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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

<sup>1</sup> L. A. M. Sencicle, *Banking on Dover* (Dover, 1993); *Archaeologia Cantiana*, cxii (1993), 434-6.

<sup>2</sup> The author is grateful to Christine Waterman, Curator of Dover Museum, for the many details provided.

<sup>3</sup> Andrew Sanders, *Companion to a Tale of Two Cities*, 1988.

<sup>4</sup> *Dover Telegraph*.

<sup>5</sup> 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)<sup>1</sup> 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.<sup>2</sup> 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

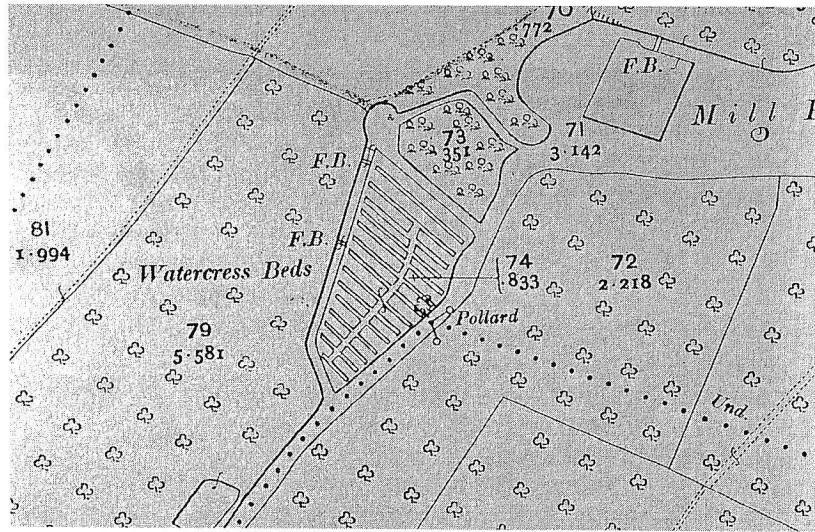


Fig. 1a. Tonge Castle, near Bapchild, a series of branches cut out from a central channel set inside an earlier bypass.

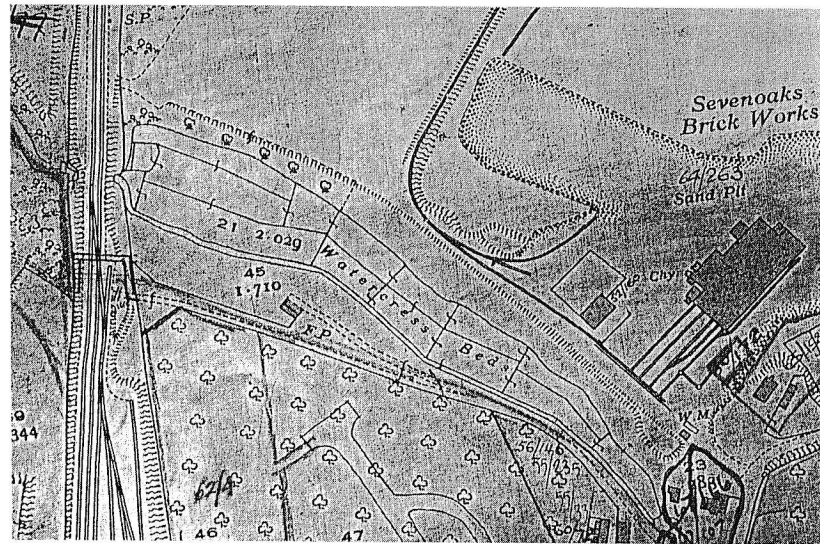


Fig. 1b. Greatness, near Sevenoaks, a broad linear bed with weirs and walkways or earthwork banks across it.

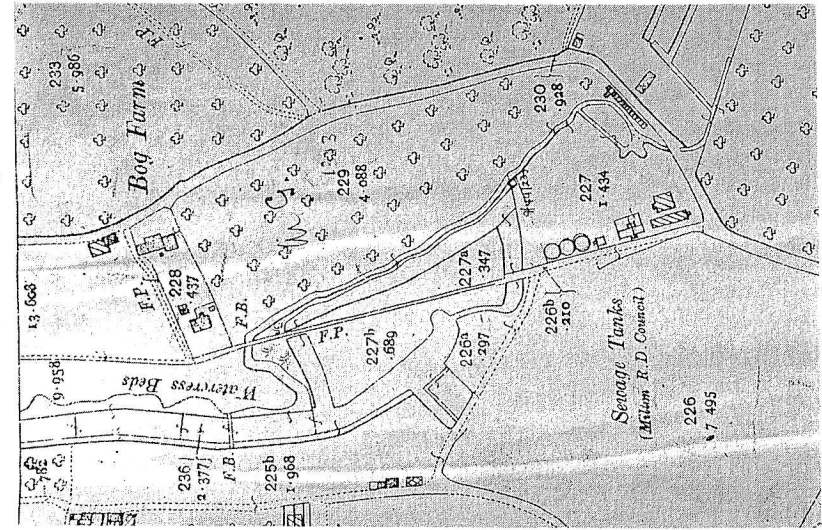


Fig 1d. Broom Downs, Newington, a bed bypassing the stream on its left side.

