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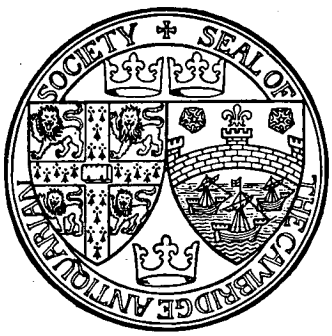

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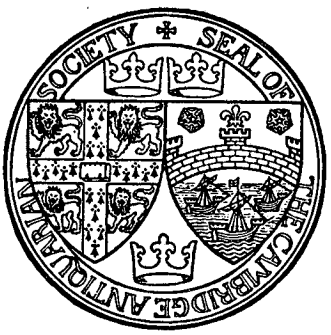

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ELM: A FIELD SURVEY

David Hall
with a contribution by David Wilson

This article describes part of a programme of survey initiated by the Cambridgeshire Archaeological Committee. The fens are exceptionally rich in the remains of early settlements, many of the sites being well preserved, having been first drowned by a rising water table and then protected by fen deposits. Today these sites are threatened by intensive agriculture and by wastage of the peat which formerly protected them.

The first two seasons (1976-7 and 1977-8) of archaeological survey made an assessment of the potential of the Cambridgeshire fens by selecting several regions with contrasting underlying geology. It was required to obtain as complete a picture as possible of the total settlement pattern and field systems in these regions, with the long term objectives of selecting the most important sites for preservation, or recommending excavation if any were threatened with unavoidable destruction. With the shortage of finance for excavation it is important to limit expenditure to sites that are really worthy of study and to move away from a policy of excavating as many as possible just because they are threatened. Until the regional context of a settlement is known it is difficult to assess its real significance.

The parish of Elm, near Wisbech, was chosen as an example of the area of silt fen around the Wash. The whole of the ancient parish of 11,378 acres was studied; but the 2,617 acres of Wisbech St Mary added to form the modern parish in 1934[1], were not included in the survey.

Archaeologically Elm had received some attention by Fox in 1923[2], and was further studied by the Fenland Research Committee during the 1930s and 1940s[3]. No comprehensive multi-period study has been attempted before.

The history of Elm is outlined by the various county histories, and has also been further developed by several local workers[4].

Elm is first mentioned in A.D. 973 as Eolum, and is possibly, but not certainly, named after an elm tree.

The village is not mentioned in the Domesday Survey (1086) when it was probably grouped with Wisbech. By the 13th century it already belonged to the Bishop of Ely and the church commissioners are still the lords of the manor. The Ely muniments preserve various charters and rentals that detail the descent of properties and show a varying prosperity during the medieval period[5]. There was serious sea flooding in 1236, but property values recovered by 1251. Decline in rents can be detected in the 14th century, in common with the rest of the country.

An inquisition of 1321 describes a messuage called Bealford or Beauford holding 776 acres, which had become styled a manor in 1536 when it was held by Alexander Balam. The holding was at Friday Bridge where there was until recently an 18th century property called Beauford House on the site.

Several of the 13th century holdings developed into manors, of which one of the more important was Coldham, first mentioned in 1300. Waldersey and Needham[6] also have a medieval origin.

Elm has had a series of well-connected vicars, one of whom, Jeremiah Jackson (1795-1857), was headmaster of Wisbech Grammar School and kept detailed diaries full of social comment.

The droves and waste lands of Elm were inclosed by an Act of 1834, but only 195 acres were involved, the remainder having in effect been inclosed by agreement much earlier.

No understanding of fenland settlement pattern is possible without an appreciation of the geology. Unlike most of the country, soils of the fenland have been deposited within the last few millenia. The water-table has varied considerably, causing deposition of peats, silts or clays. Skertchly gave the first full account of fenland geology[7], and Godwin has published more detail subsequently[8]. Officers of the Soil Survey are currently studying various parts of the fens.

At the time of the final retreat of the ice sheet of the last glaciation (about the beginning of the 9th millenium BC) the fen basin formed an eastern extension of the Midland Clay Vale. The underlying rocks consist mainly of soft clays lying between harder layers of limestone to the north west and greensand and chalk to the south east. The vale had existed before the Ice Age and had become further worn down and then partially filled with glacial deposits of gravels and boulder clays.

Immediately after the Ice Age the sea level was much lower than now and all the fen basin remained dry and developed a deciduous forest (surviving as the familiar 'bog oaks'). Continued increase of the annual mean temperature caused the polar ice cap to thaw partially, with a consequent rise in sea level which eventually interfered with the fen-basin drainage. By the Neolithic period there was an extensive freshwater marsh which deposited the *lower peat* and was drained by meandering channels. Continued rising of the sea relative to the land caused development of a saltwater lagoon which laid down the *fen clay*. By the beginning of the Roman era the sea had retreated and much of the fen was again freshwater. However around the Wash so much silt had been deposited previously that it was exposed as dry land for the first time, and has remained so ever since. The freshwater peat fen rose to a high level during the Saxon and medieval periods, causing drowning of all earlier sites except on the silt, and deposition of the *upper peat.*

Since the drainage of the 17th century, both the upper and lower peat deposits have shrunk. The compression of the lower peat has caused the silted-up Neolithic watercourses to be exposed as light-coloured ridges (roddons). Wasting of the upper peat leaves either a mineral soil or fen clay.

The techniques of survey were as follows. The base maps used in the field were copies of the 6-inch Ordnance Survey map held by the Cambridgeshire Sites and Monuments Record. These have marked on them all known sites and object find-spots, along with the cropmarks recorded in the Cambridge University Collection of Aerial Photographs up to June 1977. Also available were the vertical winter photographs taken for the Soil Survey, Cambridge[9]. These are particularly useful for plotting roddons and confirming medieval strip cultivation.

Every field on a given farm or area was visited, ideally in an unfrozen, weathered, ploughed state when the sun was not shining. The nature of the modern agriculture, the soil condition and the geology of each field was noted, and, if the terrain was fen, the roddons sketched on. This was necessary because not all roddons are visible from the air, especially the very large estuarine ones. The fen edge was recorded in detail. Archaeological earthwork features or soil marks were plotted if deemed important (i.e. ramparts, medieval plough headlands etc). Each field was walked in strips about 30 yards wide and any sherds, flints, briquetage etc., collected and the find spot marked on the base map. Occupation sites later than the Bronze Age (except Saxon) are usually visible as dark areas and few are likely to have been missed. Here "site" means an area yielding flints or sherds of density at least 15 finds in a square of 10 metre side searched for 10 minutes. This definition obviously does not apply to unploughed earthwork sites and features such as barrows.

The level of survey conducted would not yield many flints or Saxon pottery-scatter sites. These finds are more difficult to see and very close methodical walking has to be done in strips of about 5 yards or less, covering something in the order of 3 acres an hour. This is much too slow for broad landscape interpretation and decision was made not to use this kind of technique. It was possible to cover about 400 acres per day, depending on the weather and daylight.

The results obtained were drawn up as a fair copy on the 6-inch Ordnance map each day, and finds bags labelled. Brief notes were made on each settlement site and its grid reference determined.

Figs. 1-3 show the results for Elm. Some of the smallholdings and orchards in the Begdale and Hawsteads areas were not surveyed in detail; few would have yielded any information because the land surface is obscured. A few previously described sites were not visible because of crop coverage at the time of visiting. These are marked with a cross on the Figures and discussed in the Gazetteer. Most of them are likely to be reliable but occasionally they are not; hence the need to check them before they are finally accepted.

Pre-medieval settlement/working sites are coded with a prefix 'E' and details are given in the Gazetteer below.

