TRANSACTIONS

OF THE

WOOLHOPE
NATURALISTS' FIELD CLUB

HEREFORDSHIRE

"HOPE ON"

"HOPE EVER"

ESTABLISHED 1851

VOLUME XLIV 1983

PART II

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TABLE OF CONTENTS

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1983-84

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Articles intended for inclusion in future issues of the Woolhope Club *Transactions* should be submitted to the editor whose address is given under LIST OF OFFICERS. *Notes for Contributors* to the *Transactions* will be sent on request.

Proceedings, 1983

SPRING MEETINGS

FIRST MEETING: 8 January: Dr. Mrs. A. D. Brian, president, in the chair.

The Sectional Recorders for Archaeology, Botany, Buildings, Geology, Mammals and Ornithology, and the Archaeological and Natural History Sections, gave their reports for 1982. These were printed in Vol. XLIV of the *Transactions* pp. 117-37.

SECOND MEETING: 5 February: Dr. Mrs. A. D. Brian, president, in the chair.

Dr. S. C. Stanford gave an illustrated talk on 'Midsummer Hill, an Iron Age Village.' Excavations were carried out by him from 1965-70 and have been published in detail. The site was permanently occupied for some 500 years from *c.* 470 B.C. and it supported a population of 70-100 persons per acre. It was destroyed by fire about the time of the Roman conquest.

THIRD MEETING: 5 March: Dr. Mrs. A. D. Brian, president, in the chair.

Mrs. M. Tonkin gave an illustrated talk on 'A Selection of Herefordshire Building Accounts.' These uncommon documents were usually made between the owner and a mason or carpenter often with the owner providing most of the materials and the mason or carpenter being paid for the building work. Those referred to were: Rosemaund, Felton, 1721; Treribble, Llangaron, 1724; John Scull's house at Middleton-on-the-Hill, 1739; Lower Lyde farmhouse and out-buildings, 1789; Moraston, Bridstow, 1811; a blacksmith's house and shop at Leinthall Earles, 1817; a barn at The Moor, Clifford, 1696; Aymestrey School, 1831, and hopkilns at Orleton, 1894 and 1900.

SPRING ANNUAL MEETING: 26 March: Dr. Mrs. A. D. Brian, president, in the chair.

The assistant-secretary reported that the club now had 785 members.

Dr. Brian reported briefly on the year's activities and gave her address 'The effect of man-made structures on the distribution of plants growing in the River Lugg' which is printed on p.p. 147-164.

Mrs. M. Tonkin was installed as president for 1983-4.

FIELD MEETINGS

FIRST MEETING: 30 April: FAIRFORD AND KELMSCOTT AREA

At Bibury members walked alongside the four-acre meadow, Rack Isle, with water on three sides where wool was hung on racks to dry, to Arlington Row, the early 17th-century weavers' cottages where the wool was washed. The verger conducted members around Fairford Church and in great detail described the stained glass said to be by Barnard Flower, a Fleming, for the church which was rebuilt by John Tame, 1490-1500.

The afternoon was spent at Kelmscott Manor, a stone house built *c.* 1570 with an added wing of *c.* 1670. 1871-96 it was the country home of William Morris and contains most of his possessions and products which were brought from Kelmscott House, Hammersmith, after his death. Also seen were the Morris Cottages built in 1902 by Jane Morris in memory of her husband and designed by Phillip Webb, and the two estate cottages built in 1915 by Mary Morris from designs by Gimson.

SECOND MEETING: 19 May: BRIDGNORTH AREA

The majority walked from Upper Meadowley Farm to Upton Cressett Hall where Mr. and Mrs. W. Cash welcomed members including those who had used the minibus. Mr. Cash spoke on the history of the house and the Cressett family. The house is a 14th-century aisled hall with a crown-post roof and a cross-wing which was extended in the 16th century incorporating a second hall. The earlier timber-framed building was encased in brick in the late 16th century and has fine Tudor chimneys. The late 16th-century gatehouse has two octagonal towers with rooms connecting them over the gateway and contains good plaster ceilings and overmantels.

Dudmaston Hall, a nine-bay brick house with a five-bay recessed centre, built 1695-1701, for Sir John Wolryche, thought to be by Francis Smith of Warwick, and now the home of Sir George and Lady Labouchere, was next visited. Alterations were made in the 1820s and 1890s. At Quatt Church, the nave and red brick tower date from 1763, and inside were seen 17th-century tombstones to the Wolryche family.

THIRD MEETING: 9 June: MIDSUMMER HILL

This meeting was led by Dr. Stanford as a follow-up to his talk to the club on 5 February. Members walked up to the Iron Age village at Midsummer Hill where he pointed out the south gate which was first built *c.* 390 B.C. and renewed sixteen times before the site was abandoned. Walking through to the north gate

it was seen that the walls had been formed by a ditch and rampart and had enclosed Midsummer Hill and Hollybush Hill with a valley between. The camp interior had been closely covered with rectangular buildings set upon small terraces on the slopes. The total population was 1300-1900 persons who were engaged in farming.

FOURTH MEETING: 9 July: ALCESTER AREA

Members were welcomed at Ravenshill Woodland Reserve, Alfrick, by the owner, Miss Barling. The wood covers fifty acres and in it are two marked nature trails.

At Alcester the party saw 16th and 17th-century timber-framed buildings and also the Town Hall, 1618; the Baptist Church, 1735-6 and Churchill House, 1688. The church has a Classical interior of 1729-30, the Greville monument of 1559 and an early 16th-century screen.

The grounds and house of Ragley Hall were next visited. The house designed in 1680 by Robert Hooke, had its two wings taken down *c.* 1780. The Baroque decoration of the great hall, 1750, is by James Gibbs and the three principal rooms on the west front are by Wyatt, dating from the 1780s. Of particular interest is the mural on the south staircase hall 'The Temptation' painted between 1969-83 by Graham Rust.

At Middle Littleton members visited the 136 ft. by 32 ft. tithe barn, dating from the late 14th century; it is built of stone and consists of ten bays with eight base-cruck trusses and an aisled bay at each end.

FIFTH MEETING: 13 August: LEOMINSTER

This meeting was led by Mr. Hillaby as a follow-up to his talk to the club on 23 October 1982. Members walked around Leominster visiting the priory church, the Grange, the Forbury, Church Street, Drapers Lane and Corn Square with Mr. Hillaby pointing out and explaining the origins, layout and development of the borough of Leominster.

