RESEARCHES AND DISCOVERIES IN KENT

1. ACHEULIAN HAND-AXE: WESTWOOD, BROADSTAIRS

During the second phase of a watching brief at the Thanet Campus site, Thanet Reach Business Park 2B (the site for a communications station), a flint hand-axe was found. Of Acheulian pointed heavy butted type, it was discovered by a digger driver whilst engaged in making a cut for a building stanchion. This extended down to the Upper Chalk at a depth of between 4-5m. The geology of the site is that of Upper Chalk with an overburden of Head Brickearth and pockets of clay-with-flints. The latter material dates from the Pleistocene and can be associated with the Hoxnian Interglacial period.

The axe is a rather small example of its type being less than 10cm in length (**Fig. 1**). It is unpatinated and sharp on edges and struck facets. This indicates that it has not travelled far, if at all, from where it was lost or discarded. Another small hand-axe, of cordate type, was

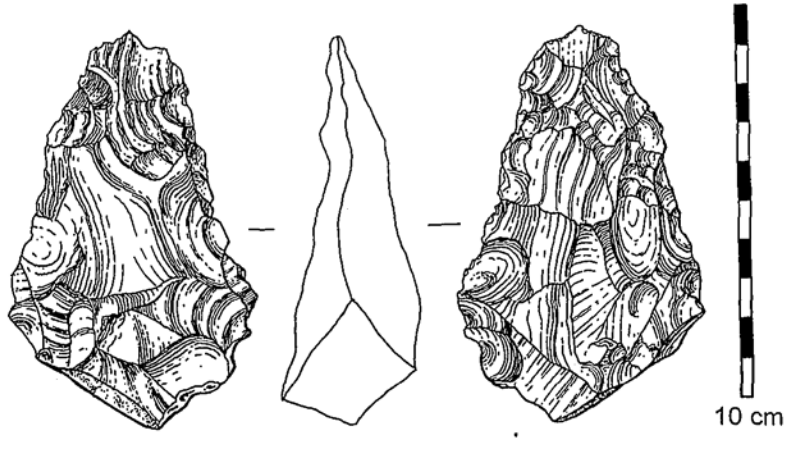

Fig. 1. Small Acheulian hand-axe of pointed heavy-butted type from Thanet Reach Business Park, Broadstairs. Scale as shown.

found about 600m north-east of the Thanet Reach site in 1999, during excavations at the ASDA site. While it had been re-deposited among Iron Age hut-floor debris, the Upper Chalk surface a few metres down is overlaid by areas of clay-with-flints. It seems likely that both axes originated from pockets of the same geological horizon, with the important implication that this part of Thanet conceals significant areas of largely undisturbed Pleistocene land surface.

DAVE PERKINS

2. LA TÈNE I BROOCH: WORTH

Two recent finds of La Tène I brooches by metal detectorists working in east Kent were recorded in the last volume (Parfitt 1999). A third example has now been recovered. This was discovered by David Brown of the Thanet and Wantsum Relic Association, whilst searching land at Worth, near Sandwich. Discovered within the plough-soil, the find-spot of the brooch (NGR TR 3345 5535) lay in a large arable field occupying the ridge-top immediately to the south-west of the main Deal-Sandwich road (A258), opposite the well-known Romano-Celtic temple site (Klein 1928). Iron Age and Roman material in considerable quantity has been discovered previously by both archaeologists and detectorists working in this area (Frere 1986). The writer is most grateful to the finder for allowing the brooch, which he retains, to be published here. The piece has been illustrated by Miss Jo Bacon (**Fig. 1**).

The brooch is of bronze and incomplete, although the metal of the remaining portion is in fairly good condition. As surviving, the brooch is 30mm long but the spring and pin are missing, and the foot has become detached. The well-arched bow is circular in cross-section and is relatively thick at the centre, with a marked taper towards both ends; it appears to be undecorated. At the lower end, the catch survives complete and the foot returns approximately parallel

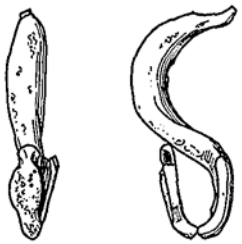

Fig.1. La Tène I Brooch from Worth, full size

to the base line. There is an oval disk with a small projection beyond, forming an almost thistle-shaped terminal to the foot. An arc of at least four punched dots on the disk seems to be deliberate and may form part of a more extensive design now lost to surface corrosion. The piece would appear to belong to Hull's Type 1Bb (Hull and Hawkes 1987, 95-106), probably datable to the fourth century BC.

Brooches of La Tène I type continue to be rare finds in Kent and it is of particular interest to note that Hawkes has previously published another example from the Worth site (Hawkes 1940, 120). This was discovered during Klein's excavations on the temple but precise details of its context are now lacking. Although missing its foot, Hull has assigned this brooch to his Type 1A (1987, no. 3646). Another recent discovery of a La Tène I brooch may be noted from the Roman villa site at Keston in west Kent (Philp, Parfitt *et al.* 1991, fig. 51, no. 91).

Situated close to the southern end of the now silted Wantsum Channel, the site at Worth seems to have been an important one throughout the Iron Age and Roman periods. It has produced large quantities of pottery of Iron Age date, together with much Roman material.

KEITH PARFITT

Frere, S. S., 1986, 'Roman Britain in 1985: Worth temple', *Britannia*, 17, 427.
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Philp, B., Parfitt, K., Willson, J., Dutto, M., and Williams, W., 1991, *The Roman Villa Site at Keston, Kent. First Report (Excavations 1968-78)* (K.A.R.U., Dover).

3. IRON AGE LINCHPIN: THANINGTON

A remarkably well-preserved Iron Age vehicle linchpin was discovered in July 2000, during a metal-detector search of a meadow situated on chalk downland to the north of Iffin Wood, some two miles (3.3km) south of Canterbury (**Fig. 1**). The find-spot lies in the parish of Thanington, at about 100m OD. (NGR TR 1373 5417) The object was found at a depth of 0.18m, in the sandy top-soil that has developed here over the chalk. No other significant artefacts were recovered from the survey and the object presently appears to be an isolated find.

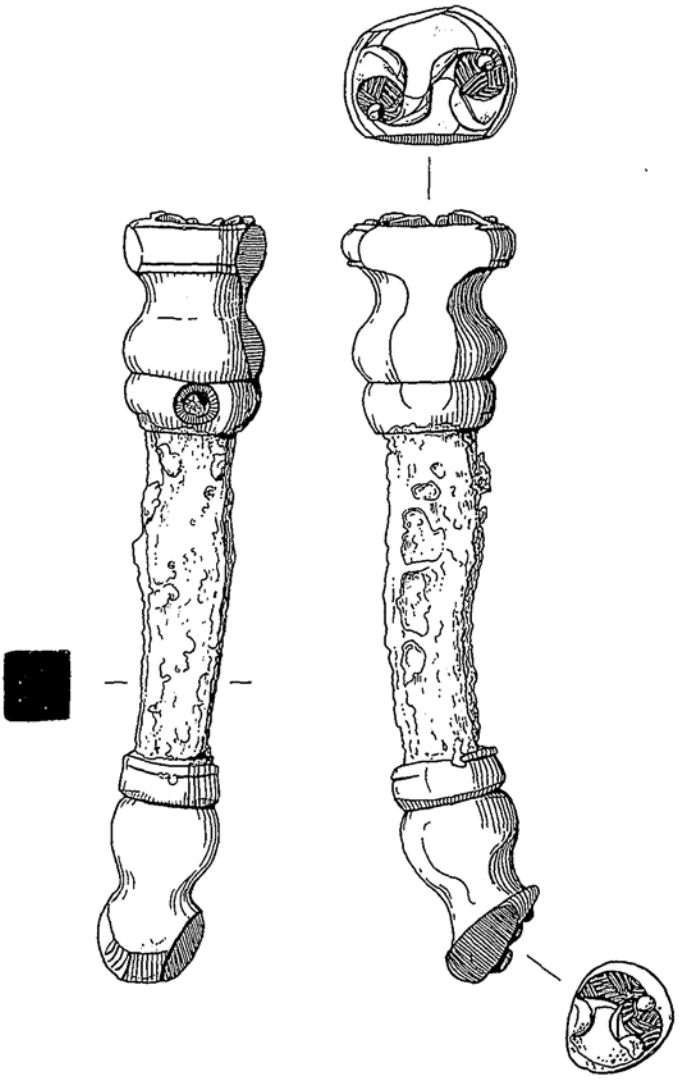

Fig. 1. Decorated Iron Age linchpin found near Canterbury. Length 110mm (Drawn by Jo Bacon)

The object consists of an iron linchpin, 110mm in length, with decorated, cast terminals of copper-alloy. The terminals are 48mm apart, set at each end of a slightly bent, tapering, square-sectioned iron shank, 11 to 9mm across. A horizontal perforation, 5mm in diameter, occurs

at the base of the upper terminal but this is now largely blocked by iron corrosion.

The top of the 21mm diameter upper terminal is decorated by two raised 'bird head' motifs linked at the neck and facing clockwise. An area of basketry hatching, executed in the wax before casting, forms a large circular eye within each head, whilst an undecorated area at each side takes the form of a 'trumpet void'. The lower terminal ends in a decorated disc, 16mm in diameter, bearing motifs broadly similar to those at the top, again with two areas of basketry hatching and another 'trumpet void'.

On one side, the upper terminal and to a lesser degree the lower terminal, show evidence of very considerable wear, with the curved edges of the decorated end-discs worn flat. On the opposite side, similar but less severe wear, is also readily apparent. It would seem that the iron shanks of such linchpins were intended to be tightly fitted into a perforation in the axle of a vehicle, in order to hold the wheel in place. Presumably, it would have been possible to remove the pin in order to detach the wheel for maintenance or replacement. The worn areas on the present piece must have been caused where the pin had rubbed against the nave of the wheel. Similar wear has been noted on the sides of a number of other examples, including a comparable pin from Owslebury, Hants (Selkirk 1971, 33). Perhaps one side on the present piece was worn to such a degree that the fixing became slack, so it was turned round, leading to some wear on the opposite side.

