DARENTH WOOD; ITS EARTHWORKS AND ANTIQUITIES*

By John E. L. Caiger

DARENTH WOOD is situated on the south side of the A2 road (Watling Street) to Rochester, some 2 miles east of Dartford. The geological formations vary considerably throughout the wood. The centre portion, which attains an elevation of 280 ft. A.O.D. is on Plateau Gravel. This gravel formation is surrounded in turn by Woolwich Beds, with Thanet Sand and Chalk beds lying to the north and south ends of the wood.

Although it seems certain that this land formed part of the manorial holdings from very early times the earliest reference it has been possible to trace which associates the ownership of the wood with the Manor of Darenth is a fifteenth century document, setting out articles of agreement between the Prior of St. Andrew, Rochester, and John Crepehege, their tenant of the property.1

Archbishop Lanfranc held the Manor of Darenth when the Domesday survey was taken; he kept the manor for himself and his successors and it continued in the See of Canterbury until A.D. 1195.2 In this year Archbishop Hubert Walter exchanged it with the Prior of St. Andrew, Rochester for the Manor of Lambeth,3 and it continued in their keeping until the dissolution.

King Edward I in his 23rd year (1294) granted the Prior and Convent free warren in the desmesne of Darenth,4 and Darenth Wood must have formed part of this grant.

A short time after the dissolution of the monastery, the manor and its lands was confirmed to the newly-constituted Dean and Chapter of Rochester and from 1538 onward documents show that the property was let out by them on lease to a succession of tenants. An early document5 states:

* The Ministry of Public Building and Works contributed to the cost of printing this paper.

1 J. Thorpe, Reg. Roff., 275.
2 J. Thorpe, Custumal Roff., 91.
3 Arch. Cant., xxxiii, 136.
4 De Warrenatae Reg. Roff., 110.
5 Archives Office, Maidstone, T60/23.
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Darentwood 1537-1538

"Prior of Rochester to Henry Birde (Gent.) to the sum of 20 marks (down payment) all their woodland and underwood in Derrent Wood for 22 years yielding and paying for the premises 40 shillings per annum."

The series of documents dating from this time continue until the nineteenth century.

In 1640 the manor was leased to the daughter of William, Lord Harvey, and it was then kept in the family for over one hundred years until George, Earl of Bristol, sold his interest in it to William Farrant. In 1649, a survey of the manor, including Darenth Wood, was made by order of the State and it was valued at £169 13s. 6d. per annum.

In 1688 a Mr. Christopher Chapman became the lessee and the property remained in his family until the latter part of the nineteenth century. The Rochester land and property, including the manor and wood was finally vested in the Ecclesiastical Commissioners in 1865.

When the Tithe Award map was prepared (1841), no less than five parcels of land in this wood had been sold to private persons, including the parcel known as Badger's Mount. This piece must have been one of the earliest sold (about 1680).

At the present time all of Darenth Woods is under private ownership, the Ecclesiastical Commissioners having recently sold their remaining parcel of land to the Darenth Parish Council.

The large scale O.S. maps and plans of this area show an irregular earthwork within the wood which has an enclosure or annexe at its south-west end. These details were first recorded on the 6 in. O.S. map (1907 revision).

Hasted makes reference to the earthworks and he states: 'There is a fortification thrown up in the wood... where it is probable the Saxons lay.' He also states: 'The remains of a camp and fortifications thrown up in ancient times, but now so overgrown with wood and rubbish as to be impenetrable.'

The Victoria County History of Kent mentions the presence of 'some sort of defensive work' but adds that the remains are 'obscure'. F. C. J. Spurrell describes camps and enclosures as being present in the wood in three distinct places.

Apart from these brief and rather vague descriptions little else has been recorded about the earthworks and in the past no excavations have been undertaken to determine their true age and purpose. Towards

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6 Archives Office, Maidstone, T60/23.
7 Hasted, History of Kent, ed. 1778, Vol. 1, 246.
9 Ibid., 384.
10 Vol. 1, 394.
11 Arch. Cant., xviii, 306.
the close of 1960 the Ministry of Transport put forward certain plans and proposals for a new diversion bye-pass at Dartford, the route of this proposed road to cross Darenth Wood from west to east. Across the course of this road lay an interesting junction of the earthworks with the annexe enclosure mentioned earlier, which would be destroyed when work on the roadway was commenced. An inspection of the road plans\textsuperscript{12} show a proposed cutting at this position some 30 ft. in depth.