SIXTH MEETING: 17 September: MAMBLE AND MAWLEY HALL AREA

From Leominster to Wharf House situated between Newnham Bridge and Mamble the route of the Leominster to Stourport Canal which opened in the late 1790s was pointed out. Wharf House and a stretch of the canal alongside was visited by kind permission of the owners, Mr. and Mrs. J. Fellows. Remains of the coal mining was seen in the fields near Mamble. At Mamble Church a visit was made to the ruinous Blount Chapel, built on to the Anglican church

by a Roman Catholic family, dating from *c.* 1560 and containing many monuments to the Blount family of Sodington Hall and Mawley Hall which in themselves tell the story of the family. The bell-turret, probably 13th century, and similar in construction to those at Pembridge and Yarpole, the crusader door in the north wall, the late 13th-century effigy of a knight said to be one of the Mortimers were noted.

The next visit was to Mawley Hall, a nine by seven-bay brick house built *c.* 1730 probably by Francis Smith of Warwick for Sir Edward Blount. A Roman Catholic chapel, now demolished, was added to the house in 1767. Inside were seen the fine plasterwork of the hall and staircase with its serpentine handrail, the oak drawing room with a Graham Rust ceiling painted 1979-80 and the intarsia work in the inlaid drawing room.

At Rock, the Norman church of *c.* 1162-70 with a fine Norman doorway and chancel arch, has a west tower south aisle and chapel added *c.* 1510 by Humphrey Coningsby. Part of the return journey followed the route used by wagons which in the early 20th century carried charks from the Pensax collieries to Bosbury and other places for the drying of hops.

JUNIOR MEETING: 2 July: BRAMPTON BRYAN

Children and adults visited Brampton Bryan Park by kind permission of Mr. C. C. Harley. The history of the castle, various aspects of natural history in the park and architectural features and materials used in the church and village were pointed out.

SPECIAL MEETING: 26 July: FAIRFORD AND KELMSCOTT AREA

This was a repeat of the meeting held on 30 April 1983.

TWICKENHAM VISIT: 31 August - 7 September

Forty-one members spent a week at St. Mary's College, Twickenham, and on the way visited Blenheim Palace, the home of the Duke of Marlborough, built by Vanbrugh, 1705-22, with grounds laid out by Capability Brown, 1764-74. The Churchill tombstones in Bladon churchyard were also seen.

Thursday morning was spent in Richmond Park and on a walkabout in Richmond. In the afternoon visits were made to Ham House built *c.* 1610 with an added south front of the 1670s and to the churches of St. Peter and All Saints at Petersham.

The new purpose-built Public Record Office at Kew was visited on Friday morning where members were given a talk on its work and a conducted tour. The afternoon was spent in Kew Gardens where members saw the variety of plants and trees, the various plant houses, the Pagoda, Queen Charlotte's Cottage, and Kew Palace, built in 1631, in brick, one of the earliest houses in England in Flemish bond.

Saturday morning was spent at Hampton Court Palace and gardens, built by Thomas Wolsey, 1514-26, with many later additions. Marble Hill House, 1724-8, in the Palladian style with gardens laid out by Charles Bridgman; Pope's Grotto, and Strawberry Hill dating from 1698 with additions in 1776, 1790 and the 1860s were visited in the afternoon.

Sunday morning was free but some went to church and others walked in York House gardens and neighbourhood. Visits were made after lunch to Kew Bridge Engine House and Pumping Station, now a museum, centred around five world-famous Cornish beam engines which pumped London's drinking water supply for more than a century, and to Syon House, a 16th-century house remodelled in 1761 with grounds laid out by Capability Brown and a conservatory designed by Charles Fowler.

On Monday the party travelled by underground from Richmond Station to Kensington High Street and walked to Kensington Palace to visit the state apartments dating from the 17th and 18th centuries and the gardens laid out by Henry Wise and Charles Bridgman. Linley Sambourne's House, a late-Victorian town house survival, in Stafford Terrace, and Leighton House in Holland Park Road built in 1866 were also visited.

Yew Tree Cottage, Scilly Isles, a small but well laid out garden; and Claremont Landscape Garden restored to show the landscape features of Vanbrugh, Bridgman, Kent and Capability Brown were visited on Tuesday morning. After lunch Guildford Cathedral, built in brick 1936-66 and designed by Edward Mause and Clandon Park, 1713-29, by Leoni with its gardens laid out by Capability Brown *c.* 1770 were visited.

On the way home on Wednesday, Chiswick House, 1725-9, by Burlingham modelled on Palladio's villa Capra with interior decorations by Kent, and Osterley Park, built in the 1570s and transformed by Chambers and Adam by 1780, were visited.

Evening lectures were given by Miss S. Fitzgerald, chief librarian and archivist, at the Royal Botanic Gardens at Kew on the Kew Garden Plans, and club members Mr. Kendrick on the geology of the area, Mr. Tonkin on the buildings and Mrs. Voss on the 'royals' of the royal palaces visited.

AUTUMN MEETINGS

FIRST MEETING: 8 October: Mrs. M. Tonkin, president, in the chair.

Dr. M. E. Speight spoke on 'Phillip Symonds—a Hereford Tanner.' He explained that the Day Book of a tanner dated 1623 was among the Ludlow Corporation records and how he identified it as being that of Phillip Symonds son of Phillip Symonds of All Saints, Hereford, who died in 1595. The detailed accounts showed him buying bark, wood and skins and selling skins, either tanned or dried. They showed an income of £245, expenditure of £94, and thus a profit of £151. From his will dated 1647 Phillip Symonds was a person of some substance.

SECOND MEETING: 29 October: Mrs. M. Tonkin, president, in the chair.

Mr. J. G. Hillaby, B.A. spoke on 'Hereford Jewry 1178-1290—a Lost Community' which was located at the eastern end of Maylord Street. Jews, who were urban dwellers, had established themselves in London by 1128 and were in Hereford by 1178-9. In 1221 Hamo was the sixth wealthiest Jew in England and in the period 1266-90 Aaron le Blund was the wealthiest Jew in England. Both were of Hereford. The Jews were expelled from England in 1290.

THIRD MEETING: 19 November: Mrs. M. Tonkin, president, in the chair.

The Sectional Recorders for Archaeology, Botany, Buildings, Deserted Medieval Villages, Entomology, Industrial Archaeology and Ornithology, and the Archaeological Research Section gave their reports for 1983 which are printed on pp. 246-267.

WINTER ANNUAL MEETING: 6 December: Mrs. M. Tonkin, president, in the chair.

Officers for 1984 were appointed. The accounts for the year ending 31 December 1982 were presented and adopted. These are printed on p. 146.

Mr. R. Ross, M.A., F.L.S. gave an illustrated lecture on 'The Scientific Work of the Natural History Museum.' He explained that the present Natural History Museum built in 1880 houses fifty million specimens of which there are five million each of insects, plants and fossils, and some 400,000 specimens are accepted each year. Both amateurs and professionals may work there and can consult the three-quarters of a million volumes in its library. Mr. Ross said that the staff are engaged in classification and publication of floras and manuals, and keys for identification for various parts of the world. On the scientific side he said that plant specimens were collected in the field, notes made about them on the

spot, and taken to the museum for mounting. A large hand microscope was needed when dissecting for identification of the smaller plants. In the case of algae, which are single celled, perhaps 1/1000 of an inch in size, miscroscopic slides are made, and in the last ten to fifteen years a scanning electron microscope has been developed. These aids are used in the identification and the constant revision of specimens.