This pin belongs to a well-known Iron Age type (Spratling 1972, Group III - vase headed linchpins) and a number of examples are known from Britain (Stead 1991, 46). In Kent, three similar specimens, now displayed at Maidstone Museum, come from the late Iron Age hill-fort at Bigberry Camp, just over two miles (3.7km) to the north-west of the present find-spot (Jessup 1970, pl. 47).

Such items are not closely datable but the form of the decoration on the present piece, with its 'bird head' motifs, basketry hatching and 'trumpet voids', places it within Celtic (La Tène) art Style V (Stead 1996, 34), now dated between the third and first centuries BC (Stead in Parfitt 1995).

The presence of decorated cast terminals indicates that this linchpin came from a fairly prestigious vehicle, presumably a chariot, rather than an everyday farm cart. The problem of exactly how such linchpins were fitted has been previously discussed by Stead (1991, 46-47). The survival of both terminals suggests that the present piece could not have accidentally fallen out of the axle of a passing vehicle; nor is there any evidence for a contemporary settlement at this spot,

where such a fitting might have been more readily mislaid or discarded. Regardless of how it was lost, the find represents an important new addition to the growing corpus of Iron Age decorated metal-work from Kent.

Acknowledgements: Thanks are due first and foremost to the finder, Mr Stanley Punyer, for allowing this important object to be published. Also to Vince Burrows, of the White Cliffs Metal Detecting Club, who initially recognised the piece and to Jon Iveson, Senior Assistant Curator at Dover Museum, for his help. The item was drawn by Miss Jo Bacon and Dr Ian Stead has commented on the decoration. It has been returned to the finder and will be offered to an appropriate museum in due course.

KEITH PARFITT

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Selkirk, A., 1971, 'Owslebury', *Current Archaeology*, 25, 32-37.
Stead, I. M., 1991, *Iron Age Cemeteries in East Yorkshire* (H.B.M.C.E. Archaeological Report No. 22).
Stead, I. M., 1996, *Celtic Art in Britain before the Roman Conquest* (British Museum Press).

4. ROMAN ROAD METALLING AND PREHISTORIC SHERDS: HARTSDOWN, MARGATE

A very extensive evaluation by trenching was carried out at Hartsdown in 1995 (Perkins 1996). Of the thirteen archaeological sites encountered, Site 1 consisted of a length of Roman road which was sectioned in three places. Site 3 in the same northern area of Hartsdown proved to be a complex of sub-circular ditched enclosures, Late Bronze - Early Iron Age *c.* 800 - 600 BC.

In May 2000, a plot in the area was sold as building land by the District Council to help finance the Community Woodland Scheme, and Thanet Archaeological Trust was called in to investigate two house 'footprints'. A trench in the first of these exposed a causeway entrance to a ditched enclosure, the ditch fills yielding Late Bronze Age sherds. The second trench revealed Roman road metalling, but no accompanying ditches. This was surprising in that road sections cut a few metres away to east and west in 1995 had double parallel

ditches on each side. An interesting suggestion made by a visitor to the excavation was this might be the precise point where the road was joined by a track from the Tivoli Roman villa situated 300m north-east.

A system of irregular roughly cut pits just south of the road metalling contained bones, shells, and Belgic and Roman pot sherds; also sherds in a black flint-tempered friable fabric, possibly Early Bronze Age.

DAVE PERKINS

Perkins, D., 1996, 'Hartsdown CommunityWoodland Scheme', *Archaeologia Cantiana, cxvi*, 265-281.

5. ROMAN FINDS AT SITE OF MEDIEVAL VILLAGE: WOODCHURCH, BIRCHINGTON

The tiny hamlet of Woodchurch has attracted the interest of Thanet Archaeological Society members for many years. In 1981 a fragment of wall belonging to the Medieval church St Mary Magdalene was still standing, composed of unworked flints and ashlar of Caen stone and ragstone. As it was to be demolished, Society members carried out a limited investigation of the site (**Fig. 1**). Eight excavation boxes were cut by hand, revealing rammed chalk foundations, chalk-cut graves, one of them in the medieval form-fitting style, and a flint dump from a demolition phase.

Much more recently, the Society and its Young Archaeologist section have devoted their attention to the cropmarks that appear to the south and east of the church site, in the hope that they represent surviving remains of the medieval village of Woodchurch. Work south of the church commenced in 1999 with a disciplined programme of field-walking over a grid laid out by theodolite. Accuracy of demarcation was essential so as to avoid crossing the boundary of a Scheduled Ancient Monument (SAM 365). This is listed as a Romano-British enclosure, but thought to be a villa and its infrastructure.

While fieldwalking turned up medieval material, the quantity was only such as might be expected anywhere in rural Thanet. Instead, Roman finds were made, these including building materials, fine-ware and mortaria sherds, a plumb' bob, and several third-fourth century coins. Careful checking of cropmark air photos and the English Heritage plot of the scheduled site, revealed the finds to have come from the settlement/villa cropmark, only 8% of which actually falls within the designated Ancient Monument area.

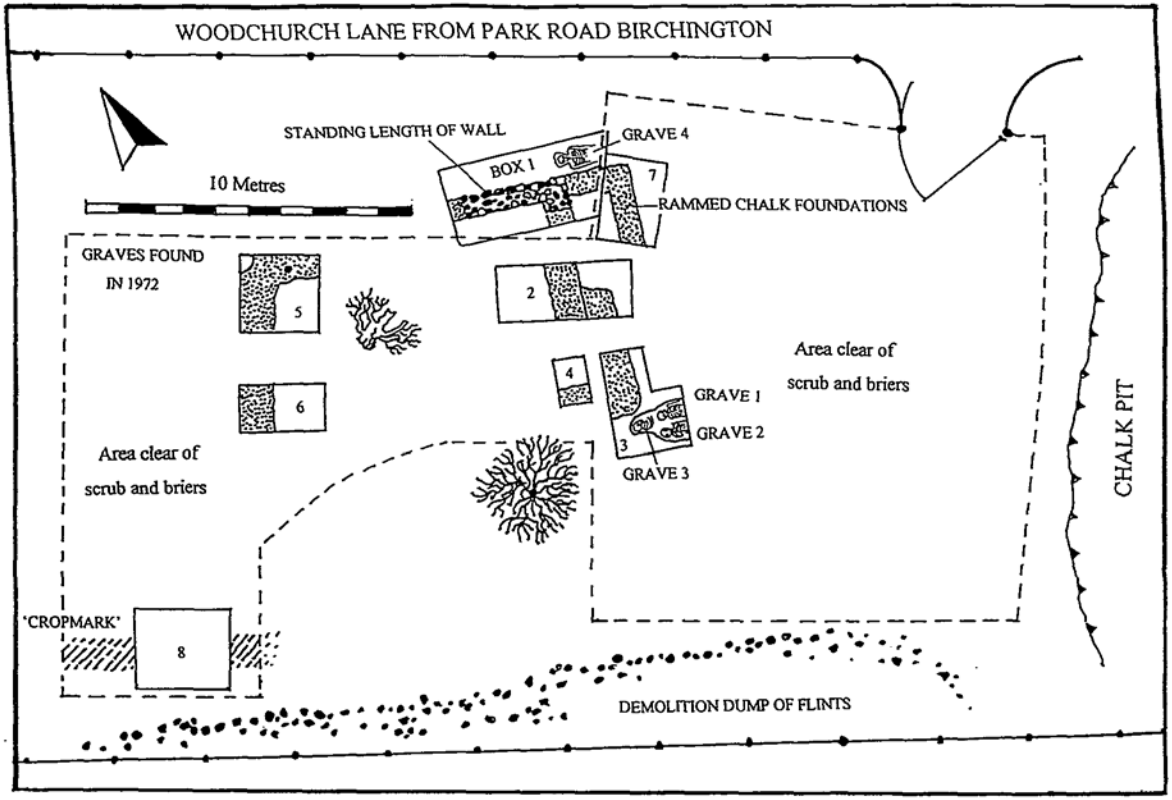

Fig. 1. Plan of excavation boxes locating foundations and graves belonging to the church of St Mary Magdalene, Woodchurch, Birchington. Scale as shown. While the above-ground length of outer wall was demolished in 1982, the site remains undeveloped.

Society work in June 2000 consisted of trenching over cropmarks to the east of Woodchurch Farm. Two parallel chalk-cut ditches were exposed and sectioned, the fills yielding bones, shells, and a single Medieval sherd.

DAVE PERKINS

6. POSSIBLE PAGAN JUTISH BURIALS AND EVIDENCE OF SUBSTANTIAL MEDIEVAL BUILDINGS: SALMESTONE GRANGE, MARGATE

An evaluation by trenching was undertaken of about one quarter of a 23 acre tract of derelict farmland that is currently subject to planning consideration for residential development. Further evaluation by geophysical survey and trenching is planned. The land borders the medieval building complex of Salmestone Grange on two sides. Trenching revealed both robbed-out and *in situ* foundation belonging to two substantial medieval buildings (?barns), and an associated system of field ditches. Ceramic finds suggest a twelfth to fourteenth century occupation.

South of these remains, a trench located three graves arranged end to end on an east-west orientation. The one sampled contained an extended burial, head west, with no grave goods. Limited expansion of the trench located no other burials, although the graves may well form part of a larger group. A possible interpretation is that the graves represent all or part of a 'transition cemetery' associated with the Pagan Jutish burial ground at Half Mile Ride situated 400m south-west.

