Windmill Graffiti at Saint Giles' Church, Totternhoe

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In 1931, in its *Survey of Ancient Buildings 1*, the Bedfordshire Historical Record Society published a photograph of some windmill graffiti on the exterior of the nave of St Giles' Church, Totternhoe, and referred to 'Crudely incised drawings of Post-Mills on the exterior of the nave'.[1] In the same year J. Steele Eliott, in his discussion of Bedfordshire windmills, recorded that 'Engraved in the soft church wall of the nave of the church are sketches of a group [*sic*] of windmills, undoubtedly of early date; together with numerous initials, the dates 1748 and 1753, and sketches of horseshoes.'[2] These observations are clearly based entirely on the published photograph; there are, in fact, numerous windmill graffiti, certainly not forming a 'group' and occurring not only on the north, south, and west walls of the nave but also on the north and south walls of the west tower. As well as windmill and horseshoe graffiti there are others of bells, a crown, and 5- and 7-bar gates. The initials and dates (e.g. 'ICMDCCXLVIII' – *sc.* 'JC, 1748' – and '1753') are intimately associated with the graffiti, and in one case (south wall of nave, towards eastern end; fig 2) a windmill graffito appears to be signed 'W.F. 1797'. A number of the windmills were left incomplete (fig 2). Many are now in poor condition, especially on the north walls of nave and tower, but also elsewhere (Pl. I, south wall of nave), because of the friable nature of the Totternhoe stone of which the church is built.[3]

Of particular interest is the early form of all the windmills depicted, despite the relatively late associated dates. Specifically, the short, square sails are of a distinctly medieval type, well seen in the bench-end carving at Bishop's Lydeard church, Somerset, of late fifteenth- or early sixteenth century date.[4] Such sails were clearly out-of-date by 1559, when a map of Moorfields, London depicted two windmills in 'Fynnesbvrie Field', each with the sails stretching practically the full length of the stocks.[5] The longer sails are also shown in an illustration from Toddington, dated 1581,[6] and in the graffiti at Dalham church, Suffolk, included in *English Medieval Graffiti*[7] though not certainly of medieval date. A further early feature is that the sails are set symmetrically about the stocks, without the 'leading edge' of later practice.[8] This in itself, however, is not a specifically medieval feature, since it occurs (with the longer sails) in the Moorfield map of 1559. The idea of designing the sails with a leading edge probably dates from early in the seventeenth century. In general appearance the Totternhoe windmills are similar to the surviving windmill, probably of early seventeenth-century date, at Bourn, Cambs.[9] To sum up the evidence for dating: the general form of the mills at Totternhoe allows a date either in the medieval or in the early post-medieval period, whilst the form of the sails strongly suggests a date in the Middle Ages. The execution of the graffiti, however, almost certainly dates from the eighteenth century. Presumably this indicates the survival of medieval-type windmills into the eighteenth century somewhere in the vicinity of Totternhoe. There is nothing implausible in this: some of the earliest references to windmills come from this area (Leighton Buzzard, 1212; Dunstable, 1221, Studham, 1230), and the Bourn, Cambs. and Pitstone, Bucks.[10] windmills indicate the possibility of survival (with repairs) through more than three centuries: a windmill erected in the late fifteenth or the early sixteenth century, that is to say, could survive until the eighteenth century.

Windmills appeared late in the history of technology – much later than water-mills and animal- (usually horse-) mills – and were probably a mid- or late twelfth-century English invention.[11] Throughout the Middle Ages the vast majority of windmills were of wooden post-mill type. There is some evidence for occasional tower-mills, for example a reference of 1294-5 to *uno molendino ventrico de petra* newly constructed at Dover Castle;[12] a stone windmill can hardly be a post-mill, although it is less certain that what is meant is a tower-mill proper – that is, a tower with a separately turning cap.[13]

However that may be, the Totternhoe windmills are certainly typically medieval in being of

post-mill type. Each mill (fig 1 and fig 2) has a simple box-like body with no windows shown in the front face (the only face drawn in every illustration). The Bourn and Pitstone mills have walls of clapboarding, which is excellently rendered in the Bishop's Lydeard bench-end carving and is shown also in the Moorfields map illustrations. An alternative form of walling apparently consisted of vertical planking, as seems to be shown on the Walsoken brass (of continental manufacture, of 1349) at St Margaret's church, King's Lynn,[14] and in a seventeenth-century manuscript illustration of a mill at Milton Bryan, Beds.[15] At Totternhoe neither of these methods is shown; the body of each mill is covered with a series of criss-crossing diagonal lines: possibly this is an attempt to represent shingles covering the walls.