The club's tools and other equipment remaining from the Croft Ambrey excavations which have been housed at Croft Castle, have been removed at the request of the National Trust and are being cared for by the Archaeological Research Section.

A small exhibition on all aspects of the club's activities was mounted in the Shirehall, Hereford, on 13-14 October 1983, as part of the Herefordshire and Radnorshire Nature Trust's twenty-first anniversary celebrations. This was later arranged in the small display case in the Hereford Library entrance hall.

In October 1983 the Club sent its congratulations and good wishes to Mrs. W. Leeds of Ross on the occasion of her 100th birthday. Mrs. Leeds, now an honorary member, in 1959 became the club's first lady president.

WOOLHOPE NATURALISTS' FIELD CLUB

Receipts and Payments Account for the year ended 31st December, 1982

RECEIPTS

1981					
£	£		£	£	£
		Interest on Investments			
33		3½% War Loan	32.64		
		Hereford and Worcester			
129		County Council Loan ...	129.40		
1,232		Bank Deposit Interest ...	1,470.32		
	1,394			1,632.36	
		Subscriptions			
2,106		General	1,996.84		
		Archaeological Research			
59		Section	34.00		
46		Natural History Section ...	50.50		
	2,211			2,081.34	
	203	Sale of Publications ...		73.47	
	—	Grants & Donations ...		46.00	
	15	Royalties		26.92	1,489
	123	Field Meetings (Net) ...		110.97	790
	252	Income Tax Refund ...		211.31	16
		Bank Balances 1st January			
		Current Accounts			141
2,173		General	1,488.90		—
475		Subscription	789.66		
5		Natural History Section	16.49		1,125
		Archaeological Research			12,000
107		Section	140.99		578
321		Field Meetings	—		171
		Deposit Accounts			—
10,816		Subscription	1,124.86		
—		Group Deposit	12,000.00		—
533		G. Marshall Fund ...	577.90		16,310
154		Natural History Section	171.13		
	14,584			16,309.93	
	£18,782			£20,492.30	£18,782

PAYMENTS

1981					
£	£		£	£	£
	41	Insurance	45.80		
	166	Printing and Stationery ...	79.53		
	1,494	Printing and Binding ...	2,550.71		
	30	Expenses of Meetings ...	129.20		
	282	Postage and Telephones ...	364.06		
	74	Subscriptions & Donations	82.57		
	325	Honoraria	330.00		
		Archaeological Research			
	25	Section Expenses ...	20.96		
		Natural History Section			
	35	Expenses	47.68		
	2,472			3,650.51	
		Bank Balances 31st December			
		Current Accounts			
		General	146.60		
		Subscription	792.10		
		Natural History Section	19.31		
		Archaeological Research			
	141	Section	104.03		
	—	Field Meetings	0.94		
		Deposit Accounts			
		Subscription	4,522.56		
		Group Deposit	10,000.00		
		G. Marshall Fund ...	630.81		
		Natural History Section	186.84		
		Field Meetings	387.45		
		Archaeological Research			
		Section	51.15		
	16,310			16,841.79	
	£18,782			£20,492.30	

Note—The Club owns £932.70 3½% War Stock and has Deposit Loans with the Hereford and Worcester County Council amounting to £1,040.

I have audited the above Receipts and Payments Account and certify it to be in accordance with the Books, Bank Statements and Vouchers of the Woolhope Naturalists' Field Club.

H. S. BERISFORD, F.C.A.
Honorary Auditor.
31st March, 1983.

Presidential Address

The effect of man-made structures on the distribution of plants growing in the River Lugg

By ANTHEA BRIAN

THIS subject was chosen in part because it combines what seem to be the two main strands of interest in the Woolhope Club at the present time, natural history on the one hand and archaeology and the study of old buildings on the other. Although these have tended in the past to go their separate ways the rapidly expanding study of historical ecology must help to draw them together in the future.

The Lugg is one of the county's most important rivers and although it is comparatively short it shows great contrast between the upper reaches near its source above Presteigne and the lower reaches as it flows past the Lugg meadows at Hereford. Near its source the Lugg is a tiny stream with its bed made up of rocks and boulders, the only plants being mosses, while near its confluence with the river Wye it is wide and slow with a muddy bed and a great variety of water plants growing along the river's edge (FIG. 1). Somehow the river and its plants change from the first state to the second.

Before describing the changes in the plant species I must briefly go into the underlying causes of these. They have been very clearly described in a recent book by S. M. Haslam.[1] As she states 'passing downstream from the source a river normally gets larger, the flow slower and the substrate siltier; thus the vegetation changes also.' This depends to a large extent on the gradient down which the river runs and FIG. 2 shows a profile of the Lugg which rises at 1,600 ft. and runs for 60 miles to its confluence with the Wye at 150 ft. In the first ten miles the river falls 1,000 feet so that almost two thirds of the total fall takes place in only one sixth of the total distance and after this the slope flattens out. Largely as a result of this profile the material that makes up the bed of the river changes along its length and this affects the type of plant that can grow in different reaches of the river. Near the source stones, pebbles, sand and silt are all carried along in the water leaving the bed of the river made up of rock and boulders. Lower down, first the stones, then the pebbles, then the sand and finally the silt are all dropped by the river and as a result the bed tends to change from rock near the source to sand and silt near the confluence. This change has a big