The Ministry of Transport notified the Ministry of Public Building and Works\textsuperscript{13} of the impending destruction of the earthwork and the latter Ministry suggested that the writer should examine this area before the road construction began.

Accordingly, before starting any archaeological excavations, a new instrumental survey of the entire wood was undertaken to a scale of 1/2,500. This task was essential, in order to discover any other topographical features that might be associated with the earthwork. On completion, this new survey was more than justified, as many interesting additional features were revealed, which are not depicted on the current 1/2,500 scale O.S. plans.

The survey showed that the large earthwork was not open on its eastern side as represented on the O.S. plans but was in fact, a totally enclosed area bounded on this side too, with a bank and ditch. Furthermore, outside the perimeter of the earthwork many smaller banks and ditches were discovered over a wide area, a particularly large field bank complex being located on Badger's Mount, the highest position in the wood.

Many denehole shafts and depressions were also noted, some of them in association with the banks. These latter features resemble strikingly those described and illustrated by A. H. A. Hogg\textsuperscript{14} in his paper on Joyden's Wood, Bexley.

It was observed that these small and probably medieval field banks all lie outside the main earthwork.

Fig. 1, the plan of the wood, was prepared showing all these features and for the sake of convenience they have been classified as follows:

I. The large earthwork.
II. Small enclosures and field banks.
III. The deneholes.
IV. The seventeenth century brickworks, minor pits and other remains.

It is proposed to describe them in the order in which they appear to have been originally constructed.

\textsuperscript{12} K.C.C. Surveyor's Office.
\textsuperscript{13} Publication grant kindly given for this paper.
\textsuperscript{14} Arch. Oant., liv, 10.
The Large Earthwork

The earthwork occupies the north end of the wood and is shown on the plan (Fig. 1). It is irregular in shape, with a bank and its ditch on the outside and apart from portions on its west side it is well preserved. The total area enclosed is approximately 88 acres, 8 acres of this being the annexe at the south west extremity. Vestiges of another annexe, rectangular in shape, which formerly existed at the extreme north end facing the old Watling Street, may still be seen in a fragmentary length of bank at the north west corner. A portion of its outer ditch is exposed in the roadway cutting by Beechin Wood cottages. Part of this small annexe of about 3 acres, was destroyed when the present A2 roadway was constructed in 1921. The total length around the perimeter of the entire enclosure is two miles and it still retains in places a hint of its former strength.

After a close inspection of the earthwork, the evidence weighs heavily against it being of a defensive nature for no attempt has been made in its construction to take advantage of the natural topographical features usually associated with this class of earthwork. Plate IA shows a typical portion of the bank and ditch close to Section C—C on the plan (Fig. 1). The original entrance leading into the enclosure was doubtless by an opening formed in the rectangular annexe lying alongside the Watling Street, to which reference has been made. A secondary entrance was at the north-east corner close to the Watling Street. Other small breaks in the banks, except for those marked S are of fairly recent date. The latter breaks must have been included in the original design for they occur on either side of what was almost certainly a stream. This small watercourse is now dried up, except at times of exceptional rainfall. From the Watling Street entrance the bank and ditch run nearly due south and this portion of the earthwork has been utilized to define the parish boundaries of Darenth and Stone. After half a mile, the bank makes a sharp bend westwards and runs uphill until the roadway through the wood is reached. A denehole, now choked up with rubbish, can be seen close by the ditch at this bend.

Across the roadway the bank and ditch continue west until the junction by Section C—C is met. At this position the earthwork branches to form the 8 acre annexe mentioned before. This small enclosure lies across a steep valley containing the watercourse previously noted. The return bank back to the Watling Street is in a poor state of preservation in one part, due to its siting on high ground falling steeply to the west.

Hasted's comments on the wood being 'overgrown and impenetrable' are still true at the present day and in parts of the wood, much

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15 O.S. 25 in. to 1 mile, plan, 1909.
patience and hard work was necessary in order to obtain an accurate survey.

**The Excavations**

It was decided to cut a section through both bank and ditch at the position marked C—C on the plan, Fig. 1, as this part of the earthwork was scheduled for destruction when the proposed roadway cutting began.

A section 3 ft. wide was set out at right angles to the bank and ditch to determine details of its construction. Plate IB shows this excavation in its early stage.

The subsoil here is Plateau Gravel overlying Thanet Sand. Gravel from the ditch digging had been thrown up to form the bank on top of the old turf line. Apparently no berm had been left between ditch and bank and in consequence of this omission, soil forming the bank had soon slipped downwards into the ditch. At the tail end of the bank a large scree of gravel had accumulated naturally, as further soil was heaped up to form the bank. Two small flint blades were discovered in the bank make up. The ditch was found to have been 3 ft. 7 in. deep originally.