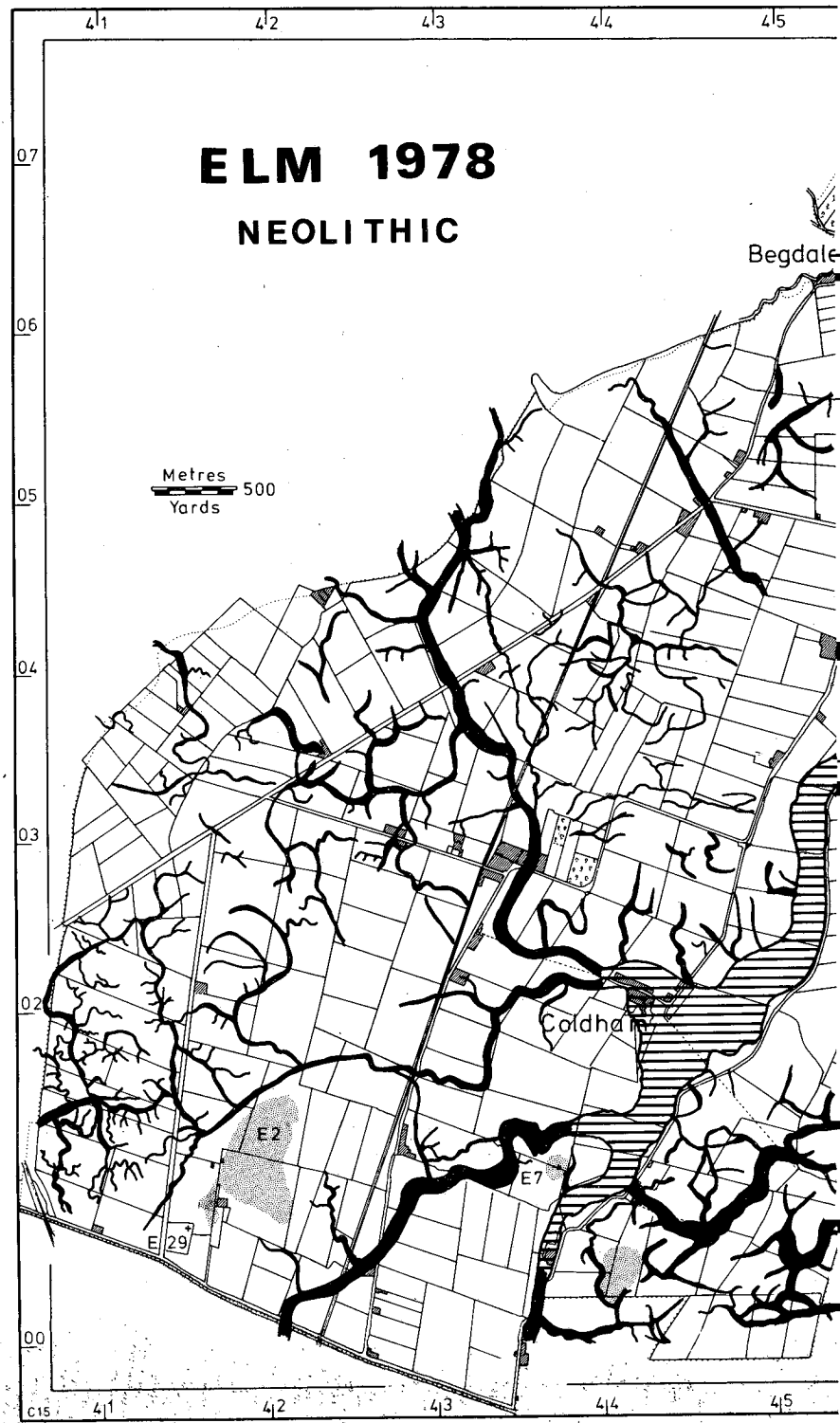
Palaeolithic

Acheulian hand-axes have been found in gravel pits at Grays Moor Road (site E29 in Gazetteer), and recently a worked flake was recovered near site E1. There is no evidence that any of the material is *in situ.*

Neolithic (Fig. 1)

By this period the whole land surface was covered with freshwater peat except for the gravel islands, at Grays (or Grease) Moor, and two (now buried) near Stags Holt (Fig. 3). The island at site E7 produced a few worked flints when cut by a modern ditch.

The peat fen was drained by a network of winding channels which united in the Coldham area to form a river 200 yards wide which ran north to Friday Bridge and Elm, and emptied itself into the Wisbech estuary. This natural drainage system is plotted on Fig. 1. The water courses now survive as silted up roddons. The details are


ELM 1978
NEOLITHIC
Begdale
Metres
500
Yards
Coldham
E2
E7
E 29
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4|2
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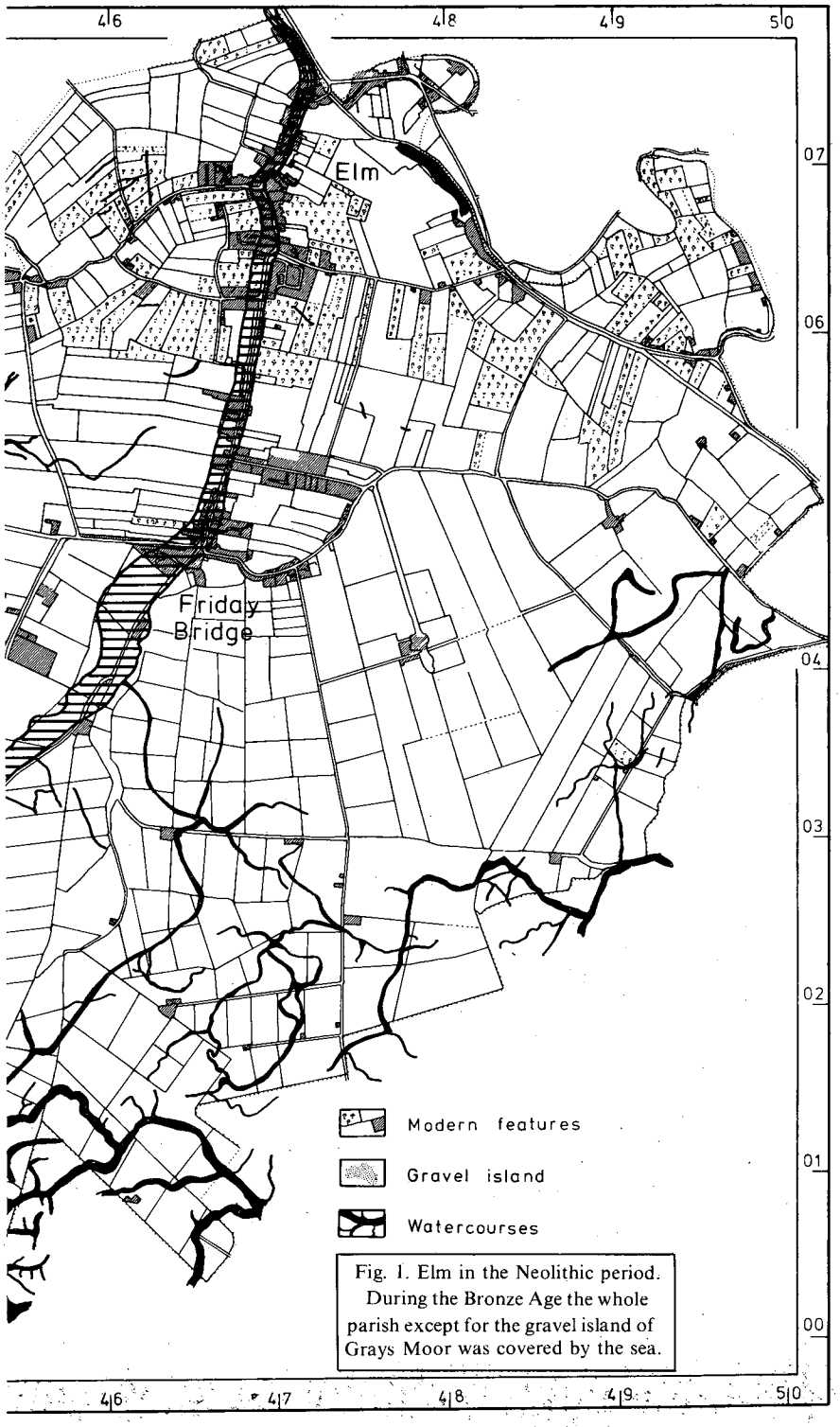


Fig. 1. Elm in the Neolithic period. During the Bronze Age the whole parish except for the gravel island of Grays Moor was covered by the sea.

clear at the southern part of the parish, but only major roddons are evident towards the north and adjacent to the main stream, the smaller ones being buried by later deposits.

Bronze Age

The whole of Elm parish was a salt lagoon during this period except for the island of Grays Moor. Many worked flints were found on the island, and the cropmark site E3, not otherwise associated with any occupation debris, may date to the Bronze Age. A chance find of a bronze facetted axe has been reported from TF423001, just south of the island.

The marine inundation caused a massive build-up of deposits on the peat of the Neolithic period, so that the whole land surface underneath the water was raised several feet, but most of the watercourses retained their identity. Away from the main river running through Coldham to Elm the deposits were of fen clay, but in the channel, and about a mile either side, silt was deposited.

No Iron Age remains have been discovered at Elm: the fens as a whole remained wet and inhospitable during this time.

Romano-British (Fig. 2)

By early Romano-British times the relative levels of fen and sea had changed so that the Elm silt region was just above sea level and there was again fresh water fen behind it. The solid land and fen must have been nearly on the same level at this time or the watercourses, today preserved as roddons, could not have successfully continued to drain the fen. A multiplicity of narrow channels is evident within the silted-up river near Coldham Hall (Fig. 2).

