

Reconstructing a Historical Landscape from Field and Documentary Evidence: Otford in Kent

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INTRODUCTION

WHERE the reconstruction of a past landscape has been attempted, it has hitherto been largely dependent on documentary evidence. The study of ancient maps and surveys allows certain reconstructions to be made but these are limited in time and area. However, fragmentary documentary evidence as to the nature of the past landscape is available for most districts, and it is also possible to observe, in the field, features of varying historical origin. This article is concerned with a method of analysing the present landscape, and the use of this method in conjunction with documents to reconstruct the past appearance of a small area in Kent.¹

Otford is situated at the southern end of the gap where the River Darent passes through the North Downs, and comprises part of the very much larger medieval manor of Otford, which extended into the Weald of Kent. The area contains numerous farms and boundaries of ancient origin, the most obvious being the ruined palace of the Archbishops of Canterbury, from whose muniments, as well as those of private individuals, much information may be obtained as to the past state of the valley. It is, however, the evidence of the countryside itself that has been the most potent factor in determining the age and former extent of the agrarian landscape.

THE NATURE OF THE FIELD EVIDENCE

Any attempt to map an area as it was in the past will be concerned primarily with boundaries and the areas enclosed within them. These areas may comprise such units as a farm, an estate, or a parish, or just an individual field. The boundaries between these units, in Otford as in much of lowland Britain, are hedgerows, banks, and fences.

Unfortunately it has seldom been possible to put a precise date to the creation of any of these features. A date may be known, but the mention of a farm in, say, 1100 does not prove that it was built then. Similarly we may know that a ditch was "old" at the time a Saxon charter was written, but do not thereby know the date of origin. It is at this point that dating by field evidence amplifies the documentary information.

The possibility of dating hedgerows by a study of their constituent shrub species was first suggested by Dr Max Hooper, following his failure to explain fully the

¹ I am grateful to Dr Max Hooper of the Monks Wood Experimental Station for a valuable discussion on the subject of hedgerow dating, and to Professor F. R. H. Du Boulay for much information and help with the documentation regarding the medieval estate of the Archbishops of Canterbury at Otford.

variability of hedges on purely edaphic or climatic grounds.¹ He found that the number of shrub species in a hedge appears in many (though not all) parts of the country to vary with the age of that hedge. The idea is that as the years pass some of the original plants will be replaced by new species, and it may therefore be expected that an old hedge will have a greater number of species than a younger one. Since hedges vary greatly in length, the number of species must be counted only within a standard sample distance. A 30-yard sample is taken and the total number of shrub species occurring on either side of this section is recorded. Having studied hedges that could be dated from documents in Devon, Gloucestershire, Cambridgeshire, Huntingdonshire, and Lincolnshire, Hooper found the correlation coefficient between the number of species in a 30-yard sample and the age of the sample to be +0.92, and "the regression equation for predicting the age of a hedge from the number of species in a 30-yard length came to

$$\text{the age in years} = 99 \times \text{the number of species} - 16."$$
²

Allowing for a 5 per cent margin of error, this puts a ten-species hedge at between 800 and 1,150 years old, and suggests a figure of approximately one species per 100 years as a very general guide to the age of a hedgerow.

The presence of many well-established hedges suggested the possibility of applying Dr Hooper's hypothesis to the study of the Otford area. In all, 250 hedges were examined, and results suggest that Dr Hooper's figures are substantially correct.³ The shrubs counted were woody species of the type that could conceivably form a hedge on their own.⁴

The main areas of study were in the valley on clay and chalk loam soils, and on the thin rendzinas of the Downs. The heavy clay-with-flints areas on top of the hills support hedges which are mostly remnants of the original woodland cover and reflect the nature of this woodland closely. With a variety of soils the possibility arose that, despite the probability of a historical factor, the local differences could still be due primarily to edaphic variation. This seemed unlikely, considering the great differences between hedges on identical soils, and further evidence as to the importance of historical evolution was provided by an analysis of the long hedge which forms the boundary between the parishes of Otford and Shoreham. This hedge (fig. 1) is just under one mile in length and grows on river gravels, chalk loam, and a very calcareous rendzina. In places it is overgrown, in others neatly laid, yet seven out of the nine sections counted have nine, ten, or eleven species, only two coming outside this range, and the average number is exactly ten. The species forming the hedge are shown in table 1. Only two species, elder and bramble, occur in every section, and no two sections have the same species. Thus although con-

¹ For a summary of this work see Max Hooper, 'Dating Hedges', *Area, Inst. of Brit. Geog.*, 4, 1970, pp. 63-5.

² *Ibid.*

³ In some places a 100 yard sample was taken, but all have been converted to 30 yards for standardization, as 100 yards was found to be unnecessarily long.

⁴ It may be objected that two of the species, Old Man's Beard (*Clematis vitalba*) and Bramble (*Rubus fruticosus*) do not come strictly within this classification, but they are a major, and in some cases the only, component of many Otford hedges.

ditions of soil, slope, and drainage differ and types of species change, the total number in the sample remains remarkably constant. In shorter hedges even two-ninths of samples would be unlikely to differ greatly from the average, as a 30-yard section could well be a quarter of the hedge and therefore a much larger sample of the total length.