DAVE PERKINS

7. A VICTORIAN PHOTOGRAPH OF WHITFIELD CHURCH (PRE-RESTORATION)

Situated at some distance from the modern village and about 500m west of the Richborough-Dover Roman road, the historic parish church of St Peter at Whitfield represents one of the earliest surviving churches on the east Kent downlands. The Anglo-Saxon date of a significant part of the extant fabric was first recognised by Loftus Brock during the course of extensive restoration works in the late nineteenth century (Loftus Brock 1895). A more detailed consideration of the dating and layout of the structure was given by Livett in 1928 and most recently the Taylors have provided an up-to-date account of the surviving remains and their likely date (Taylor and Taylor 1980,

Whitfield Church looking north-east, *c.* 1880

Present-day view of the church, following the restoration of 1894

655-656). The original building seems to have been very small and comprised a simple rectangular nave and square chancel, far from accurately laid out. The internal dimensions for the nave were about 6.4m (21') by 4m (13' 3") and the chancel was some 2.9m (9ft 6in.) square.

A picture post-card of east Kent churches, produced by Brown and Son of Deal and dated to *c.* 1880, has recently been discovered among the archives of Dover Museum (Roget Collection, d.02181). This photograph provides an important record of the appearance of the church before the extensive Victorian restoration and allows a much clearer appreciation of the form of the early structure than is possible today. Thanks are due to the Curator, Miss C. Waterman, for allowing the image to be reproduced here.

Two Anglo-Saxon windows and a blocked doorway survive within the early fabric of the church. Of the windows, the one in the south wall is of typical late Saxon double splayed type. The other, situated high up in the gable of the west wall, above the blocked doorway, is believed to be earlier. It is single splayed and has an external rebate for a wooden shutter. Details of the original west doorway, blocked in the thirteenth century when a new window was inserted above it, were revealed during renovation work in 1960. Flat flints had been used to turn a semi-circular arch and form an entrance some 2.50m (8ft 2in.) high and 1.10m (3ft 7in.) wide (Molyneux 1986, 3-4).

From the dating of the windows it would seem that two distinct periods of Anglo-Saxon work are present within the church. The Taylors considered that the original construction of the building, with its surviving single splayed window, belongs to the earliest phase of Anglo-Saxon architecture, and quite probably to the second half of the eighth century. The double splayed window is apparently a later Saxon insert. Subsequent additions and alterations were made during the Norman and Early English periods.

Significant work was undertaken in 1855 and a major scheme of renovation was carried out in 1894, by Dover builder A. J. Adcock, under the architect Ewan Christian. The work cost £1,115 and included the addition of a new vestry on the south side of the chancel, the rebuilding and enlargement of the seventeenth-century north aisle, rebuilding of the south porch and reconstruction of the long demolished thirteenth-century sanctuary at the east end. Livett's hypothesis that this medieval sanctuary occupied the site of an earlier one connected with the original Anglo-Saxon church, has not been generally accepted (Taylor and Taylor 1980, 655).

Taken looking north-east and showing the south and west walls of the church, most obvious in the nineteenth-century photograph (**Plate I**) is

the absence of the Victorian vestry and sanctuary, thus greatly emphasising the tall and narrow proportions of the Anglo-Saxon structure. Part of the original north aisle can be seen, together with the pre-restoration weather-boarded bell turret at the west end. Two large round-headed windows, probably of the seventeenth or eighteenth century, located in the south and west walls of the nave are also readily apparent; Christian subsequently replaced these with windows more in-keeping with the medieval fabric (**Plate II**). The late Saxon double splayed window above the south porch is clearly visible, although it was not unblocked until 1894. Traces of the blocked Saxon western doorway may also be discerned. In the church-yard, west of the porch, a prominent pointed-top grave stone can be identified as being that of the Cross family which records the deaths between 1821 and 1835 of no less than eleven children, mostly only a few days old. The stone still stands in this same position today, its weathered inscription having been carefully re-cut in the mid 1980s.

The reason for the existence of such an early Anglo-Saxon church at Whitfield remains something of a mystery but it may be significant that recent excavations by the Canterbury Archaeological Trust on the line of the new Whitfield-Eastry bypass, some 250m to the south-east of the church, have revealed part of an Anglo-Saxon settlement site dating to the late sixth-seventh century (Parfitt, Allen and Rady 1997, 29-31). Trenching adjacent to the church-yard, however, has failed to reveal any significant evidence for Anglo-Saxon or medieval occupation here (Parfitt 1995).

KEITH PARFITT

Livett, G. M., 1928, 'Whitfield alias Beuesfeld', *Archaeologia Cantiana*, 40, 141-158.

Loftus Brock, E. P., 1895, 'The Saxon Church at Whitfield, near Dover, Kent', *Archaeologia Cantiana*, 21, 301-305.

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Parfitt, K., 1995, *Whitfield Churchyard Extension Archaeological Evaluation Report* (Unpub. D.A.G. report, submitted to K.C.C., Dec. 1995).

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Taylor, H. M. and Taylor, J., 1980, *Anglo-Saxon Architecture*, Vol. II.

8. THE LIONS IN THE CRYPT OF CANTERBURY CATHEDRAL

The sculpture in the crypt of Canterbury Cathedral has been studied from many aspects. Eric Fernie has directed attention to the mathematical order of the crypt's plan and the rhythmic placing of the sculpture within it.[1] Several writers, most recently Richard Gameson, have discussed the styles of the individual motifs and the relationship of the sculpture to manuscript illumination.[2] Photographers have recorded each unusually-perfect and accessible carving as a powerful monochromatic *objet d'art* – but it remains to consider the sculpture as seen by monks. It would seem that the crypt was designed for the exclusive use of the community, away from the main shrines visited by pilgrims which, Gervase tells us, were concentrated above it in the choir and its chapels.[3]

This crypt appears now as a vast undercroft, an open-plan series of chapels and walks gently lit by daylight, candles and lamps. For all its long vistas, even now its scale is human because the eye is stopped by the patterned pillars and then drawn to the nearest of the sculptured capitals. From the scattered passages of colour that remain, it seems that painting once covered the whole surface, out of which these occasional three-dimensional carved areas would have loomed with added presence.[4] With the original furnishings and with natural light coming through smaller windows dimmed by glazing, the focus would inevitably have been close.

Though the series of capitals is incomplete around the main altar, this is one of the best-preserved works of the Romanesque period in England, and it dates from the very end of the eleventh century. There is a new sophistication here compared with carvings made about thirty years earlier for the crypt of Durham castle, and the subjects are full of beauty and interest, from lively foliage to enigmatic horsemen, jugglers and animal musicians. An attempt to see the carvings as they were first seen might be begun by considering one of the simpler subjects of the crypt's sculpture, the lions.

There are four lions in the crypt and they are arranged in two pairs on opposite faces of two capitals, one pair in the central aisle,[5] and the other pair in St Gabriel's chapel.[6] The apse of this chapel had to be walled up some time in the second half of the twelfth century due to settlement, and the pillar on the chord of the apse was included in the wall. The west face of its capital was cut back, while the north and south faces, which have the lions, were inevitably a little roughed up. The face to the east, within the apse, seems untouched and has symmetrical foliage. The removal of the wall has made it possible to see the brilliantly-coloured wall-paintings in the apse, and there is painting on the arches too.[7]

PLATE IA

The double-bodied lion on the south face of the capital in the apse of St Gabriel's Chapel. Photograph by the author.

The lions and the foliage fill the three semi-circular frames which survive on the cushion capital. More foliage is carved on the bell of the capital and painted on the impost. The particular interest of this paper is in the lion on the south face, a symmetrical double-bodied lion (**Plates IA and B**). It looks straight out with delicately-lidded eyes, one of which still retains a dark pupil; it has rounded naturalistic bodies with softly shaggy manes, but wears an incongruous cartoon-like grin – this is not a threat or a scowl for teeth have emphatically been omitted. This very broad grin is a striking feature of many Romanesque lions – occasionally, the lion has a pleasant smile instead (**Plate II**). Given the skilful work in the rest of the double-bodied lion, the grin must be intentional, and should be taken for what it is, a sign of pleasure, welcome or friendliness. The manuscript comparison from St Augustine's abbey illustrated by Kahn has a grin like this lion.[8] One of the lions in the central aisle has a grin too, a remarkable one-sided human grin, as if the carver had looked up for inspiration at this point and copied a friend's individual mouth rather than follow the usual outline (**Plate III**). Despite the oddity of the result, he was being consistently sculptural in his forms.[9] The lion

PLATE IB

The double-bodied lion from the south-east.

on the opposite side of the same capital emits some curly fronds from its mouth. This may be a misinterpretation of a manuscript model, or a symbolic form, possibly foliage.[10]

The double-bodied lion itself is frequent in Romanesque art and is generally assumed to be decorative. However, there is an example at Fishlake in Yorkshire within a larger sculptural context where it can be interpreted as an image of the ascended Christ (**Plate IV**).[11] The parallel is between the lion as king of the animals and Christ seen as king following the Ascension, while the double body pictures the two natures united in the God-Man – a centaur can represent Christ in much the same way, and does so on another capital at the same church. It would be interesting to know if any examples of the double-bodied lion in illuminations have this meaning confirmed by the adjacent text.[12] The exuberant lions in the central aisle, too, could show the triumphant Christ.[13]

Like the carving at Fishlake, that in St Gabriel's chapel has the double-bodied lion appearing in a context, for there is an identifiable object between the lion's head and its front paws (Plates IA and B, the

PLATE II

A lion with a human face on a capital of the chancel arch at Adel, Yorkshire. The outlined area beneath the body of the lion is similar to a semi-circular one beneath a centaur on the opposite capital: no interpretation of these areas is suggested.
Photograph by John McElheran for the
Corpus of Romanesque Sculpture in Britain and Ireland.

latter giving a profile view). This object resembles a covered chalice: a domed top is slightly inset within the faceted bowl, below that is a ring or knop with two rectangular cabochons represented, and then the foot with the remains of horizontal mouldings.[14] The dome has no knob for lifting off, and is not likely to be a real cover at all: it is the development in stone of a convention of drawing intended to show the back of the open bowl. Here is the same curious mixture of linear abstraction and sculptural realism that is seen in the grin of the double-bodied lion: it may have come about because one man drew the outlines but another carved them. On the north face of the capital, a simple lion makes a less obvious reference to the adjacent altar by turning its head to look into the apse – this too happens to have a parallel in Yorkshire (**Plate V**).[15]

PLATE III

The grinning lion on the north face of a capital in the central aisle of the crypt. The Conway Library, Courtauld Institute of Art.