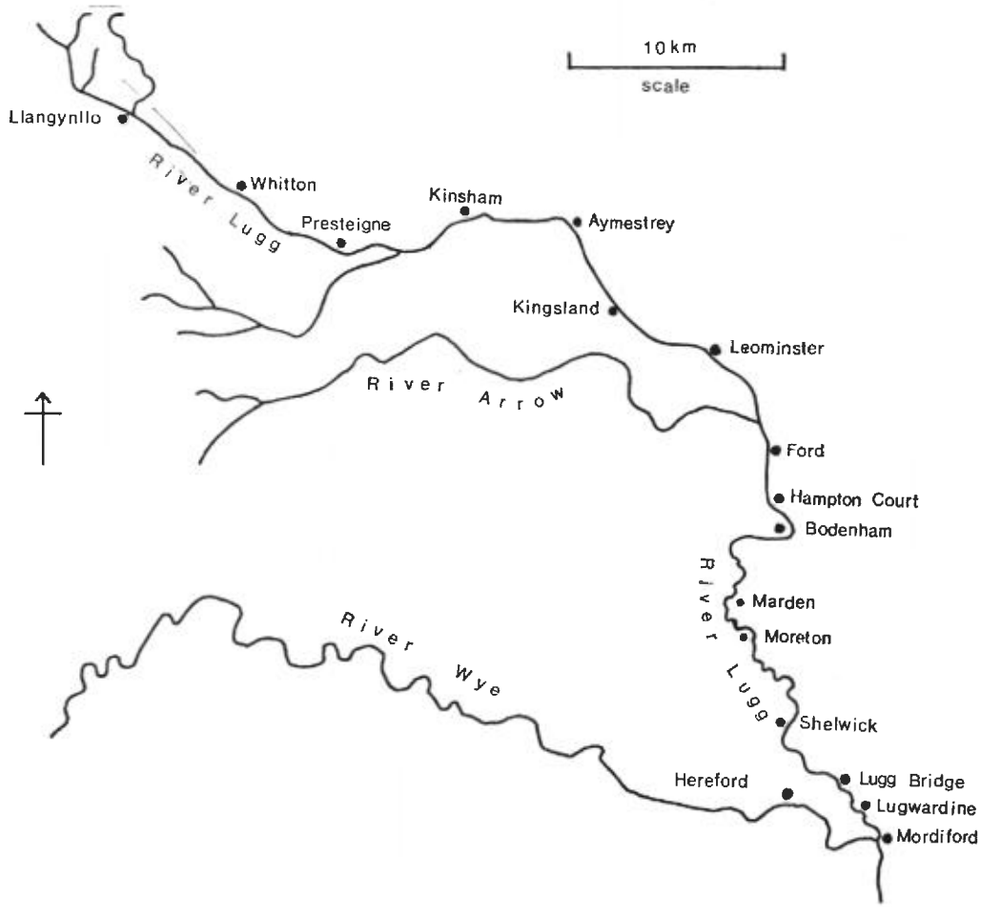

FIG. 1
The course of the river Lugg

influence on the plants. Mosses, which do not have true roots, can get a grip on the surface of rocks and boulders with their rhizoid holdfasts but higher plants are unable to do this and so it is only mosses that are found near the source. Water mosses are also found lower down the river wherever there is any exposed stonework. The higher plants require loose material of some sort into which their anchoring roots can grow and spread out, thus preventing the plants being swept away by the current. Some of these flowering plants grow best in gravel and some in silt.

There are other physical characteristics of the river that change along its length and affect the plants, and these include the width and depth, the turbidity and thus the amount of light that penetrates to the bed of the river and the amount of nutrients dissolved in the water. The amount of oxygen dissolved in the water also changes but this does not really affect the plants, though it has a major influence on the animals. It is the combined effect of all these factors that brings about the changes in the vegetation of the river as it flows from source to confluence.

There have been a number of studies of river vegetation in the British Isles and Butcher[2] expounded the main principles clearly. Recently the Lugg has been one of the rivers included in these studies. In the 1970s Haslam[3] carried out an extensive survey during which she inspected rivers from convenient road bridges and for the Lugg recorded the vegetation at eleven different sites. About 1980 Holmes[4] also included the Lugg in his national survey of river vegetation for The Nature Conservancy Council. This was more detailed and he recorded all the larger plants, macrophytes, along ten 1 km. stretches of the Lugg. Between the times of these two national surveys I walked the length of the river noting down the first occurrence of the more conspicuous of the river plants. So taking all[5] the results together we do have a fairly clear picture of the changes that occur in the vegetation of the river Lugg along its course and these changes depend on the physical factors described above. Certain plants show the effects of these more clearly than others. FIG. 2 shows the distribution of seven of these plants along the river in relation to the river's profile;

Water mosses, of various species occur along the whole length but are most abundant near the source.

Reed canary-grass, *Phalaris arundinacea*, was found first, on coming down stream, at Monaughty and thereafter intermittently all the way down the river.

Branched bur-reed, *Sparganium erectum*, grows at the edge of the river in thick silt and was first found near Combe and Byton.

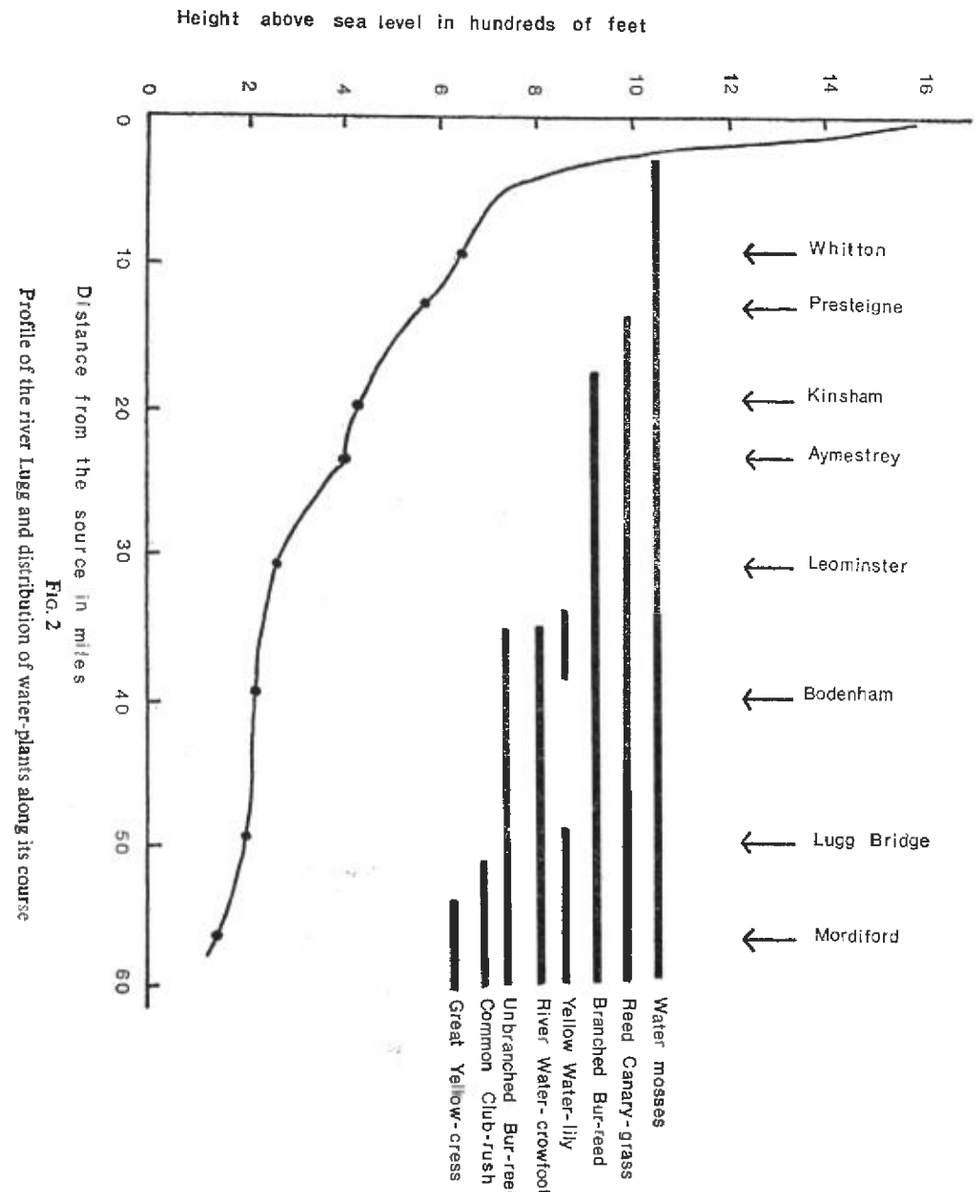

FIG. 2
Profile of the river Lugg and distribution of water-plants along its course

Yellow water-lily, *Nuphar lutea*, grows in soft, deep silt all across the river bed where the flow is slow. It is first found at Ford but has a discontinuous distribution (this will be mentioned later).

