

Two Early Cruck Houses in South Oxfordshire

By JOHN BLAIR

'Crossways', Benson, and 'Orchard End', Waterstock, stand out among recorded Oxfordshire cruck houses for their structural peculiarities. Wall-framing seems to have been virtually absent in the first and is of a rudimentary kind in the second; in both cases wall-rails are jointed into the ends of the tiebeams by horizontal tenons. Together they may represent two stages of development from primitive houses, comprising earth-fast cruck trusses held loosely together by longitudinal members, to 'permanent' buildings in which the trusses are integrated with substantial wall-framing.

'CROSSWAYS', CROWN SQUARE, BENSON. SU 6204 9179. (FIG. 1)

BENSON was a populous estate in the late thirteenth-century, with a large body of freeholders.¹ The house called 'Crossways' stands on the eastern edge of the medieval village. Its history is unknown before a rebuilding in rubble and brick dated 1747,² but the N.E. gable wall retains a fragmentary cruck truss (FIG. 1a). This comprises two light but well-formed blades (apparently terminating just above collar level), a tiebeam, a collar, two 'secondary rafters' and the remains of a common couple with a yoke. The internal (S.W.) face of the apex (visible in the roofspace) is smoke-blackened, and presumably faced into an open hall. A further bay (not necessarily original) once existed to the N.E., for shallow joist-mortices are cut into the outer face of the tiebeam, and a doorway has been inserted between collar and tie, perhaps when the hall was floored over.

The interest of this fragment lies in the horizontal open mortices cut into the ends of the tiebeam, each with a vertical peg transfixing the remains of a tenon (Fig. 1b). The tenons must have belonged to horizontal rails, which presumably ran between the surviving tiebeam and that on the next truss. These rails might be interpreted as wallplates, but their end joints are feeble and it is hard to believe that they bore the weight of the roof. A more plausible reconstruction is to postulate a conventional 'reversed-assembly' wallplate, resting both on the ends of the tiebeams and on the rails strung between them. The mortices only accommodated one pair of rails running S.W. wards from the truss, so if the lost N.E. end bay was original it must have been a light structure with a single wallplate (perhaps comparable to the end bays of the Waterstock house discussed below). While the absence of intermediate studs cannot be proved, the substantial bay-posts which are an essential feature of true wall-framing were certainly absent: no vertical members were jointed into or halved across the ends of the tie.

Thus it seems that the walls were probably little more than stud and wattle screens; the only structural timbers would have been the wallplates and the rails running immediately below them in the hall bay or bays.

¹ *Rotuli Hundredorum*, ii, 751-4.

² The datestone reads 'P. W. A. MDCCXLVII', and 'RICHARD ARTHVR 1747' is cut on a brick. The internal dimensions (9.55 m. × 4.0 m.) might reflect those of the original house.

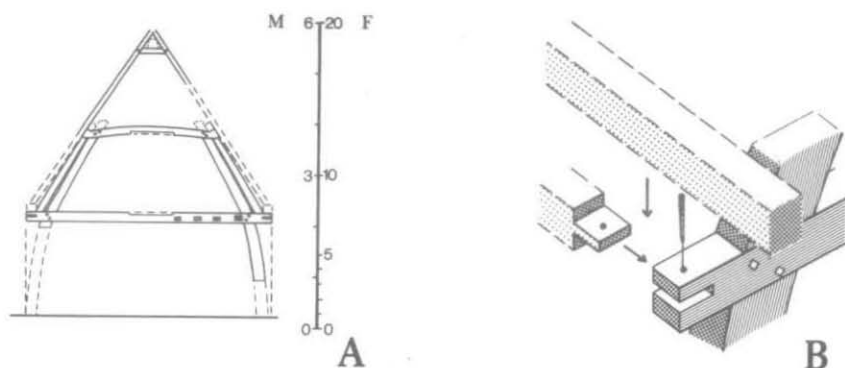


FIG. 1

'Crossways', Benson. A: N.E. face of surviving cruck truss (original structure only). B: Reconstruction of system linking cruck truss to side wall (wallplate hypothetical).

