to come to trial at the High Court of Justice in April 2012 . In January 2012 , a settlement was reached in which Harmondsworth Barn Ltd sold the barn to English Heritage for £ 20 @,@ 000 . By that time the government had abandoned its plans to expand Heathrow Airport and the barn had become a liability for the company .

Simon Thurley , the Chief Executive of English Heritage , called the barn " one of the greatest medieval buildings in Britain , built by the same skilled carpenters who worked on our magnificent medieval cathedrals . Its rescue is at the heart of what English Heritage does . " The local Member of Parliament , John McDonnell , praised the hard work of local people and English Heritage staff and said that he was " now overjoyed that we have secured this wonderful building for future generations . " The SPAB also welcomed the decision , calling the barn one of the " symbols of the dominance of the rural economy in the past , and the immense investment in craftsmanship and materials that agriculture deserved . "

= = Reopening and future management = =

The barn is managed by volunteers from the Friends of the Great Barn at Harmondsworth , a local preservation group , acting on behalf of the owners , English Heritage . It is open to the public for free on the second and fourth Sunday of each month between April and October .