The occupation in this period was extensive and intensive. The region is well-known for its remarkable cropmarks and several Roman sites[3], but the complete picture of settlement and industry is quite surprising. The great Neolithic silted-up river split up into a network of smaller watercourses, all of them tidal, behind the silts. This arrangement was particularly suitable for saltern activity; it allowed a large number of small settlements each to have their own salt water supply, yet be far enough apart to leave land and fen available to every one. It would be important for each settlement to have sufficient fen to supply reeds and brushwood for fuel for the salterns. These are the two reasons why the salt industry was here: the ready access to salt water and a cheap plentiful supply of fuel.

Of the 38 Roman sites identified all but four yielded saltern briquetage. The sites are fairly easy to find, being dark occupation areas (no doubt made darker because of the saltern ash) yielding sherds and baked-clay briquetage. The larger salterns are co-extensive with cropmarks, but many were found where no cropmarks are known.

No details of saltmaking procedure are deducible from fieldwork alone, but air photographs show that many sites have channels, presumably artificial, leaving and re-entering the watercourses to form loops (E10, E11, E19, E22); if these were sluiced they could have been used to trap salt water at high tide, and allow particles to sediment before evaporation of the water. Most of the briquetage is amorphous, but occasionally pieces of rectangular bricks and cylindrical supports can be found. The fabric of the briquetage is characteristic; fairly soft, straw-tempered, reddish-brown

internally with a yellow surface.

The extensive series of paddocks ('field systems') and drove-ways are presumably for cattle breeding and rearing. No doubt occasional cattle minding could be easily fitted in with stoking up saltern fires and collecting reeds. In the medieval period the association of salterns and sheep has been noted by Professor Darby. Nearer to Elm the watercourses united to form several main channels within the silted up Neolithic river, thus limiting the distribution of salt water. The number of salterns rapidly decreases so that on the high, flat (roddon-free) ground from Needham Hall to Elm village there are very few.

The occurrence of early and late pottery on the sites is quite random, and does not suggest any uniform change in the water table during the Roman period as has been found in the southern fens[3].

What was perhaps the most interesting Roman site in Elm, a possible shrine, has long been destroyed. A 'tumulus' is mentioned by several earlier writers as lying near the village (see Gazetteer site E44). It was most likely Roman and appears to be associated with a hoard of coins found in 1713. Later an altar stone was found and said to have been set in a masonry wall. The site, so far as it can be determined, now lies near the school playing field, and not far from the St Giles' Chapel site.

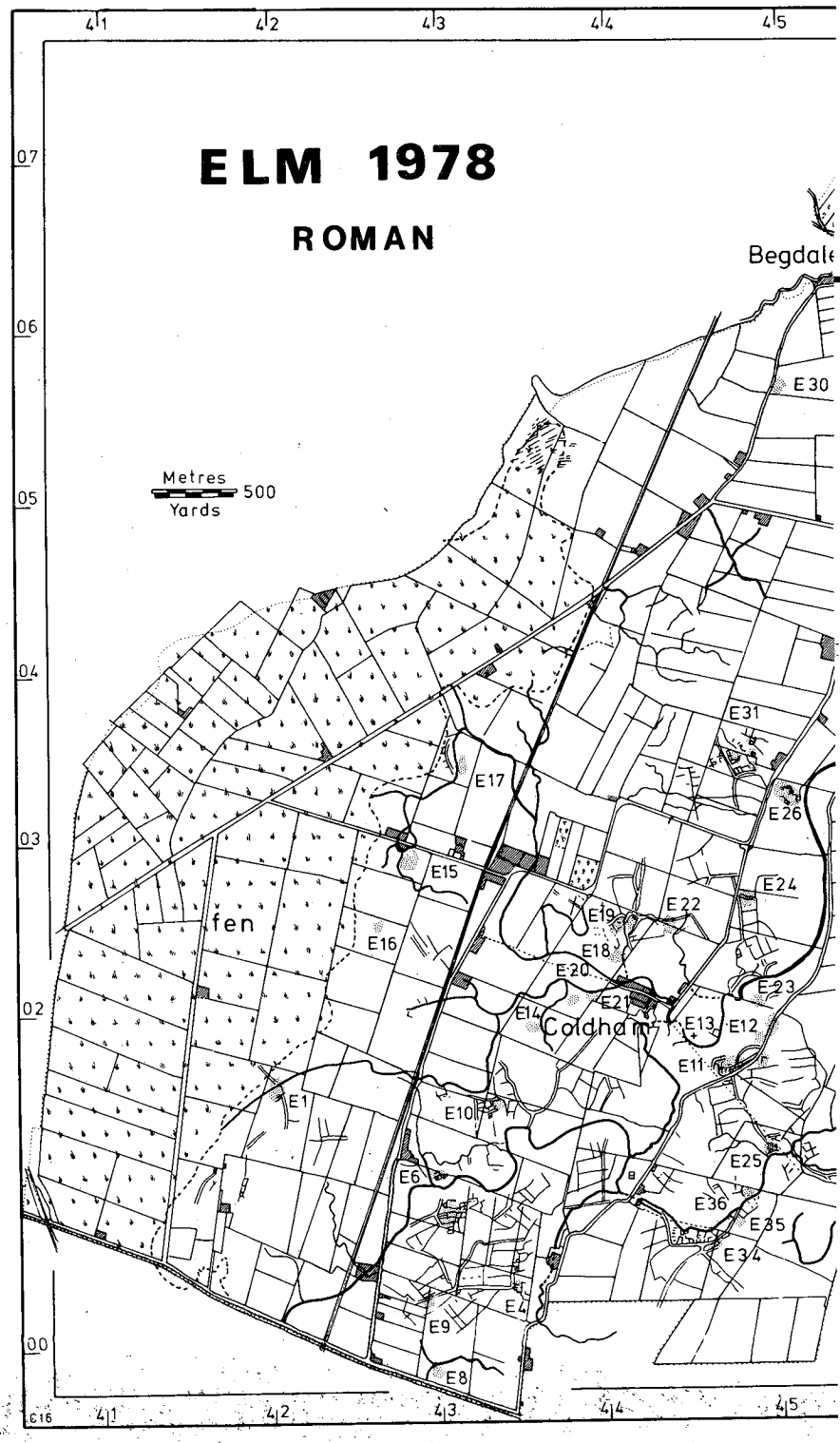
Another enigmatic feature of the siltlands is the occurrence of areas with large numbers of small circular cropmarks (e.g. site E31, Plates 1 and 2). The regional context is given in the Appendix. Two fieldwork observations were made. The first concerns dating: since these sites all lie on silt, they must be Roman or later. Many of them lie within the strips of medieval fields, so it is possible that the circles could date from this period. One of the sites lies on land dry in Roman times, but within the medieval fen; so here a Roman date is possible (provided that this part of the fen was not in fact dry in medieval times). Secondly there are likewise problems regarding the function of these circles. Unless they lie co-extensive with an occupation site (such as sites E5 and E31), there are never any surface finds or dark areas suggesting domestic or industrial occupation. Could they perhaps derive from some medieval agricultural practice — such as corn stacks? (see Appendix by D.R. Wilson for a full account of these features in the siltland around Wisbech).

The landscape of Elm in Roman times was rather different to that of either today or the medieval period. The total area of dry silt land was about 8,000 acres, the greater part of Greekgall and Laddus Fens being dry land. The Roman fen edge is easy to identify on the ground by the dark-stained peat/fen-clay soil changing to lighter coloured silt. Within the Roman fen the roddons of the Neolithic watercourses are now very plain, but they would not have been visible then since they were covered with peat. The watercourses draining the fen flowing across the dry silt into the diminished Elm river would, of course, have been visible and demonstrate that the Roman fen was almost level with the dry silt, for otherwise natural drainage would have been impossible.

There is no evidence of any artificial Roman drainage works.