River water-crowfoot, *Ranunculus fluitans*, grows on gravel and dies if it becomes too covered up by silt. It also requires a fairly large volume of water and is found mainly below Leominster.

Unbranched bur-reed, *Sparganium emersum*, requires the same conditions as the yellow water-lily and is found in more or less the same parts of the river.

Common club-rush, *Scirpus lacustris*, needs deep water and a silty bed and is only found below Lugg Bridge and Lugwardine.

Great yellow-cress, *Rorippa amphibia*, requires a slow flow and a clay bed and grows along the edge of the river below Hampton Bishop and Mordiford.

The distribution of these plants is thus largely explained by the conditions they require for growth. This means, conversely, that the plants can be used to indicate conditions in the river, its depth, flow and type of bed. However, only four of the plants described above were found to be really useful indicators: these were river water-crowfoot, yellow water-lily and the two bur-reeds. Reed canary-grass is too catholic in its requirements to provide useful information and the clubrush and great yellow-cress grow along too short a stretch of the river.

So far I have only been concerned with overall trends in physical conditions and plant distribution along the whole length of the river. But superimposed on these are minor variations. A good example of one of these occurs above Aymestrey. The river is held back here where it meets the harder limestone and then, as it passes through the gorge on a steeper gradient, the flow speeds up. This shows as a nick in the river's profile (FIG. 2) and it is in the slow-flowing stretch above the gorge where silt has been deposited that the first branched bur-reed is found. Other smaller scale variations occur in quite short lengths of river, where shallow stretches with gravel beds (riffles) alternate with pools with silty beds. River water-crowfoot grows on the riffles and branched bur-reed grows along the banks of the pools. This type of variation is found all along the lowland reaches of the Lugg: sometimes it is associated with meanders but sometimes perhaps is due to a mysterious sorting of the river bed to produce riffles spaced at regular intervals. (In rivers unaffected by man's activities these are said to be spaced at intervals about six times the width of the river.[6] This does not hold true for the Lugg at Bodenham.) These small scale variations all produce some

form of obstruction in the river bed. The water is held up above the obstruction, the flow slackens and silt is deposited while below the obstruction the flow speeds up, the silt is swept along and the river bed is gravel or stones.

Now man-made obstructions have just the same effect as natural ones. The first obstructions upstream on the Lugg are fords while lower down come bridges and mills with their dams and weirs. By holding up the water, weirs make conditions upstream suitable for branched bur-reed while downstream conditions are right for water-crowfoot. The weir at Hampton Court, which is the largest one now present on the river, has a major effect on the plants for at least two miles upstream. At Ford Bridge and even more so at Hampton Court Bridge it is apparent that the river is flowing very slowly and it is covered with the leaves of yellow water-lily and unbranched bur-reed. Below the weir the flow is fast again and the water-lily does not reappear till near Dinmore railway bridge. One wonders how long the Hampton Court weir had to be *in situ* before the water-lily colonised above it. Plants can colonise new areas downstream easily enough from seeds etc. carried in the river but upstream these are probably carried on the feet of birds and other animals. Obviously this latter method is a matter of chance but perhaps the longer certain conditions have been present the greater the number of plants that take advantage of them. From this line of reasoning one would say that the Hampton Court weir is a very old one though of course this is what one would have supposed from its position. Recently the Water Board has made a number of weirs between Kingsland and Leominster and it will be interesting to observe how the vegetation changes as a result and what the time-scale of these changes will be.

The Hampton Court weir is of special interest because in addition to the weir itself there is a chamber, with the sluice, against the right bank of the river. This was inspected by the Archaeological Research Section of the Club in 1973[7] and certainly looks very like a lock chamber being the right length and width. This brings me to the question of The Wye and Lugg Navigation. A lot has been written on this subject both in the Woolhope *Transactions*[8] and elsewhere[9] and I do not intend to go into it in any detail, being only interested in the subject in so far as it affects structures in the Lugg, but will give a brief resumé because these structures are important to the argument.

The idea of making locks on the Wye and Lugg came from Sir William Sandys, who had successfully locked the Warwickshire Avon. In 1662 he obtained an Act of Parliament giving him powers to make the Navigation of the Wye and of the Lugg as far as Leominster. The documentary evidence about the structural work actually carried out seems very scattered and fragmentary. John Lloyd,[10] who wrote in 1873, drawing on old records then in his possession, gives the fullest

account. It seems certain that pound locks, as opposed to flash locks, were installed and that these were placed at mill sites and possibly elsewhere. There is a very graphic account in the Quarter Sessions Records for 1673[11] of the type of misuse that the locks suffered. The Trustees, concerned by the cost of repairing locks, made the following recommendations:

(1) 'that the bargemen and owners of boats enter into bonds with a penalty of £40 or £50 to leave every gate secure and all moveable things in place in case of floods and none to presume to open any gate until the lock is filled whereby the water is uppon a level and soe no force to the gate now occassioned by putting Blocks (also pullies) to pull the gates open.'

(2) 'that every miller be allowed 20d. per locke or thereabouts to see the boates pass without any damage to the locks by the boatmans carelessness and in case of any neglect or damage done to stop the boat there or at the next lock till satisfaction be made equal to the damage.'

These are obviously eye-witness accounts. The latter recommendation would have been a full-time and difficult job for the millers and it seems probable that they refused to execute it, for the next idea of the Trustees was to buy up all the mills and weirs and destroy them so that the river could run free of obstructions, thus saving the expense of locks and their repair. This was in fact carried out, though, as many people at the time had predicted, it made the passage of the boats much harder. The carrying out of this operation has left a list, in the Quarter Sessions Records,[12] of eight weirs and their mills on the Lugg in 1679 and some further information about the sale of mill-stones and other materials from three of the mills.