From the lower portion of the ditch filling several unusually large stones were recovered. As stones of this size are not normally found in Plateau Gravel some support is lent to the theory that they may have served as packing stones for a wooden pale or palisade set on top of the bank.

To test this supposition, large areas on top of the bank were carefully scraped in an attempt to locate the remains of former post holes. Some places were traced where they may have existed, but no positive evidence to this effect could be found, but it was realized that natural attrition of the soil from the crest of the bank would almost certainly have eroded all but the deepest set of such posts.

Apart from the two flint flakes, no objects which might serve as dating evidence were found in this section.

Section D—D was cut to ascertain whether the annexe was part of the original earthwork or an addition constructed at a later date. In order to make this test a section was set out directly behind the annexe outer bank to include part of this and also what may have been the earlier ditch of the larger enclosure. After excavation it was found in fact that the large enclosure and its annexe were almost contemporary, the annexe being added at a slightly later date.

Fig. 2 shows details of the section and it will be observed that only a small amount of primary silting had formed in the original ditch before a deliberate filling of sandy gravel was tipped into it to bridge the gap and join the more recently made bank with the older one. Tip
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lines of each successive load of filling were clearly defined in the section face. The heavier gravel elements from the tipped material had formed a trail along the bottom of the older ditch.

A test pit 4 ft. square was sunk in the outside ditch directly opposite Section D—D and it revealed near its base many more large stones, the largest of which measured 8 in. x 5 in. (see Plate II A). Once again the presence of such heavy stones suggests that some wooden structure was originally raised on top of the bank, requiring consolidation with packing material.

Sections B—B

Two sections were set out at the position marked B—B on the plan, Fig. 1. One was cut parallel to the axis of the bank and the second transverse to the bank and ditch. At this position, the bank diminishes somewhat in size as it follows the downward slope to the secondary entrance marked 'Trackway'. At a depth of 1 ft. 10 in. in the parallel section, the remains of a fire and charcoal fragments were encountered. These were seen to be resting on the old ground level, this surface being visible as a faint turf line. Amongst the large pieces of charcoal three sherds of a dish, originally measuring 17 in. in diameter were found. Mr. J. G. Hurst has kindly examined these fragments and states they can be assigned to the first half of the thirteenth century. An illustration of this dish is shown in Fig. 3, 1.

The discovery of this cooking fire and dish fragments was both fortunate and significant, as they had been completely sealed by the heaped up bank material. Their presence here strongly suggests a cooked meal taken by the working party before starting work on this particular length of the bank and ditch.

Fig. 3. Sc. 1/4.
SECTION C-C. PLATEAU GRAVEL. PARTLY UPCAST FROM DITCH CUTTING.

Darenth Wood Earthwork
Sections.

Fig. 2.
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The transverse section through the bank and ditch B—B is shown in Fig. 2 and as was anticipated, this section of the ditch penetrated the underlying chalk and was found to be 3 ft. 8 in. deep. After passing through a layer of leafy humus and light clay marl the chalk was reached. The ditch had silted up with rain-washed soil from the bank and contained some gravel in the filling. A small piece of lava stone, possibly part of a whetstone, was recovered from the lower portion of the ditch fill, while at a higher level still a heavy horseshoe was found. Upcast chalk from the ditch, together with a sandy soil, comprised the bank make up, and small nodules of chalk remained at the tail end of the bank. No further significant finds were made from this section.

Section A—A (not illustrated)

This section was cut across the old road into the wood, marked 'Trackway' on the Plan, Fig. 1. The object was to examine the construction of the trackway and also to check if any vestiges of a gateway into the main enclosure remained. The section was set out immediately in front of the break in the earthwork. Test holes had previously been sunk at the extreme ends of the ditches to test if the break formed part of the original plan. This was found to have been so, for no trace of the ditch was found at either end of the break; the banks, too, tailed off in height at this position.

Three distinct and separate tracks were found in this section.

(1) The latest road had been metalled with broken chalk flints and was found to be 10 ft. wide, lying about 3 in. below the present surface.\(^{16}\)

(2) Below this flint surface, at a depth of 1 ft. 4 in. was another layer of flints and two deep cart ruts which had been repaired with dark brown gravel. Small fragments of brick and a clay pipe found in this repair filling suggest that the gravel was obtained from Badger's Mount, where large deposits of it still exist; a brickworks was established there in the seventeenth century.