Saxon and Medieval (Fig. 3)

In the Saxon and medieval periods further dramatic changes took place. The partial


ELM 1978
ROMAN
Begdale
Metres
500
Yards
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Coldham
E1
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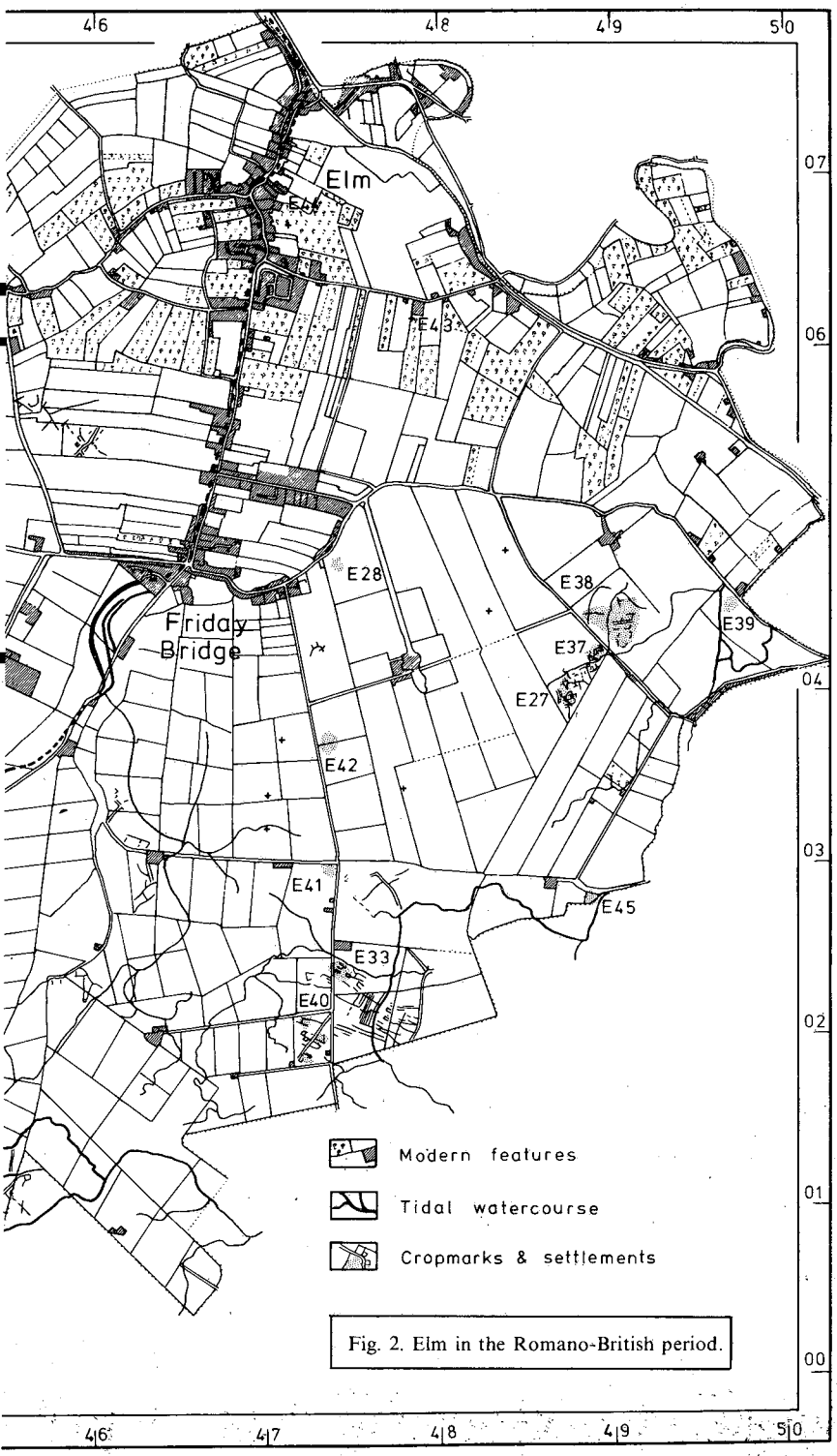


Fig. 2. Elm in the Romano-British period.

drying out of the fens in Roman times caused tremendous changes in the drainage pattern. The regions where the silt deposits had a low organic content or did not lie on peat, shrunk but little and remained dry. Behind the ridge of the Wisbech silts, the land levels shrank and sea water poured back again, depositing more marine clays. The post-Roman marine flooding was proved recently by the discovery of a Roman saltern site in Wisbech St Mary parish (TF 378058) that had been buried by a marine clay layer[10]. The fresh water accumulating behind the silts had to force new channels into the sea. Thus the 'old course' of the Nene was formed, avoiding the newly formed silt roddon running from Coldham to Elm, where it had once flowed, and making a new channel through the deep fen and into the Wisbech Ouse at Upwell.

A similar phenomenon occurred on the north-east side of the Elm roddon. A tongue of fen lay between the roddons on which Elm and Wisbech St Mary were later sited: this was a pressure point for water to force its way to the sea. The route is more evident from maps and documentary sources than on the ground today. The western boundary of Elm, the Black Dike, seems to have run north to the Crooked Bank and then became the Old Ea (Fig. 3) and entered the Elm River (see below p. 14) opposite the church, and so to the sea.

The fen now rose to its highest level, drowning a large area of the land formerly habitable in Roman times. Thus only the areas immediately adjacent to the high ground of the Coldham — Elm roddon were dry. The village of Elm was settled around the church on the highest part of the roddon, No medieval settlement has been found away from the narrow belt stretching along the roddon from Elm High Road to Friday Bridge, i.e. much the same as now. In a parish survey of 1592 all the houses were also in precisely the same areas.

Begdale, lying to the west of Elm, may be a hamlet. The earliest form of the name recorded by Reaney is *Beckedale* in 1362 and associated with John de Bekedale mentioned in 1314. This alone would not suffice to prove a settlement had existed. However at the British Library a manuscript (Cotton; Tiberius B11 f154) describes *'brokene,* a hamlet in the parish of Elm' (1223). Presumably *Beck* and *Brok* can be equated (brook, beck=stream, river), and explained in terms of the hamlet lying by the side of the Old Ea, mentioned above.

Medieval agriculture on the Wisbech silts is quite different from that of Midland England. The soil, easily wind-blown, is not particularly suitable for ridging up: soil and seed would risk being blown away in a dry spring. It is very easily drained, and the method selected was to have ditched strips about 12 yards wide, and varying from 200 to 1,100 yards in length. The strips were not ridged up. Only two areas with some of these strips survive, just North of Waldersey Hall (TF451040) and east of Elm church (TF472068). Around Coldham and Needham they can be seen as soil marks on aerial photographs. They are shown schematically in Fig. 3, (individual strips cannot be plotted legibly on the 6 inch scale). As with ridge-and-furrow, the strips lie in parallel blocks, the orientation determined by the lie of the land to assist natural drainage. Groups of these strips, which correspont to 'furlongs' on the upland (even though the areas involved were usually much larger) were called 'fields'. Thus these were Needham Hall Field, Waldersey Fiend, Redmore Field etc, many recorded in 1391[11] (Fig. 3). These each have strips lying in a single direction, but Old Field and Wales Field, and others, have strips lying in several blocks, more akin to Midland fields.

The fields were approached by major tracks, called droves, some of them 130 yards wide. The present road from March to Elm follows the course of an ancient drove. Now much reduced in width, its original nature can be seen as a cropmark west of Coldham. The present road follows the eastern side of the drove; the western side survives as a soilmark with the strips shooting off at right angles and reaching down to the fen. In several parts the drove survives as a low hollow-way running parallel with the present road.

The many right-angled bends in the drove, always fitting in with the strips of the open fields, may argue for a planned laying out of the landscape at a single time. It is difficult to account for the course of the drove if the medieval fields were set out along it in a piecemeal fashion.