On the subsequent history of the Lugg Navigation there seems to be even less information, only odd references that say little about structural work, but some of the locks must have been put back, if indeed they were ever destroyed on the Lugg, as opposed to the Wye, for there are definite remains of locks even today.

It would obviously be helpful when looking for structural remains to have some idea of the number of locks that would have been required on the Lugg. To estimate this it seems reasonable to take the Avon as a model since it is not unlike the lower reaches of the Lugg and was first locked by the same man, William Sandys. On the Avon half the fall of the river is taken up by the locks and these average four feet deep.[13] Applying these figures to the Lugg we get a total of 13 or 14 locks. Table 1 gives the relevant information.

Table 1

An estimate of the number of locks made on the river Lugg

	river Avon	river Lugg
Length of river that was locked	Stratford to Tewkesbury	Leominster to confluence with R. Wye
Total fall in river level	125 ft.	100 ft.
Number of locks	17	(13.5)
Average depth of locks	4 ft. (Upper Avon only)	(4 ft.)
Amount of fall in river level controlled by locks	68 ft.	(54 ft.)
% of fall controlled by locks	54%	(54%)

Figures in brackets for the river Lugg are estimations based on the figures for the river Avon.

A list of all certain and possible sites that have been found is given in the Appendix with notes on the sort of information available, but three of the more noteworthy sites will be mentioned here, starting at the confluence and working upstream. At Mordiford the walls of the lock chamber are quite plain and one of the iron hoops to hold the gate is still *in situ*. Just upstream of Tidnor Mill the left bank wall of the lock, said to be 'newly built' in 1714[14] is in reasonable order and the stone cut to hold the lock gate is present with grooves on it for the metal straps. The other wall and base of a lock gate are visible but only when the river is very low. The Lugg now flows to the west of this lock whereas in 1839, as shown on the tithe map, it flowed over a weir to the east of the lock. The lock at Lugg Bridge is described by John Lloyd in 1873[15] when he says that 'at Luggbridge mill advantage was taken of the "gates" across the river and massive locks were formed of stone on one side of them. These locks now exist, though in a ruinous condition, and the old oak gates still hang on their massive hinges.' This area has been so much altered that it is doubtful if any real sign of these locks still remains.

Bridges were other structures affected by The Navigation of the Lugg. Lugwardine Bridge is the one for which the clearest evidence exists in the Quarter Sessions Records[16] as the following extracts show;

1710 'the bridge is much out of repair and become so dangerous that it is not safe for anyone to ride over it and that the same is caused by pulling down of ye arch for ye more easy passing of ye boats under the same bridge . . .'

1733 'complaint has been made that the bridge is dangerous for passengers that the Timber part of the bridge which was altered by the commissioners for the benefit of the Navigation is so much out of order that a team can hardly pass over . . .'

1738 £10-9-0 for Timber to repair the bridge

1739 'John Price J.P. has disbursed £4 of his own money for the raising of the middle arch for the benefit of the Navigation'

1740 'Forasmuch as a part of Lugwardine bridge is lately fell down and rendered impassable . . . it is ordered that the bridge be either repaired or rebuilt anew with stone piers and strong brick arches . . .'

1740 '. . . that in regard that there is a great quantity of stone of the old bridge . . . it is absolutely necessary to have the same rebuilt with stone and arches of the same . . .'

From these extracts it seems clear that for the Navigation the centre arch of the bridge was broken and the stonework replaced by timber which quickly became unsafe and led in the end to the bridge being entirely rebuilt. Two more extracts from the Quarter Sessions Records[17] indicate that the same thing happened to Marden Bridge;

1737 there were complaints about 'Timber and planks of Lassons Bridge over the Lugg that it is lately fell down and ye said bridge therby rendered impassable.' £5 were allowed for immediate repairs.

1758 'a computation of the particular which will be wanting for the repairing of Lassons bridge and for the workmanship of the same delivered by Thos. Davies, bricklayer, £48-13-0, as well for repairing the bridge as also for erecting of two new arches, the one with brick the other with stone.'

Thomas Davies's brick arch is, of course, still there today. (In 1815 John Gethin added an additional arch.) According to John Lloyd,[18] Hampton Bishop Bridge, near Mordiford, was completely removed by the Trustees of the Navigation since it was too low to admit the passage of boats, but the inhabitants were allowed £70 and rebuilt the bridge in a more commodious manner to facilitate the Navigation, as a result of which we still have the very attractive little brick bridge

standing in Hampton meadows. There is no such exact information about the other Lugg bridges, though many certainly were rebuilt including Ford Bridge where in 1736[19] there was talk of building brick arches on the existing piers. Obviously the Navigation played havoc with the old bridges on the Lugg and led to a great deal of repair and rebuilding, and this brings me to the main point of this paper.

Since structures that are visible and functional at the present time, like the Hampton Court weir, affect the distribution of water plants in the river today they must surely have done so in the past. When these structures, bridges, locks, weirs, etc. fell into disuse and decay, parts of them may have been removed for use elsewhere but a lot must have fallen into the bed of the river and, if the structure had been made of stone, an artificial riffle would be formed at that place. The water-crowfoot that had been growing downstream of the obstruction would colonise the new stony bottom, and upstream of the obstruction the silt would remain or perhaps increase. The result, in terms of plants, would be a fairly sudden change from yellow water-lily and the two bur-reeds upstream to water crow-foot downstream, with no apparent reason for the change. It is possible, therefore, that this pattern of plant distribution can be used as an indicator of the site of some past man-made structure that is no longer visible above the water's surface though it has to be borne in mind that a change in the river bed due to natural causes will have the same effect and, without investigation under water, the two are hard to distinguish.

To test out this idea a more detailed study has been made of the plants of the Lugg as it flows through the parish of Bodenham. The map shown in FIG. 3 gives the distribution of water-crowfoot along the river in 1982. The distribution of branched bur-reed is not shown, for the sake of clarity, but it is almost exactly opposite that of the water-crowfoot except that it is absent in heavily shaded areas even though the conditions along the river's edge are otherwise suitable.