The roofs of the Totternhoe mills are of simple gable type, familiar from the Luttrell Psalter illustration (fourteenth-century)[16] and from other illustrations as well as from the surviving mill at Bourn. Atop the gable is a small flag (shown also in the Moorfields map and the Dalham graffiti), the purpose of which was to enable the miller to judge at a glance the direction of the wind, so that he could turn the mill *into* the wind.[17]

This latter task was performed by pushing on the long tail-pole projecting from the rear of the mill (or alternatively by hitching a horse to the pole so that it could pull the mill round); the fantail, a device enabling the mill to turn itself into the right direction, was not patented until 1745,[18] and even after that some windmills (e.g. Stevington, Beds.[19]) continued to be turned by using a tail-pole. A very long, slightly curved tail-pole is shown attached to most of the Totternhoe mills (though strictly this would not be visible from the front face, which is invariably shown in the Totternhoe graffiti).

Access to a post-mill was through a doorway in the rear face (therefore not visible in the Totternhoe graffiti); this was reached by a ladder. The Luttrell Psalter illustration shows a short ladder which possibly was not a permanent fixture; in most cases, however, the ladder was fixed to the mill and therefore had to stop a few inches short of the ground, to enable the mill to revolve freely.[20] As with the tail-poles, the ladder should not be fully visible from the front face, although in a number of the Totternhoe graffiti, by the same device of 'twisted perspective', the ladder is in fact shown, sometimes represented just by two parallel lines but in other cases with the rungs

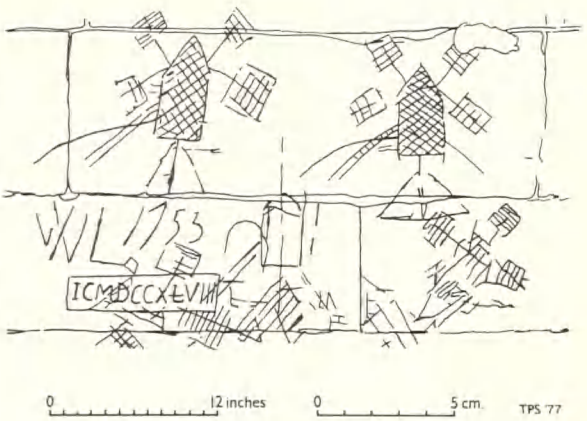

Fig. 1 Graffiti on the south wall of the nave (western end) of Totternhoe Church.

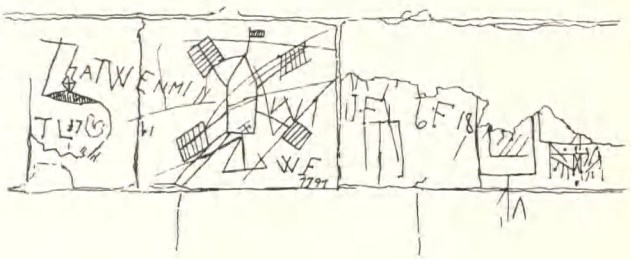

Fig 2 Graffiti on the south wall of the nave (eastern end) of Totternhoe Church.

depicted as well. The ladders are long, comparable with the one shown in the Moorfields map and with that on the Walsoken brass at King's Lynn.