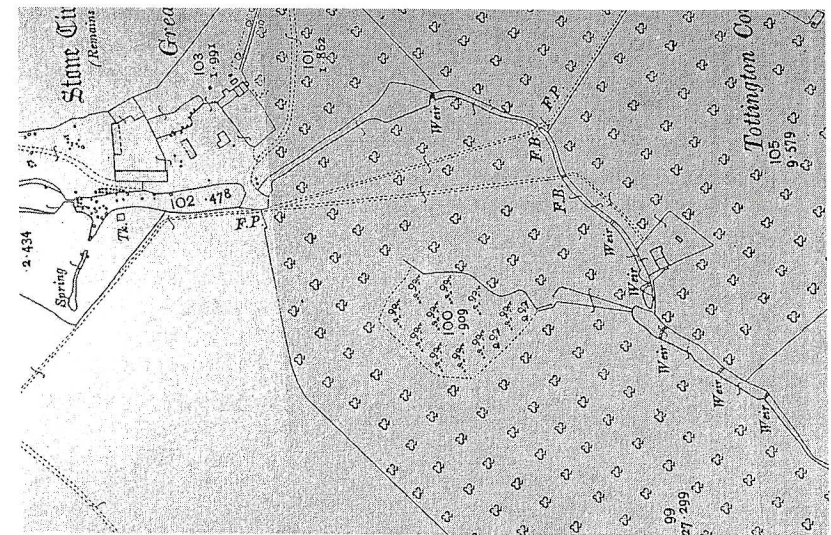


Fig. 1c. Great Tottington, near Aylesford, a pond-like area (centre right) with an unimproved stream below it and an improved bed at bottom centre.

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 Hamilton 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.<sup>3</sup>

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.<sup>4</sup>

##### *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.<sup>5</sup> 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.<sup>6</sup> 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.<sup>7</sup> 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.<sup>8</sup> A rounded pond, present in 1840, had been elongated by 1872 and the south bank straightened by 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.<sup>9</sup> 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.<sup>10</sup>

*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.<sup>11</sup> 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.<sup>12</sup> 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.<sup>13</sup> 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.<sup>14</sup>

*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.<sup>15</sup> 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.<sup>16</sup>

*Garrington Farms, Littlebourne: TR 2020 5654 - TR 2056 5667*

A stream flowing from springs at Well Chapel near Garrington was already widened and straightened 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.<sup>17</sup> 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.<sup>18</sup> 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.<sup>19</sup> 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.<sup>20</sup> 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.<sup>21</sup>

*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.<sup>22</sup> 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.<sup>23</sup>

*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.<sup>24</sup>

*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.<sup>25</sup> The bed may have been operated by Mrs E Moody or by J Simmonds who ran beds from 1909 and 1899 respectively.<sup>26</sup> 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.<sup>27</sup>

*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.<sup>28</sup> They may have been those run by either Mrs E Moody or J Simmonds, of Sutton-at-Hone, from 1909 and 1899 respectively.<sup>29</sup>

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.<sup>30</sup>

*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.<sup>31</sup>

*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.<sup>32</sup> 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.<sup>33</sup> It may have been improved by 1868 and it is known to have been operated as a watercress bed during the nineteenth century.<sup>34</sup> 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.<sup>35</sup> 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.<sup>36</sup> 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.<sup>37</sup> It is unclear if the internal divisions were weirs dividing a single bed or if they constituted a serpentine channel.

## NOTES

<sup>1</sup> Eve, D., 1998, 'Springhead Gardens and the archaeology of Kent watercress beds', *Archaeologia Cantiana*, cxviii, 191-203.

<sup>2</sup> 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.

<sup>3</sup> Philp, E. G., 1982, *Atlas of the Kent Flora* (Kent Field Club), 45.

<sup>4</sup> OS First to Third Edition maps, 1870-1908.

<sup>5</sup> *Gravesend Reporter*, 30 April 1942; OS Third and Fourth Edition maps, 1907 and 1933.