'ORCHARD END', WATERSTOCK. SP 6381 0569

Historical setting. (FIG. 2)

Waterstock is a small parish between Oxford and Thame.³ In 1848 the village comprised three streets meeting at a pond, with the house now called 'Orchard End' occupying a toft near the centre. External inspection does not suggest that any other standing houses are medieval.

The settlement was apparently larger before the Black Death. In 1279 there were fifteen tenants, five of them freeholders, with virgate, half-virgate and cottage

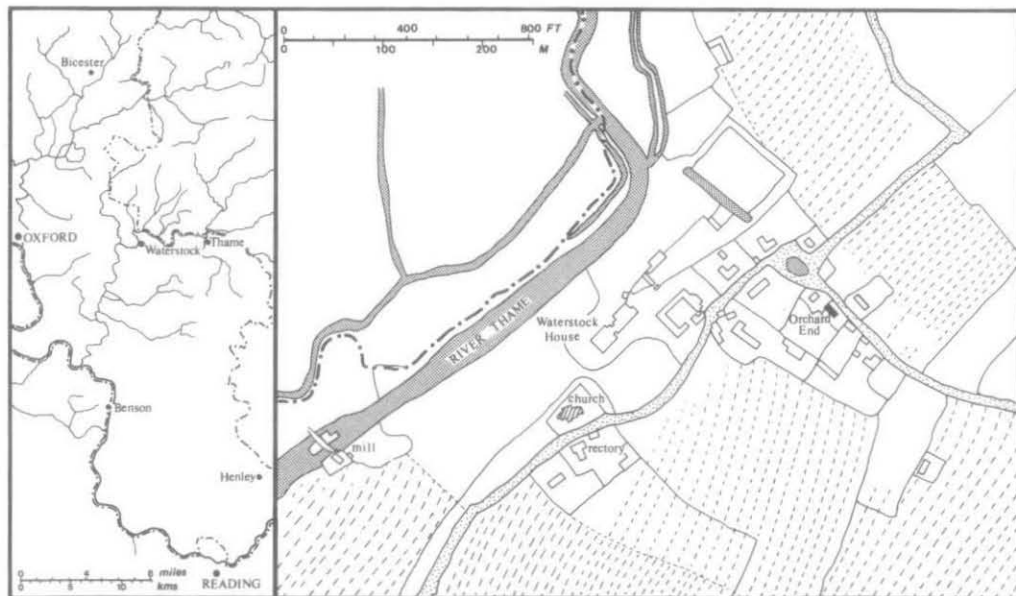


FIG. 2

Left: Location-map. Right: Plan of Waterstock in 1848 (after Bodleian Tithe Map 410). The ridge and furrow is sketched in from an R.A.F. air photograph of 1961 (Oxford City Library 76/2834).

³ See *V.C.H. Oxon.*, vii, 220-30.

holdings.⁴ Sixteen tenants were taxed in 1306 and twenty-four in 1327, and since this excludes inhabitants below the taxable minimum the number of households must have grown appreciably after 1279.⁵ During the post-plague years the village evidently declined to the fifteen or twenty households suggested by the 1848 map.⁶ While the individual history of 'Orchard End' is unknown, the medieval village provides a useful context: the status of the first occupant can scarcely have been higher than that of a small freeholder.⁷

The structure. (FIGS. 3-4)

The original fabric is of four bays, substantially complete except for the N.W. end bay (reduced to two-thirds of its original height) and the hip-rafters. The hall has been floored over and two post-medieval stacks inserted. The S.W. wall-framing is mostly hidden, and there is a late extension to S.E.

The three internal trusses (B, C, D) each comprises a pair of cruck-blades, two tiebeams and a collar. The gently curving blades terminate, rather roughly, just above collar level. Purlins are trenched into the projecting collar ends. The wallplates rest on the ends of the upper ties; it is unclear if they are pegged down.