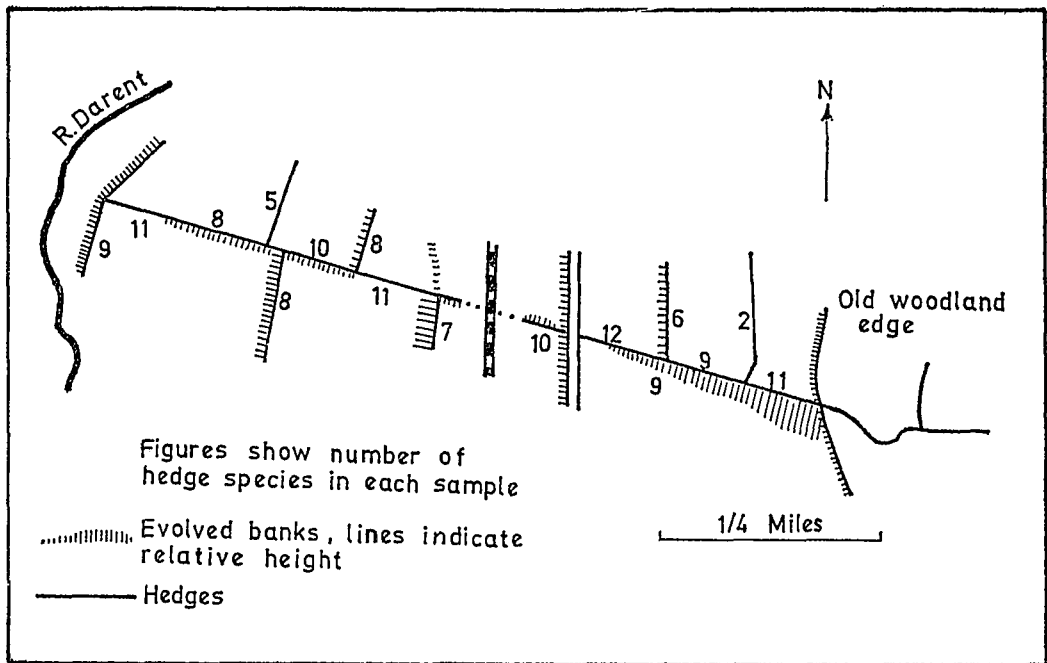


FIG. I

The hedge boundary between Otford and Shoreham parishes.

From this preliminary work it seemed apparent that a hedge could give some indication as to the date of its origin; that edaphic factors did not have an important influence on the number, as opposed to the type, of species; that the margin of error was too great for any date to be allotted more precisely than ± 100 years, but that a major difference between two hedges probably indicated a different date of origin. Many other variables might also need consideration, such as the strong possibility of some boundaries being older than the hedge itself; that some hedges may have been felled and replanted in the past; the difference between hedges that had been planted and those which had developed naturally along a fence line; and the possible planting of mixed hedges.¹ The relative importance of these factors requires clarification but it is clear that counting hedge species is not a simple answer to the local historian's prayer for new information. Nevertheless, the composition of a hedge is a factor in the landscape deserving of careful consideration.

¹ As far as can be ascertained, mixed hedges were not planted in Kent, though they may have been in parts of Essex, and Hooper has noted them in Shropshire.—Hooper, *op. cit.*, p. 64.

TABLE I
 HEDGE SPECIES COUNTED IN NINE 30-YARD SECTIONS OF THE
 OTFORD/SHOREHAM BOUNDARY HEDGE

	<i>Sample sequence up slope from River Darent</i>								
	1	2	3	4	5	6	7	8	9
Ash				+	+	+			+
Beech					+				
Blackthorn	+	+	+	+		+	+		+
Bramble	+	+	+	+	+	+	+	+	+
Cherry			+			+	+	+	+
Dog Rose	+	+		+	+	+	+	+	+
Dogwood	+		+			+			+
Elder	+	+	+	+	+	+	+	+	+
Elm	+	+	+	+					
Hawthorn	+	+	+	+	+	+	+		+
Hazel			+	+	+				
Holly								+	
Horse Chestnut					+				
Maple	+		+	+		+	+	+	+
Old Man's Beard			+	+		+	+		+
Privet	+	+							
Spindle Tree	+						+	+	
Sycamore	+			+	+	+			
Wayfaring Tree									+
Whitebeam						+		+	
Yew					+			+	

Before attempting to interpret the information provided by the Otford hedge-rows, however, a second type of field evidence may be cited: the banks on which many of the hedges grow. These are of two types, constructed and evolved (fig. 11). The large embankments following certain Saxon charter boundaries and those

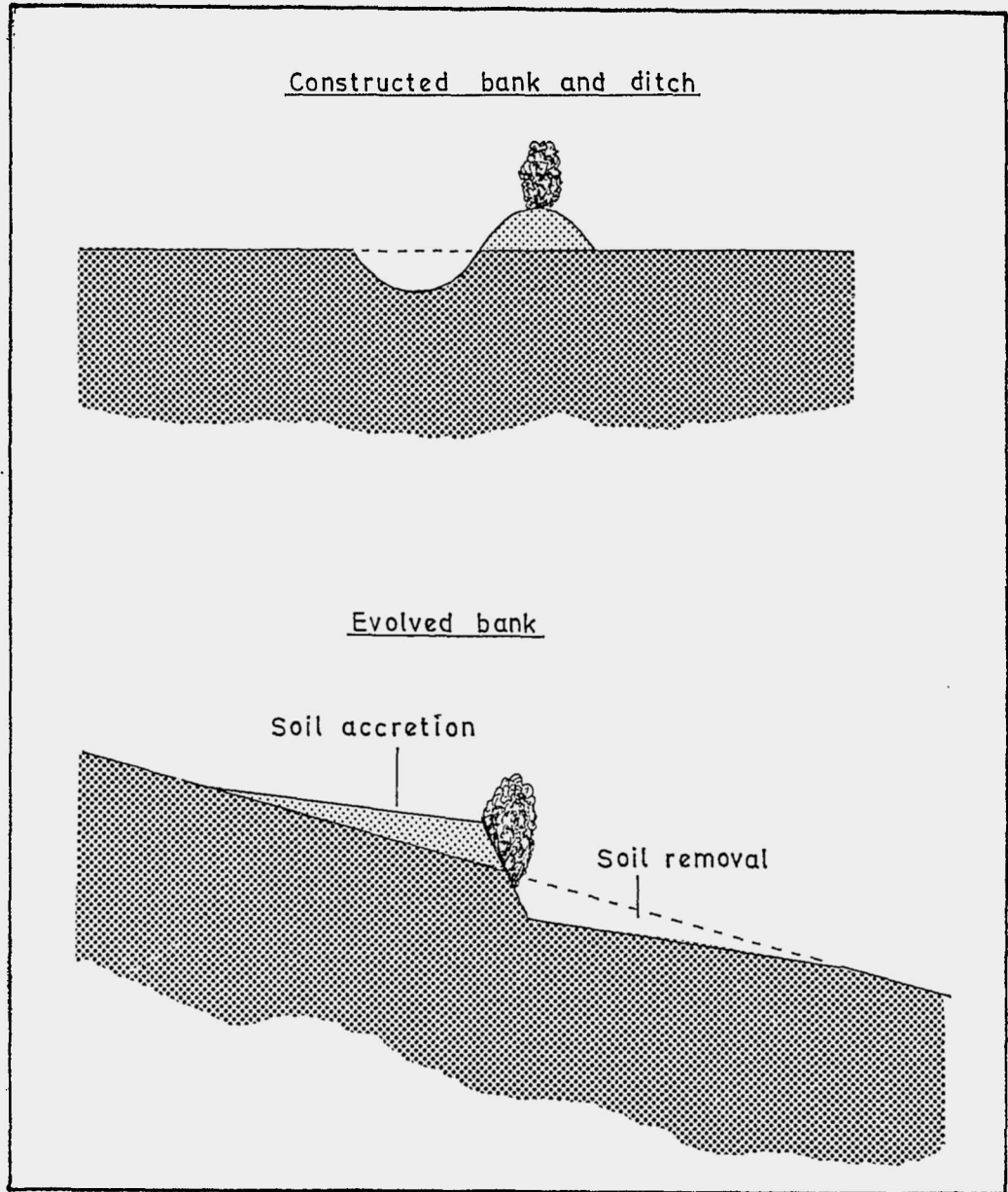


FIG. II.
Types of boundary bank.

around medieval deer-parks are well-known examples of the first category. They are often easily recognizable, and may be dated from documentary evidence. Where they have known dates of origin, the hedges on such boundaries are invaluable as a yardstick against which to compare undated boundaries.

