

The Dovecote at Carew Manor, Beddington

John Phillips

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1. INTRODUCTION

The dovecote is an octagonal brick building which stands in Beddington Park adjacent to Carew Manor School and Beddington Park Cottages. The building is thought to date from the early 18th century. It is a scheduled ancient monument and is also grade II* listed.

The main purpose of this report is to provide a history of the building and record some observations made during repair work carried out by the London Borough of Sutton in 1997.

Thanks are due to the London Borough of Sutton Heritage and Parks Services and to the people involved in the 1997 restoration work who came from the Council's Technical Services, English Heritage, and the builders Roach Brothers Ltd. The Society for the Protection of Ancient Buildings, Sutton Archives and the National Archives have provided documentary information. Thanks are also due to Clive Orton for proof reading.

This is part of a series of reports on the history and archaeology of Carew Manor published as Carshalton and District History and Archaeology Society Occasional Papers.

2. OUTLINE DESCRIPTION

The dovecote is an octagonal brick building about 9.9m across between parallel walls and approximately 9.12m high to the eaves.¹ The outside is a plain brick wall laid in Flemish bond with a projecting band about halfway up. There is a wooden cornice and an octagonal tiled roof with a wooden turret which served as entrance and exit for the birds. Inside the wall is lined with nesting boxes. The building appears to have originally been one open space from the floor to the roof but at some time in the past a first floor was inserted. The nesting boxes below the floor were blocked off while the one above remained open.

3. THE HISTORY OF THE DOVECOTE

The dovecote was originally attached to a country house now known as Carew Manor.² The Elizabethan household accounts mention a pigeon house which appears to have stood in pigeon house meadow – a location which is currently unknown.³

There is no direct documentary evidence for the present building until 1820 when it appears on the Beddington and Bandon enclosure award map. However, architecturally the building appears to belong to the early 18th century, and was almost certainly created for Nicholas Carew, 1st baronet, who owned the house from 1707 to 1727. His ownership was preceded and followed by long minorities (1689 to 1707 and 1727 to about 1741) in which major capital work was unlikely. Nicholas is also known to have reorganised the landscape around the house.⁴

The building is shown in a small engraving published in Alfred Smee's *My Garden* (1872). The view is more-or-less consistent with the present structure except that it shows a cross on the top of the turret, no ventilators on the roof-slope, and an oblong window set high in the north wall.

¹ The width is calculated from the 4.1m length of the eight walls assuming a regular shape. The height is estimated by measuring the height of 20 courses of brick, calculating the average and multiplying it by the number of courses counted on a photo. This was added to the measured height of the concrete plinth concrete plinth around the base of the wall. 20 courses = 1,503mm so 1 course = 75.15mm. 116 courses = 8.717m. The plinth has a height of 0.4m so the total height to the bottom of the eaves woodwork is 9.117m.

² See Phillips and Burnett 2016 for the history of the house.

³ See section 11.

⁴ Phillips 2016 p. 91-5.

There is no sign of the window in the present structure.

In 1859 the Carew estate was offered for sale following the bankruptcy of Charles Hallowell Hallowell Carew. The property was split into lots and the outbuildings were sold with the main house. They were described as

... the Offices, which include a long brick and tile built range of Stabling, Coach-houses, and Three neat Cottages for Servants adjacent; Timber Yard at back, in which is a Carpenter's Shop and Deal Shed; also a Farm Yard with Barn, Cow Sheds, Granaries, Dog Kennels and Dove Cote.⁵

In 1864 the house and the outbuildings – including the dovecote – were bought by the Lambeth Female Orphanage Asylum.

In September 1875 the Orphanage received a letter from Canon Bridges, who owned Beddington Park, offering to buy the Cottages and 8½ acres of land around them. This offer was eventually accepted and the Cottages and land were sold in 1876.⁶ The dovecote seems to have been included in the sale as it was subsequently part of the park.

The particulars made for the sale of the park on 25 June 1919 show that the dovecote was being used as a granary and was part of Thirlby's Dairy Farm which was based in Beddington Park Cottages to the north and east of the dovecote.⁷



Figure 1. 'The Old Pigeon house, Beddington Park' from Alfred Smee's *My Garden* 1872 page 66. The published image is here flipped horizontally. The building to the left is the north end of Beddington Park Cottages.

The Dovecote was acquired by the Beddington and Wallington Council in June 1925 with a block of land which formed the nucleus of the present public park.

In 1927 the Dovecote came to the attention of the Society for the Protection of Ancient Buildings. They offered the Council a free survey which was carried out by EE Boden. He said that:

Generally speaking the building is in a fair state of preservation with the following exceptions, bricks are missing here and there in the outer face of the walls and a certain amount of brickwork has in recent years been repointed with an inferior mortar,

⁵ Carew Sale catalogue, 1859. Photocopy in Sutton Local Studies Collection.

⁶ Sutton Archives D 2/2/1 p. 195, 200-1, 208, 227 and 244.

⁷ Photocopy in Sutton Local Studies Collection.

especially some few feet below the eaves. All defective walling and missing bricks should be replaced and all defective pointing should be raked out and repointed to match existing work.

Large holes appear in the roof which allow the water to penetrate and many of the tiles are displaced and missing. The tiles should be carefully stripped from off the roof and stacked for re-use, and the roof timbers examined and repaired as necessary.

The lantern above the roof and the cornice appear to be in a fair state of preservation, but both these should be examined and repaired as necessary and this and the dormers should receive three coats of the best oil colour.

This being done the roof should then be re-tiled in a careful manner replacing missing tiles with tiles of a similar pattern, care being taken to maintain the original projection at the eaves formed with a double course of tiles. The whole of the lead work should be examined and repaired if defective. In order to do this work successfully some light scaffolding would be necessary, and allowing for this, and the requisite work to place the building in sound condition, I would estimate the cost at approximately £80.

N.B. Trees have been allowed to spring up and encroach around the building. These, two walnut trees on the south-east and a horse-chestnut on the north side, I would suggest be removed, as I think much of the present damage has been caused to the building in past years by neglect and more especially from missiles being thrown to procure walnuts.

The Council's Recreation Grounds Committee agreed to raise £80 by a public appeal but this was rescinded at the meeting of the full council.⁸ It was then decided that the Council would pay for the work and £100 was allocated in the estimates for 1928-9.⁹ The work then proceeded and in September 1928 the architect and local historian Charles Marshall reported the developments to SPAB:

... I went over to Beddington to-day and had a look at the dovecote. They are getting on with the repairs and are relaying the tiles. The roof was in a bad state and they had to renew the 8 hips. I saw the old ones they were very bad. There are four dormer windows, one on each canted side of the octagon all old ones. The workmen told me they had to renew a good deal of the woodwork of three of them. These are the only dormers and one is shown in the illustration in the report. In this illustration they are filled with louvres, and the only difference is that they have removed the louvres and put in one single sheet of glass. Of course by this they have lost the shadows and the single sheet of glass does not look very attractive, but if they wanted to enclose the building it is difficult to suggest what they could do to keep the weather out and keep the shadows of the louvres.

Whoever told you the dormers were new was mistaken, but perhaps you could suggest something to the council to keep up the effect of the old louvres.¹⁰

SPAB then wrote to the Council complaining about the louvres and a critical article appeared in the *Herald* but the outcome is unclear.¹¹ It appears that the work cost £210.¹²

⁸ Minutes 1927-8 p. 318-21 and p. 413-4. Committee meeting 8 November 1927. Full Council meeting 21 December 1927.