The cruck feet are tenoned into cillbeams on rubble footings. Slender wallposts, housed into all but two of the six blades, are halved across the ends of the lower ties and apparently jointed into the upper ties. Blades B1 and D lack such posts, evidently because the angle of curvature allows the wall-rails, which are jointed into the wallposts in other cases, to run directly into the blades. Five of the joints at the ends of these rails, all on the N.E. side, can be examined. Three have normal vertical tenons (one unpegged), but the other two have unpegged *horizontal* tenons, jointed through the halved-over ends of the lower tiebeams (FIG. 4a).

The end wall-frames apparently each comprised a pair of corner posts, an intermediate rail and tension braces; the upper part of frame E—E1 is missing. The head of the one surviving brace is merely spiked to post E by a horizontal iron nail; a pair of sawn-off peg-ends at the same level on the inner face of post A probably indicate a corresponding brace. Any similar traces on the N.E. side are concealed. The rear wallplate is jointed onto corner-post A by an unpegged tenon and nailed down; the corresponding joint onto post A1 is pegged as normal. There is no evidence for the 'tiebeam', which presumably rested unattached across the wallplate ends.

The rafters are not apex-jointed and are all pegged to the purlins; their heads rest on a ridgepiece carried by yokes. The lost windbraces (two pairs in bay B-C but one pair only in bay C-D), indicated by mortices, sprang from 'secondary rafters' pegged to the cruck-blades. One purlin is intact at its S.E. end and indicates the original pitch of the hip. Through-splayed scarfs (FIG. 4b) occur once in each wallplate and purlin and twice in the ridge; it has been suggested that the unvaried use of this joint is unlikely in South Oxfordshire after c. 1400.⁸

⁴ *Rotuli Hundredorum*, ii, 821.

⁵ See note 3; P.R.O. E179/161/9, m. 11v. These totals exclude the lord of the manor.

⁶ *V.C.H. Oxon.*, vii, 224-5.

⁷ See note 5; in 1327 five householders were taxed between 2s. 6d. and 3s., the remaining nineteen owing sums from 2s. downwards.

⁸ C. R. J. Currie, 'Scarf-joints in the North Berkshire and Oxford area', *Oxoniensia*, xxxvii (1972), 177-80, 184.