PLATE IV

A double-bodied lion on a capital of the doorway at Fishlake, Yorkshire. The head on the corner is lost. Photograph by John McElheran for the *Corpus of Romanesque Sculpture in Britain and Ireland*.

PLATE V

A lion turning to look east on a capital of the chancel arch at Brayton, Yorkshire. Photograph by John McElheran for the *Corpus of Romanesque Sculpture in Britain and Ireland.*

The crypt was presumably intended as a place for meditation or for the liturgy, where each carving would have been seen complete and on its own by a still or slowly-moving monk. The generous foliage decoration throughout and the welcoming lions suggest the general theme might well have been 'paradise'.[16] Like the spiral-decorated pillars designed to stand round the main altar and the two lions in St Gabriel's chapel, some carvings would have had a significance related to the sacrament. Symmetrical motifs nearby echo divine order, while wyverns and foliage suggest new, eternal, life.[17] The nightmarish battles and noisy musicians seem out of place, but perhaps details on these capitals would have reminded the monks of familiar texts – for example, a bowl is held by Christ in a copy of Augustine's *Sermons*; a mounted knight occurs in an initial in

Gregory the Great's *Moralia in Job* and a fish is pictured in a work of Boethius, among others.[18] To the western end of their spaces, these carvings could have suggested that penitence and renunciation were necessary before progress in the spiritual life – eastwards – was possible.[19]

Acknowledgements: Professor Peter Lasko kindly verified the chalice. The author would like to thank the authorities at the Cathedral for permission to take photographs in the crypt.

RITA WOOD

[1] E. Fernie, 'St. Anselm's Crypt', in *Medieval Art and Architecture at Canterbury before 1220,* BAAJ Conf. Trans., 1979 (Leeds, 1982), 27-38.

[2] R. Gameson, 'Romanesque Crypt Capitals of Canterbury Cathedral', *Archaeologia Cantiana*, cx (1992), 17-48; D. Kahn, *Canterbury Cathedral and its Romanesque Sculpture* (London, 1991).

[3] See Gervase's account translated by Professor Willis, quoted in F. Woodman, *The Architectural History of Canterbury Cathedral* (London, 1981), 46-49.

[4] See Woodman, fig. 27; E. W. Tristram, *English Medieval Wall Paintings: the twelfth century* (Oxford, 1944), 15-21, 102-107, pls 1-25.

[5] Kahn, figs 81, 82. With reference to the plan in Fernie, 33, the lions are on Pier 4 on the north side of the central aisle, on the north and south faces.

[6] Kahn, figs 43, 105.

[7] Woodman, fig. 29; Gameson, pl. IV.

[8] Kahn, fig. 44. A grinning lion should not be confused with a cat-like mask emitting foliage.

[9] Kahn, fig. 82.

[10] Kahn, figs 81 and 83.

[11] R. Wood, 'The Romanesque Doorway at Fishlake', *Yorks. Archaeol. Journ.,* 72 (2000), 22, 23 and fig. 6.

[12] That drawings may comment on adjacent texts has been suggested and reported by several writers. See, for example, C. R. Dodwell in O. Paecht, C. R. Dodwell and F. Wormald, *The St. Albans Psalter* (London, 1960), 181-197; also T. A. Heslop, 'Brief in words but heavy in the weight of its mysteries', *Art History,* 9, no.1 (March 1986), reprinted in *Essays for George Zarnecki,* ed. by N. Stratford (Woodbridge, 1987).

[13] Kahn, figs 81, 82.

[14] Later rubrics instructed that a chalice must have a knop to give a firm grip during the elevation and administration, see J. Gilchrist, *Anglican Church Plate* (London, 1967), 17. A ciborium would not need a knop.

[15] Kahn, fig. 105.

[16] For the church as paradise, see M. Thurlby and Y. Kusaba, 'The Nave of Saint Andrew at Steyning: a study of variety in design in twelfth-century architecture in Britain', *Gesta*, XXX/2, 163-175; there are grinning double-bodied lions at Steyning on the east respond of the south arcade, see G. Zarnecki, '1066 and Architectural Sculpture', in *Studies in Romanesque Sculpture* (London, 1979), pl. XXIIa.

[17] For wyverns, see J. Holli Wheatcroft, 'Classical Ideology in the Medieval Bestiary', in *The Mark of the Beast*, ed. by D. Hassig (New York, 1999), 142-159.

[18] See R. Gameson, 'English Manuscript Art in the late Eleventh Century: Canterbury and its Context', in *Canterbury and the Norman Conquest*, ed. by R. Eales and R. Sharpe (London, 1995), 135, pls 13a, 13c; C. M. Kauffmann, *Romanesque Manuscripts, 1066-1190* (London, 1975), ills 34, 37; A. Lawrence, 'Manuscripts of Early Anglo-Norman Canterbury', in *Medieval Art and Architecture at Canterbury before 1220* (see note 1), p. 109 and pl. XXXIV.

[19] For examples of horizontal directions being used in this way, see T. A. Heslop, 'The Iconography of the Angel Choir at Lincoln Cathedral', in *Medieval Architecture and its Intellectual Content*, ed. by E. Fernie and P. Crossley, 1990.

9. *A TALE OF TWO CITIES* AND DOVER

In 1993 *Banking on Dover* was published and was reviewed in *Archaeologia Cantiana.*[1] It is an account of two banking families who lived in Dover between 1685 and 1846. One of the families was the Fectors, of Huguenot stock who made their fortune by financing smuggling operations, backing privateering ships and land deals.

The Fector family produced a number of notable characters of whom John Minet Fector (1754-1821) was particularly outstanding. Besides being a successful banker he effectively became the smuggling 'Godfather' of east Kent. He was aristocratic in bearing, well educated and very popular. He provided work when jobs were scarce - it was he who built Kearsney Abbey, just outside Dover. His closest friend was George Jarvis, a former army officer. Although George became Fector's Manager, he was wealthy in his own right, being the widower of the wealthy heiress to Martin's Bank.

About a year after the publication of *Banking on Dover*, the author happened to re-read Charles Dickens' classic *A Tale of Two Cities* (1859) and was struck by the fact that Dickens had called the first two characters that the reader meets names very similar to those found in connection with the Fector family, namely, *Jarvis* Lorry, bank manager, and Lucie *Manette.* And they also meet at a Dover Hotel! Jarvis Lorry's surname is also intriguing. John Minet Fector's son (1812-1868), called after his father, turned out to be an opportunist and when the Fector bank amalgamated with the National Provincial Bank in 1842 (for business reasons) took his mother's maiden name, Laurie.

Dickens was a frequent visitor to Dover,[2] usually on his way to and from holidays in Boulogne (where one of his mistress's lived) or on touring holidays and speaking tours on the Continent. It is also well known that Dickens stayed at 10 Camden Crescent (not the present house) for three months in 1852, whilst writing *Bleak House.* The next well-documented lengthy return to Dover by Dickens was a reading tour in November 1861 - two years after the publication of *A Tale of Two Cities.*

However, reference to a stay in Dover of about six weeks in 1856 was also noted by the writer in an obscure book. The Dickens Fellowship doubted any connection between this stay and the writing of *A Tale of Two Cities* although it acknowledged that Dickens did come to Dover in 1856, travelling from Paris on 29 April and staying at the *Ship Hotel* until 3 May, when he returned to London. In a letter to his friend, Wilkie Collins, Dickens described himself as being established in 'two charming rooms ... overlooking the sea in the gayest way'.

Descriptions of Dover appear in many of Dickens' works. Although Betsy Trotwood's cottage is supposed to be in Broadstairs in *David Copperfield*, her house faced the sea at Dover. Nonetheless, it is in the dramatic opening of *A Tale of Two Cities* which has the most memorable descriptions of the town as Jarvis Lorry arrives by mail coach:

> got successfully to Dover in the course of the forenoon, the head drawer at the Royal George opened the door, as was his custom ...The little narrow crooked town of Dover is itself away from the beach, and ran its head into the chalk cliffs, like a marine ostrich. The beach was a desert of heaps of sea and stones tumbling wildly about, and the sea did what it liked, and what it liked was destruction...[and in an oblique reference to smuggling] Small tradesmen who did no business whatever, sometimes unaccountably realised large fortunes, and it was remarkable that nobody in the neighbourhood could endure a lamplighter!

The Royal George was the final stop of mail coaches from London. However, it was located in a totally different part of the Pier District from the *Ship*. A Dickensian authority has noted that the *George* appears to have been based on the *Ship*.[3]

In 1856 the *Ship* was a thriving fashionable hotel and was owned by a family called Birmingham. On 15 March 1856, according to a local paper, the arrivals at the Birmingham's *Ship Hotel* included one Mr Charles Dickens.[4] On the 3 May it reported that 'the Countess of Albemarle and Charles Dickens Esq., are still occupying apartments [there]'. The luxury apartments at that time were in the recently acquired annex that had previously been a private mansion.

The next time that an inventory of the guests of the *Ship Hotel* appeared in the paper was on 24 May. Dickens' name was not listed. Thus, he had arrived in Dover on or around 15 March, was still there on 3 May but had left by 24 May.