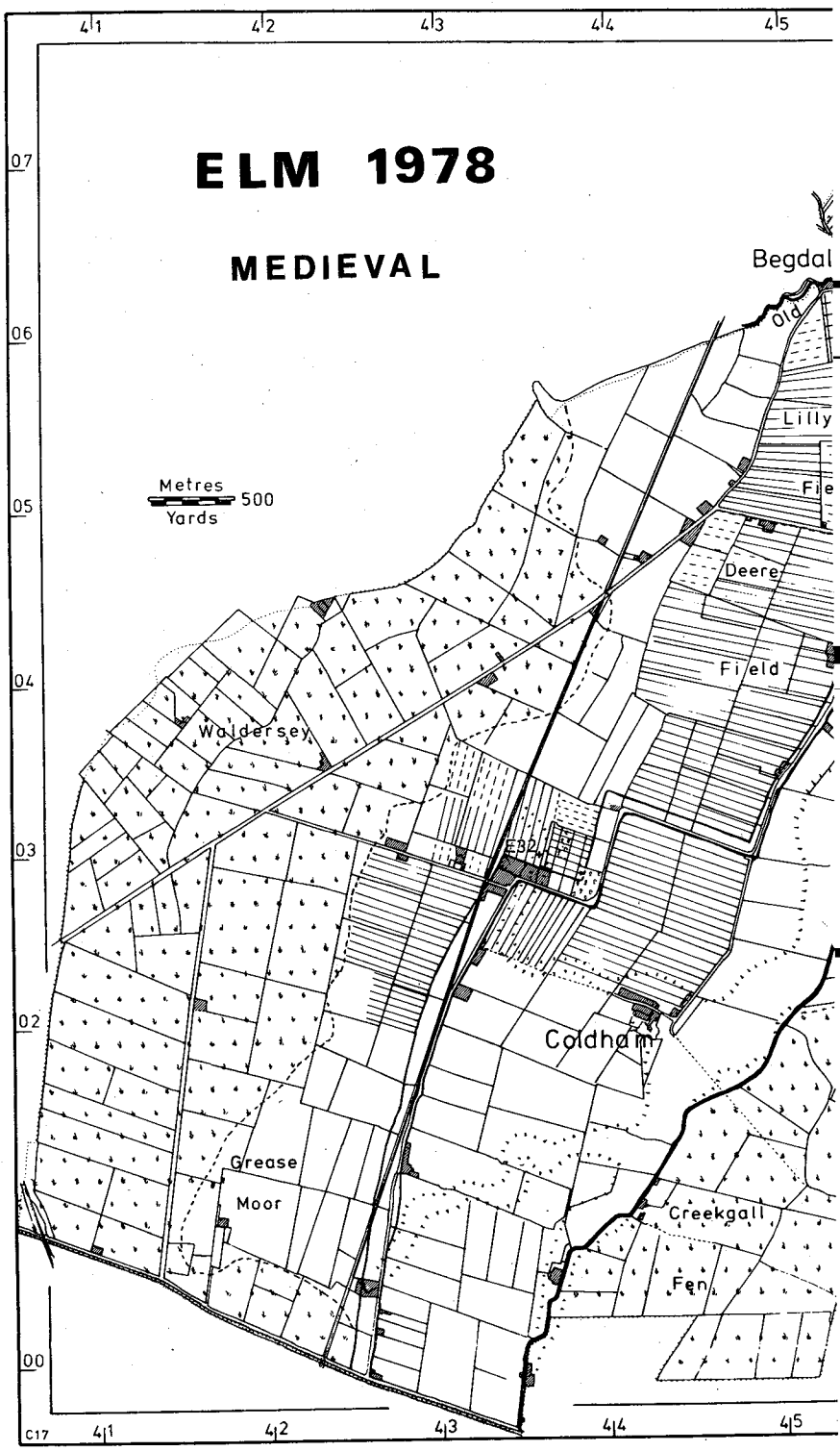
The pattern of land holding is complex. The 1592 survey names many owners and tenants with consolidated holdings varying from ½ to 600 acres most of which can be identified on a tithe map of 1840: i.e. there had been much exchanging of strips and consolidation of plots[12]. Indeed without the fieldwork evidence, it would not be obvious from the map that originally the landscape had been divided into strips. In effect there had been inclosure by agreement and so no parliamentary act was needed to improve the agriculture in later centures. The only official inclosure was of the wide droveway in 1834, involving only 195 acres. Another probable reason for no rearrangement of the agricultural landscape was the great problem of drainage. Having established a complex but workable system of ditches and culverts over the centuries, it would prove difficult and expensive to replan the landscape completely and have to establish a new drainage network.

For these reasons the northern 5,000 acres of Elm parish form a remarkably unaltered piece of medieval countryside in general plan, with droves and ditches of great antiquity. The major topographical features, and orientations of the strips where known, are shown on Fig. 3. The 1592 survey does not include Deere Field or the Coldham area.

TABLE 1

Elm Open Fields 1592

Field	*Stated Area*	
Old field		1177
Neadham field		1608
Wales field	104	
Redmore field	388	
Inham field	144	1039
Halfpenny field	141	
Town field	77	
Hawstead Lands	195	
		3824


ELM 1978
MEDIEVAL
Metres
500
Yards
Begdal
Old
Lilly
Deere
Field
Waldersey
Coldham
Grease
Moor
Creekgall
Fen
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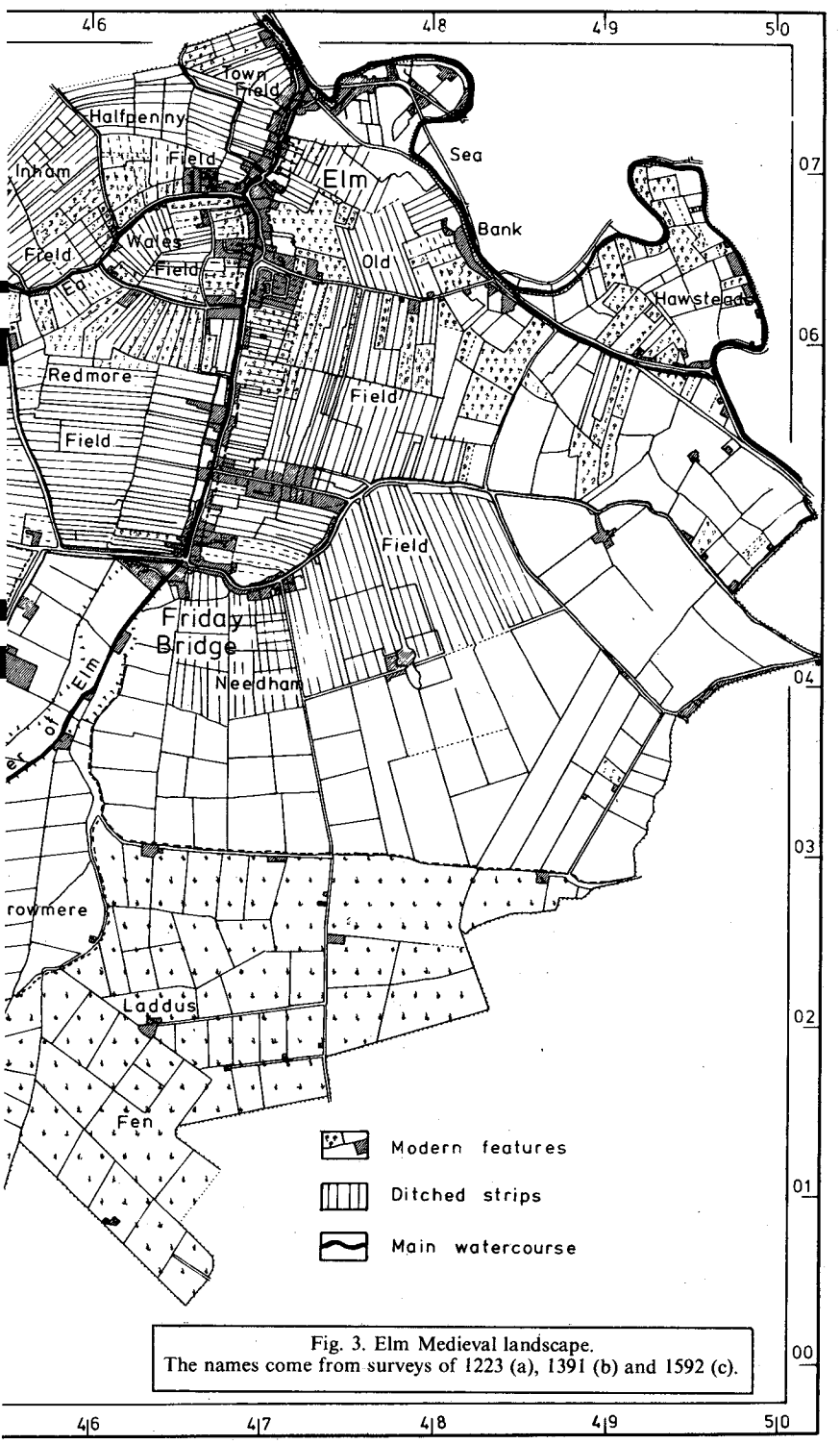

Fig. 3. Elm Medieval landscape.
The names come from surveys of 1223 (a), 1391 (b) and 1592 (c).

There is no evidence that a crop rotation system including fallow was ever practiced (with such fertile soil it is scarcely necessary). The stated acreages of the fields are given in Table 1. Needham Field, Old Field, and all the rest together are of similar area. This may argue for an earlier three-field system.

The remaining area of the parish was fen. This was made up of two elements: fen that was under water in Roman times is still easily seen as dark stained soil interrupted by roddons; but the area of Roman dry land that became drowned in the medieval period is more difficult to appreciate. Generally it is stained very slightly darker than the medieval dry land, and lies rather uneven because of the roddons partly buried beneath it. In the medieval landscape, these two different fen elements would have been indistinguishable.

The medieval drainage was complex. The Nene joined the Ouse at Upwell which ran into the sea at Wisbech. At Elm the water that did not fall into the Nene was channelled into a stream called the Elm Leam or Elm River. This ran on the east side of the great roddon at Coldham and then to Friday Bridge, following the road to Elm church where it crossed to the east and so into the Ouse. None of it contains water now, although it still did in about 1880s[13], but most of the course can be traced as a hollow channel. The two bridges, at Friday Bridge and Elm church, are buried under the present road. The village bridge is referred to as 'the great bridge near the church' in 1350[14].