In each of the complete graffiti at Totternhoe the supporting structure consists of the post (represented by a single vertical line) resting on an horizontal line (representing the cross-trees) and supported by two (visible) braces (doubtless representing four braces, one of which would be invisible from the front and one of which would be impossible to show in the conventions used by the Totternhoe illustrator). The method of support by cross-trees and four braces was fully developed by the later Middle Ages.[21] In connexion with the development of this method of support, the excavation,

by D.N. Hall and others, at Strixton, Northants., is of considerable importance.[22] Pottery and other finds dated the first windmill on the site to the early thirteenth century – not much after the first documentary references of the late twelfth century. This early mill, so it would appear, possessed a post standing in its own post-hole and supported by four inclined struts, each standing in its own independent post-hole with no horizontal linkage. Such a system, of course, failed to provide a properly triangulated frame, and could hardly have withstood for any length of time the vibrations set up in working the mill. It is not surprising that the mill had only a short life. A development is found at Bridlington, Yorks., where cross-trees of a sort – four independent, not two crossed, timbers – were revealed in excavation; presumably the inner end of each timber was tenoned into the central post.[23] Back at Strixton, probably in the later thirteenth century, a substructure of cross-trees set in shallow trenches was already achieved. By the time of the Totternhoe graffiti, this method of supporting a post-mill was probably the only one in use.

The Totternhoe graffiti are an important piece of visual evidence – along with the various manuscript and other illustrations – for the history of the windmill. But they are in a poor state of preservation – many of them beyond saving. This is due to the nature of Totternhoe stone, not to any neglect.[24]

NOTES

1 Beds. Hist. Rec. Soc., *Survey of Ancient Buildings*, 1, 1931, Fig 36 and p.6.

2 J. Steele Elliott, 'The Windmills of Bedfordshire: Past and Present', *Beds. Hist. Rec. Soc.*, 14, 1931, 46.

3 For this stone see E. Roberts, 'Totternhoe Stone and Flint in Hertfordshire Churches', *Med. Arch.*, 18, 1974, 66-89.

4 J. Salmon, 'The Windmill in English Medieval Art', *JBAA*, 3rd series, 6, 1941, 96 and pl. ix; T.P. Smith, 'The English Medieval Windmill', *History Today*, 28, 1978, 257.

5 M. R. Holmes, *Moorfields in 1559*, 1963, pull-out plate at end and passim.

6 A.F. Cirket, *Stevington Mill*, 1966, first unnumbered plate.

7 V. Pritchard, *English Medieval Graffiti*, 1967, 136-7.

8 Smith, 1978, 262; N. Cossons, *The BP Book of Industrial Archaeology*, 1975, 60: 'By the eighteenth century the symmetrical sail had given way to the "common sail" . . . in which the whole surface area was on the trailing side of the stock'.

9 Royal Commission on Historical Monuments, *An Inventory of . . . West Cambridgeshire*, 1968, 25-6.

10 Bedfordshire mills: Eliott, 1931, 4; Pitstone: Cossons, 1975, 56.

11 L. White jr, *Medieval Technology and Social Change*, 1962, 85sqq. and idem, 'Medieval Engineering and the Sociology of Knowledge', *Pacific Historical Review*, 44, 1975, 11 and n.31. White concludes that 'toward 1185 someone, almost certainly in northeastern England, invented the horizontal axle windmill . . .'; the evidence is that four of the first six instances of windmills 'occur in northeastern England'. But Oseney Abbey, which is one of the four, is in Oxfordshire. The wider distribution of earliest examples thus involved perhaps implies a somewhat earlier date of invention – say, around the middle of the twelfth century.

12 J. Salmon, personal communication, 11 April 1978.

13 *Cf.* Smith, 1978, 263.

14 Illustrated in Smith, 1978, 262.

15 Cirket, 1966, first unnumbered plate.

16 Illustrated in Smith, 1978, 258.

17 Smith, 1978, 262.

18 Cossons, 1975, 62-3.

19 Cirket, 1966, 9.

20 Smith, 1978, 260.

21 A suggested typology, with a diagram, is given in Smith, 1978, 258-60, diagram at 261.

22 D.N. Hall, 'A Thirteenth-Century Windmill Site at Strixton, Northamptonshire', *Beds. Arch. J.*, 8, 1973, 109-18.

23 J.R. Earnshaw, 'The Site of a Medieval Post Mill at Bridlington', *Yorks. Arch. J.*, 45, 1973, 19-40.

24 A word of warning: the condition of these graffiti is so bad that on no account should any attempt be carried out to make rubbed impressions of them; nor indeed should they be touched. (Paper completed May 1978).

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