For the second type of bank the general term 'evolved bank' is suggested, rather

than 'lynchet' with which feature it has close affinities. A lynchet is a special type of the evolved bank, which may be seen wherever an ancient hedgerow crosses a sloping field. The evolved bank is significant in two ways: it is very common, and it evolves in time. A hedge having been established across a slope, ploughing on the upslope will cause soil to accumulate against the hedge, while on the downslope side soil will be pulled away. On a grassland slope soil-creep gives the same result, but ploughing greatly accelerates the process, and in Otford banks of over four feet high have developed on slopes of not more than two degrees. Such banks will tend to grow over the years, and will give the boundary on which they occur an added permanence due to the difficulty and expense entailed in their removal.

Evolved banks will vary according to the length of evolution but also because of different initial slope steepness, intensity of agriculture, and the fact that only land on one side of the hedge may have been under cultivation.

The many variable factors make precise dating by the use of such banks impossible, but they remain a very useful factor to put beside others in accumulating evidence. If two hedge banks cross a field of uniform soil and uniform slope, one of these banks being nine feet high (as in the case with one Otford example) and the other only two feet, it is a fair assumption that the high bank is considerably older. Also a high bank on a gently sloping field is likely to be older than a similar bank on a steep slope, owing to the faster movement of material over the latter.

Investigation of over 150 such banks in the Otford and Shoreham area has revealed a number of distinct types (fig. III). Where the ancient downland grazing meets the wooded clay-with-flints capping the Downs a bank has often evolved due to soil creep on the steeper and less protected chalk slope. This highest bank has

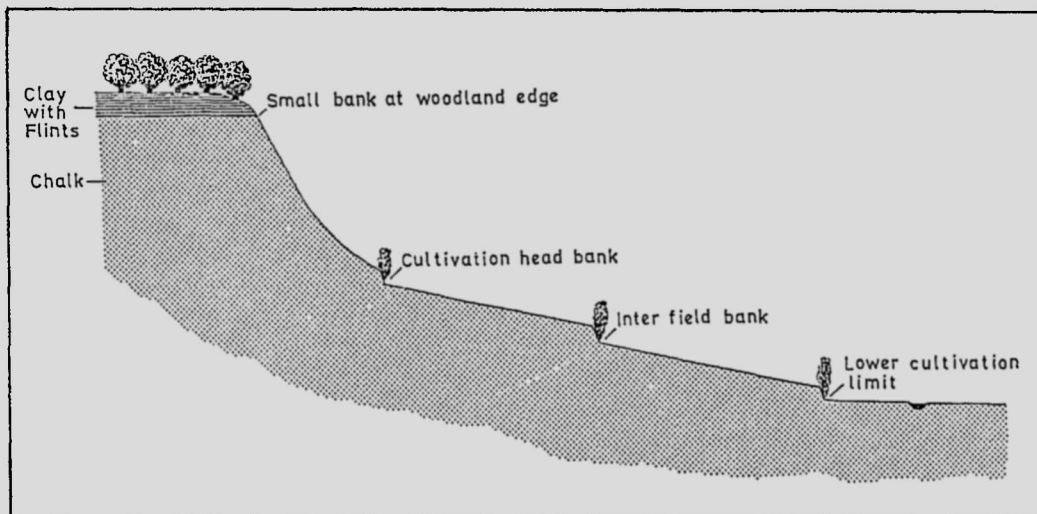


FIG. III

Types of evolved hedge bank in the Otford area.

often been artificially enlarged by the levelling of a path beneath it. This is a very common feature, the path marking the boundary between the originally cleared land and the clay woodlands.

A bank is often developed at the bottom of the old downland pasture, marking the ancient head of cultivation, and other banks are found between fields, with a final accretionary one sometimes on the edge of a gravel terrace, marking the start of alluvial water meadows. These banks may also be useful in tracing an old boundary where the hedgerow has been removed.

INTERPRETATION OF THE FIELD EVIDENCE

As a first step towards classifying the different hedges the histogram, figure IV, was constructed. This is of 139 hedges in the valley area, excluding all samples