(3) At a depth of 2 ft. yet another track was discovered. Further test holes within the enclosure showed that this track did not follow the route of the more recent trackways but passed centrally through the break into the enclosure. Its surface had been paved with large, unbroken chalk flints and bore two ruts in its surface 6 ft. apart. The paving was 8 ft. 6 in. wide and set into the Thanet Sand bed-rock. This track appears to be contemporary with the earthwork and was doubtless the original route into the enclosure from the adjacent Old Watling Street. Nothing was found to suggest post-holes at the bank extremities or a possible gateway at this break, though some sort of wooden barrier must have been in use originally.

\(^{16}\) This road was in use until 1921.
Conclusions

No trace of any building was found within the enclosure though a very thorough search was made over the whole area.

As has been previously stated, the large earth bank, though probably bearing a palisade on the crest was certainly not of a defensive nature, its course being too often sited on adverse type of terrain. There is ample evidence to show that field cultivation was carried on right up to the boundary ditch of the enclosure, whilst within its banks was woodland. Humus formation was much deeper within the enclosure than outside its perimeter.

In view of the evidence of pottery fragments, circa A.D. 1250, obtained during excavation, and when considered in association with its ecclesiastical ownership, the writer was of the opinion that the Darenth Wood earthwork might have enclosed a piece of land sometime during the first part of the thirteenth century as a private park for game or livestock.

With this assumption in mind, two experts on Dorset and Staffordshire deer-parks were consulted, Mr. L. Cantor, of Keele University, and his colleague, Mr. J. D. Wilson. The latter kindly consented to examine the enclosure and state his opinion, which he has done in the following report.

In the course of a survey in which we hope to plot the position of every medieval park in Dorset, Mr. L. M. Cantor and myself have so far examined completely or in part 23 parks in that county. In addition, Mr. Cantor has visited some half dozen in Staffordshire. I was therefore very interested to visit the Darenth Wood earthworks with Mr. Caiger to see how they compared with those of our Dorset parks. In Dorset the remains of park banks exhibit such a variety of forms that it is impossible to generalize. We have seen gently rounded banks 20 ft. or 25 ft. wide and 2 ft. or 3 ft. high, massive steep-sided banks with broad flat tops 20 ft. wide and 5 ft. or 6 ft. high, and flat platforms 15 ft. or 20 ft. wide and only a foot or two high, with numerous variations on these themes. Within these categories we have found individual examples having a family resemblance to one another, but certainly have seen nothing which we could call simply ‘a typical park bank’. We have seen banks which closely resemble those in Darenth Wood, notably at Harbin’s Park in Cranborne Chase.

We have also observed certain recurrent characteristics in the siting of park perimeters, though here again no real generalizations can be made. For instance, 16 out of the 23 Dorset parks we have so far visited have a parish boundary following their banks for some distance. The only reasonable explanation for this which suggests itself so far is that the parks were placed in a corner or at the edge of the manor—‘manor’ being equated with ‘parish’ for the sake of this argument—to avoid
Plan showing position of section E-E relative to denehole and earthwork.

as far as possible interfering with agricultural activities. The Darenth Wood earthworks follow a parish boundary at their north-eastern side and the area is, moreover, on the poorest land in the parish. The general position is, therefore, very much what one would expect of a deer-park.

We have also frequently noticed that wherever possible the makers of a park placed the banks on a slope where the ground fell away inside, obviously to increase the effective height of the obstacle. At Darenth Wood the bank is so placed only occasionally, for instance on the south-west, whilst elsewhere, notably along most of the western side it is actually on a reverse slope, which has obvious disadvantages. However, too much need not be made of this, since the ideal doubtless had to give way to the practicable, in terms of adjacent land usage and as Mr. Caiger has shown, medieval cultivation evidently came close up to the bank at Darenth.

In the light of our Dorset experience I would not put too much emphasis on the fact that so far no documentary evidence for a park here has come to light. What is more surprising is that, with one exception, there are no “park” place or field names in the vicinity. The exception is Darenth Park Hospital a short distance west of the Wood. There seems to have been no earlier building on this site and why this Victorian hospital should have been so named is not known. But it may well indicate a surviving local tradition of the existence of a park here. I would in that event have expected an older-established place name, or field or copse names on the Tithe Apportionment, but none are to be found. As I have said, we can make no firm generalizations about the shape, size, or siting of park banks. But one thing which all the parks we have so far seen have in common is that there is a ditch inside the bank. We have yet to see an exception to this rule. Some have a ditch outside the bank, more have not, but all have a ditch inside. Indeed it seems the obvious way of further increasing the obstacle presented by the bank and pale. There is the further point that if the land adjoining the park did not belong to the owner of the park, he did not have to disturb his neighbour’s land when excavating the ditch to throw up his bank. It is principally the fact that at Darenth Wood the ditch is outside the bank all the way, with no trace of a ditch inside which leads me to have some doubts as to whether this enclosure was a deer-park. O. G. S. Crawford mentions two parks where the ditch is on the outside only (Archaeology in the Field, Chap. 18) but I have seen neither of them. All one’s instincts suggest that an outside ditch indicates an earthwork designed to keep deer, or other depredators, out of the area enclosed, rather than in it.