What was he doing in Dover? Further research by the author reveals that Dickens published an essay entitled *Out of the Season* in the autumn of 1856. In this work he describes a desolate out of season fashionable

resort. He did not say which town it was though generally accepted to be Broadstairs. However, when the writer read the essay she recognised that Dickens was talking about Dover when he said: '..it was impossible, under the circumstances, for any mental resolution, merely human, to dismiss the Custom-house cutter, because the shadow of her top-mast fell upon my paper..'. The *Ship Hotel* was actually on Customs House quay! Moreover, Dickens goes on to say: '...I had scarcely fallen into my most promising attitude when I found the clock upon the pier - a red-faced clock with white numbers and a white rim - importing me in a highly vexatious manner to consult my watch ...'. In *Banking on Dover* there is a description of a clock tower (officially opened in 1830), the clock face was red with white numbers and rim ...!

In *Out of Season* Dickens tells us that on his first day he went to Deal: 'deluded by some earlier spring day which had been warm and sunny ...'. The next two days, Dickens apparently spent in Dover looking at the town and talking to locals. In 1856 political relations between France and England were strained as a consequence of Napoleon III's adventurous foreign policies. A massive strengthening of Dover's fortifications against the threat of hostilities with France was underway. This would have been the talk of the town and could have been a contributory factor in Dickens' decision to base a novel on France at the time of the Revolution. Dickens also recounts that he read a book on someone about to be guillotined. This parallels the last chapters of *A Tale of Two Cities* with Darney's re-arrest and the celebrated speech and death of Sidney Carton.

Sanders identifies the origins of several of the characters in *Two Cities*; for instance, Lucie was based on Ellen Ternan, an actress who had starred with Dickens in *The Frozen Deep* (by Wilkie Collins) in 1856. Sidney Carton was drawn from the character that Dickens was playing in the same drama.[5] However, Charles Darney remains an enigma. He has the same first name and initials as Dickens but expert opinion agrees that the character is not based on himself. The writer noted that Charles Darney was of aristocratic bearing, well educated and popular and recalled these similarities with John Minet Fector, hero of *Banking on Dover*. Furthermore, Charles Darnay is first introduced to the reader when he is being tried for treason. Fector himself had suffered the same fate during his own chequered career. On Monday 22 April 1799 the Officers of the militia regiments, quartered at Dover Castle, all withdrew their accounts with the Fector Bank, and: 'sometime during that day, John Minet Fector left Pier House, his home in Dover, and disappeared into Dover's back streets. A reward of £2000 was offered for his apprehension, his crime ... aiding the enemy'.

John Minet Fector's mansion, *Pier House* was on Custom House Quay. Fector, the smuggling 'Godfather' of east Kent, actually financed the building of the town's custom house, after which the quay was named! It was also the same quay where the *Ship Inn*, that Dickens had stayed in 1856, was situated. In the 1840s his son, John Minet Fector-Laurie, had sold *Pier House* to the owner of the next-door *Ship Inn*. Mr Birmingham then converted the upper rooms of *Pier House* into the very suites where Dickens spent those few weeks in the spring of 1856.

One final point. The manager of the National Provincial Bank, in 1856, was Lewis Stride, who had trained under George Jarvis, Fector's close friend. There is strong evidence to suggest that Lewis recounted the careers of these two men to Dickens during his sojourn in Dover.

[Editor's Note: a fuller version of this article will appear in *The Dickensian*.]

LORRAINE SENCICLE

[1] L. A. M. Sencicle, *Banking on Dover* (Dover, 1993); *Archaeologia Cantiana*, cxii (1993), 434-6.

[2] The author is grateful to Christine Waterman, Curator of Dover Museum, for the many details provided.

[3] Andrew Sanders, *Companion to a Tale of Two Cities*, 1988.

[4] *Dover Telegraph*.

[5] Sanders, *op. cit.* (note 3).

10. KENT WATERCRESS BEDS: AN INITIAL SURVEY AND TYPOLOGY

Research for a study of Springhead Gardens near Gravesend (claimed to be the site of the earliest artificially constructed watercress bed in Britain, founded in 1805) revealed that little had been published about the wider history of the industry and no assessment made of its archaeology. Following the publication of that study (which describes the techniques of watercress cultivation)[1] a brief survey was carried out to identify other watercress beds in Kent and this paper presents its findings. For the purpose of this paper the watercress 'industry' is defined as the managed cultivation of cress in artificially constructed beds, as distinct from harvesting cress in its natural habitat, streams and ponds.

The survey aimed to produce an overview of watercress cultivation and its archaeology using readily available sources, although specialist sources were also consulted.[2] The Ordnance Survey's

County Series of maps dating from the 1860s to the 1930s and produced at scales of six inches to one mile (1:10,560) and 25 inches to one mile (approximately 1:2500) were used for initial identification of sites. In addition some Tithe maps were used, chiefly to pursue the early history of identified sites, but complete series were not systematically studied. Among the documentary sources used were nineteenth-century trade directories such as Kelly's and Piggott's, published from the early years of the century. Some use was also made of aerial photographs held by Kent County Council ranging in date from 1961 to 1990. Field investigation of the sites identified was carried out in most cases except where beds had been obscured or removed, or where access was not possible.

In the twentieth century the cultivation of watercress was affected by several advances in technology including the construction of concrete beds fed from boreholes and not simply developed from spring-fed streams. This trend was already present in the late nineteenth century when boreholes were sunk especially for cress growing. This seems to have been done partly to ensure a supply of warm pure water but also due to the increasing competition with domestic and industrial users for water resources. This may have been a principal reason in the decline of the Kentish industry as a lack of spring water certainly afflicted some parts of the county but competition from growers both overseas and in other southern counties may also have been a factor. In addition modern health regulations require the use of artificial troughs, rather than stream beds, and water from boreholes, rather than surface drainage. The cost of investing to meet these standards may have put small operators out of business. The industry has continued in other counties, most notably Hampshire where large beds operated by a small number of growers now dominate the domestic industry.

The initial study of watercress beds depicted on historic maps identified 27 sites. Of these 26 were labelled as such on the maps and one additional site (that at Birling) was included due to its striking visual similarity to other beds. However, several other sites were noted which also bore similarities but which closer examination cast doubt upon. These kind of sites also revealed several problems concerning the definition of watercress beds and their identification from documentary sources. It is apparent from the study of Ordnance Survey maps that the characteristic forms of watercress bed layout and the presence of associated water management structures is not sufficient to guarantee their positive identification from such maps and so reliance needs to be placed on the map makers' labelling of sites. While the existence of straight, regular ponds can indicate cress

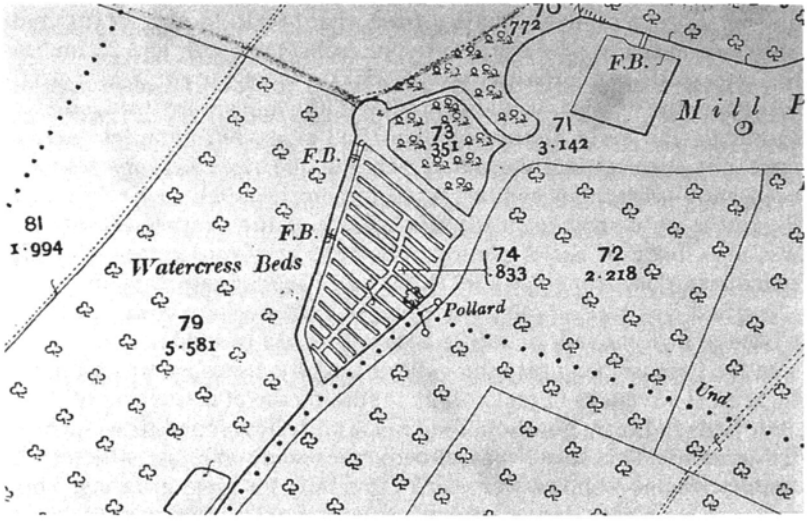

Fig. 1a. Tonge Castle, near Bapchild, a series of branches cut out from a central channel set inside an earlier bypass.

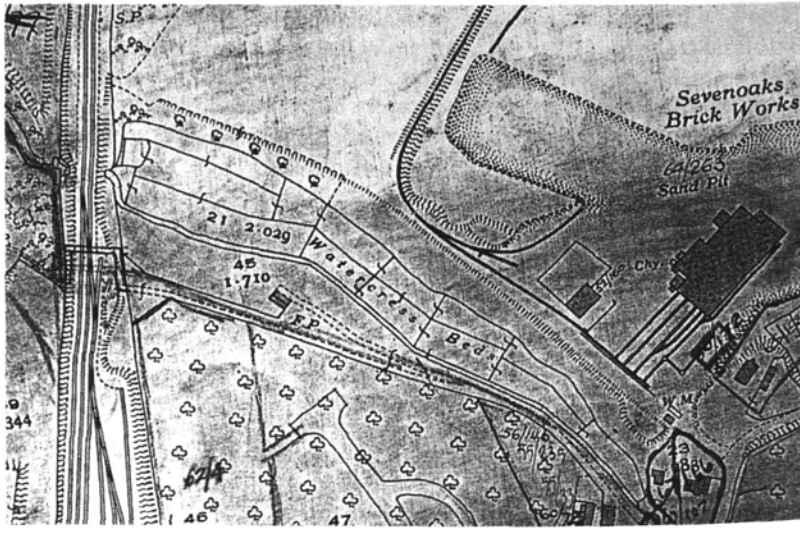

Fig. 1b. Greatness, near Sevenoaks, a broad linear bed with weirs and walkways or earthwork banks across it.