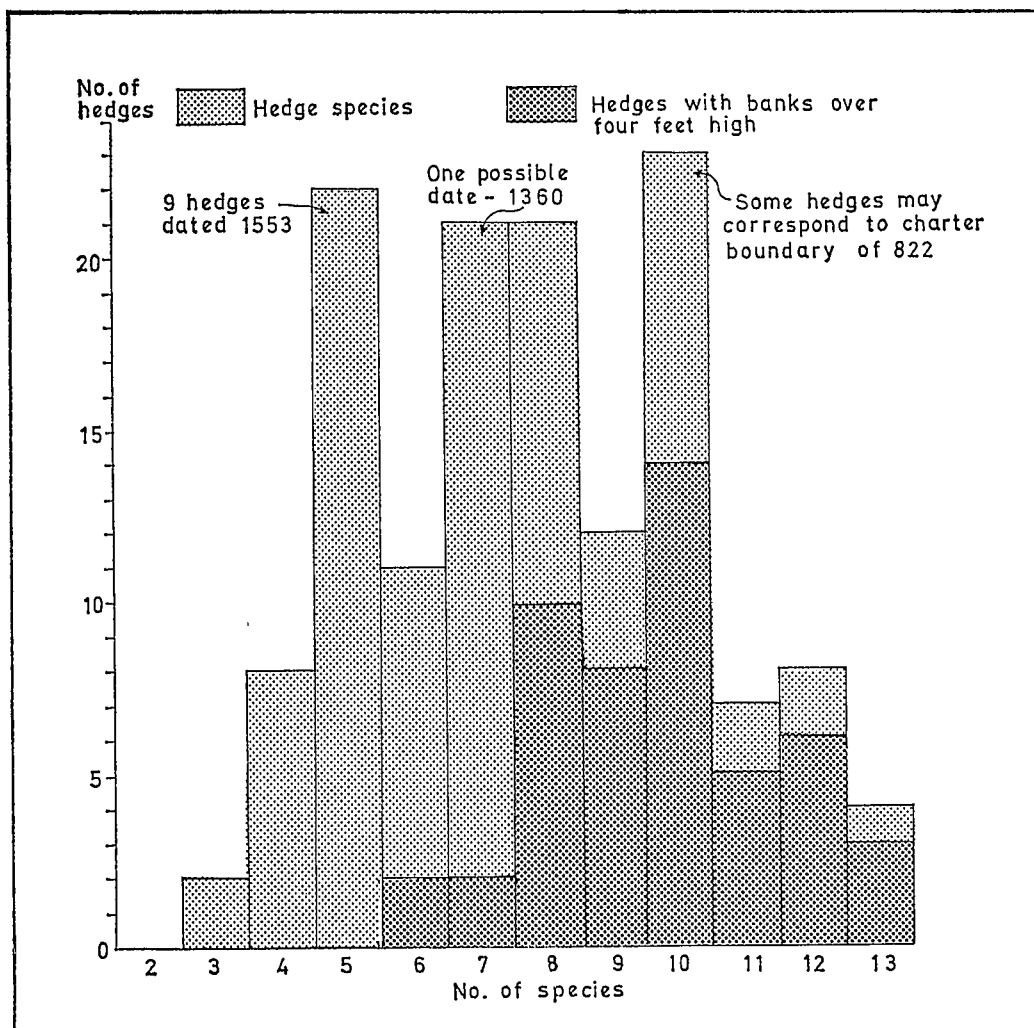


FIG. IV

The number of hedge species and associated high banks found in 139 Otford hedges.

from on top of the Downs and a few obviously recent hedges of less than three species. Many of these hedges grew on high evolved banks, and these banks are also shown on the histogram. The close correlation between hedges with a high species count and the presence of high banks is notable, the more so when it is remembered that the only banks recorded are those over four feet high for part of their length, and also that where a hedge runs directly down a slope, or is on level land, no bank would be expected to evolve. Measurement on the map reveals that approximately 35 per cent of the hedges come into this latter category, and therefore 65 per cent is the maximum proportion of high-species hedges that could be expected to have such a bank development.

The histogram shows three modes, at 5, 7-8, and 10 species. If the one species per hundred years ratio is correct, this would indicate three major periods of hedge planting, the tenth, thirteenth, fourteenth, and sixteenth centuries. There are very few hedges with species indicating a date later than the seventeenth century, but this is not surprising as conventional open fields were never found here; and as A. R. H. Baker has shown, "Kentish settlement and field patterns were firmly established by the end of the 13th century in a form which has remained basically unchanged to the present day."¹

For purposes of mapping, the hedges were divided into three groups based on the modes above. Those which did not clearly fall into one category were allotted to the higher group if they grew on well-developed evolved banks, to the lower if they did not. Such a clear initial grouping may, of course, be fortuitous, but it is extremely probable that hedge planting activity occurs in definite phases through the history of an area. The enclosure of parkland, common, or open fields would give a large block of hedges of similar age. It could also be that the date of such a change would be known.

Positive claims for hedge dates cannot, of course, be made without some supporting documentary evidence. If a few hedges can be dated from documents, however, it is reasonable to suppose that similar hedges in similar areas are of the same date. It is also fair to say that some hedges are clearly younger and some older than the dated ones. Unfortunately the two Saxon charters of Otford lack precision in their boundaries, but the hedge which marks the most probable boundary for the 822 charter, the above-mentioned Otford/Shoreham boundary hedge, has been seen to be a ten-species hedge, which fits in fairly well with the one species per hundred years rule.

A firm date is available for the other side of the histogram. In the Calendar of Patent Rolls it is recorded that in 1553 "le lyttell park" was ordered to be disparked and all the lands therein enclosed.² The area of the Little Park is known approximately from field names such as Park Field and Further Park, and a hedge count in the area gave the striking dissimilarity of species shown in figure v. The hedge groupings indicate pre-existing boundaries with ten or more species, and the in-

¹ A. R. H. Baker, 'Some Fields and Farms in Medieval Kent', *Arch. Cant.*, LXXX, 1965, pp. 155-6.

² Cal. of Pat. Rolls, 2 & 3 Philip and Mary, pt. 2, p. 70, m. 22.

ternal hedges, with five species, were created after the 1553 disparkment order. A hedge of eight species at the southern end is likely to have been planted when the park was created in 1360. Thus not only have we a firm date confirming that one species per hundred years is substantially correct, at least to the sixteenth century, but the counting of species has also made possible a definition of the precise area of that part of "le lyttell park" lying west of the river. The extension of the park east of the river has much evidence removed by building and gravel working.

The hedges and banks of various categories having been put on a map, a few other clues were also taken into account before comparison with documentary evidence. If a hedge follows an established boundary, such as that of a parish or a farm, this is a further, though less precisely datable, indication of antiquity. Both types of boundary should be checked on the earliest available map of the area. Coincidence with a natural obstacle such as the edge of marshland, a stream, or the edge of ancient woodland, also suggests great age, as does a boundary along an old road or track. In Otford many farm boundaries with a high number of hedge species follow the line of the Pilgrims Way. Hoskins points out that a continuous hedge-bank with other hedges terminating against it is of great antiquity, a statement borne out by the hedge in figure 1.¹ The occurrence of any of these features with a hedge of many species and, if appropriate, a high bank strengthens the possibility of accurate reconstruction.

THE OTFORD DEMESNE

The validity and usefulness of this type of field investigation depends on whether it makes sense when presented as a map and when compared with documentary evidence. An attempt was made to reconstruct the medieval and earlier stages of the entire landscape of Otford and the adjoining parish, formerly part of Otford, Dunton Green. This was not entirely practicable, owing to the aforementioned building and gravel working, and also to a lack of documentation for some parts. However, a measure of success was gained, the results of which may be tentatively advanced as an accurate representation of a medieval or even a Saxon landscape.

The Otford demesne had been in the hands of the Archbishops of Canterbury since c. 791.² These lands lay to the east of the River Darent, and a careful examination of this area reveals two important facts. The first is that it is divided into two by the boundary of the chalk outcrop with fertile soils north of this and poor sands and clays to the south. The second is that in the whole area south of the chalk edge, excepting the park boundaries, there are only nine hedges with more than six species, whereas in the much smaller northern part there are seventeen. Also in the southern part such field names as "Great Coney Grounds" and "Deer Lodge Field" testify to its former park-like character.