**Small Enclosures and Field Banks**

In considering these features they may in many respects be compared with those in Joyden’s Wood, Bexley, described by A. H. A. Hogg
in his paper on Joyden’s Wood. Most of the enclosed fields have a low bank 1 ft. 2 in. high and a ditch, but in some instances the ditch is missing or silted up so that it can no longer be detected. From the plan it will be seen that small banks and enclosures lie along each side of the road through the wood. During the survey several more were noted but were considered to be too insignificant to be included on the plan.

Spurrell,\textsuperscript{17} in his paper on Darenth records the finding of a ‘small camp’ on Badger’s Mount about 200 ft. in diameter with an 8 ft. deep ditch. No trace of this supposed camp was found at the time of the survey, but the interesting and rather complex field system was discovered and has been shown on the plan.

No excavation across these small banks and ditches was made as it was thought improbable that any dating evidence would be found to justify the labour involved. They may be safely assigned to a period earlier than the seventeenth-century brickworks which were once established on Badger’s Mount. The date of these brickworks has been fixed with certainty and in some instances the deep pits left by the removal of the brickearth have destroyed parts of the earlier banks. The long ‘dog-leg’ bank marked ZXX on the plan has been used to define the Dean and Chapter of Rochester’s boundary at the time when the Badger’s Mount parcel of land was sold for brick making. There was enough evidence to suggest that this slightly larger earthwork and the smaller field banks attached to it were of the same build and period.

At the north-east extremity where these small banks fade out the ground slopes away to form a deep valley. From the tip of the small earthwork marked O, and overlooking another face of this same valley there are the remains of an artificially made terrace which eventually joins the annexe attached to the large enclosure.

On the eastern side of the wood there is a lynchet, marked M, which appears to have four deneholes, now collapsed, associated with it. As the present outline of the wood tends to follow the same contour, it may represent a former boundary. A second lynchet, marked N, also has two deneholes near its course, numbered 1 and 2. Other banks probably existed here but all trace of them has been destroyed by ploughing.

Yet a third lynchet may be seen close to the denehole numbered 3, with another filled up shaft further along its course.

Although outside the scope of the present survey, it may be stated that there are many more small banks and enclosures in Lord’s Wood, close to its boundary with Ladies Wood. These remains, and those in Darenth Wood must be the small fields which lay just outside the great enclosure and were cultivated during the medieval manorial system.

\textsuperscript{17} \textit{Arch. Cant.}, xviii, 306.
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THE DENEHOLES

Darenth Wood and Ladies Wood contain many deneholes, some of which have been sited in close proximity to the main earthwork, whilst others are sunk near the small field banks and lynchets contained within these woods. This distinct association has already been noted as a common linked feature elsewhere in Kent.\(^{18}\) Although many of the shafts in Darenth Wood are now almost blocked with soil and rubble, significant surface depressions indicated their exact location. The survey of the woods has revealed at least thirteen probable shafts. Beyond the eastern perimeter of the wood are two deneholes (numbered 1 and 2) in the large field attached to Bean Farm. Reference to Andrews, Dury and Herbert’s map, however, shows that in 1769 this field did not exist; the woods at that time extended almost to the farm. By 1799 the Ordnance Surveyors noted on their map that much of this woodland had been grubbed up and converted into arable but significantly, two narrow tongues of woodland remained which contained the denehole shafts. Later, by 1869, the eastern edge of the wood had attained its present outline, and the two shafts were left isolated, as they are today in the field.

The shaft numbered 3 on the plan has the customary six chambers and is 50 ft. deep. Nearby this shaft is another one, choked up with soil and rubbish and set close to the ditch of the main earthwork. Other shafts and depressions exist about the wood outside the main enclosure; three on the western side near the large ditch and in the small ditches in Ladies Wood. In view of the dating evidence obtained for the main large earthwork enclosure (c. A.D. 1250) it was realized that an excellent opportunity was available in Darenth Wood to resolve finally the long-standing controversy concerning the age and purpose of construction of six-chambered deneholes. Excavations previously carried out in Joyden’s Wood, Bexley,\(^{10}\) have demonstrated that this type of denehole was originally made some time prior to A.D. 1280.