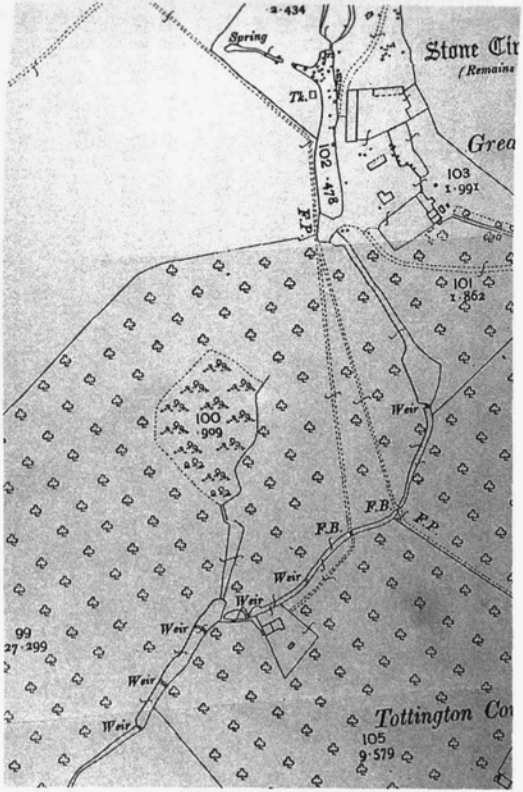

Fig. 1c. Great Tottington, near Aylesford, a pond-like area (centre right) with an unimproved stream below it and an improved bed at bottom centre.

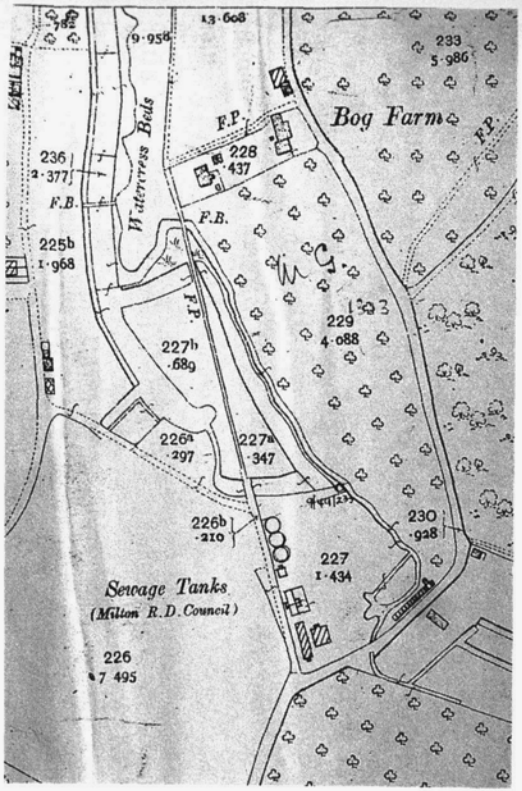

Fig 1d. Broom Downs, Newington, a bed bypassing the stream on its left side.

cultivation ornamental water features may also have the same appearance, such as at a site noted at Kennington Hall, near Ashford. Weirs, marked as straight divisions across watercourses on maps are also commonly associated with beds but an example of this by the River Stour at Julliberrie Downs, near Chilham, does not reveal any real similarity when examined in the field. Also misleading are water courses issuing from chalk downland springs which appear, as does that at Hamiliton Springs, near Harrietsham, to have been straightened and improved but which are not named as cress beds. Chalk streams may be widened and straightened for other reasons, such as land drainage or fishing, and it should not be assumed they were operated as cress beds.

Experience with questionable sites such as these raises the question of what constitutes 'managed' cultivation and 'artificial' beds as distinct from natural habitats and highlights the difficulties in defining the point at which 'improvement' can be said to have taken place. The harvesting of cress from its natural habitat does not leave an archaeological trace and is not part of the modern industry. Sites of this type should therefore be differentiated from watercress beds in the modern sense, just as rivers are from fish farms, but there is, of course, an indistinct line between 'natural' and 'artificial'. In terms of using historic map sources it is unclear from the survey quite what defined a watercress bed in the Ordnance Survey's eyes. In the twentieth century, and especially after the Second World War, the presence of concrete troughs and cold frames covering the beds (such as at Garrington Farms, Littlebourne) would have left the surveyors in little doubt that this was a modern agricultural process requiring labelling and that 'watercress bed' was the best label to use. The cultivation of traditional beds before this period may have been less obvious to them and some unimproved natural habitats might be labelled on maps as beds while other artificial beds were missed off. It is clear that only direct documentary evidence or field investigation of the sites can confirm their former use as artificial beds. In the meantime, however, the use of maps and non-intrusive field assessment can give important clues.

The 27 sites were distributed around the fringes of the chalk downs of north and west Kent and in the river valleys that bisect it. The largest concentration was on the edge of the downs between Sevenoaks and Kemsing with other groups in the Stour and Darent river valleys and a scatter along the northern edge of the downs near the Swale and Thames shores. An isolated example was also found in the Medway river valley, an area that might have been expected to yield more, but chalk streams around Dover and on the eastern edge of the

downs generally seem to have lacked watercress beds altogether. Such chalk spring locations seem to fit the modern and historic industry literature, as noted above, but closer examination of five sites reveals they are actually located on the sandy Folkestone Beds or the Gault Clay. While those at Greatness, near Sevenoaks, and Birling may have used streams issuing from the nearby chalk onto the Folkestone Beds those at East Malling, Riverhead and near Harrietsham seem to be fully within the clay area. Despite not agreeing with the view of bed location suggested by published sources these locations correspond to the distribution of wild common watercress in Kent, which can be found in greensand, clay and alluvial areas in addition to the chalk downland fringe.[3]

An idea suggested by the location of Springhead Gardens near the main road to London had been that the economics of the construction of modern artificial beds demanded links to a good urban market. While this may be borne out by the proximity to main roads of some large beds (such as those at Littlebourne, near Canterbury and Greatness, near Sevenoaks and the railway to London) and several small ones (like those along the Ashford to Canterbury road near Boughton Aluph) many other sites are found in quite isolated locations. Most of these are often small scale beds too, the type which may only have met the needs of farmer and villager. In fact very few beds ever seem to have been developed into large areas of cultivation along the lines of Springhead and the impression given is that the Kent industry, despite being the first established never really took off into a modern highly capitalised sector of agriculture.

The initial study of watercress beds depicted on historic maps and surviving in the field has suggested that several distinct forms of bed were in use by the later nineteenth century. Although the sparse contemporary sources on the subject do not differentiate between various methods of laying out beds it is apparent that several alternative systems were used. An attempt has therefore been made to identify a series of distinct forms based on their morphology and observed details of operation. Of the 27 sites identified several comprised more than one distinct area of cultivation laid out in a different style so that altogether 40 separate beds (or different phases of bed construction) were assessed for similarities and differences in form. From this five broad types were identified within which are found certain degrees of variety in bed layout, perhaps as a result of topographic and hydrological conditions peculiar to the different sites, the demands of different cress varieties and the experience of the staff.

Type 1: Linear Beds (Unimproved)
The simplest form identified is that which uses an existing stream bed as the cultivation area. While the beds may be improved so that water depth and rate of flow can be controlled by weirs set across the channel itself the stream retains its natural form and shows little or no evidence of having been straightened, deepened, or widened into ponds. Perhaps the best example of an unimproved bed can be seen at Great Tottington near Aylesford where portions of the stream retain its meandering form and, presumably by incorporating several springs lower down, could have been used for cress over a considerable distance with the addition of several weirs. In only a few cases does the linear form seem so unregulated that an unimproved stream may have been harvested in the natural manner and even there the bed of the streams may have been prepared or staging used (as at the apparently unimproved lower portion of the Springhead Beds) and the banks cut back.

Type 2: Linear Beds (Improved)
A more sophisticated variation on the above type has the stream bed straightened and widened to increase the growing area possibly with several weirs across the channel to control flow and depth. This is the most common form of bed but examples are of varying complexity and degrees of improvement. Most common is the linear stream with a straightened, deepened and improved course of which sixteen were identified (including one possible). Others, such as at Buckwell Farm, near Boughton Aluph, feature ponds which have been elongated and fitted with weirs.

Type 3: Ponds
It is unclear just how 'primitive' a form the irregular pond type was. Several streams used as watercress beds that originate in springs start with roughly circular ponds at their heads undivided with weirs or staging. Although cress can be found still growing wild in some it is uncertain to what extent they were cultivation areas, or just reservoirs. Of the six ponds identified only two exist in isolation from linear beds, those at Telston Lane, Otford, and Park Barn Farm near Boughton Lees, with a third, at Cherry Gardens, later extended into linear beds. At Great Tottington a more regular pond just below the first springs (themselves rising in ponds) is more likely to have been built specifically for cress.

Type 4: Branch Channels
Short branch channels cut out from the stream or linear bed, usually at right angles to the bed, they may have been used both as cultivation

areas and to feed spring water into the system. Branches are less common than such a relatively simple method might suggest, examples having been identified at only four sites. Perhaps the best developed are at Tonge Castle, where a grid of branches spring from a central feeder, and those formerly at Rectory Farm on the Ebbsfleet Valley while at Broom Downs, Newington, the branches were quite small.

Type 5: Bypass Channels
A channel cut out from the stream, much like a mill race, which is managed by weirs before rejoining the stream further downstream. Nine examples have been found, most impressive of which were those built along the stream at Broom Downs, Newington, where beds of considerable length were constructed in several phases. In some cases they are of unusual design. That at Tonge castle seems to enclose the later branch beds at the centre of the system. The beds on the north side of St John's Jerusalem certainly follow a route leading away from the River Darent but formerly had both an additional bypass and a set of branches extending from its sides. Three examples have been found where the bypassing bed seems to have twisted into a serpentine form, doubling back on itself around thin divisions to maximise the cultivated area in a limited space. Unfortunately none of these (at Bullfinch Corner, Riverhead, Broom Downs, Newington and Winfield Mill, near Brasted) have survived to allow confirmation that these were indeed single elongated channels rather than larger open areas of water divided by staging.

Dating the construction of beds proved difficult, principally due to the map sources used, but interesting groupings have emerged. Eight sites were found to have been established before the 1860s but four of these seem to have originated during or after the 1840s and no beds were found which could be conclusively proved to be as old as Springhead. The only contender for this crown is Great Tottington where some improvement works may have been carried out by 1805. Five new sites were founded in the period between about 1865 and 1895 but by far the largest group of beds (eleven sites) were established in the period after 1908. Following this only three were created before the Second World War and none since. County trade directories provided little help in dating as surprisingly few watercress growers were listed and in most cases their villages of residence were given rather than the location of their beds making the matching of growers' names to sites difficult in most cases.