On the other hand, the high species counts and evolved banks up to nine feet high revealed by hedge analysis suggests cultivation of the demesne north of the Pilgrims Way from an early date. The medieval cultivation of this area has been discussed

¹ W. G. Hoskins, *Field Work in Local History*, 1967, p. 126.

² See E. G. Box, 'Notes on the History of Saxon Otford', *Arch. Cant.*, XLIII, 1931, p. 115.

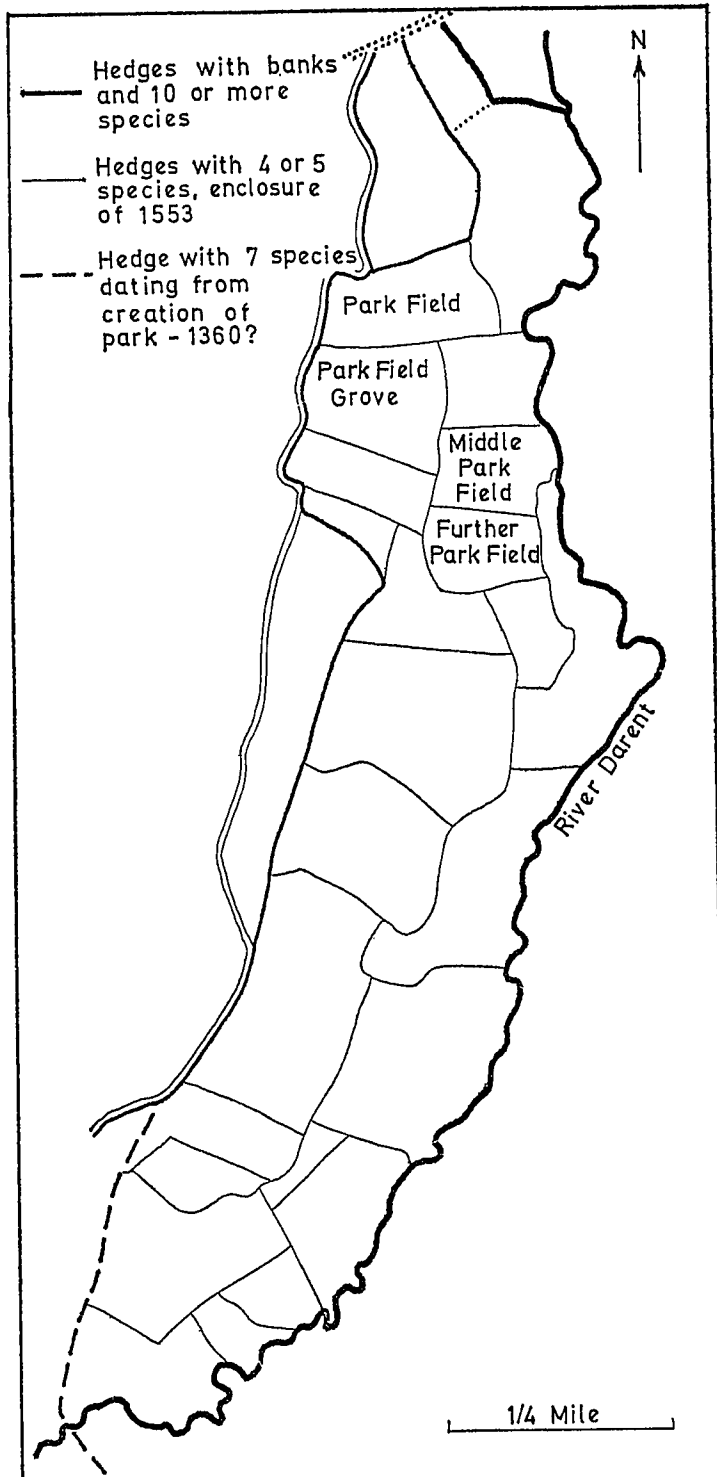


FIG. V

That part of "The Little Park" of Otford which lies west of the River Darent.

by Professor Du Boulay, who bases his work on a custumal of 1285 and a description of the demesne lands written in 1516.¹ Figure VI shows the northern demesne in detail. This map can be compared with the information available from 1285 and 1516, shown in table II. Many field names cannot now be traced on the map, and these unidentified areas are listed in the third column.