⁹ Clerk of Beddington and Wallington Council to SPAB 5 March 1928 and 27 April 1928.

¹⁰ Charles Marshall to SPAB 19 September 1928.

¹¹ SPAB to the Council 25 September 1928; Council to SPAB 28 October 1928. *Herald* 5 October 1928.

¹² Council minutes 1928-9 p. 346 and 377.

In 1951 there was a proposal to open the dovecote for Festival of Britain, but it was rejected due to the dangerous condition of interior and cost of reinstating the floors.¹³

This seems to have made the Council more aware of the state of the building. In 22 May 1953 the town clerk wrote to the Ministry of Works saying that whilst the outside is reasonably sound the inside is in a fairly advanced state of decay. He asked if repairs should be undertaken and whether the Ministry would pay for them. The Ministry offered technical support but no money. The Ministry's staff inspected the building and found the first floor in a very dangerous condition. Some scrap was cleared from the building but no other action followed.¹⁴

In November 1967 the Ministry and the Council agreed that the following work should be done:

1. The bulls eye in the base of the open cupola can be fitted with a wired glass dome [?]
2. The open dormers can be fitted with timber shutters or louvres.
3. Defective floorboards in the loft floor should be replaced and the floor joists treated with solutions against beetle and rot.
4. The access ladder and handrail to the loft should be repaired and treated against rot and beetle attack.
5. The revolving ladder in the loft should be repaired and treated against rot and beetle attack.
6. The roof timbers should be cleaned down and treated with solutions against rot and beetle infestation.
7. The joists and boarded floors in the undercroft can be removed and gravel layed [?] until such time as a paved floor can be provided – this can be discussed further when it is known that funds are available.

However, Ministry's official noted that the local authority 'seems to be very unwilling to spend money on their historic buildings and features even though their officers have made recommendations...'¹⁵

Various letters were then exchanged between the Council and the Ministry but no work was done. Then in 1967 the Borough Architect, Trevor Jobling told the Ministry that the floors had been repaired 'together with the new ladder'. There was, however, no money set aside in the estimates for the year 1968-9.

On 28 January 1969 the Ministry wrote asking if any work had been done or money made available in the next financial year. They were told that a repair been done to the potence and that the Council was hoping to carry out some further work in the coming financial year. There was then a letter about proposed louvres but nothing seems to have been done. Then on 5 July 1977 the Council's planning section wrote to say that the removal of the existing roof covering would soon commence to allow the examination of the of the structure and the replacement or repair the frame or tiles as necessary. The Council was also considering the installation of louvres on the existing dormer windows to prevent the entry of pigeons into the building.

This appears to follow a report submitted to the Director of Technical Services on 10 August 1976 which said that the following repairs were needed:

- i) Repair / repoint external brickwork
- ii) Retain existing oak door frame but provide new door
- iii) Fill in the open dormers / cupola to prevent birds entering the building.

¹³ Council minutes 1950-1 number 991.

¹⁴ TNA WORK 14/1873.

¹⁵ TNA WORK 14/1873.

- iv) Paint the woodwork white
- v) Evidence of beetle attack was noted to the first floor timbers.¹⁶

Some wrangling about the quality and monitoring of the work then followed. It appears that the roof was completely stripped and defective material replaced. Two hip rolls were replaced, refelting took place, new battens were installed, lead on the hips were renewed, and splits in the lead dormer cheeks were repaired. Wire screens were fitted to prevent the entry of pigeons and the existing roof tiles were re-used.

Woodridge and Sciberras's 1996 report says that the

existing technical staff recall that between 1982-3 a 'chemical' treatment of the property was undertaken. It is thought that this was an attempt to waterproof the building using a silicon based compound. It is known that the initial treatment cause discolouration of the brickwork. Its long term effects are unknown. All references to these works appear to have been removed from the files.¹⁷

In the late 1980s the Council decided to open the Dovecote and Carew Manor to the public and extensive repairs were undertaken. Debris was cleared in February 1989, followed by the installation of a suspended timber ground floor, over the original clay/earth floor. The same year saw the reconstruction of the potence including the installation of the existing ladder. The spiral staircase and repair to the brickwork to the righthand side of the door, when viewed externally, dates from August 1990. The electrical installation dates from March 1991.

In the mid-1990s the Heritage Service staff noticed cracks in the brickwork at the corners of the building. This led to an investigation by the Council's surveyors and engineers and the production of the 1996 report by Alan Woodridge and Mike Sciberras. English Heritage offered some money and on 21 November 1996 the Leisure Services Committee agreed to make a bid to the Heritage Lottery Fund. The extent of the work was very uncertain as it was impossible to investigate the upper part of the building without costly scaffolding as the surrounding ground was too soft for a cherry-picker.

The initial plan was to do the work in two phases, the first of which was to comprise:

- Create hatch in the first floor for temporary scaffolding tower (the floor is not strong enough to carry the weight)
- Erection of internal alloy tower
- Install security fence and alarm system
- Scaffold the outside
- Strip tiles from lower part of roof and store for reuse
- Restore the integrity of the wall plate
- Investigate beetle infestation treat and replace timber as necessary
- Cut away and remove the felt between the timbers to improve the ventilation of the roof.
- Rest of felt to be removed in phase 2 and possibly replaced with breathable felt depending on the views of English Heritage
- Reinstate missing prop
- Investigate and draw fascia boards for repair in phase 2
- Investigate dormers for work in phase 2
- Cupola to be rebuilt as necessary without metal covering
- Structural roof timbers to be investigated for repairs in phase 2

¹⁶ Woodridge and Sciberras p. 9.

¹⁷ Woodridge and Sciberras p. 9-10.

- Cracks in walls to be repaired with stainless steel staples.
- Pointing and brickwork repairs following EH advice.
- Decoration – investigate original colour and agree scheme for phase 2.

The second phase was to be developed from the investigations in the first but was expected to include:

- Re-erect fence and scaffold
- Remove all roof tile
- Replace timbers identified in phase 1
- Dormers to be repaired in accordance with agreement to be made with English Heritage
- Facia boards to be replaced where necessary
- Reinstate roof
- Redecorate

The work was carried out in 1997. The building turned out to be in better condition than expected. The ring beam around the top of the wall had been a particular area of uncertainty, but was found to be intact and in reasonable condition. In the end all the work was completed in a single phase. The cost of this was met by the Council and English Heritage and the application to the Heritage Lottery Fund was not made. The turret had to be completely rebuilt, the roof tiles were taken off and reinstated using a mixture of the original tiles and new ones and the cracks in the brickwork were stitched with stainless steel ties and then filled with mortar and repointed. The woodwork was also redecorated.

The author of this report was the Heritage Manager at the time and was the client officer for the project. The various observations made are included in this document.

No major work has been done between then and the time of writing (2020).

4. THE TURRET

Figures 2 to 15 below.

The octagonal turret at the apex of the roof covered an opening which allowed the pigeons to come in and out. The turret roof was ogee shaped with a ball finial, all covered with sheet lead.

The corners of the turret roof were supported by timber ribs with the ogee profile cut into the upper surface. These were covered with boards of slightly varying width. They had been sawn and in most cases the marks crossed at a slight angle to the board edge, although some were vertical the variation suggesting that they were hand sawn. The boards were fixed to the ribs with hand-made nails with square pointed heads.