This Leam has been claimed to be of Roman origin but this seems unlikely, since in Roman times the fen drained itself via the various natural meandering channels along the Neolithic river. It is more likely that the leam is of Saxon or medieval origin. From its course it is undoubtedly artificial. In 1391 it was ordered to be 10 feet wide and had to be dug out to a depth of 10 feet[15].

Most of the water from Elm high ground found its way into the Elm River and entered the Ouse north of the village by means of floodgates which prevented salt water coming back. The Sea Bank, well known at Leverington, came right down to Upwell and so formed the eastern boundary of the parish[16].

A complex system of pipes and sluices existed; these were mentioned at various courts of the sewers (drains). A 13th-century example has been recently excavated at Newton[17]. With the final diversion of the Ouse to Kings Lynn in 1331, the Wisbech estuary began to silt up causing a great drainage problem at Elm. Many courts attempted to solve the problem; that of 1437, quoted by Darby[18] and translated by Dugdale is very detailed, e.g.

"the water from the field of Oldefeld in Elme on the east side of the river of Elme, used to have its course and empty through a pipe lying under the river of Elme called Massingham's pyppe, and there used to fall and empty in the river of Wisbech ... and that the river of Wisbech for several years elapsed continues to be raised up and obstructed with deposits from the sea by the flow and ebb of the tide, and that the said water of Oldefeld cannot possibly fall and empty ..."

The document then continues to define a new tortuous course to the west and north, eventually going into the sea at Leverington (Morton's Leam did not then exist). The long entries of the sewer courts give much topographical detail, especially regarding the dykes and banks.

All these complex water systems became redundant with the general fen drainage in the 17th century.

Elm does not have any earthworks, or records of dovecotes or fishponds — these are not necessary in a fen village. The medieval windmill stood at site E32, carefully placed on a roddon to give it a windy position. There was formerly a chapel of St Giles, at TF472066 and a leper chapel on the boundary with Wisbech, TF470078; a chapel of St Christopher probably stood at TF502042. In 1827 there was still an arched gateway leading to St Giles chapel[19].

The occurrence of a possible medieval kiln seems likely from the recovery of two complete unbroken saggars at TF468059. The lack of readily available suitable clay is outweighed by the unlikely chance of the two saggars not being in their original context, so giving a balance of evidence in favour of a kiln.

The modern topography became possible after the 17th-century fen drainage. It is not known at what date the present field pattern was formed in the fen area, but it was completed before the Tithe Map of 1840[20]. Two incomplete late 17th-century maps of the Coldham area show many of the 'modern' ditches already there[21].

Apart from 'Coldham Grounds', already inclosed before 1437[22], Elm remained essentially open field, but with consolidated holdings.

Few of the ancient buildings survive. Needham Hall was pulled down in 1804 and rebuilt in front of the old site. It had been a large building with two wings, Coldham Hall was pulled down in 1793 and rebuilt on the old site[23]. No mud and thatch peasant homes survive, although there were still some in the 19th century[24].

It is hoped that this account will give some idea of the complex changes which have led to the creation of the landscape of Elm, and show how the silt fen villages differ from the remaining fen areas. More detailed work on the wealth of late medieval documents will enable a complete picture of the land tenure and topography to be compiled.

It is now possible to assess the relative importance of settlement sites and select the best ones for further intensive study if required. Perhaps the most interesting feature of the fens is the deposition of soils within the last few millennia, in such a manner that there is horizontal as well as vertical stratigraphy. The three plans of Elm parish (Figs. 1-3) demonstrate how strikingly the landscape has varied. The soil boundaries clearly limit the activities and settlement of different periods and point to areas where early sites may be buried. This type of survey applied to large areas of the fenland will lead to a better understanding of settlement patterns and land use.

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SITE GAZETTEER

ELM

The geology of all sites is silt unless stated otherwise.

Abbreviations:
CUCAP *Cambridge University Collection of Aerial Photographs*
FRT *Fenland in Roman Times* (see note 3)
PCAS *Proceedings of the Cambridge Antiquarian Society*

E1 TF420014, soil: glacial gravel.
Dark occupation area co-extensive with cropmarks of small enclosures. Large quantities of Roman sherds, samian and colour-coated wares. Much saltern briquetage. Site probably extends under the fen. A palaeolithic worked flake discovered. Ref: F.R.T.317 *AP cover* RAF/1601/3052.

E2 TF420015 area, soil: glacial gravel.
Wide scatter of worked flints, Neolithic or Bronze Age.

E3 TF418016, soil: glacial gravel.
Cropmarks of small enclosures. Dark occupation area visible on the ground, but no sherds. Late Bronze Age or Iron Age.

E4 TF434003
Dark greasy area with saltern briquetage. A few Romano-British sherds including samian. Possibly related to the reported site just north (at TF 435005) but not presently visible because of pasture. Cropmarks of enclosures and droveways. Ref: F.R.T. 317 *AP:* RAF/1601/3053.

E5 TF 4305. 0080
Dark area with saltern briquetage in large quantities. Small amount of Romano-British pottery, including colour-coated ware. Cropmarks of enclosures, (hut?) circles and droveways. Samian and a skeleton reported (PCAS *58* 27; *43* 16). *Other ref.* F.R.T. 317. *AP:* RAF/1601/4053; 3133. CUCAP: YF 22-3, 7, 9. (1959); ACL 22-3 (1961); AIM 68-9 (1964); BLO 24-6, BLT 1-6, 15-18, K17AC 11-13 (1973), other soil marks, BRY 7-12 (1975).

E6 TF4295. 0105
Dark area with saltern briquetage. Romano-British sherds including Samian. Not much pottery.

E7 TF4372. 0105. Soil, buried glacial gravel.
A few Neolithic (?) worked flints cast out by ditch digging. A buried island with no lower peat on it and a thin covering of silt.

E8 TF 429003
Dark occupation area on a mound by the edge of a roddon. Small quantitity of Romano-British pottery and plenty of saltern briquetage. A cylindrical piece of baked clay.

E9 TF 430003
Dark occupation area with saltern briquetage and a few Romano-British sherds. Cropmarks of droveways etc. *AP;* CUCAP BSS47 (1975).

E10 TF 4334.0145
Slightly dark area with saltern briquetage. A few sherds of Romano-British pottery. Cropmarks of small enclosures. *Ref:* FRT318, PCAS *43* 14, *58,* 27. *AP:* RAF/1601/3131, 3054. CUCAP: FV53-5, ET 33-6 (1950), PS 10-11, 14-15 (1955).

E11 TF 446017
Dark area with extensive saltern briquetage, a small quantity of Romano-British sherds. The site stretches E. over the modern ditch. Soilmarks, *AP:* CUCAP: AQD 18-20 (1966). *Ref:* PCAS *45* 14; *58,* 27; F.R.T. 319.

E12 TF 449019
Extensive and intensive dark area with large quantities of saltern briquetage. Very large baked clay pieces ploughed out. Recently skeletons excavated from ditch digging. Late Romano-British sherds recovered.

E13 TF 445018
Darkened area, saltern briquetage. No pottery but likely to be Romano-British. Cropmarks, *A P:* CUCAP: FV 49-58 (1951); NZ45 (1974).

E14 TF 435018
Dark area of Romano-British salterns. Not much pottery; saltern briquetage.

E15 TF 428028
Dark occupation area with saltern briquetage and Romano-British sherds. Several other dark patches. *A P:* CUCAP: BLT 28-9 (1973).

E16 TF 4263.0255
Dark patch with saltern briquetage, probably Roman.

E17 TF 431035
Black greasy area with saltern briquetage and Romano-British sherds on the edge of a large roddon that still has a dried-up central channel. *Ref:* F.R.T.318 *A P:* RAF/1601/4042; 1606/1403.

E18 TF 4406.0232
Romano-British saltern with dark area yielding pottery briquetage.

E19 TF 441025
Two Romano-British saltern sites with sherds and briquetage either side of a roddon. Earlier observations: small enclosures, droves and larger fields partly obliterated by later parallel strip divisions. Abundant debris, pottery found in 1933 and 1946. *Ref:* F.R.T. 319. *A P:* RAF/1601/3056. CUCAP: ET.30-2 (1950), AGE14-15 (1962).

E20 TF 4380.0208
Romano-British saltern with briquetage and sherds.

E21 TF 439021
Romano-British saltern with briquetage.

E22 TF 4435.0245
Saltern with briquetage (likely to be Roman).

E23 TF 4490.0208
Dark area with a lot of Roman occupation remains and saltern briquetage. (Continuation of E12). *Ref:* R.r.T. 320. *A P:* CUCAP: PA 3-7 (1959); RR 4-12, RS 38-46 (1956); AFQ 41 (1962).