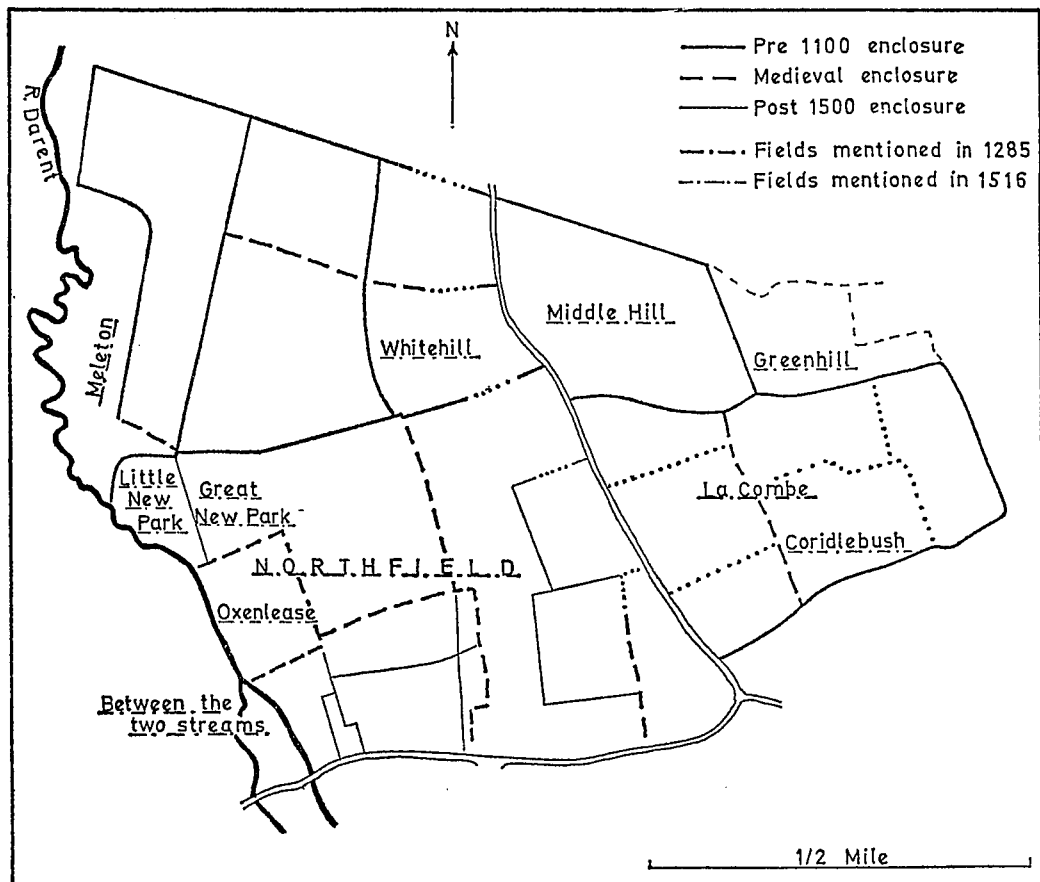


FIG. VI

The Otford demesne north of the Pilgrims Way. Dotted lines show where field evidence has been removed or is doubtful. The boundaries by the roads have been altered too much for an accurate field analysis to be made. In this map and figure VII boundaries are grouped in probable categories according to field and documentary evidence.

In 1516 field names confirm that ten of the demesne fields were in the northern section. In 1285, however, only "Meleton," "La Combe," and the area between the two streams are recognizable. Other land recorded in 1285, of which the position is known, was mostly in the "Borgha" of Shoreham while that of 1516 was all in Otford. The area of uncertain location was mostly in Otford, as seen by field

¹ F. R. H. Du Boulay, 'Late continued demesne farming at Otford', *Arch. Cant.*, LXXIII, 1959, pp. 116-24.

names in the minister's accounts which, however, do not allow precise identification.¹ By 1516 much of this land had been apparently leased out or sold, but the area shown by field names to be certainly in the northern demesne had increased by 199 acres.

TABLE II
DISTRIBUTION OF OTFORD DEMESNE LAND 1285 AND 1516

	<i>Land in the north of the demesne</i>		<i>Land of known location outside the north demesne</i>		<i>Land of uncertain location</i>	
	<i>Fields</i>	<i>Acres</i>	<i>Fields</i>	<i>Acres</i>	<i>Fields</i>	<i>Acres</i>
1285	4	86	8	301	16	282
1516	10	285	2	86	5	63

Du Boulay has observed that Northfield, 153 acres in 1285 and 18 acres in 1516, provides evidence of field subdivision in the intervening years.² Much of the land of uncertain location in 1285 is probably accounted for by this field and, while it was greatly reduced in size by 1516, new field names appear. Notable among these are "Great New Park," "Little New Park," and "Oxenlease"; the possibility arises that these are names given to subdivisions of Northfield. These three field names appear on the Tithe Map of 1844 and are marked on the map figure vi.³ "Oxley" ("Oxenlease" 1516) is bounded by hedges of six or seven species which indicate a period of planting in, possibly, the fourteenth century. The two New Park fields were much smaller areas in 1844 than in 1516, but they are separated by only a three-species hedge, with no bank although it is on a slope, so this boundary appears to have been the subject of later alteration. The significant point is that all three fields are contained within an area delimited to the north by a particularly high evolved bank which has ten or eleven species to be counted on it in those parts where a hedge remains. The area so defined is of 159½ acres. It is hard to escape the conclusion that this is Northfield (153¾ acres in 1285); that some of the hedges within it, such as those round Oxenlease, represent medieval subdivisions before the 1516 description was written; and that later subdivisions are shown by the other hedges with a lower number of species, none of the fields enclosed by these being mentioned in 1516.

Of the fields outside Northfield, La Combe is notable. Here an ancient hedgerow surrounds an area of 73 acres (La Combe in 1285 was 68 acres). Like Northfield the general location is suggested by field names, but the precise area and position would be unknown except as a result of hedge analysis. Also like Northfield, two stages of subdivision can be defined.

¹ E.g. P.R.O., MS accts. 1129/1; Lambeth Rolls 1240 and 1251. ² Du Boulay, *op. cit.*, p. 119.

³ Kent Archives Office, CTR 279. Some other useful field names were obtained from copies of part of a (now vanished) map in the Polhill-Drabble papers. K.A.O., U1007, Estate Papers 5.

THE TENANTS' LANDS

While the demesne holdings obliterated most traces of earlier agriculture on the east bank, to the west of the Darent the older type of Kentish land holding continued unaltered. The settlement took the form of scattered farms, each in the centre of an area of land anciently known as a yoke. By 1283-5 these yokes had largely ceased to have an integral identity, and their cultivation was divided among a large number of tenants. However, in 1425 tenants' lands were still referred to as in different yokes and, at least for the reckoning of customary services, they seem to have remained clearly defined areas.

Many references to the yoke or jugum occur in Kentish medieval records and in the Domesday survey. Certain records, particularly a detailed rental of Gillingham dated 1477 which has been analysed by A. R. H. Baker, allow an understanding of their significance. The yoke was a fiscal land division for purposes of rents and services, and had its own privileges. Its size was clearly related to its fertility and position.¹ This relationship is illustrated by an Otford rental of c. 1425 which lists a full yoke on the fertile soil of the valley as 120 acres, a figure to which many of these yokes approximate, but on the poor clay soils on the Downs one yoke is 231 acres.²

The fields of yokes have been referred to as common fields, but this is a misnomer as they were large enclosures, not open fields, and the land within them, although possibly cultivated co-operatively by many tenants, was usually held in severalty.³

Baker, referring to two Gillingham documents, has stated, "The stability of the names of yokes and logi [a term not found in Otford] is remarkable: almost all the 1285 names survived to 1447. This also suggests that the 1285 names may have been given to the compact holding at the time of the original fiscal assessment."⁴ It seems certain that originally the yoke must have been a compact holding and this is further suggested by early tenancies. In the 1285 Gillingham custumal, Baker records that 73·6 per cent of the tenants possessed holdings of land confined to a single yoke.⁵ By the fifteenth century gavelkind tenure gave rise to an accentuated dispersal of settlement in Kent and many holdings were split and became uneconomic.

Thus by the fifteenth century, yokes consisted of one or more large fields farmed in many separate parcels. They were fiscal units with certain defined rights and privileges. Most of them still had a central farm, and they had at some time in the past been single land units.