The open sides of the turret had vertical posts at each corner. The semi-circular heads of the openings were made of boards with the prominent wooden ‘key stones’. The boards and ‘key stones’ are mostly fixed with modern round nails. In at least one case (figure 9) the boards forming the arch were tenoned into the front column and secured with wooden pegs. The mortise was 58mm deep and 15mm wide. It probably extended the full height of the boards.

The columns consisted of two posts with a gap between them (figures 11 and 12). The outer face of the outer timber was cut at an angle to form the corners of the octagon. The tops of alternate inner column timbers were connected by two tie-beams which were reinforced by braces. The bottoms of the inner columns rested on a rough hexagonal ring beam which overlay the lead covering the top of the main roof. It seems likely that the inner columns and the

associated, ties, braces and ring beam were reinforcements inserted into the turret after it had been constructed. The timbers had been cut with a rotary saw which suggests a late date.

The bases of the outer columns were tenoned into the top of the ring beam that formed the apex of the main roof (see section 5.2 below).

The turret was completely rebuilt in 1997.



Figure 2. The roof of the turret looking northwest.

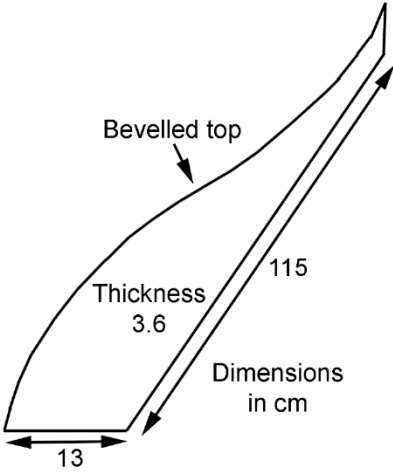


Figure 3. Sketch of one of the ribs forming the turret roof.



Figure 4. The side of the turret.

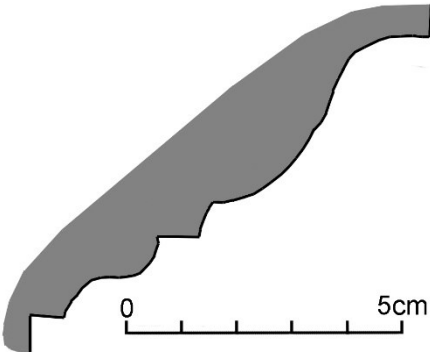


Figure 5. The moulding on the bottom edge of the turret roof.



Figure 6. Top of the side of the turret.



Figures 7 (left) and 8 (right). The top of the turret showing the junction between the columns and the boards forming the arch. Note the use of nails.

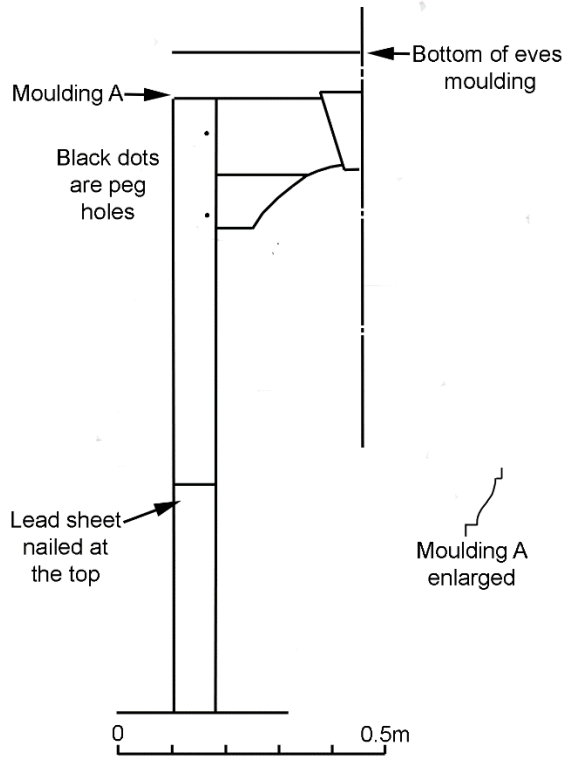


Figure 9. The northeast face of the turret.

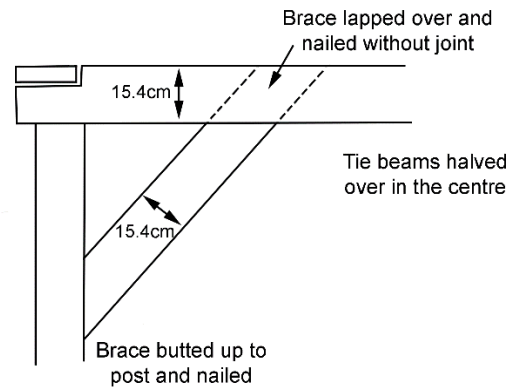


Figure 10. Sketch of the top of the reinforcing frame in the turret.



Figure 11. One of the columns supporting the turret roof. The lead has been removed, exposing the construction. It consisted of two pieces of timber with a gap between them.

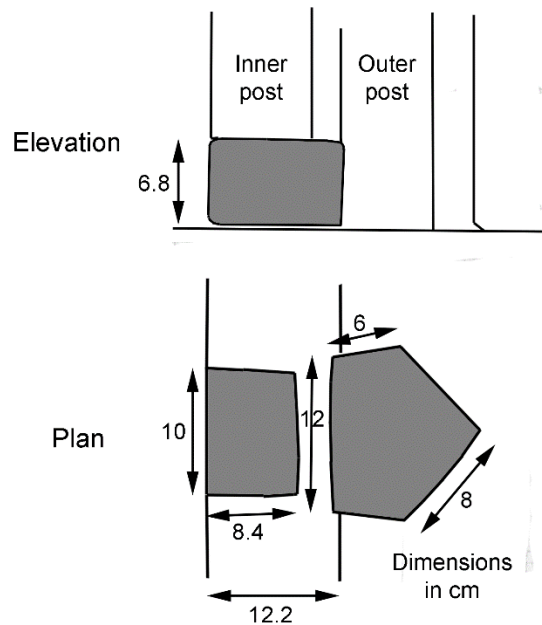


Figure 12. Plan and elevation of the post base at the east / northeast corner of the turret.



Figure 13. The floor of the turret showing the wired-off entrance where the birds came in and out



Figure 14. The base of the turret. The inner half of the column rested on a timber ring beam which in turn rested on lead capping at the top of the main roof.



Figure 15. A further view of the base of the turret showing the inner and outer timbers of the column on the left. The inner one rested on the ring beam.

5. THE MAIN ROOF STRUCTURE

5.1 An outline of the structure

(Figures 16 to 20).

A tie-beam runs across the building just below the top of the wall. One end rests on the east corner of the wall the other on the west. Additional timbers run from the centre of the beam to the north and south corners. Timbers also run from the tie-beam to the other four corners. Those to the NE and SE corners run from the same point on the tie-beam a short distance from the centre. The beam to the NW corner joins the tie-beam close to the post but that to the SW corner is further from the centre.

The undersides of the tie-beams are dovetailed into the top of a wall plate which runs right round the building. There are currently braces between the main tie-beam and the two principal rafters directly above it.

Principal rafters rise from corners of the wall plate to the octagonal ring beam which supports the turret at the apex of the roof. A line of purlins run around the roof about halfway up. They are mostly at the top of the ventilating louvres although a few are set higher.