E24 TF 448027
Romano-British saltern with occupation and briquetage. Earlier work: small circular ditch and occupation material. Pottery range c105 — 200 AD. *Ref:* F.R.T. 320: PCAS. *58* 12ff. *A P:* CUCAP: AQD 18-20 (1966).

E25 TF 4492.0120
A large saltern area with much briquetage; Romano-British sherds. Some material appears to be spread in an old channel.

E26 TF 450033
Large saltern area with much briquetage. Two dark occupation concentrations with Romano-British sherds and a piece of quernstone. Earlier observations: rectangular enclosures, hut circles, large quantities of samian and colour-coated wares. *Ref:* FRT 321; PCAS *58* 27. *A P:* CUCAP: RR 13-16 (1976); XR 27, 32-45 (1969); ACC 27-9 (1961); AFQ 42-3 (1962); AKN 23-6 (1965).

E27 TF 487040
Large Romano-British saltern, with much pottery and briquetage lying on a dark area. A bone needle recovered (byJ King, Wisbech).

E28 TF 474046
Dark area with Romano-British and medieval sherds.

E29 TF 416007, soil: glacial gravel.
Two Acheulian hand axes found in gravel pit in 1942.

E30 TF 451056
Romano-British settlement area. This presumably instead of the OS TF450055 where there is nothing. *Ref:* FRT 323.

E31 TF 448035
Four areas with Romano-British occupation on known cropmark site, two of them having saltern remains. Samian, shelly and grey ware sherds. Area with many circular cropmarks (see Plate 1) *Ref:* FRT 320 *AP;* CUCAP: XR34, 36, 39, 41, 45. RAF/1601/3040.

E32 TF 430300
A mound on a large roddon, much 13-14th century pottery, one piece of a large millstone. Windmill site.

E33 TF 474023
Large Romano-British site with dark occupation area. Not a saltern. Samian and colour-coated sherds. Probably related to the parallel ditch cropmarks to the SE. The parallel ditches area has a few dark patches but no occupation debris. *A P:* CUCAP: UP79-81, ARA-49-50 (1967) BST 75-94, BTI 13-14 (1975).

E34 TF 446006
Romano-British sherds and saltern briquetage on a large roddon. *Ref:* FRT 318, PCAS *43, 14;* JRS *37* 171. *AP:* RAF/1601/3130. CUCAP: XR 48, BPW 34-36 (1974); 70 HR 45-57, BMJ 89-90 (1973); RC 8, AN 109-10, 141-2 (1974).

E35 TF 447007
Romano-British saltern site, briquetage and sherds. *Ref:* PCAS *43,* 14. FRT 318. *A P:* CUCAP: 70 HR 45-7, BPW 34-6 (1974).

E36 TF 448007
Romano-British saltern site with briquetage and sherds.

E37 TF 489042
Romano-British saltern and settlement. Large quantitities of pottery and briquetage either side of a roddon. Essentially part of sites E27 and E38.

E38 TF 490044
Very large and complex Romano-British saltern and settlement. Almost continuous with E27. Large quantity of pottery and briquetage lying on dark occupation areas. *A P:* CUCAP: BNA 36-44, BOK 43-48 (1973).

E39 TF 497045
Cropmarks of enclosures near a roddon. Small saltern site with Romano-British sherds and briquetage. *Ref:* FRT 322. *A P:* RAF/1601/3034. CUCAP: BOK 48-8; BNA 36-38, 45-8 (1973).

E40 TF 472620
A well-known Romano-British site with a hollow-way (drove) running through the middle. At least three settlement areas with saltern briquetage. Skeletons found when first ploughed in 1934; A bronze bracelet and a brooch are preserved in Wisbech Museum. *Ref:* FRT 82; PCAS *43* 15 *A P:* RAF/1601/3126 CUCAP: BST 90-4 (1975); BTI 13-16 (1975).

E41 TF 473029
Small area with Romano-British pottery scatter and saltern briquetage.

E42 TF 473036
Two dark areas with large quantities of Romano-British pottery. No saltern briquetage or any obvious watercourses near.

E43 TF 478062
Cropmark site of small circular ditches and one large oval. *Ref:* Riley, D.N., Ant. J. 20 (1946) 150-3, Fig. 2.

E44 ? TF 472067
A tumulus referred to in older histories, and a possible Roman temple. A hoard of coins found in 1713 representing emperors from Gallienus to Gratian, i.e. probably buried AD 380-90. An altar 21 inches high "in a wall" in 1776. *Ref:* The Surtees Society 76 (1883) 23, letter dated 1734; PCAS 43 (1949) 14; Stukely W.M., *Itinerarium Curiosum* (1776) 13; FRT 324.

E45 TF 489028
Romano-British saltern with briquetage and sherds.

Various sites with small (often superimposed) circules of unknown function. In addition to sites E5 and E31 they occur at TF 433020, TF 465011, TF 478034, TF 483044, TF 484048, TF 470032, TF 470034 and TF 471037. None of these latter 8 sites produced any surface finds or soilmarks.

TF 472066 St Giles' chapel site. Skeletons found in c. 1875.

Other possible sites not checked because of vegetation coverage:-

TF 460034
Romano-British pottery recovered. *Ref:* PCAS *43* 15; FRT 321. *AP:* RAF/1601/3038.

TF 460055
Soilmarks visible on air photograph. *Ref:* FRT 323. *AP:* RAF/1634/4231.

TF 466045
Quantity of Romano-British pottery reported from the vicinity of Rookery Farm. *Ref:* FRT 321.

TF 469034
Romano-British site marked on OS 6-inch maps. *AP:* CUCAP BST 75-86 (1975).

TF 472042
Cropmarks visible on air photographs. *Ref:* FRT 323. *AP:* RAF/1601/3036).

The Sites and Monuments Record contains other entries not in the above Gazetteer. These appear to be extensions of known sites (all cropmarks are shown on Fig. 2), merely roddons, or actually incorrect entries. Supposed sites where no finds occur are TF 443048 and TF 501055.

Other finds

TF 4808 0513
Several sherds of medieval pottery in a former drove.

TF 4435 0213
Scatter of late medieval brick just north of Coldham Hall, possibly the site of medieval buildings?

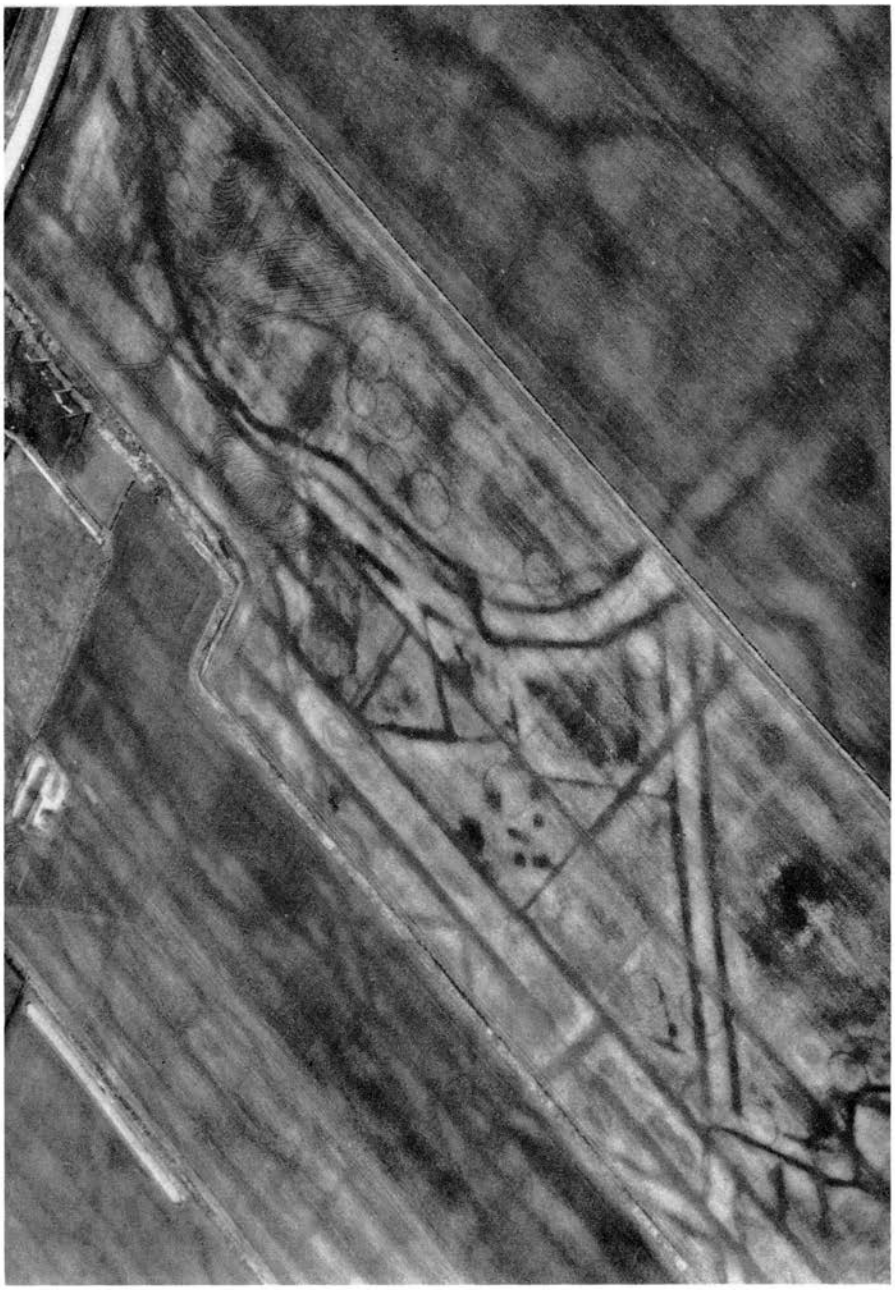

Plate 1 Elm, Waldersea Hall, Romano-British saltern and settlement with superimposed circles (Site 31), TF 448035