The Gillingham records give the boundaries of yokes in 1447, but Baker finds it impossible to trace them precisely in the present landscape. This is because in-

¹ A. R. H. Baker, 'The Kentish Jugum: its relationship to soils at Gillingham', *Eng. Hist. Rev.*, 81, 1966, pp. 74-9.

² K.A.O., U55 M373.

³ A. R. H. Baker, 'Some fields and farms in Medieval Kent', *Arch. Cant.*, LXXX, 1965, p. 168.

⁴ A. R. H. Baker, 'Open Fields and Partible Inheritance on a Kent Manor', *Econ. Hist. Rev.*, 2nd ser., xvii, 1964, pp. 21-2.

⁵ A. R. H. Baker & D. Rodden, 'Field Systems of the Chiltern Hills and of parts of Kent from the late Thirteenth century to the early Seventeenth', *Trans. Inst. Brit. Geog.*, xxxviii, 1966, p. 79.

sufficient topographical details are given; the boundaries and the names of fiscal divisions did not always coincide with the boundaries and names of fields; one field might cross the boundary of two adjoining yokes; and hardly any names remained by the time of the 1841 Gillingham tithe survey.¹

For Otford also the surviving rental of c. 1425 lists land holdings in yokes. This allows areas to be fairly accurately assessed and quite a number of field names are recognizable, but unfortunately no information at all is available on boundaries. There would thus seem even less chance of reconstructing these yokes on a map than there was in the case of Gillingham, but if they could be traced the detailed knowledge resulting of such ancient units would be of considerable interest.

There are, however, just two points which make the reconstruction of the Otford yokes a possibility: the central farms of most of the yokes are known (many with unchanged names), and a great many ancient hedge-banks survive. As far as can be seen from the Otford rental there are no fields occurring in more than one yoke, except in the case of Donnington yoke which is known to have taken over some land from the neighbouring yokes. There is therefore at least a possibility that the boundaries of most yokes in 1425 still coincided with field boundaries as they must have done originally.

The yoke boundaries of the Darent Gap were worked out using the following criteria:

(1) a yoke boundary will probably follow a hedge of many species and high evolved banks. This may also follow a road or farm boundary.

(2) It should enclose an area corresponding to that stated in historical documents, and be the same approximate area as similar yokes on similar soils.

(3) It should enclose the central yoke farm.

(4) A group of fields with similar names are likely to be in the same yoke. For example, Little Dunton, Little Dunton Hill, Dunton Hill, Great Dunton, Great Dunton Hill, Dunton Garden, and Dunstons are all in the reconstructed area of Donnington Yoke.

Not all the criteria can be applied to all the yokes, and a full reconstruction of the 1425 landscape is impossible due to loss of field names and of hedges under housing estates, but many boundaries can be traced. Figure VII shows an attempted reconstruction of two yokes, Twitton and Hale.

Twitton yoke is stated to have been one and a half yokes and half a yoke in 1285.² In 1425 it was one yoke and half a yoke, but an area of 80 acres "apud le Corye" was included. This was probably in the region of the present Curry Farm on top of the Downs and is likely to have been the area counted as an extra half yoke in 1285.

In 1425 the half yoke had an area of 73 acres.³ It included a field called "The Plegstow" and half of it was held by Reginald Peckham. This field is still a unit today, surrounded by a ten-species hedge on a high bank, and bounded on one side

¹ Baker, 'Kentish Jugum. . .', *loc. cit.* ² Dean and Chapter of Canterbury MS. E. 24, f. 71v.

³ Referred to in another part of the document as 70 acres.

by marsh land, on another by an ancient road to the Downs ridgeway. It includes fields named "The Plegstow" and "Peckham Land," and is of 66½ acres.¹

On the other side of the road two other large fields contain the field names "Stockham Field" and "Twetton Field," which check with the 1425 rental. They are farmed from Twitton Farm and their area is 113 acres. In the rental Twitton Yoke is given as 129½ acres (excluding the 80 acres on the Downs), but of this 9½ acres is "super Stockham de Bosco" leaving 120 acres as an example of a typical yoke. Here again the ten-species hedges and high banks are exactly similar to other postulated yoke boundaries. The boundaries thus described do not constitute a reconstruction of the 1425 landscape. At that date the large fields were subdivided into a number of smaller, though possibly unenclosed, fields; but the area occupied by the yoke as a whole is made clear, an area which existed as a cultivated unit long before the fifteenth century.

Some other yokes are just as well defined as this. Rye Yoke, one single field with a road running near one side of it, remains almost unaltered today. Almost all the boundaries of Rye Yoke can be drawn with precision; they match with hedges and banks, farm boundaries, and old park boundaries; and fields outside the yoke limits demonstrably belong to other yokes. Other reconstructions are more difficult. The half yoke of Hale, also shown in figure VII, is now partly covered by modern housing which has obliterated boundaries, but limited reconstruction is possible by use of hedge analysis.

Like many yokes, the centre of Hale is on a gravel terrace giving good soils. The reconstruction covers a greater area than the 65 acres held by the tenants according to the rental. In this yoke the original unit was much modified by 1425. Demesne land in "Wickham" and in "Tylfield" occupied part of the area and it is known that the neighbouring yoke of Donnington had been expanded considerably.² Most of the land still known as Hale Yoke was north of the Pilgrims Way, but some was still held south of the road. In all, five field names mentioned in the rental are still identifiable.

Hedge analysis in these circumstances of insufficient early documentation and hedge destruction is accompanied by too many uncertainties to make any sure reconstruction possible. However, in the north-west and the north-east, banks of up to four feet high mark the old limits of the yoke before marshy land is reached. On the north-west bank a ten-species hedge marks the old yoke limit, but to the north-east is a seven-species hedge. In this part, however, fields were also farmed on the alluvial land beyond, and this hedge may have originated when some of the yokeland was incorporated in the demesne—it certainly separated the two types of land in 1425. If this is so, a thirteenth-century date is suggested for the first acquisition of demesne in this area. It may be mentioned that another hedge of seven species is found in the alluvial area. Could it be that cultivation of this poorer land by the tenants commenced at the same time as the taking over of the better

¹ *Vide* Dr GordonWard, Annotated 6 in. maps in Kent Archives Office.

² GordonWard, 'A Note on the Yokes of Otford', *Arch. Cant.*, XLII, 1930, p. 148.