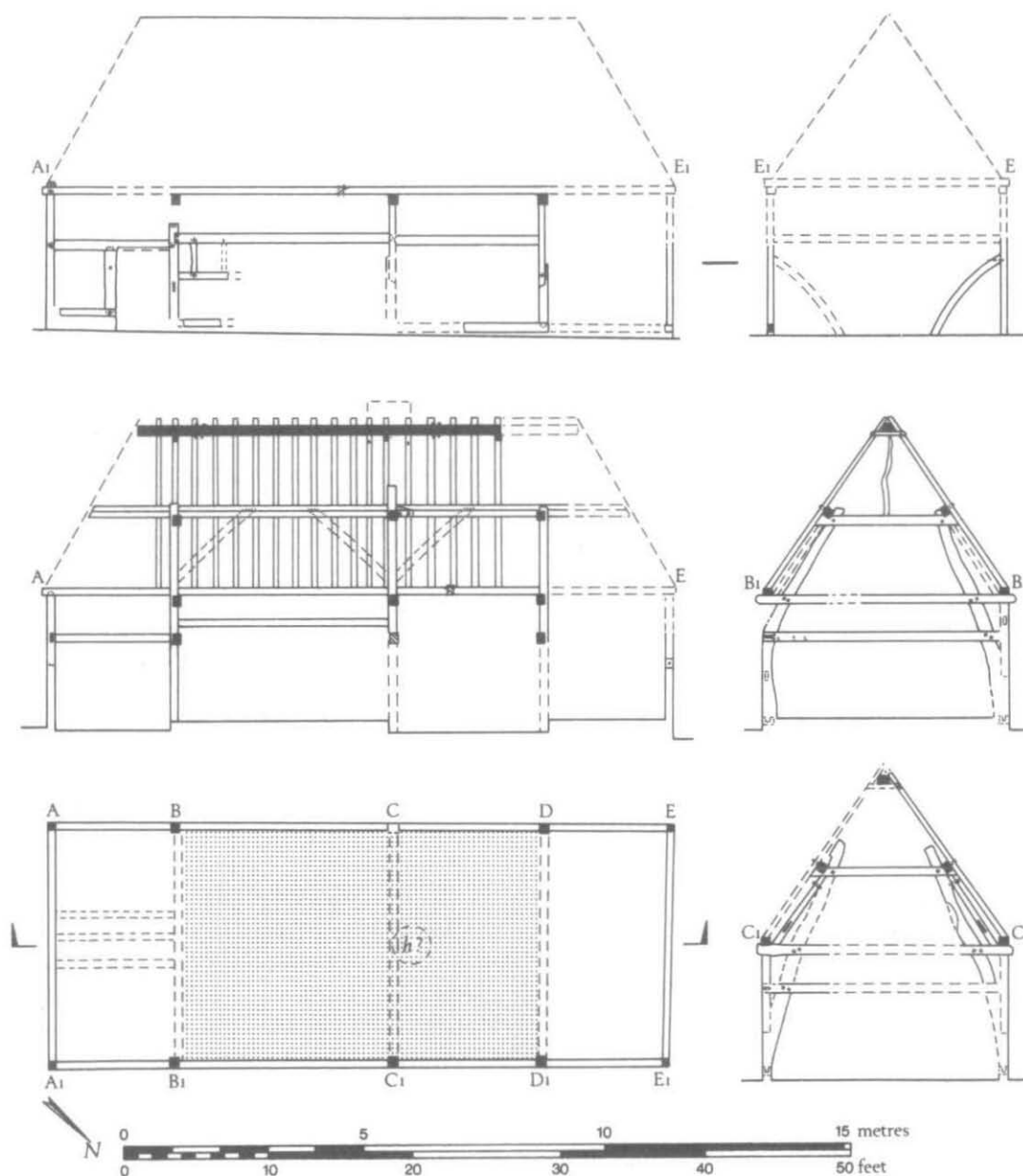


FIG. 3

'Orchard End', Waterstock (original structure only). The area of the open hall is stippled. Truss D, not drawn, is similar to truss B. On truss B the rough member between collar and yoke is secondary, though sooted.

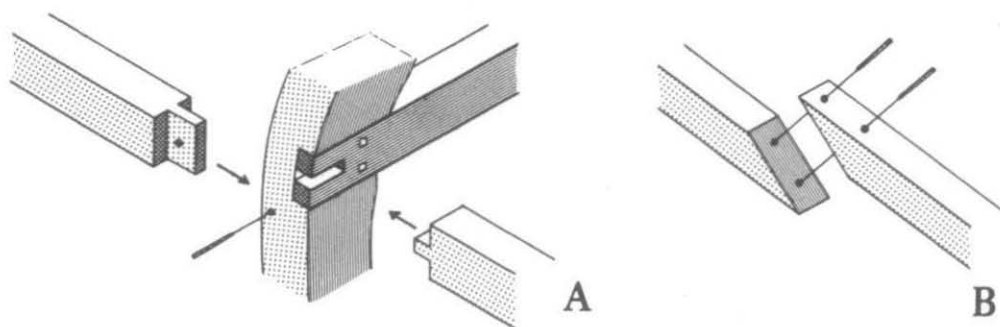


FIG. 4

'Orchard End', Waterstock. A: Joints of wall-rails into cruck Br. B: Scarf-joint in wallplates, purlins and ridge.

The house was clearly a double-ended two-bay open hall: the inner faces of trusses B and D and all the roof-timbers between them are thickly sooted. Pairs of vertical pegs near the apexes of the rafters on either side of truss C, where the ridge-piece is very heavily sooted, indicate a smoke-louvre.⁹ The end bays were always partitioned from the hall, for the outer faces of trusses B and D are unblackened, and the soffit of the lower tie on truss B has wattle-holes. It is uncertain if floors existed, though three joists across bay A-B lodged on the lower ties might be original. The fragments of cillbeam and minor framing preclude a passage across either end of the hall, but there seems to have been an entrance into bay A-B. This suggests a somewhat unconventional plan, with a cross-passage outside the hall and the lower hall bay longer than the upper.