While no conclusive pattern has emerged regarding the chronology of bed types the study has suggested that early use of linear forms may

have developed into branch and bypass beds during the middle of the nineteenth century. More apparent is a reversion to the construction of simpler ponds and linears seen around the turn of the century. Three sites operated in the modern post-war industry, Garrington Farms, Broom Downs and that to the South of St John's Jerusalem. Only the latter seems to have been newly built for the purpose and like Broom Downs used bypasses while Garrington developed a linear form.

In terms of refining the typology of watercress beds outlined above further research is required into historical records of cultivation methods and in the field such records need to be tested against the results of archaeological investigation. The development of the Kentish industry also requires clarification and documentary resources need to be identified and investigated.

DAVID EVE

Gazetteer

Birling Manor, Birling: TQ 6812 6078 - TQ 6824 6069
A stream running between Stangate Road and a lake south of Birling Manor has a straightened and widened section some 120m long similar to a watercress bed and is crossed by seven brick weirs. The date of construction is uncertain but was probably between 1870 and 1897.[4]

Blacklands, School Farm, Faversham: TR 0366 6137 - TR 0375 6171
A single linear bed developed from a stream between 1907 and 1938 that was probably constructed by the Elliots of Springhead Gardens in the early 1930s.[5] The bed is a straight channel (about 6m wide) with a round pond at the spring end. A large area of marshy ground on the western side may have been a bypass channel as it appears to have been separated by earthwork banks up to 10m wide. The bank is cut by two channels at right-angles to the bed that may have been part of the system. The lower part of the beds run under an earlier railway embankment and join drains in marshy ground on the other side of it.

Broom Downs, Newington, Lower Halstow: TQ 8117 6553 - TQ 8077 6657 **(Fig. 1d)**
The system, some 1,100 metres long, is based around two streams originating at the Ward Well below Bog Farm at a point beside Wardwell Lane north-west of St Mary's Church, Newington, which merge and flow through an area called The Bogs below Broom Downs. The streams do not seem to have been developed before at least 1868

although a Mrs E Silvester was operating beds at Newington by 1867 and John Harold from 1874, so unimproved natural beds may have been harvested at this time.[6] By 1896 an enlarged pond had been constructed at the Wardwell Lane end with five short branch channels on the stream. At the Ward Well the stream had also been enlarged and a small area of what were probably closely-spaced parallel channels or a serpentine pattern bypass constructed on one side. A weir stood just downstream of where the two streams joined and a length of bypass channel was built along the western side of the stream for the next 170m. By 1908 the spring end had been expanded again with the five branches removed and a looping channel running from the Ward Well back to the start of the bypass inserted. Also at this time a separate 140m length of bypass was built, also on the western side of the stream but a short distance downstream from the existing one.[7] The beds were operating through the 1930s (by James Simmons, resident at the farm) and they continued to be cultivated in the 1950s. The pond and site of the branches at the Wardwell Lane end have been covered by later building but the rest of the system remains, if heavily overgrown. A concrete sluice replacing an earlier one at the southern end of the later, northern, bypass can still be seen.

Buckwell Farm, near Boughton Aluph: TR 0431 4821 - TR 0455 4806
Improved linear type beds about 100 metres long with a bypass and suggested to have originally been medieval fishponds.[8] A rounded pond, present in 1840, had been elongated by 1872 and the south bank straightened by the the end of the century by when it was certainly operating as watercress beds. Although no internal divisions were present there was a sluice at the lower end and a bypass channel seems to have existed along one side by the 1870s.[9] By 1897 beds starting at 10m across and widening to c. 20m had been built with seven weirs and a sluice across the pond. Below this the stream became irregular for 225m with one or two sluices and may have been cultivated. The beds still survive as ponds in a private garden.

Bullfinch Corner, Riverhead: TQ 5137 5644
The beds, built between 1868 and 1898, bypassed the western side of a stream and formed a series of three serpentine 'S' bends orientated west to east with an additional 'S' bend at their northern end. It is unsure if these beds, which covered an area of roughly 30 by 20m, constituted a single channel separated by earthen banks or a large area of water with timber walkways in it. The beds were operating in the 1930s but have since been filled in and built on.[10]

Castle House, Otford: TQ 5312 5920 - TQ 5299 5935
Two linear watercress beds converging on a pond at Castle House, Otford. One, built on a stream from the spring at St Thomas a Becket's Well to the east of the house, was 100m long, about 8-10m across at its widest with a weir 25m from the well and may have been developed by 1844.[11] The other bed ran from springs at a circular pond at Moat Cottage, on Station Road, southwards to the House. It was irregularly shaped, about 110 metres long and widened at the lower end. Although the general form of the beds existed in the 1860s their irregular layout makes it difficult to be sure when, or to what extent, they were improved for cultivation. However, some development had taken place by the end of the century when a broad pond at the southern end had been filled in.[12] The beds operated through the 1930s but were disused in the 1950s and have since been redeveloped with deep concrete troughs for fish farming that may have destroyed the beds.

Cherry Gardens, near Harrietsham: TQ 8567 5198 - TQ 8556 5203
Two small beds at Cherry Gardens Farm fed by springs originally feeding a tributary stream of the River Len. The beds initially consisted of two small irregularly-shaped ponds with no internal subdivisions which existed before 1868 and were certainly in use for cress by 1908 by which time a rectangular bed, some 60 by 15m had been constructed adjacent to the ponds. This had several internal divisions making nine areas.[13] Some of the dividers survive as low weirs built of brick. There is also a dam at the lower end of the ponds, which are now entirely overgrown.

Court Lodge, Hogtrough Hill, Brasted: TQ 4615 5615 - TQ 4634 5600
A spring was dammed into a large pond by the mid-19th century but the construction of beds seems to have happened between 1897 and 1909. By the 1930s the stream was being cultivated over some 230m. The irregularly-shaped pond was divided by five weirs with a larger embankment at the lower end and two other weirs dividing small side areas. Below this pond was another, more narrow and regular, with a sluice at the downstream end connecting an improved channel that linked it to the final, rectangular bed that was not subdivided.[14]

Cotton Farm, Stone: TQ 5635 7547 - TQ 5660 7544
A complex of five linear beds developed from land drains (or channeled streams) at the edge of Stone Marshes. To the west of Cotton Farm were a pair of roughly parallel beds about 300m long linked by a short channel. A track leading from the Farm into the marshes was flanked by drains and a pair of beds extended at right-angles from either side. That on the western side was about

120m long and joined the parallel beds, that on the east some 150m long and connected with a pair of drains. A fifth bed, 115m long with a curved pond and two short arms was positioned at the junction of two drains over 300m to the west of the main group. The parallel beds were constructed prior to 1838 (when they may have been operated by Cotton Farm's tenant Robert Weatherhog) while the solitary western bed was added by 1897.[15] It is unclear when those beside the farm track were built. No internal divisions or sluices were noted on any maps of these beds which all seem to have been developed from pre-existing drains. The presence of occasional curves reminiscent of natural drainage channels in the beds could also suggest they incorporated old streams, perhaps using their springs. All the beds have been destroyed by quarrying or road construction except the short eastwards arm of the fifth bed.

Dynes Road, Kemsing: TQ 5435 5874
An irregular- shaped pond c. 30m long and a maximum of c. 7m wide which operated until the 1930s but has since been filled and the site built on. This pond was present in 1868 but by 1897 it was shorter, wider and had a weir built across it and by this time was certainly in operation as a watercress bed. A small building built between 1897 and 1909 stood at the spring end which may have been associated with the beds.[16]

Garrington Farms, Littlebourne: TR 2020 5654 - TR 2056 5667
A stream flowing from springs at Well Chapel near Garrington was already widened and strightened along one bank by 1872 but it is uncertain if this was a bed. Between 1907 and 1938 a long broad bed was constructed, partly expanding the earlier channel. This bed was itself partly destroyed by modern beds that were complete by 1961.[17] This modern system is now disused but consisted of a broad bed which flows under a concrete walkway into six concrete sided beds covered by polythene covered cold frames. A concrete trough bypass takes water from the open bed around the covered ones to rejoin the stream behind them. Several other overgrown enclosed areas surround the beds while a water pumping house, office and stores contemporary with the modern beds are adjacent to them.

Greatness, near Sevenoaks: TQ 5319 5729 - TQ 5340 5701 (**Fig. 1b**)
Beds constructed on a small stream flowing under a railway line. They were about 40m wide but tapered to a point over a slightly curving course of some 260m. The beds were subdivided along their length and crosswise in an irregular fashion to make two parallel series of beds with a central bank and what were probably weirs or walkways separating them. The stream had been improved to roughly

this form between 1870 and 1897 but the internal divisions were added later so and it is uncertain if the beds were in use. By 1909 a bypass channel was added on the south side of the stream, making the whole watercourse the same shape.[18] The beds have since been filled in and built on.

Great Tottington, near Aylesford: TQ 7389 6051 - TQ 7374 6007 (**Fig. 1c**)
A stream originating at Great Tottington Farm has been cultivated as both improved and unimproved beds in a linear form for some 450m. The upper portion was improved between 1840 and 1868 and the whole system completed by 1908.[19] The stream originates in a pair of ponds closed by sluices which could have been used for cress but may have been adapted as reservoirs for Aylesford village in the 1930s and 1940s. Below these is a narrow rectangular bed 100m long with a regular-sided pond and stepped brick weir at its lower end that was probably present in 1840 and may even have been there in 1805.[20] After about 50m of unimproved stream is a similar weir constructed in the early 20th century and 30m below this is a low arched weir, probably of 1897-1908 date with the base of a small brick structure, possibly a sluice control, abutting. The following 70m of stream are unimproved but have another pair of stepped brick weirs built between 1868 and 1897. On the eastern bank at this point (TQ 7386 6015) formerly stood a small building that may have been connected with the beds. Immediately below this is a widened and straightened bed up to 80m long and 7m wide with an arched weir at the lower end (of 1868-1897) and two of concrete added before 1908. The end of the system is marked by a brick weir of post-1908 date 35m below this. The Tottington beds seem to have developed in several phases, starting at the top by the ponds followed by the bed near the end of the managed stream before infilling between the two and a final extension at the bottom.