The common rafters rise from the wall top to the purlins where they are tenoned in. A second set of rafters then rise from the purlins and end either against the ring beam at the apex of the roof or against the sloping sides of the principal rafters.



Figure 16. The roof frame. The western end of the main tie-beam can be seen bottom centre.



Figure 17. The south side of the roof looking west.



Figure 18. The north side of the roof looking northwest.



Figure 19. The east side of the roof with the east end of the main tie-beam centre left.



Figure 20. The east end of the main tie-beam at corner 2 showing the brace between it and the principal rafter. Note that the mortise on the underside of the rafter is for a wider brace. This was the brace which was in place before the 1997 repairs.

5.2 The roof apex

Figures 21 to 24.

The apex of the roof was formed by an octagonal ring beam some of which was old and some more recent replacement. The older timbers appeared to have been joined by a simple notch although only the top of the joint could be seen. They were also connected with hand-forged T-shaped wrought iron ties which were secured by nails and also by staples driven in next to their raised ends. The descending parts of the Ts connected the ring to the top of the principal rafters where they were again secured with nails and staples. The older ties had square and rectangular fixing holes which were large towards the centre and narrowed towards the end (figures 21 to 23). These holes were generally empty and the ties were fixed with round nails driven through round holes. Several of the pieces of wood in the ring beam had been replaced with modern-looking timbers the ends of which were simply butted up against each other. Two of the ties also looked like replacements.

The older timbers were typically about 9.7cm wide by 17.6cm high.

The ring beam was covered by another ring beam and frame shown in figure 24. The bottoms of the front columns of the turret were tenoned into this. The frame was covered with planks about 27 to 30cm wide and 2cm thick. They were fixed with iron nails with square pointed-topped heads.



Figure 21. The ring beam at the apex of the roof showing the iron ties binding the structure together.



Figure 22. The ring beam showing the mixture of old and new timbers.



Figure 23. The underside of the roof apex showing the ring beam and the iron ties joining it together and linking it to the top of the principal rafters.

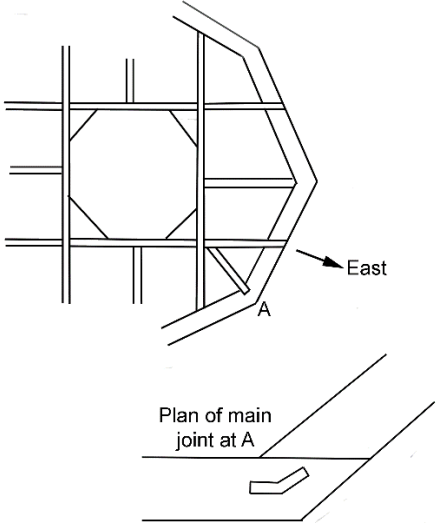


Figure 24. Sketch of the upper ring beam and frame. The detail shows the joint on the top of the ring beam at point A.

5.3 The roof exterior and the ventilators

Figures 25 and 26.

The roof was covered with peg tiles that appeared to be a mixture of old and more recent ones. There were a few double-width tiles (see section 12). The tiles were placed on battens which were underlain by roofing felt. Some of the tiles must have been replaced in 1928, probably in the 1977 repairs and certainly in 1997.

There are four dormer-like ventilators on the roof slope. They are of fairly uniform design, slatted at the front, with lead-covered sides, a decorative moulding around the top and a flat lead roof. The timber work behind the lead was not seen.

Charles Marshall's letter to SPAB of 19 September 1928 says that the workmen had renewed a good deal of the woodwork on three of the dormers. The Council had replaced the louvres with glass. SPAB objected to this but it is not clear if they were successful.¹⁸

By 1953 the dormers appear to have been open to the elements without either glass or louvres.¹⁹ The latter appear to have been reinstated in the roof repairs carried out in 1977.



Figure 25. The front of the southeast ventilator.



Figure 26. The north side of the southeast ventilator.

¹⁸ Charles Marshall to SPAB 19 September 1928; SPAB to Council 25 September 1928; Council to SPAB 28 October 1928.

¹⁹ TNA WORK 14/1873 photo A.3060/2 dated 28 September 1953.

5.4 The tie-beams

The tie-beams and the corners of the of the roof have been numbered as shown in figure 27.

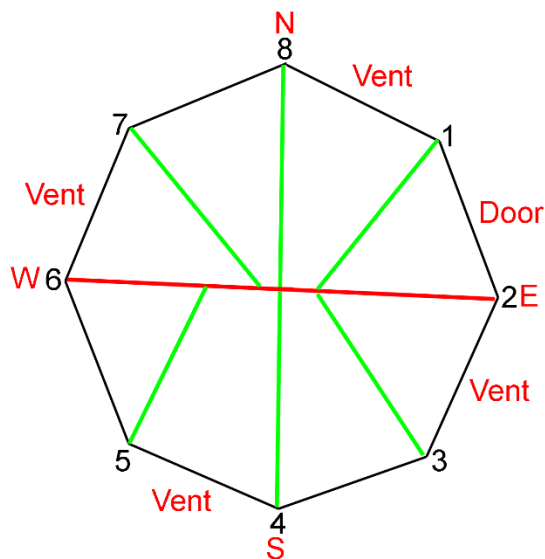


Figure 27. The numbering of the roof corners.

The tie-beams were examined in the centre of the building near the top of the potence.

Tie-beam 1 was 16cm wide and high. It had a waney edge on the southeast side and was probably quarter sawn.

Tie-beam 2/6 was 37cm wide and 28cm high. The top was very eroded. Woodridge and Sciberras recorded a mortise 130mm long, 35mm wide and 125mm deep about 2.06m from corner 2. This must have been for an upward running brace which was missing at the time of their survey.²⁰

Tie-beam 3 was 12.5cm wide by 15cm high. It was in good condition and had a clean sawn top. The tenon joining it to the main beam 2/6 was narrower than the mortise. This suggests that it is a replacement.

Tie-beam 4 was 20cm wide and 19.5cm high. The top is waney but not heavily eroded.

Tie-beam 5 was not reachable. It was more or less square with some erosion on the top.

Tie-beam 7 was also unreachable. It appeared to be quarter sawn with the waney side to the north. The top was in good condition.

Tie-beam 8 was about 14.2cm high. The top was heavily eroded. The tenon connecting it to the main tie-beam 2/6 was about 3.5cm high and extended to the full width of the timber.

The secondary timbers were joined to the main one by a mortise and tenon at the bottom of the side timber. Each joint was secured with two wooden pegs and reinforced with iron straps (figures 28 and 29).

²⁰ Woodridge and Sciberras p. 19.

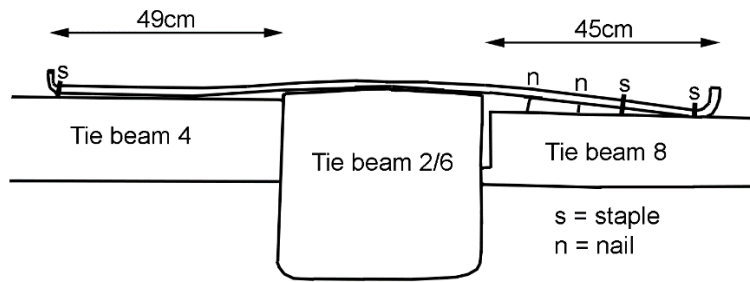


Figure 28. Sketch of the junction of beams 2/6, 4 and 8. An iron strap ran from beam 8 to 4 across the top of 2/6. The nails connecting the strap to beam 4 could not be seen properly and were not recorded.