Material and construction

All the timbers are elm. The crucks, rather waney in their upper lengths, were made as usual from crooked baulks halved longitudinally. Other members derive from uniform standards about forty years old and 20 cm. in diameter, which were used whole for groundcills, wallplates, purlins and ridge, halved for ties and collars, and quartered for rafters. The longer section of S.W. wallplate, tapering and waney towards its end, represents the maximum usable length of 8.5 m. About forty such trees were used.

Cruck trusses were assembled on the ground and raised whole, collars and ties being halved onto the side facing in the direction of rearing.¹⁰ At 'Orchard End' trusses B and D were raised inwards, towards each other; truss C was erected in the same direction as B and must have preceded it. The end frames can have had no stability without the wallplates, which must have been added after all the cruck trusses were up since the run of their scarf-joints shows that they were laid in opposite directions.

The following sequence is suggested. Truss C was erected and held up by props against its N.W. face. The wall-rails of bay B-C were held in position, truss B raised towards them, and the structure stabilised by the longer sections of purlins

⁹ One of the inserted stacks occupies this position, presumably as a successor to the hearth.

¹⁰ F. W. B. Charles, *Medieval cruck building and its derivatives* (Society for Medieval Archaeology, London, 1967), 23-4.

with their windbraces. The process was repeated with truss D, which was prevented from falling outwards by another set of props. The frames A-A₁ and E-E₁ were then positioned, together with the wall-rails of the end bays, and the wallplates jointed down onto the corner posts to tie the house together from end to end. At this stage the props could be removed and the rafters added.

STRUCTURAL PRINCIPLES AND CONTEXT

It will be useful to summarise the peculiarities of the Waterstock house:

1. The apex structure is independent of the blades, which terminate half-way up the roof.
2. Each cruck truss has two tiebeams.
3. The end walls are box-framed, with corner posts.
4. The sole function of the other wallposts is to support the wall-rails; they are omitted from crucks B₁ and D where the blades and the ends of the lower ties perform this function.
5. The wallplates are in tension: in relation to the walls they function essentially as 'ties'.
6. The wall-rails act purely in compression, as 'spacers' between the trusses.

The first peculiarity, shared by the Benson fragment, occurs in two thirteenth-century houses at Harwell and Steventon, where it was assumed that the blades had been truncated subsequent to building.¹¹ Further work has shown that the 'cut-off' cruck (now christened 'Apex-type W') is a distinct building type in Berkshire, Buckinghamshire and Oxfordshire,¹² and among later cruck houses in the Thame area it seems in fact to predominate.¹³ Radiocarbon dates from the Harwell and Steventon houses make this one of the earliest known forms of cruck construction, and it could be seen as a precursor to full crucks on the one hand and base-crucks on the other.¹⁴

The other peculiarities can usefully be compared with the Benson fragment, which may be hypothesised as a previous stage in the same structural sequence. The surviving truss from the low-walled building at Benson has only one tiebeam, which probably served the dual purpose of supporting the wallplates and housing the ends of the wall-rails. In the taller house at Waterstock these functions were performed separately by two tiebeams spaced apart, the consequence being that the wallplates run 80 cm. above the rails instead of resting directly on them. The crucial factor linking the two buildings is the occurrence of horizontal tenons into tie-ends, a feeble joint which could only be justified by necessity in the absence of wallposts.¹⁵ Their residual use at Waterstock, where the wallposts are still only of minor importance, must surely hark back to a primitive type akin to the Benson truss.

¹¹ C. R. J. Currie and J. M. Fletcher, 'Two early cruck houses in North Berkshire identified by radiocarbon', *Medieval Archaeology*, xvi (1972), 136-42.

¹² J. T. Smith, 'Cruck distributions: an interpretation of some recent maps', *Vernacular Architecture*, vi (1975), 9-11. For other local examples see G. Beresford, 'North End Farm, Long Crendon', *Records of Buckinghamshire*, xviii (1967), 125-35; I. Johnson and P. Fenley, 'Grange Farm, Widmer End', *Records of Buckinghamshire*, xix (1974), 449-56.