Where the river enters the parish there is a deep slow stretch with both the bur-reeds but just round the bend this comes to a sudden stop and is replaced by riffles and water-crowfoot. At this spot is an island made partly of dressed stones and a weir extending across most of the river below normal water level. This is undoubtedly the place where the leat started for what was called 'old Lugg mill' in 1710 when Edmund Newton was fined by the Manorial Court[20] for failing to make a fence 'from ye old way joining Bowley Meadow to a place called old Lugg mill.' The position of Bowley meadow is known from the Enclosure map of 1813.[21] Presumably this is also the mill mentioned in Lloyd's[22] undated list of Lugg mills and the weir is listed in the Quarter Sessions Records[23] in 1679 where it is described as 'Bodenham weir, afowed to be throwne down.' The site of the mill itself is probably a little lower downstream. Below this again the river runs

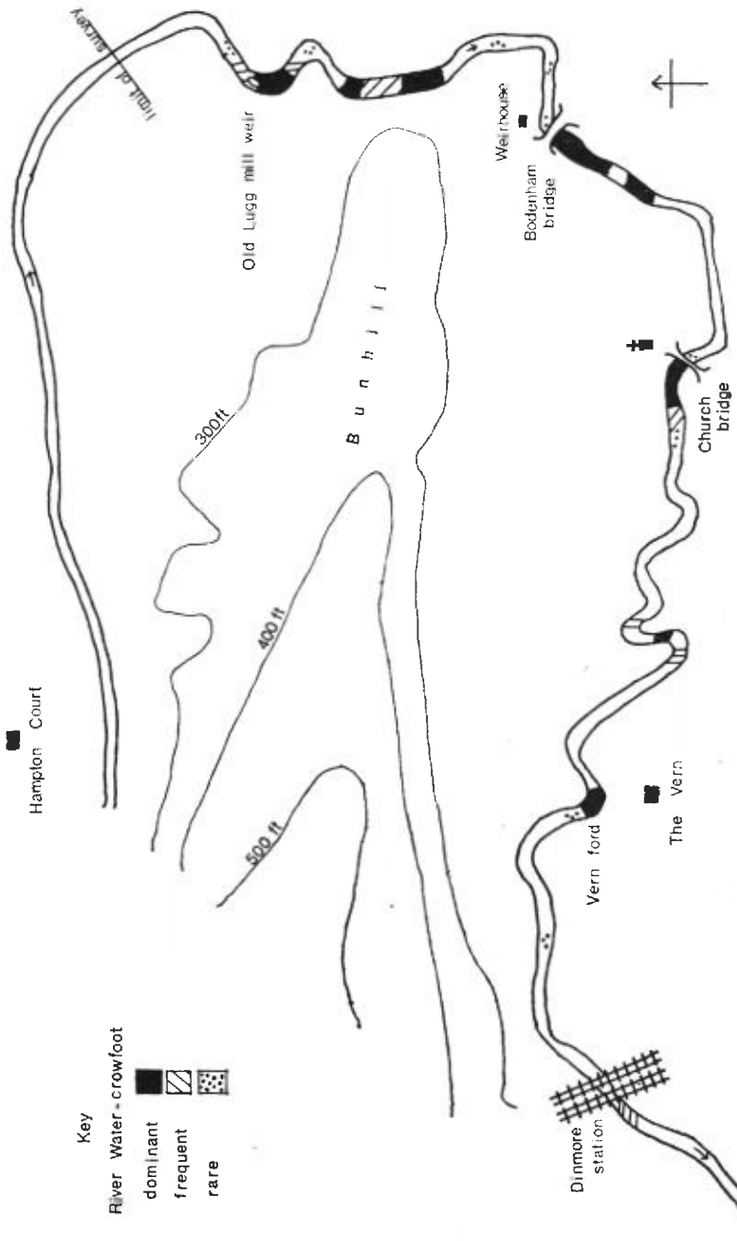

FIG. 3
The distribution of water-crowfoot along the river Lugg in Bodenham parish

very close to the end of the hill called Bunhill and the numerous patches of water-crowfoot here are probably due to the stony bed formed by the river cutting into the hill.

The next area of water-crowfoot, perhaps the most extensive on the whole river, lies just below Bodenham Bridge. This is obviously a very old crossing place for a well-marked sunken way comes down off Dinmore Hill (where Dr. Stanford[24] places a thickly populated Iron Age fort) more or less to this spot. Presumably there was a ford here at first. The present bridge was built in 1816 but there are several references to its predecessor. I have found no actual description of the earlier bridge but it is probable that it had several arches like Marden and Moreton bridges rather than the present single arch. From the 1813 Enclosure Map[25] of Bodenham it is apparent that the old bridge stood a little downstream of the present bridge and this is corroborated by several other bits of evidence that FIG. 4 will help to explain:

(a) until fairly recently there was an island in the river, perhaps the remains of one of the bridge piers.

(b) there are signs of a raised causeway leading to the east end of the old bridge site.

(c) in an old review of the Bodenham part of the Hampton Court Estate written *c.* 1828[26] the agent mentions an area of waste ground to the south-east of the new bridge as a suitable place to which to move the village pound. The spot is marked X on FIG. 4 and at a later date was incorporated into the field since the pound was not moved to that place.

(d) the lengths of hedge leading to the new bridge from the east are made entirely of hawthorn and elder in contrast to the hedges along the rest of the lane which are made of many more species, a good indication that the former hedges are newer.[27]

(e) In 1830 the County Surveyor[28] was ordered to treat with the Rev. Dr. Taylor for the purchase of land taken from him seventeen years before for widening and making more convenient the approach to Bodenham Bridge at the west end. Rev. John Taylor lived at Bank House and the garden beside the road is now supported by a high stone wall which presumably was built at the same time as the new bridge.

There is thus plenty of evidence that the old bridge stood downstream of the present bridge and I think that it is the fallen remains of this earlier bridge that account for the profuse growth of water-crowfoot in this area. There may also