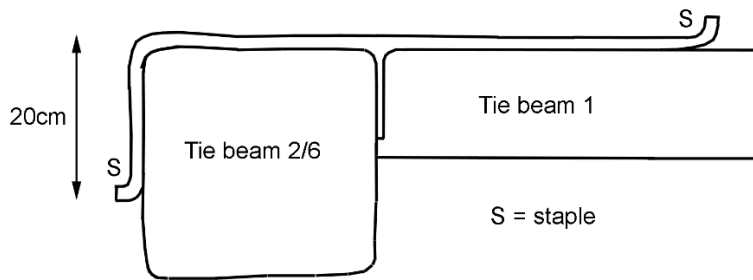


Figure 29. Sketch of the junction of tie-beams 2/6 and 1. The iron strap has been cut into the side of 2/6 to accommodate the curve of the metal.

5.5 The wall plate and the ends of the tie-beams

The bottom edge of the roof covering was lifted during the repair work so that it was possible to see the wall plate and the ends of the tie-beams and foot of the rafters. The amount exposed varied, so the observations recorded below are somewhat fragmentary.

Corner 1 (northeast)

The original tie is 21.5cm wide and 13.5cm high. It has a chisel-cut carpenter's mark 'III' on the north side. The same mark also appears on the principal rafter. The rafter is 25cm high by 14.5cm wide. It is not set square to the tie-beam. On the north side the inner edge of the rafter is 2.5cm from the face of the tie while the gap is 6cm on the outer edge. On the south side these measurements are 7cm and 5.5cm. The joint between the rafter and the tie is secured by two pegs. The hole for one of these cuts the carpenter's mark. The tie is set about 3cm into the wall plate on the north side and about 1cm on the south. There is no dovetail, but the joint does not seem to have moved significantly. On the north side of the corner the iron tie joining the outer side of the wall plates is 29cm long, cambered, and has seven round spike holes which are unevenly spaced and are not in a line. On the south side the tie is 31cm long, uncambered, and has three round spike holes.

Corner 2 (east) The main tie-beam

The end of the original tie is badly rotted and is hollow in the centre. It is 33.5cm wide and probably about 17cm high. The top is rounded. The details of the joint are not visible but the tie has probably pulled inwards by about 10cm. Additional reinforcing timbers have been laid along both sides of the original tie. The one on the north side is 12.5cm high and 7.5cm wide while that on the south side is 13.2cm high by 7.4cm wide. Two pieces of timber have been laid across the outer ends of these at right angles. They support a timber 15cm wide by 7.56cm high that runs inwards above the original tie through the nesting box wall. The rafter rests on the top of this, and there is a rather bodged sprocket connecting to the eaves board.

The wall plate is 11.5cm high and 31cm wide on both sides of the corner.

The metal tie joining the wall plate is 6.2cm high and is slightly cambered. On the north side it extends 41cm from the corner and has three round holes with spikes and two square ones above them - one with a spike and one empty. On the south side it is 32cm long and has a line of four round spike holes of which one is empty. There are two square holes above them with spikes.

The nesting boxes are 31cm wide on both sides of the corner. The box floors have collapsed on the south side.

Corner 3 (southeast)

Both the tie and the rafter here are clearly new and in good condition. They are connected by a lap joint which has setting-out marks in pencil. The sprocket is wormy and is clearly reused old wood. The tie is 14.4cm high and 13cm wide while the rafter is 24.7cm high and 14.5cm wide. There appears to have been a dovetail between the original tie and the wall plates, although the inner end of the joint has been cut away to fit the new timber.

The iron wall plate tie is unusually thick and strongly cambered, giving a D-shaped section. On the east side it has 5 square holes with 3 spikes in the end holes. The end of bar slightly turned out. Its length is 41cm and the height at end was 5.3cm.

Wall plate 11cm high 33cm wide on the east side.

The nesting boxes have a width of 30 to 32cm. The floors by the tie-beam have collapsed.

Corner 4 (south)

The original tie is 21cm wide and about 15cm high. The joint with the wall plate is only visible on the west side where it appears to be straight and is probably not dovetailed. The tie has not pulled significantly out of the joint. The tie has pieces of reinforcing timber attached to each side. The eastern one is 12.7cm high by 5.2cm wide. A short length of wood runs across the top of the end of these timbers and bridges over the original tie. This supports the outer end of the rafter; the inner end still rests on the original tie top.

The wall plate to the east of the joint is has a rounded waney top.

On the west side the wall plate is 12cm high by 33cm wide. It is squared and in good condition.

The iron tie at the corner of the wall plate is 7 to 7.3cm high. The top edge is cambered, the bottom square. On the east side of the joint it is 37.5cm long, and has four square spike holes with spikes in the inner three. On the west side of the joint the iron tie is 38cm long and has four square spike holes, with spikes in outer three.

The nesting box floors have collapsed on both sides of the corner.

Corner 5 (southwest)

The original tie is 24cm wide and about 14cm high. It has boards nailed to each side with a short bridging timber across the top at the end. This supports the outer edge of the rafter foot. The board on the east side is 11.5cm high by 5cm wide, while that on the west is 12.5cm by 5cm. The rafter is 24cm high by 14.5cm wide and does not look very old. The joint between tie and wall plate appears to be dovetailed. The joint ends 7cm from outer edge of wall plate - most of the others come to edge. The tie has pulled about 5.5cm out of the joint.

The wall plate to the west of the corner is square and of fine-grained timber, 32.5cm wide by 11.5cm high. To the east of the corner it is 32cm wide by 12cm high, is squared and in good condition, and has a well-cut carpenter's mark 'VII' on east side.

The iron tie across the joint in the wall plate corner is 6.5cm - 6.7cm high and is cambered. On the east side of the corner it is 37.5cm long and has four evenly spaced square spike holes with

spikes in the outer three. On the west side it is 39cm long and has four evenly spaced square spike holes. There are spikes in the inner three, but innermost of these has lost its head. There was never a spike in the outer hole as there is no mark in the timber behind it.

Corner 6 (west) The main tie-beam

The original tie is 32.8cm wide by 29cm high. It has a waney edge on the bottom corner on the south side, but not on the north. The top is rather eroded and rotten. There is a neatly cut carpenter's mark on the north face (figure 33). The tie fits into a dovetail in the top of the wall plate (figures 30 to 32). The tie has pulled out by 3cm. The present principal rafter ends on a block of wood on top of the tie and a sprocket continues the line down to the cornice (figures 30 and 31).

The iron tie across the outer side of the joint in the wall plate is 5.8cm high and is cambered. On the south side it is 33cm long and has four unevenly spaced spike holes. From the corner outwards they are:

1. Square with no spike.
2. Square with a spike.
3. Round, countersunk with spike.
4. Uncertain shape with nail.

On the north side the tie is 35.5 cm long with three holes which have spikes that are probably square.



Figure 30. The north side of corner 6.



Figure 31. The south side of corner 6.