¹³ Surveys by W. J. Blair and M. R. Airs, in progress.

¹⁴ This agrees well with the sequence proposed by Mr. Smith (op. cit. note 12), who sees loosely linked cruck-blades as typologically early and perhaps a relic of pre-groundcill building practice.

¹⁵ At Waterstock one of these tenons has failed under the weight of the rail it was intended to support.

At Waterstock, the maintenance of the rigid cruck trusses in a fixed relationship to each other depends partly on the windbraces and purlins, but partly too on the opposed stresses of the wallplates and the rails. This asks a good deal both of the wallplate scarfs (which have parted slightly under the tension) and of the tenons on the corner posts. It is scarcely a satisfactory method, since a failure in either wallplate might have rendered the house unstable.¹⁶ Once again, this is hard to rationalise except as an archaism preserving relics of a primitive technique, which perhaps relied on the stability of earth-fast crucks to compensate for loose-jointed carpentry executed with the saw alone.

Fox and Raglan suggested that the wall-framing of Monmouthshire cruck houses became progressively more substantial and less dependent on the trusses, developing from a mere weather-screen to an integral part of the structure.¹⁷ While it is dangerous to generalise from only two examples, the Benson and Waterstock houses may point to a similar evolution from the short-lived to the durable in Oxfordshire. The Benson type, light and easily dismantled for reconstruction or re-use of timbers, was essentially an impermanent building form; it is not surprising that complete examples are so far unknown. 'Orchard End' is a more solid structure, taller and with the beginnings of true wall-framing. Two further developments—the use of substantial bay-posts into which the wall-rails were tenoned, and the truncation of the upper tie to leave two spurs—bring us to the typical late medieval cruck house of which many examples survive in the area.¹⁸

Unfortunately we have no precise chronology. The scarf-joints in the Waterstock house suggest an early date, which is consistent with the large hall area and cramped end bays.¹⁹ For the Benson fragment we can only say that, on the interpretation proposed here, it is typologically less advanced. Cruck houses from the 1280s survive in the area;²⁰ both the present examples, exceptional in their archaic construction, could well be fourteenth- or late thirteenth-century. If so, they belong to a period of experimentation and rapid development in carpentry, and of social change which caused the more prosperous peasants to invest for the first time in durable buildings.²¹ The Benson and Waterstock cruck houses may represent one link in the chain of development which by 1400 had given England a permanent vernacular architecture.²²

¹⁶ At 'Orchard End' the support provided by later features, especially the substantial stacks, has compensated for the severing of the wallplates.

¹⁷ Sir Cyril Fox and Lord Raglan, *Monmouthshire houses*, i (Cardiff, 1951), 39–41.

¹⁸ See J. M. Fletcher, 'Crucks in the West Berkshire and Oxford region', *Oxonienia*, xxxiii (1968), 71–88; and *Cf.* note 13.

¹⁹ Dr. J. M. Fletcher kindly examined a sample for dendrochronological dating, but this produced no firm results due to the small number of rings and lack of previous work on elm samples.

²⁰ See note 11; the original wall-framing is apparently missing from the Harwell and Steventon houses.

²¹ On this general problem see M. Beresford and J. G. Hurst, ed., *Deserted Medieval Villages* (Guildford and London, 1971), 89–117, 171–7.

²² Both buildings were recorded as part of a survey of South Oxfordshire crucks being carried out with the support of the Oxford University Archaeological Society. 'Crossways' was discovered by Mr. P. J. Lankester and surveyed by courtesy of Mr. P. G. Aldridge. 'Orchard End' was surveyed by courtesy of Misses C. and M. Osmond-Smith. For help with the surveys I am very grateful to Mr. Ian Baxter, Mr. William Filmer-Sankey, Miss Catherine Hawkins and Mr. Nigel Jackson, and for help and suggestions of other kinds to Dr. M. R. Airs, Mr. A. J. Fleming, Dr. J. M. Fletcher, Mr. R. Harris and Mr. J. J. West.