During 1954-55 an excavation of the debris cone of the denehole\(^{20}\) numbered 4 on the plan, Fig. 1 was undertaken in an attempt to date its construction. Sections were also cut in each of its six chambers. Plate IIIB shows the section as cut in chamber No. 5. These sections revealed numerous dog skeletons, chiefly of the whippet breed, also polecat, squirrels and other small rodents. These animals had fallen down the open shaft, died, and subsequently been buried under a slowly forming cone of debris, comprised of sand and chalk nodules. The dog skeletons were submitted to Mr. T. Grahame, F.R.C.V.S., Reader in Veterinary Anatomy in the University of Edinburgh, who identified the species of dog and stated that in his opinion the bones were probably

\(^{18}\) Arch. Journal, xxxviii (F. C. J. Spurrell on ‘Deneholes’).

\(^{10}\) Arch. Cant., lxxiv, 89.

\(^{20}\) Arch. Cant., lxvi, 148 (for detailed description of denehole).

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about 300 years old. The other animal bones were identified by the
Natural History Museum, South Kensington.

From chamber No. 5 some pieces of a cooking bowl were found
which Dr. B. Hope-Taylor has assigned to A.D. 1220-60.21

This denehole, No. 4 on the plan, was once again selected for the
proposed dating check as it was ideally sited on rising ground above the
ditch of the large enclosure, yet close enough to the ditch for any spilled
chalk or artefacts to tumble downwards and become lodged in it.

It had been assumed that a great deal of chalk spillage must have
occurred when hoisting and loading operations were in progress at the
denehole shaft, and consequently, if the ditch was in existence during
this period, some chalk and flints should have tumbled into it. The
natural declivity between denehole shaft and ditch would assist this
rolling action. Therefore, Section E—E was set out with this assumption
in view. The illustration, Fig. 4, shows the position of Section E—E
relative to both ditch and denehole shaft.

Approximately 10 in. below the present ground level a large band of
chalk nodules was encountered which increased in cross-sectional area
as it approached the denehole shaft end of the cutting. Towards the
ditch end of the cutting, large chalk flints were uncovered in a tumbled
line down the incline, then finally piled up in the ditch. The positions
taken up by these chalk flints is clearly indicated in the Section E—E,
Fig. 4. Plate IIIA shows these flints in position near the base of the ditch
whilst Plate IIIB shows the ditch at a later stage of excavation. Some of
the flints recovered from the bottom of the ditch still had traces of
decomposed chalk adhering to them. Samples of this decomposed chalk,
together with specimens of fresh chalk cut from one of the chamber
walls of the denehole were submitted to Mr. J. N. Carreck, F.G.S., F.Z.S.,
for laboratory tests and found to be similar in composition.

Samples were also taken of the primary silt. Mr. Carreck’s detailed
analyses of these specimens, together with those of a seed and some
charcoal found in the silting are given at the end of this report.
The angle of repose of the flints demonstrates that they had piled up
in the then open ditch, building higher as chalk extraction at the dene-
hole shaft proceeded. From the small amount of silting found in the
ditch beneath the flint mass, it is certain that the bank and ditch had
only just been constructed when this denehole was sunk and chalk
mining operations commenced.

The chalk rubble had piled up in the ditch to the height of 2 ft. 10 in.
There is reason to believe that negligence on the part of the denehole
miners to remove this chalk rubble from the ditch contributed to the
roof fall in one of the denehole chambers.22 The natural drainage

21 Now in the Dartford Museum.
22 Arch. Cant., lxvi, 148.
flowing along the ditch, which has on this high ground a considerable
gradient, would be impeded by the rubble: water would collect and
then seep through into the roof of the underground chamber beneath
the ditch, finally causing the collapse.

THE FINDS

A piece of medieval roofing tile was found near the base of the chalk
spread. It is similar in fabric to those from Joyden’s Wood, Bexley. From the lower part of the ditch a small fragment of pottery, similar to
Patchgrove type fabric was recovered. Although this find is probably of
Roman date, its presence in the ditch filling is not significant. It was
most certainly disturbed when the ditch was cut and fell into the ditch
from the newly upcast bank. The writer has in the past found Roman
tegula fragments across the valley, less than 100 yards distant.