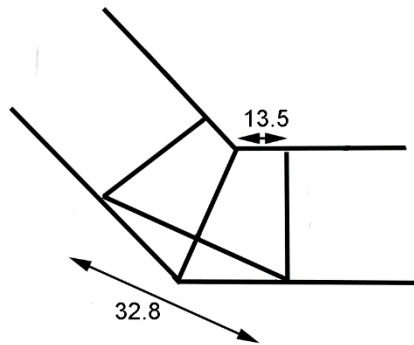


Figure 32 (left). Corner 6. The mortise on the top of the wall plate. Dimensions in cm. The 13.5cm measurement was made on the tie-beam.



Figure 33. Corner 6. The carpenter's mark on the north side of the main tie-beam

Corner 7 (northwest)

The joint here is in a poor state and there are at least two phases of bodged repairs. The original tie is 21.3cm wide by 16.5cm high. The timber is quarter-sawn and the top north edge is curved. The tie was fixed to the wall plate by a shallow dovetail about 2cm deep on the south side and 1.5cm on the north. On the south side the tie appears to have originally been secured by a vertical peg and there may have been one on the north side, but the relevant part of the wall plate has rotted away. The tie has pulled in from the wall plate by 14 to 15cm. At some point there has been an attempt to stop this movement with a wrought iron reinforcement which runs around the outer edge of the wall plate and then twists and runs along the south side of the tie and passes inward past the nesting box wall. There are square holes for spikes which are mostly empty.

The hip rafter rests on two pieces of wood which are laid across the end of the tie-beam and are clearly modern.

The iron tie joining the outer edge of the wall plate has a rectangular cross-section rather than a shallow D, and also has round spike holes. It is 46cm long on the south side, 49cm on the north.

Corner 8 (north)

The original tie-beam is 13cm high by 23cm wide and has a waney edge on the north side. It ends just sort of the wall plate but it is not clear if it has been pulled inwards by building movement as the end is very rotten. On the west side the end of the wall plate is cut for a dovetail and there is a chisel cut carpenter's mark II on the face of the dove tail joint.

A piece of timber 7.5cm high by 26.5cm wide has been laid along the top of the original tie. It rests on a short length of timber that runs across the joint in the wall plate at right angles to the tie. This reinforcement is 15cm wide by 7.5cm high. There is a 2cm thick piece of packing between the top of the cross timber and the bottom of the timber along the top of the tie. There is also packing under the cross timber. The rafter is 11cm wide by 24.5cm high and appears to be a replacement. The outer edge of its foot rests on a block of wood which has been laid across the end of the reinforcement timber along the top of the original tie, while the inner edge rests directly on the tie reinforcement. The original tie is supported only by the reinforcements and the nesting box wall.

The wall plate to the east of the corner joint is 12.5cm high. It looks coarser-grained softer wood, and the inner side has rotted badly, making it difficult to establish the original width. The wall plate to the west of the corner has a waney top inner edge and is about 8.5cm high by about 29cm wide.

The iron tie on the outer side of the wall plate is not cambered. It is 6cm high in the centre and

tapers to about 4.6cm at the outer ends. On the east side it is 40cm long and has 4 round spike holes. One has no spike in it and is countersunk. On the west side of the corner it is 44cm long and there are four round spike holes, all with spikes.



Figure 34. 2-07 Corner 8.

5.6 Carpenter’s marks

Several carpenter’s marks were noticed in the course of the 1997 work. These are listed below. The list is almost certainly incomplete as no systematic search was made, and some parts of the timber work were not exposed.

Mark	Location and notes
	Principal rafter 1 – top end.
	Principal rafter 1 – bottom end.
	Principal rafter 1 about 0.4m below the purlin connecting rafters 1 and 8.
III	On the foot of principal rafter 1
III	On the north side of the tie-beam at corner 1.







	On the purlin between rafters 1 and 8 above the east edge of the dormer.
	On the foot of the 2nd common rafter from the north end of bay 2/3. The broken line is doubtful.
VII	On the wall plate to the east of corner 5. Neatly cut mark.
	On the foot of the 3rd common rafter from the south end of bay 5/6.
	On the 5th rafter from the south end in bay 5/6. Underside of rafter.
	On the 5th rafter from the south end in bay 5/6. Side of rafter
	Corner 6. North side of tie-beam.
II	Corner 8 (north) on the face of the dovetail joint. Chisel cut.



Figure 35. The carpenter's mark on the top of principal rafter 1.

6. THE CORNICE

The cornice is made out of wooden planks. The mouldings are shown in figures 36 and 37.



Figure 36. The cornice.

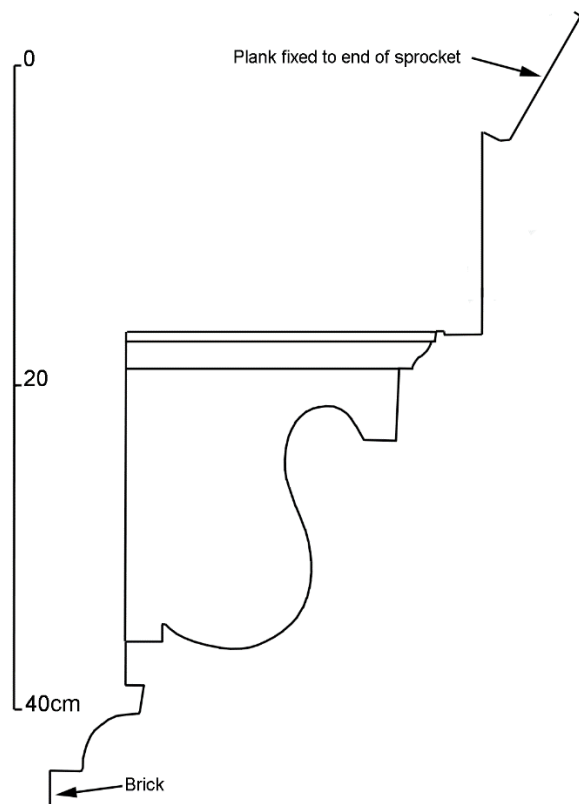


Figure 37. The mouldings on the cornice.

7. THE WALLS AND NESTING BOXES

Figures 38 to 44.

In plan the walls appear to be a regular octagon, each side having an external length of about 4.10m. Calculation gives a diameter to the outside corners of 10.71m or 35.149 feet, suggesting that the building was laid out in a 35 foot circle.

The brickwork on the outside is Flemish bond and is plain, apart from a projecting band about halfway up. The inside is lined with nesting boxes which are built into the wall from below the first floor to the top. There are 57 nesting boxes in each row.

On the first floor	Rows	Boxes
Blocked rows at the top	1	57
Rows of open boxes	14	798
Blocked rows below	2	114
At first floor level:		
Blocked rows	2	114
On the ground floor:		
Above the door top	3	171
Below the door top	2	114
Totals	24	1368

The door takes the space of six or eight boxes so the total number was about 1,360. When the first floor was inserted (see section 8 below) the number was reduced to about 800.

The removal of the lower part of the roof covering in the 1997 repair work exposed the top of the boxes so the structural details could be seen. The wall was in two parts: the outer wall on which the wall plate rested and the nesting boxes which built against the inside of it as shown in figures 42 and 43. The lack of bonding between the two parts and caused at least parts of the nesting boxes to move inwards leaving a gap of 30 to 35mm.