Kempe's Corner, near Boughton Aluph: TR 0328 4700 – TR 0347 4695
A rectangular bed approximately 100m long by 10m wide that was not created until around 1900 and was marked as a cress bed on maps as recently as the 1960s. The bed does not appear to have had any internal subdivisions or weirs but at the downstream end it narrows to half the width. At the western end of the bed a small open-fronted shed stood that predated the bed and survived until the 1930s.[21]

New Barn Farm, Otford: TQ 5156 5860 – TQ 5161 5867
A short linear bed about 65m long of an irregular curving shape situated on the south side of New Barn Farm probably formed from a

pond after 1868. Two weirs were built across the broader upstream end of the bed by 1895 but were removed by 1909 although the beds seem to have continued operating until at least the late 1930s.[22] The site is situated in a deep hollow which may have been enlarged by excavation, perhaps quarrying.

Park Barn Farm, near Boughton Lees: TR 0315 4620 – TR 0317 4617
A small undivided triangular pond (about 50-60m long) fed by a spring constructed between 1897 and 1908 but since filled in.[23]

Rectory Farm, Ebbsfleet: TQ 6177 7360
Three watercourses are marked on the 1838 tithe map on a ridge above the Ebbsfleet valley but are probably too narrow to be watercress beds and seem similar to field drains beside the Ebbsfleet. At this point the land was owned by one Elizabeth Sayer and does not seem to have been connected with the Springhead beds. By 1865 these channels appear to have become a fully developed branch system of watercress beds. Most of the beds were destroyed by a water treatment works in the 1920s and the rest sealed by spoil from the site.[24]

River Darent, Darenth: TQ 5627 7052 – TQ 5626 7065
An irregularly-shaped linear bed constructed between 1868 and 1897 on the eastern side of the River Darent. The bed does not seem to have been fed from the river but presumably from springs.[25] The bed may have been operated by Mrs E Moody or by J Simmonds who ran beds from 1909 and 1899 respectively.[26] It has been largely destroyed by gravel extraction.

Springhead Gardens, Ebbsfleet: TQ 6169 7276 – TQ 6176 7374
The river Ebbsfleet was developed as beds from 1805 until two distinct areas of cultivation, at Springhead itself (the first 250m of the river) and the lower portion of the Ebbsfleet stretching for over one km down the valley were under cultivation. The former developed from a linear to an irregularly shaped by-pass bed at least by 1865 and possibly by 1839. The latter area was little improved and large open areas of cultivation were crossed by raised timber walkways. By 1865 a pond with a thin island in the middle and a channel on the eastern side had been added near the top of the beds. The beds are now severely overgrown and the upper part filled in.[27]

St John's Jerusalem (North), Sutton-at-Hone: TQ 5592 7050
A bypass from the eastern bank of River Darent with a group of watercress beds attached that was constructed between 1868 and 1897.[28] They may have been those run by either Mrs E Moody or J Simmonds, of Sutton-at-Hone, from 1909 and 1899 respectively.[29]

The bypass formed one side of a triangular linear bed and then feed a broad bed 65m long with seven thin internal divisions giving the appearance of a series of branches. The beds have been partly backfilled, one side of the triangular bed has been removed and the central part infilled. It is unclear how water returned to the Darent or if the bypass actually worked as a drain for the system with springs supplying the beds from other points.

St John's Jerusalem (South), Sutton at Hone: TQ 5592 6989 – TQ 5591 7016
Beds bypassing the west side of the River Darent just south of St John's Jerusalem which are now largely filled and covered by a nursery. A thin feeder channel bypassed the river and two rectilinear beds over 200m long and about 10m wide were fed from it. Just north of these beds is a rectangular watercourse of similar dimensions parallel with the western side of St John's Jerusalem moat. This may also have been a bed and is marked on the 1897 map but the main beds were built in the 1920s or 1930s and continued in operation until the 1960s.[30]

Telston Lane, Otford: TQ 5176 5899
A small triangular-shaped bed with no evident internal banks or weirs developed between 1868 and 1897 and now overgrown.[31]

Tonge Castle, near Bapchild: TQ 9317 6342 – TQ 9323 6352 (**Fig. 1a**)
Beds on a triangle of land between the stream feeding Tonge Mill and a bypass on its western side. A series of branches running off a central channel were constructed in this area with a circular pond at the downstream end of the bypass, from which a curved channel continued the bypass to rejoin the stream at the mill pond. Footbridges crossed the bypass at two points to connect with the banks between the branch beds. The bypass and circular pond seem to have been constructed between 1860 and 1868 but the branch channels may not have been added until 1908.[32] The beds are now heavily overgrown and silted up but the pattern of branches, about 1.5m wide running at between 90° and 45° from the main channel can still be seen. The branches are often blocked where they join the main channel but this seems to be later vegetation rather than original sluices, or weirs.

Twitten Brook, near Otford: TQ 5135 5928
A thin straight water course flowing from two springs with a sluice at the lower end and possibly two below that by 1900.[33] It may have been improved by 1868 and it is known to have been operated as a watercress bed during the nineteenth century.[34] The bed survives as an overgrown stream with little evidence of its cultivation.

Waterlane Farm, near Harrietsham: TQ 8554 5223 – TQ 8560 5241
Beds fed by a stream from Cherry Gardens Farm and possibly a pond across the track to Waterlane Farm. From a broad pond unimproved linear beds some 130m long and of a fairly regular width partly follow the line of the stream. At the end of the beds, where a sluice or weir presumably stood, the stream continues in a much more sinuous fashion. The pond and beds were formed between 1868 and 1897.[35] The beds are now disused and overgrown.

Well Street, East Malling: TQ 6950 5665 – TQ 6975 5798
The beds, situated between Well Street and Mill Street, appear to have developed from a feeder to the mill pond for the Upper Paper Mill around 1900 when the lower 200m of the stream was a straight channel 10-12m wide with a dam and weir at the mill end, no bypass and no internal weirs or banks. In the late 1930s the head of the stream was already formed into a pond but below this the stream bank was straightened and cut back to form a linear bed about 12m wide and some 275m long and divided down its length. Two low weirs were built across the lower part of the channel between the railway bridge and mill. After 1964 a similar weir (just two courses of bricks laid across the bed) was built across the upper part near the pond.[36] The upper beds' floor of pebbles remains uncovered but the longitudinal division (either a solid earthen bank or timber walkway) has not survived.

Winfield Mill, near Brasted: TQ 6044 5524
A short, (c. 60 by 25m), roughly rectangular bed with four internal divisions made from a bypass channel off a tributary of the River Bourne. Constructed between 1872 and 1897 but abandoned by 1908. Water filter tanks were constructed on the site later, probably destroying the bed.[37] It is unclear if the internal divisions were weirs dividing a single bed or if they constituted a serpentine channel.

NOTES

[1] Eve, D., 1998, 'Springhead Gardens and the archaeology of Kent watercress beds', *Archaeologia Cantiana*, cxviii, 191-203.

[2] The Royal Agricultural Society, National Farmers Union, Centre for Agricultural History (University of Reading) and Wye and Hadlow Agricultural Colleges, Kent, have all been consulted in a largely vain search for historical sources on the industry generally.

[3] Philp, E. G., 1982, *Atlas of the Kent Flora* (Kent Field Club), 45.

[4] OS First to Third Edition maps, 1870-1908.

[5] *Gravesend Reporter*, 30 April 1942; OS Third and Fourth Edition maps, 1907 and 1933.

[6] Kelly's Directory of Kent.

[7] OS First to Fourth Edition maps, 1868-1938.

[8] Kent SMR.

[9] Boughton Aluph parish Tithe Apportionment, 1840; OS First to Fourth Edition maps, 1872-1938.

[10] OS First to Fourth edition maps, 1868-1938.

[11] Otford parish Tithe Apportionment, 1844.

[12] OS First to Fourth Edition maps, 1868-1938.

[13] *Ibid.*

[14] OS First to Fourth Edition maps, 1868-1933.

[15] Stone parish Tithe Apportionment, 1838; OS First to Fifth Edition maps, 1863-1964.

[16] OS First to Fifth Edition maps, 1868-1964.

[17] OS First to Fifth Edition maps, 1872-1964: Kent County Council Aerial Survey, 1961.

[18] *Ibid.*

[19] OS First to Fourth Edition maps, 1869-1938; Aylesford Tithe map, 1840.

[20] OS Surveyor's Draft Edition map, *c.* 1805.

[21] OS First to Fifth Edition maps, 1872-1964.

[22] *Ibid.*

[23] OS Second and Third Edition maps, 1897 and 1909.

[24] Tithe Apportionment and Map; OS First to Fourth Edition maps, 1865-1946.

[25] *Ibid.*

[26] Kelly's Directory of Kent.

[27] Eve, D., 1998, *op. cit.* (note 1)

[28] OS First and Second Edition maps, 1868 and 1897.

[29] Kelly's Directory of Kent.

[30] OS Third, Fourth and Fifth Edition maps, 1897-1964.

[31] OS First and Second Edition maps, 1868 and 1897.

[32] Tonge Tithe Apportionment, 1837; Railway Plan, 1860; OS First to Fourth Edition maps, 1868-1933.

[33] OS First to Third Edition maps, 1868-1909.

[34] Information from Cliff Ward, Otford and District Historical Society.

[35] OS First to Fourth Edition maps, 1868-1933.

[36] OS First to Fourth Edition maps, 1868-1938.

[37] OS First to Fourth Edition maps, 1872-1933.