CONCLUSIONS, DATING AND PURPOSE

The corroborative evidence obtained from the Section E—E now
places the dating of these six-chambered deneholes with a fair degree of
certainty to the first half of the thirteenth century. The established
facts may be summed up as follows:

I. The main earthwork was constructed A.D. 1200-50 and it has
now been demonstrated that denehole No. 4 was sunk very shortly after
its completion.

II. Cooking-pot fragments dated A.D. 1220-60 found in the section
cut in 1955 in No. 5 chamber of this same denehole.

III. Medieval roofing tile found near the base of the chalk spread,
shown in Section E—E.

IV. Deneholes of identical construction at Joyden’s Wood, Bexley,
were proved to have been made before A.D. 1280. It is historically known
that between A.D. 1200-1340 the cultivation of crops such as barley,
peas and more especially wheat was a most profitable undertaking. At
this period the best and more fertile soils of the valleys had long since
been in use and only the poorer and impoverished soils supporting
woodland and forest remained uncultivated. This was the time when
assarts by bands of villagers, often acting collectively, eagerly sought
additional strips of land. During these assarts, areas of woodland and
waste would be cut down, roots grubbed up and burnt and additional
fields claimed for cultivation. However, much of this newly won land
was acid and badly leached, as is always the case where Thanet Sand
beds occur.

Modern farmers today describe this impoverished soil as ‘hungry’

23 Arch. Cant., lxxii, 27.
24 M. Beresford, History on the Ground, 77.
for due to its extreme porosity, organic matter is rapidly washed downwards from the surface. Thus in a rather vain endeavour to get this poor lime-free and exhausted soil into a more fertile condition it was dressed with liberal quantities of mined chalk from deneholes sunk conveniently just within the field boundaries. The positions chosen for the shafts were selected carefully; at the corners of fields and near boundary ditches where their presence on the land would not constitute a danger nor interfere with the work of ploughing.

In the late eighteenth century woodland was again being grubbed up by Kentish farmers and the land cultivated for root crops. By this time the practice of sinking deneholes had been forgotten and the art of marling the land with deep mined chalk had to be revived again. Somewhat similar excavations to deneholes were sunk and are known as chalkwells\(^25\) or draw-wells. These provided the chalk for dressing the new fields.

**The Pottery (Fig. 3)**

1. Dish. 17 in. diameter. Fine sandy ware with brown coloured fabric, containing small grits. Fire blacking marks on the outside and patches of a black substance on the inside. Possibly food stains. First half of the thirteenth century. From Section B—B.


**Specimens from Ditch Filling**

(Report by Mr. J. N. Carreck, F.G.S., F.Z.S.)

Charcoal. Identified by Mr. D. F. Cutler (Royal Botanic Gardens, Kew) as willow (*Salix sp.*). N.B. Willows still flourish in the wood.


**Sandy Loam Ditch Filling**

Material seen to be rich in dark detrital mineral grains and on wetting, to have a marked clay fraction.

After sieving with water, the coarsest grade of the resulting separation (Sieve B.S.M. 30 aperture 0.0197 in.) showed a few small sub-angular pieces of flint, the rest consisted of small pieces of ferruginous sandrock containing dark detrital grains and quartz grains in smaller proportion.

\(^{25}\) *Arch. Cant.*, lxxiv, 81.
A finer grade sieve, aperture 0.0041 in., contained only fine ochreous sand rich in dark detrital grains. No trace of microfossils was seen in either fraction of this separation. This loam is most probably re-deposited material derived from the Lower London Tertiaries which form part of Darenth Wood. Presumably the infilling of the ditch from this source took place by the agency of normal subaerial erosion, especially rain.

**Chalk Sample** cut from the chamber of denehole

The powdered sample was found to contain many Foraminifera identified by Mr. J. Renouf (Queen Mary College, Department of Geology), as *Lagenids* and *Rotaliids* and some sponge spicules. The foraminiferal assemblage indicates the upper part of the *Micraster coranguinum* Zone of the Upper Chalk. The chalk of Darenth Wood is known to belong to the *M. coranguinum* Zone.

**Impure Decomposed Chalk.** Found adhering to a flint in the primary silting of the ditch, Section E—E. This was a soft, chalky material (discoloured whitish marl) the discolouration being due to dark inclusions, which were seen to be patches of humic, clayey soil. Some of the particles of the sample had a pelletal appearance to some extent, possibly due to being washed downward by rain into the cavities of the flint. After treatment, washing and drying, the residue was found to contain quartz grains, mineral grains, shell debris, sponge spicules and Foraminifera. Shell fragments were abundant, sponge spicules very common, the Foraminifera fairly common. The Foraminifera were recognized by Mr. Renouf as also *Lagenids* and *Rotaliids*, which together with the sponge spicules, he considers very similar to those in the chalk sample cut from the denehole. Therefore, the decomposed chalk was evidently derived originally from the Upper Chalk in the vicinity, which also yielded the flint on which the sample was found.