The front and sides of the nesting boxes are one brick width thick (figures 39 to 41). Each row of boxes is three courses high. It is covered by a row of laths laid lengthwise along the wall. This is then covered by two lines of brick stretchers, one of which is wholly supported by the laths while the other projects through the front wall of the nesting boxes, producing the raised bands which are a conspicuous feature of the inside of the building. The stretchers were then covered with a layer of peg tiles which formed the floor on which the birds nested.

Woodridge and Sciberras noted that:

the thickness of the tile perches and the laths used to support the nesting box flooring prevent the regular vertical alignment of the brick courses between the nesting box construction and the main vertical wall of the Dovecote. From inspection it was found that some walls were bonded every 3 or 4 courses, whereas some appeared to have little or no physical connection with the main structural wall.²¹

There are traces of a row of nesting boxes which had their floor level with the bottom of the tie-beam. There is a row of projecting brick headers above this but the front wall of the boxes has been rebuilt so it is not clear whether there was a further row of boxes. I doubt if the slope of the roof would leave room for them.

The outer face of the bricks along the top of the outside wall have a good deal of vertical claw marking. This is widespread and not confined to a few areas. It suggests that the birds could get in and out under the eaves, or that some of them were nesting on top of the cornice soffit board. If the latter, they would be well out of reach of the keepers.

²¹ Woodridge and Sciberras p. 19.



Figure 38. The nesting boxes inside the dovecote.

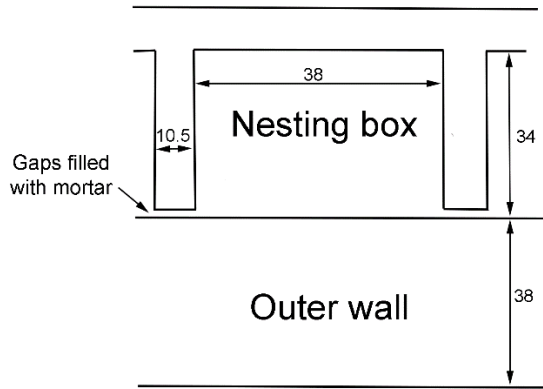


Figure 39. Sketch plan of the nesting boxes seen at the top of the wall. Dimensions in cm.

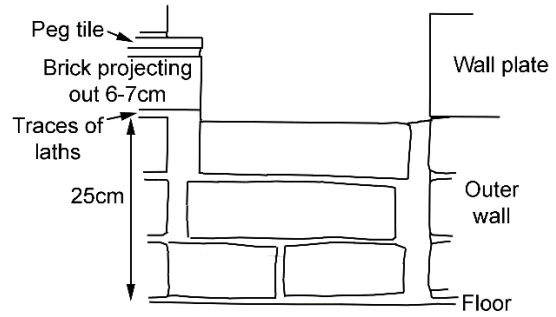


Figure 40. Sketch of the side of a nesting box. The laths were laid lengthways along the wall. The line of projecting bricks below the peg tile are all headers.

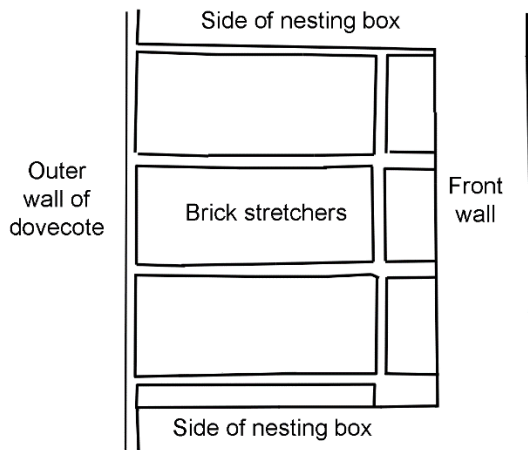
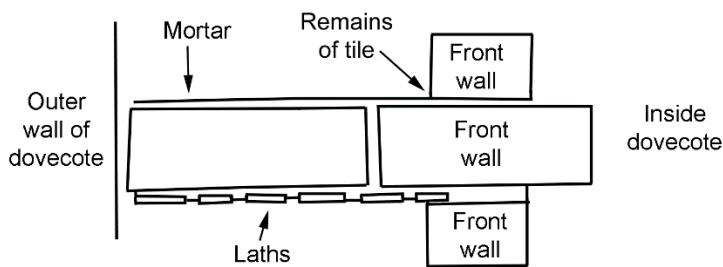


Figure 41. Sketch section (left above) and plan (left below) of another nesting box exposed on the wall top. This is better preserved. It appears that the floor was of tile underlain by mortar, brick and laths.



Figure 42. The top of the wall showing the common rafters and the sprockets which support the roof above the eaves and end against the board forming the top of the cornice. The common rafters end on the wall plate which rests on the brick outer wall. The inner wall which forms the front of the nesting boxes rises up to meet the underside of the rafters.



Figure 43. The back of the front wall of the nesting boxes.



Figure 44. The top of the nesting boxes. The wall plate is at the bottom of the photos and the nesting box wall at the top.

8. THE BRIDGING BEAM, FLOOR AND POTENCE

Figures 45 to 52.

The first floor and potence are supported by a large bridging beam which runs across the building from above the door. The western end has been inserted into the wall leaving a clear scar in the external brickwork (figure 45). The upper edge of the beam has lines of bare-faced soffit tenons with spurred face shoulders on both sides. These look as if they were for floor rafters but there is no seating for the other ends in the dovecote wall. This suggests that the timber was reused. Hewett says that examples of this joint are known in the early 18th century²². The centre of the bridging beam is supported by a vertical post which is mentioned in EE Boden's 1927 survey.

The first floor joists rest on a line of packing along the top the bridging joist. Boden says that the floor joists were of deal, 9 by 3 inches. The outer ends of the joists are embedded in the walls and are clearly later insertions. All the floorboards – and possibly some of the joists – were replaced about 1989 when the dovecote was restored and opened to the public.

The octagonal post of the potence rests on a pivot at the centre of the bridging joist (figure 46). There are two pieces of packing between it and the joist. The bottom of the potence is slightly tapered and there is an iron band to stop the wood splitting.

The potence consists of a mixture of old and replacement wood, some obviously modern. Photos taken in 1953 show that the ladder and the other obviously modern timbers are recent

²² Definition and date Hewett 1980 fig. 307 and p. 283.

replacements.²³ This was done when the dovecote was being prepared for public opening. The 1953 photos show that the then existing ladder was cruder consisting only of treads nailed to the top of the two side timbers.

The top of the potence is connected to the underside of the tie by a metal pin to allow rotation. There is an x-shaped iron fitting loose on top of the post (figures 50 and 51). This was probably originally fixed to the underside of the tie-beam to prevent the pin eroding the wood.



Figure 45. The scar on the west wall where the first-floor bridging beam was inserted.



Figure 46. The bridging beam with the base of the potence and the top of the central post.



Figure 47. Two views of the potence.

²³ TNA WORK 14/1873.



Figure 48. The joint between the potence post and the horizontal timber which supports the upper end of the ladder.



Figure 49. The main tie-beam and the top of the potence.



Figure 50. The top of the potence.

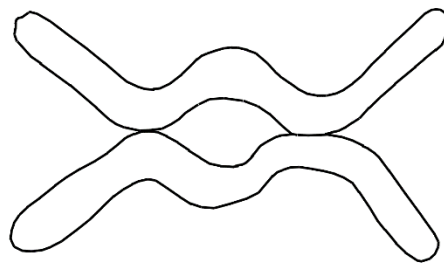


Figure 51. Rough sketch showing the shape of the iron fitting at the top of the potence. Each arm is about 20cm long with three nail holes in it. The iron was 7 to 8mm thick.