- <sup>6</sup> Kelly's Directory of Kent.
- <sup>7</sup> OS First to Fourth Edition maps, 1868-1938.
- <sup>8</sup> Kent SMR.
- <sup>9</sup> Boughton Aluph parish Tithe Apportionment, 1840; OS First to Fourth Edition maps, 1872-1938.
- <sup>10</sup> OS First to Fourth Edition maps, 1868-1938.
- <sup>11</sup> Otford parish Tithe Apportionment, 1844.
- <sup>12</sup> OS First to Fourth Edition maps, 1868-1938.
- <sup>13</sup> *Ibid.*
- <sup>14</sup> OS First to Fourth Edition maps, 1868-1933.
- <sup>15</sup> Stone parish Tithe Apportionment, 1838; OS First to Fifth Edition maps, 1863-1964.
- <sup>16</sup> OS First to Fifth Edition maps, 1868-1964.
- <sup>17</sup> OS First to Fifth Edition maps, 1872-1964: Kent County Council Aerial Survey, 1961.
- <sup>18</sup> *Ibid.*
- <sup>19</sup> OS First to Fourth Edition maps, 1869-1938; Aylesford Tithe map, 1840.
- <sup>20</sup> OS Surveyor's Draft Edition map, c. 1805.
- <sup>21</sup> OS First to Fifth Edition maps, 1872-1964.
- <sup>22</sup> *Ibid.*
- <sup>23</sup> OS Second and Third Edition maps, 1897 and 1909.
- <sup>24</sup> Tithe Apportionment and Map; OS First to Fourth Edition maps, 1865-1946.
- <sup>25</sup> *Ibid.*
- <sup>26</sup> Kelly's Directory of Kent.
- <sup>27</sup> Eve, D., 1998, *op. cit.* (note 1)
- <sup>28</sup> OS First and Second Edition maps, 1868 and 1897.
- <sup>29</sup> Kelly's Directory of Kent.
- <sup>30</sup> OS Third, Fourth and Fifth Edition maps, 1897-1964.
- <sup>31</sup> OS First and Second Edition maps, 1868 and 1897.
- <sup>32</sup> Tonge Tithe Apportionment, 1837; Railway Plan, 1860; OS First to Fourth Edition maps, 1868-1933.
- <sup>33</sup> OS First to Third Edition maps, 1868-1909.
- <sup>34</sup> Information from Cliff Ward, Otford and District Historical Society.
- <sup>35</sup> OS First to Fourth Edition maps, 1868-1933.
- <sup>36</sup> OS First to Fourth Edition maps, 1868-1938.
- <sup>37</sup> OS First to Fourth Edition maps, 1872-1933.

## REVIEWS

*The Survey of Archbishop Pecham's Kentish Manors 1283-85.* Translated, edited and with introduction by Kenneth Witney. 216 x 138mm. lxxxiv + 390pp. Seal of Archbishop Pecham + 2 b/w maps and 1 fig. Kent Records Series Volume XXVIII. Kent Archaeological Society, Maidstone, 2000. (Cased, £20.00 to members, £35.00 to non-members) ISBN 0-906746-40-X.

This edition is the last substantial published work of the distinguished historian of medieval Kentish society Kenneth Witney, who died in 1999. As the foreword by Joan Thirsk makes clear, Mr Witney began work on it in 1989 but was handicapped in completing it by a serious motor accident in 1994. Its appearance now owes much to the help given to the author and the General Editor of the Kent Records series by Margaret Sparks and by Dr Thirsk herself. The volume consists of a 74-page introduction, and a translation of 92 folios of Canterbury Cathedral MS E.24 which takes up 342 pages. This text is an extremely full survey of the seventeen archiepiscopal manors in Kent and the services owed by their tenants, datable by internal references to 1283-85. The manuscript itself, however, is a fifteenth-century copy of a lost original. Information collected by local inquests in the manors, guided by earlier records, not all of which survive, is inevitably variable. The Wingham entry takes up 68 pages, those of Petham and Bishopsbourne only 4 pages each, differences only partially explicable by the sizes of the individual estates. The editors have also added a translation, made by Dr Bridgett Jones, of the Kentish portion of Lambeth Palace Library MS E.D.2068, a text described by F.R.H. Du Boulay in *The Lordship of Canterbury* (1966) as 'a near-contemporary excerpt of the same survey'. This adds useful comparative material, but its real relationship to the larger text remains unclear, and is not ascertainable by direct comparison, as other intermediary records were probably also involved.

Just by putting such an important source into print, this volume performs a valuable service to Kent history. The edition and translation is as painstaking as it could be, with a helpful glossary, given that the meanings of some technical terms are still uncertain. The