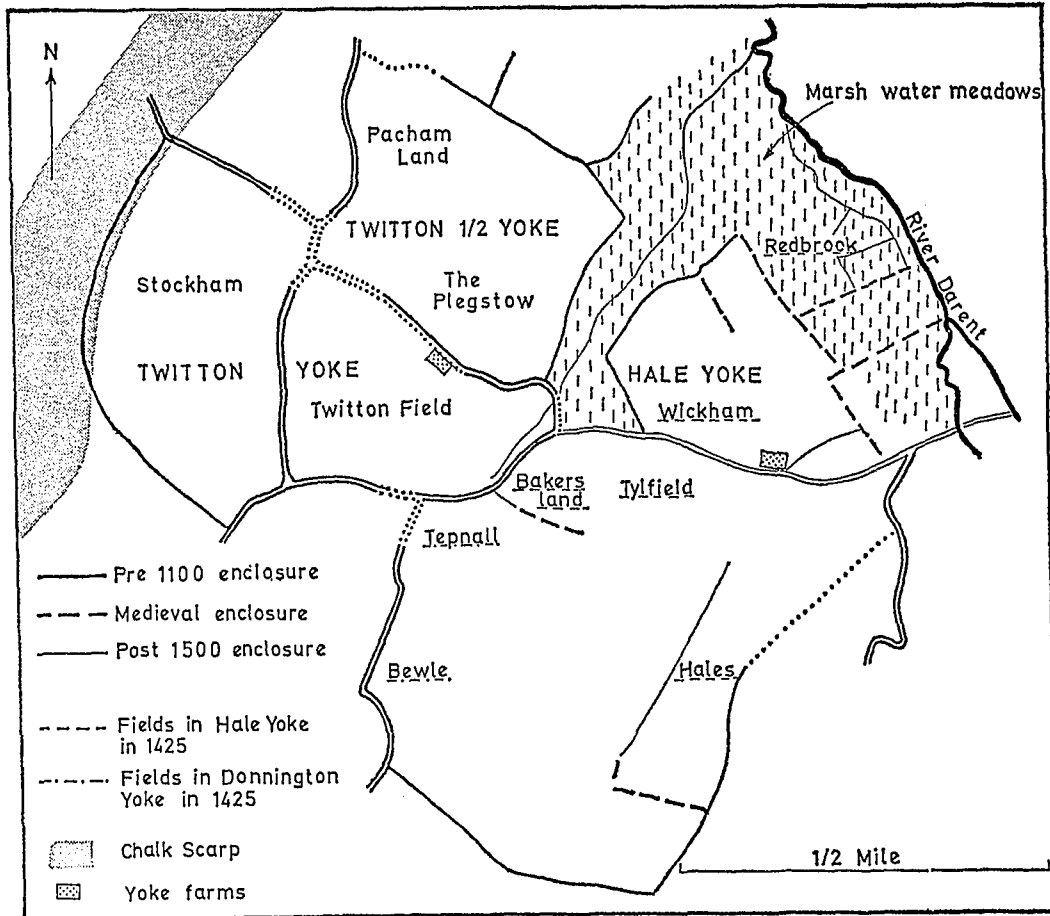


FIG. VII

The yokes of Twitton and Hale.

Dotted lines indicate areas where banks or hedges have been destroyed.

land for demesne cultivation? This is pure speculation, but unsubstantiated hedge analysis suggests it was so.

Apart from three field names the extent of the yoke cannot be traced south of the road. An ancient boundary does exist, and includes land of Donnington Yoke in 1425 though it is doubtful whether it was originally in Donnington. If all this area was once Hale Yoke it was much larger than other yokes in the valley. Probably it was subdivided—lines on old maps show possible divisions but the hedgerow evidence has vanished under a housing estate.

CONCLUSION

Although Dr Hooper's work has been taken as the basis for this study, and one species per hundred years been used as a rough guide, dating has primarily depended on a local assessment of the rate of hedge change, based on the few local datable

hedges. Such dating must take soil variation into account and the fact that the number of shrub species locally available for colonization may be limited. In any such work the establishment of a local chronology is of prime importance, and it is suggested that the recording of evolved banks may assist in this as well as in defining boundaries. Documents remain essential evidence, but in this instance the same degree of accurate reconstruction would have been impossible with documents alone. It seems that looking at hedgerows may be a very worthwhile task for the rural historian, and is an urgent one in those parts of the country where these historic features are being rapidly removed from the landscape.

Notes and Comments

THE ANNUAL GENERAL MEETING

The British Agricultural History Society's adjourned twenty-first AGM was re-convened at Matlock College of Education, Matlock, Derbyshire, on 10 April 1973, with Mr George Ordish in the Chair. Professor W. G. Hoskins, Mr C. A. Jewell, and Mr M. A. Havinden were re-elected President, Treasurer, and Secretary respectively. The three vacancies on the Executive Committee were filled by the re-election of Professor H. P. R. Finberg and the election of Mr Dennis Baker and Mr A. D. M. Phillips.

In his report Mr Ordish noted that membership had risen to 776, a net increase of twelve since last year, which was gratifying in view of the fact that it had been necessary to raise the annual subscription from £2.10 to £3.50. A one-day conference on the changing pattern of diet would be held in London in November 1973, and the 1974 annual conference would be held in Somerset or Dorset (subsequently arranged at Weymouth College of Education). He said there had been some discussion on the EC as to whether the annual conference should be held in September and asked the meeting's views. After discussion and a vote it was decided to continue as before and the date of the 1974 conference was fixed for Monday 8 April to Wednesday 10 April 1974.

The Treasurer presented the accounts and reported that as a result of the successful response of the membership to the new subscrip-

tion, the Society's finances had been restored. Expenditure had exceeded income by £71.93 in the financial year 1972-3, but there was now £2,593.67 in the current account and £670 in the deposit account. The report was adopted.

The Editor reported that there was a large number of articles being submitted to the REVIEW but that many were too long. He would welcome more articles on the medieval and early modern periods.

THE 1973 ANNUAL CONFERENCE

The conference was held from 9 to 11 April 1973 at the Matlock College of Education, Derbyshire. The opening paper on 'Agricultural structure and tenurial relationships in Roman Britain' by Professor Shimon Applebaum of the University of Tel Aviv was lively and controversial. His estimates of the yield of corn crops from measurements of the capacity of granaries stimulated critical discussion and much interest was also shown in his demonstrations of the continuity between Roman and Saxon agriculture by means of the study of Roman field systems which continued in use. Mr Paul Brassley of Oxford University followed with an assessment of 'Agricultural development in northern England, 1640-1750' based on the counties of Durham and Northumberland. He showed that the agricultural slump which afflicted much of midland Eng-

(continued on page 139)