The remarkable abundance of microfossils in the decomposed chalk sample, apparently a concentrate, is consistent with the large quantities of weathered out chalk flints found at the base of the ditch.

**The Seventeenth-Century Brickworks**

The part of the wood known as Badger’s Mount is situated on a high sandy plateau some 280 ft. above Ordnance Datum. Its boundaries are defined by the bank and ditch lettered Z on the plan, Fig. 1, and along the bank X. At the end of the bank X the boundary has been defaced by clay digging. However, the Tithe Award map establishes that the boundary ran to the pond marked Y on the plan (as shown by the dotted line). The boundary finally rejoined the roadway again via the mutilated bank W. Two distinct geological formations cover the site.
To the north-east there is a spread of Plateau Gravel, whilst the south-west portion of the site is of Woolwich Beds derivation. Andrews, Dury and Herbert's map of Kent (1769) shows three oblong buildings at the south end of the site and these are marked: 'Brick Kilns'. They are also shown on Hasted's map of the Hundred of Axtane. When the Ordnance surveyors visited the site sometime in the 1790's these buildings had disappeared and are not shown on the map. The brickworks had evidently ceased to exist.

The entire ground over this area is deeply scarred with pits, mounds and scarping, indicating intense digging and industrial activity during the period of productivity. The square mound shown on the plan is probably the remains of the clamp kiln and the two pits marked U and V are sand pits.

Several interesting features associated with this industry are worthy of note. A section indicated as F—F, was made across the overgrown pit. This was found to be a worked-out clay pit that had ultimately been used as a tipping dump for kiln wasters of spoilt bricks and tiles. From this section several good specimens of roofing tile were recovered. These bore an impress around the square peg holes. It may be that there are still a few of these particular branded tiles to be found roofing some of the old houses in and around the district. It is seldom that roofing tiles of this date can be positively identified. Sample pieces of these tiles were submitted to Messrs. Langley, London, Ltd., for expert comment, as this firm maintains the only Tile Museum in the country. Their historical adviser, Mr. G. C. Dobson, author of Historical Notes on the Langley Museum kindly consented to examine the tiles. He states that it has always been quite common in the past for small tile works, or even individual makers, to place identification marks or 'brands' on tiles. The mark was impressed into the un-fired clay tile with a circular tool which combined an incised W in its face, together with a tapered square peg hole at its centre. This combination tool thus pierced the peg hole and left its distinctive 'brand' in the tile in one operation on the part of the tile maker. Mr. Dobson has made a modern replica of the tool, and this, together with specimens of the Darenth Wood tiles are in the keeping of the Langley Museum. The brand on the pieces is not one that is readily identified. Fig. 5 illustrates one of the tiles.

In the summer of 1962 quarrying operations were commenced on the eastern portion of the site, the gravels and sand formations being commercially exploited. During these operations, the brick footings, and also the cellar of a building approximately 80 ft. by 40 ft. were quarried away by the mechanical excavator. Several broken wine bottles, a large number of clay tobacco-pipes and fragments of pottery were recovered, which indicate a late seventeenth century date for the

26 O.S. Kent, 3 in. to 1 mile, map of 1799.
building. Its location accords well with one of the buildings shown on Andrews, Dury and Herbert’s map.

Conclusions

From the evidence available it may be postulated that the brickworks commenced brick and tile manufacture in the latter part of the seventeenth century, ceasing work at the close of the eighteenth century. It seems likely that the clay beds became exhausted, and so caused the works to close down. It was noted during the survey that clay cutting had partly destroyed or cut through certain earlier field banks but their original alignment between the destroyed portions is still obvious. The banks referred to are those marked T—T and W—W. Apart from the modern quarrying noted above, the brickworks marks the closing phase of industry within the wood.

Minor Pits and Other Remains

The pit marked R is an old chalk pit probably opened to provide flints and chalk for repairing the old road marked ‘Trackway’. The pits
marked Q and P are similar and probably served the same purpose, the latter being beside the steep road to Lanes End. Future antiquaries should ignore the earth banks beside the road opposite Ladies Wood. These banks were thrown up by order of the Parish Council to prevent the gipsies re-entering a camping site in Darenth Wood, after their eviction in 1962.

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