Plate 2 Elm, Needham Hall. Possible Romano-British site with cropmarks of small circles. (TF 483044).

APPENDIX

GROUPS OF CIRCLES IN THE SILT FENS

D.R. Wilson

Under this title D.N. Riley[25] drew attention in 1946 to some enigmatic archaeological sites he had observed from the air either as soil-marks or as crop-marks in the Fens. Five of his 24 examples lay in the parish of Elm. The marks showed narrow ditches or trenches 0.3 m wide describing circles of 9-17 m diameter, often occurring together in considerable numbers as groups of 30 or more. Sometimes several of the circles intersected. In addition there were occasionally concentric double circles and straight-sided ovals. The distribution of these sites was similar to that of Roman-British settlement, being mainly on the mineral soils of the 'silt' fen but extending also onto the margin of the peat fen. In the absence of surface finds, at least from the sample of sites examined on the ground, there was no clue to date or function, and Riley concluded that 'the purpose of the circles is unlikely to be settled without excavation' (Riley, 1946).

Air-photographs taken under the auspices of the University of Cambridge Committee for Aerial Photography since 1950 have recorded a further nine sites of the same kind in Elm parish. These sites are considered above (p.0) by D.N. Hall in terms of local topographical detail; here they are set in the wider context provided by the photographic evidence as a whole. Forty sites in all are plotted in Fig. 4, 22 being derived from Riley's list and 19 from the Cambridge Collection, one site being common to both. Two examples of circles occurring singly, which were noted by Riley, have been omitted.

Few of the sites have been seen on more than one occasion, since such fine detail (lines 0.3 m wide) can only be discerned in very favourable circumstances; but there are sufficient examples of repeated observation to confirm that the marks are not ephemeral effects of modern agricultural activity. The clearest photographs show the circles either in bare soil, where the dark filling of the ditches contrasts well with the light-toned fenland 'silt', or in very young growth of cereals, where seedlings over the ditches come up first and make lines of darker growth. These two effects are directly related, since it is the darker ditch-filling which warms up more quickly in the spring and encourages early germination. Crop-marks later in the season result from differences in available soil-moisture; with such slight ditches these differences will always be small and often negligible, producing marks that are usually inconspicuous and short-lived.

Close examination of the photographs shows that a good few of the marks are not truly circular but are slightly flattened on two opposite sides. This feature is not

correlated with the direction of ploughing, nor with the direction of view of the photograph, and may be accepted as being original. It seems to be a subtle expression of the same tendency that produced Riley's 'ovals', in which straight parallel sides were a bolder feature.

The general agreement in distribution between groups of circles (Fig. 4) and

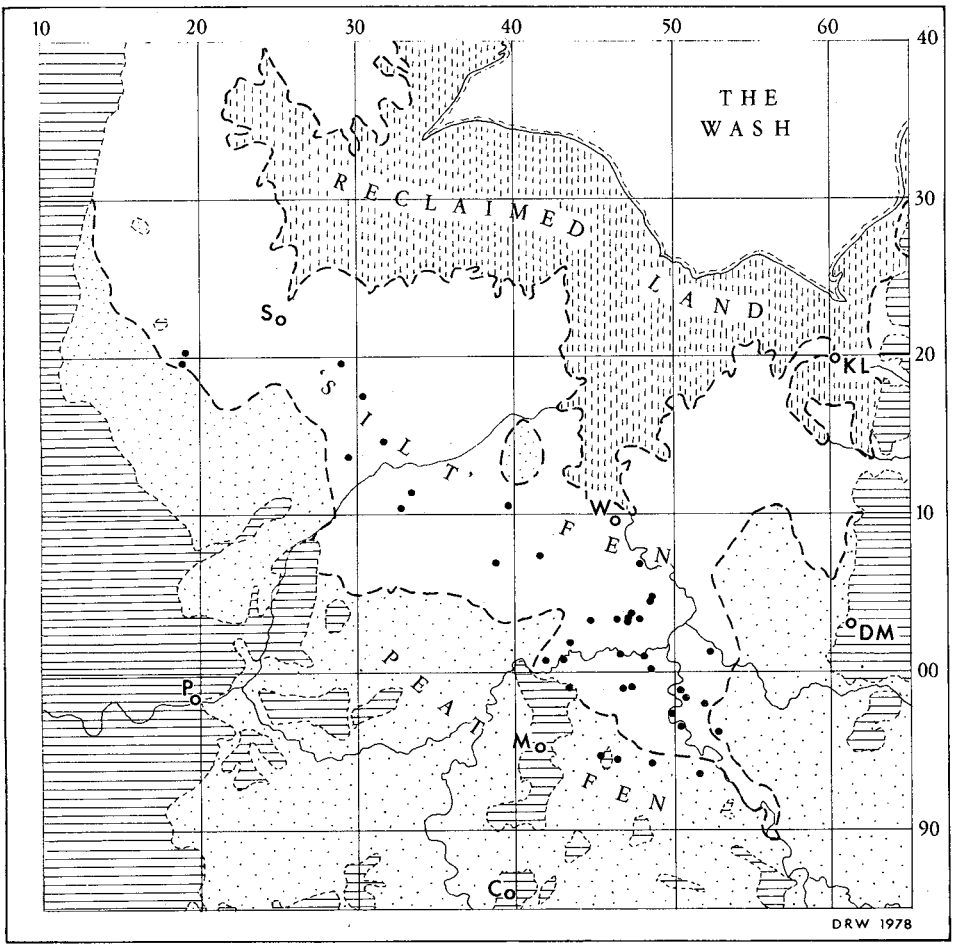

Fig. 4. Distribution of groups of circles in the Fens, recorded by D.N. Riley and by Cambridge University Department of Air Photography. Base map after Phillips (1970), General Distribution Map. Uplands and fen islands are shown by hatching. The principple modern towns are labelled as follows: C = Chatteris; DM = Downham Market; KL = Kings Lynn; M = March- P = Peterborough; S = Spalding; W = Wisbech. Drawn by D. Wilson.

Romano-British settlement in the Fens (Phillips, 1970) has already been noted[26]. This may, however, be illusory. In the peat fen, narrow-ditched circles are not likely to be visible from the air except where they are sited on a roddon, and in view of the scarcity of surface finds their presence in other positions will seldom be open to detection. Few groups of circles occur in the context of Romano-British settlement or fields; and when they do, their arrangement appears to take little account of the Roman features. A similar impression is given in relation to ancient watercourses, despite the conspicuous appearance of those circles that do occur on roddons. It may thus be significant that on three sites where the modern field was formerly subdivided into (medieval) strips by parallel drains, the circles fall neatly within the strips and some show flattening on the sides towards the drains. This evidence, although limited and circumstantial, is quite consistent; it strongly suggests that the circles have a post-Roman context, though doing little to explain their function.

At Waldersea Hall, Elm (Pl. 1), where circles respect a system of parallel drains in one part of the field but not the ditches of Romano-British lanes and enclosures, at least two of the circles overlap a Roman ditch. A change of tone in the crop-mark suggests that one such Roman ditch may have been deliberately filled at the time that the circle was created. Here, if anywhere, excavation could clarify the chronology, and perhaps also the function, of these circles.

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CUL Cambridge University Library

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22. Darby *loc. cit.* p.185.
23. Watson *loc.cit.*, 503.
24. Bullard D., in *Wisbech Museum Annual Report* (1957) 11.
25. Riley, D.N. 1946 *Antiquity* 20, 150-3.
26. See note 3 above.

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