Figure 52. The first floor was accessed by this straight ladder which was replaced with the existing spiral staircase in August 1990 when the building was adapted for public opening. The steps are now preserved in the dovecote.

9. THE FOUNDATIONS AND FLOOR

EE Boden's 1927 report says that 'deep weathered and tarred flint surrounds the building at its base pierced at intervals with openings to ventilate the floor. This is now a concrete ring with four ventilation slots at ground level. It is not clear whether this covers the flint or replaces it.

Several blocks of stone can be seen on the inside of the lower parts of the wall. The significance of these is unknown.

Boden implies that a wooden ground floor existed in 1927 and he says space was 'divided by wood partitions into bonds [?] for storage'. It seems likely that the floor was inserted when the building was turned into a granary. The floor was renewed in 1989.²⁴

10. DISCUSSION

The walls and nesting boxes appear to be part of the original structure which probably dates from the early 18th century.

Both ground and first floors are clearly an insertion probably to convert the building into a granary. The upper part probably continued to be used as a dovecote. This had been done by 1919 when the use as a granary is mentioned in the sales particulars for the park. The 1820 enclosure award map shows two small buildings to the north of the dovecote side by side and east or west of each other. The 1859 particulars for the sale of the Carew estate mention a granary and a dovecote as separate buildings. It seems likely that the conversion of the dovecote was done after this. The two small north-south aligned builds are shown on the 1868 Ordnance Survey map but they had gone by the time of the 1896 survey. If one or both of these was a granary it seems likely that the conversion of the dovecote took place sometime after 1868.

The history of the roof is very problematic. The four ventilators are not shown on the print in *My Garden* which was published in 1872 (figure 1) so they were added afterwards – perhaps when the first floor was inserted. However, the print is of doubtful accuracy as it shows a large window in the upper part of the wall for which there is no structural evidence. The ventilators certainly existed by 1928.

Charles Marshall said that the 1928 repair involved the renewal of 'the 8 hips' and that the old ones were 'very bad'. The obvious reading of this is that the 8 main timbers in the corners of the roof were replaced (I have called them principal rafters). This could not have been done without dismantling the whole roof and the statement sits uneasily with the renewal of a good deal of the woodwork of only three of the dormers. It is also difficult to reconcile with the existing structure. Principle rafter 3 is of obviously modern timber while rafter 1 has scratched carpenter's marks. The other principle rafters are of more uncertain date. I was not able to inspect most of them during the 1997 building work as the upper sides were largely hidden by the roofing felt. The view from below is too distant to draw firm conclusions.

Rafter 1 has two types of carpenter's marks, one scratched and the other neatly cut and modern looking, which is inconsistent with a replacement timber unless it was reused.

The mortise for the brace between rafter 2 and the main tie-beam is longer than necessary, which suggests that the brace is a replacement and that the rafter is not (figure 20). The mortise for the brace at the other end of the tie-beam was not matched by a joint in the underside of the rafter, which suggests that the latter is a replacement.

If the principle rafters were installed in 1928 the extensive packing around their feet must date

²⁴ Wooldridge and Sciberras p. 6.

from 1977, but the work is not mentioned at that time and the amount of decay seems excessive for the 50-year interval. Marshall did not witness the work on the roof frame as it was being retiled at the time of his visit. He saw timbers that had been removed, but he must have been largely relying on what he was told. That leaves some scope for a misunderstanding between him and the workmen.

The tie-beam to corner 3 is clearly a replacement but the others look older.

On balance it seems likely that the principal rafters were not all replaced in 1928 and that the roof is a mixture of timber of various dates.

Wide flint foundations were not used on the other early 18th century structures at Beddington. The arrangement also seems impractical as water would easily get into the top of the mortar binding the flints causing the structure to disintegrate. The tar, and later concrete, covering the foundation were presumably needed to prevent this. Why create the problematic arrangement in the first place? It would make sense if the foundation was reused from an earlier building. This would be consistent with the presence of a small amount of stonework in the lower part of the inside walls. The timbers with scratched carpenter's marks might also have been reused from the earlier structure.

Octagonal dovecotes became popular in the 17th and 18th centuries but earlier examples are known in both brick and stone.²⁵ It is easy to imagine the flintwork as a foundation a building largely of clunch or Reigate stone. Neither stone weathers well, so a replacement might have been necessary, but on the present evidence this is uncertain.

11. APPENDIX: EARLY DOCUMENTARY REFERENCES

Dove House Meadow, Great	Sutton 325 a	
Dovehouse	Sutton 325 a	
Dovehouse Meadow, Great	SHC 2163/1/15 & 16	c. 1689
Dovehouse Meadow, Little	SHC 2163/1/15 & 16	c. 1689
Dovehouse Meadow, Little	Sutton 325 a	
Doves, salt stone for	SHC 281/4/25 p. 2	February no year
Pigeon House, salt stone for	SHC 281/4/23 p. 14	May 1573
Pigeon House, making stole to	SHC 281/4/22 f. 6 r	January 1573
Pigeon House Meadow	SHC 281/4/23 p. 10	May 1573
Pigeon House Meadow, ditching	SHC 281/4/23 p. 3	April 1573
Pigeon House Meadow ditching	SHC 281/4/23 p. 14	May 1573
Pigeon House Meadow, hewing trees in	SHC 281/4/23 p. 3	April 1573
Pigeon House Meadow, mowing 6½ acres	SHC 281/4/15 r	July 1570
Pigeon House Meadow, mowing 20½ acres.	SHC 281/4/23 p. 33	July 1573
Pigeon House, scouring dyke by	SHC 281/4/15 r	July 1570
Pigeon House, glazing	SHC 281/4/22 f. 6 r	January 1573
Pigeon House, ladder and plat for door	SHC 281/4/24 p. 1	December 1573
Pigeon House, salt stone for	SHC 281/4/24 p. 2	December 1573
Pigeon meadow, water course in	SHC 281/4/10	May - June 1570
Pigeons, corn for	SHC 281/4/24 p. 8	January 1573

²⁵ Hansell 1988 p. 145-162.

12. APPENDIX: MEASURED ROOF TILES

The following tiles were picked out from the stacks of tiles taken off the roof. They were mainly selected because they were on the end of the piles and may not be a representative sample.

I had the impression that the older tiles tended to be narrower and have more closely spaced peg holes.

Height	Width	Pegs	Thick	Notes
262	152	2r	12	
262	165	2s	11	
264	147	2r	12	Unevenly placed peg holes.
266	159	2s	13	
265	156	2r	14	
277	150	2r	14	Large inclusions
271	157	2s	15	
265	160	2s	12	
262	148	2r	12	
268	160	2r	14	
270	150	2r	12	
270	159	2s	14	
270	157	2r	12	
264	137	2s	13	
264	169	2r	12	
264	156	2s	12	
261	143	2r	12	
267	159	2s	14	
270	162	2r	14	Clay well prepared - looks modern.
272	150	2r	14	

The above dimensions are in millimetres. Round peg holes are marked 'r', square ones 's'.

There were a few double peg tiles 253mm wide by 280mm high with three small round nail holes and three nibs. They were clearly machine made and not very old.

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Surrey History Centre.

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TNA

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