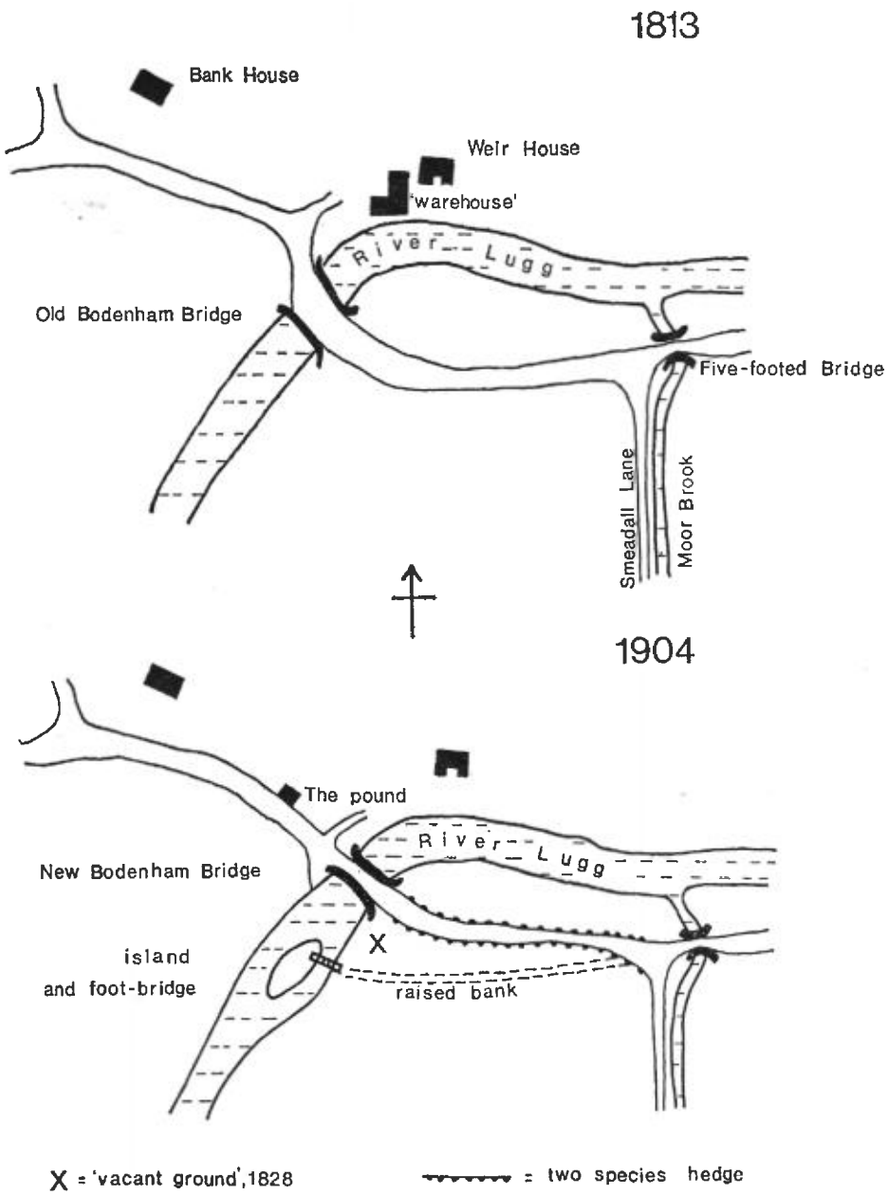

FIG. 4
The area around Bodenham Bridge in 1813 and 1904

have been a weir here and perhaps a wharf upstream of the bridge. Bryant's map of 1844 marks and names the Weir House and in 1830 a large, old, 'warehouse' was pulled down here.[29] Earlier still there was 'an extensive malthouse'[30] on the spot. The area has a complicated history and more evidence is needed.

The next patch of water-crowfoot downstream appears to be at a ford perhaps and after this the river is deeper, slow-flowing and lined with bur-reed until the church foot-bridge. This again is obviously a very old crossing with numerous footpaths converging on it and leading to the church, and just below is a great growth of water-crowfoot. When the river is very low a weir made of stones set on end is exposed running diagonally across most of the river bed but leaving a deep channel along the left bank. This could very well have been a lock chamber.

Downstream from here there are odd patches of water-crowfoot alternating with branched bur-reed which are probably associated with natural riffles and pools, but just above the Vern there are yellow water-lilies and both bur-reeds and then, opposite Vern house, a sudden change to water-crowfoot. This marks the site of the Vern ford, another ancient site. In 1635 pasture at 'the Fernes Foorde' was left in a will[31] and in the Quarter Sessions Records of 1676[32] two gentlemen were 'desired to take a view of a way by the river Lugge, called "broken Lugge" that leade from the fferne to certify whether the same way be reperable or no'. The term 'broken Lugge' must surely refer to some sort of riffle presumably caused by the ford. No one uses this ford now but in the year of the drought flat stones were visible in the bed of the river and cows got across here. Normally however the plants are the only indicators of this ancient ford though there is a sunken way coming down to the river from the Vern side. The next patch of water-crowfoot downstream is associated with Dinmore railway bridges, built in 1851 and 1892, and is not an extensive growth. Below this again there is crowfoot in the stream at a place where there are remains of a stone and brick wall in the bank of the river running parallel with it. There was obviously some structure here and I wonder if these are the last remains of a lock. Finally, just as the river flows out of the parish, there is another stretch of water-crowfoot which I suspect marks the site of a ford leading to or from the old Vern settlement. (Mrs. Skelton places a Deserted Mediaeval Village here.[33])

If these explanations of the plant's distribution in Bodenham parish are accepted then about half of the present distribution of these plants is due to man-made structures and only half to natural causes (or very old, undetected structures). Of these man-made structures rather more than half are no longer visible as such nor still in use. There seems no reason why this sort of proportion of natural to artificial causes of plant distribution should not apply to the whole

length of the lowland part of the Lugg, for Bodenham parish is in no way unusual and was only chosen for convenience. Indeed the same principles probably apply to most lowland rivers in Britain and this has obvious implications for vegetational surveys.

In Bodenham the documentary evidence was known before the plant survey was made but conversely at one place in the next-door parish of Marden the plant distribution led me to suspect some past structure in the river which was subsequently confirmed and elucidated by documentary evidence. On the original walk down the Lugg a large patch of water-crowfoot with bur-reed upstream was recorded between Dinmore and Marden. There were no signs of any structures in the river though a later visit showed a part of the field on the right bank where the crop was not growing properly. The only other possible clue was a blind-ended lane heading in that direction from the site of the vanished Wisteston Court. Neither the tithe map[34] nor the wonderful Coningsby map (*c.* 1720)[35] show anything at this spot. However, the list of weirs on the Lugg in the Quarter Sessions Records for 1673[36] includes Wisteston with a yearly value of £30 and the accounts submitted to the Trustees about the same time[37] record the sale of 'two pairs of stones at Wisterton Mill'. These would be the mill-stones. Without the evidence of the plants it would be very hard to pin-point the exact site of this mill that was pulled down nearly three hundred years ago. According to Duncumb[38] Dinmore preceptory had a watermill on the river Lugg in 1549 and from its position this could well be the same mill. Jervoise[39] says that Leland in his list of stone bridges includes 'Wiseston Village' and goes on to state that Laystone Bridge at Marden ... is thought to have taken the place of the bridge in Wisterton mentioned by Leland. So evidently this site could be one of considerable interest.

The same effects are visible in the river Wye in Hereford itself where the site[40] of the early ford below the Bishop's Palace is picked out in white in July when the water-crowfoot is in flower. There is even a gap in the centre with no flowers where the material making the ford was probably removed at a later date to allow passage for the boats, leaving a silty bottom to the river in that place unsuitable for the growth of water-crowfoot.

It is not surprising that river plants should indicate where past structures have stood for land plants have been used as indicators in a similar way by archaeologists for a long time. The results show that the river Lugg was much more used by men in the past than it is now and so it seems suitable to close by looking at some of Bewick's *Vignettes* which show how people used rivers in his days in the early 19th century, crossing them on horse-back, pick-a-back, stilts or vaulting pole.

SUMMARY

(1) There are natural changes in the distribution of water plants along the length of the river Lugg due to the flow of the river and its effect on the river bed among other causes.

(2) Any obstruction in the river, whether natural or man-made, makes an alteration in this distribution.

(3) Man-made structures that go out of use and decay may leave some of their materials in the bed of the river and continue to affect plant distribution long after the structures themselves are forgotten.

(4) As a result it may be possible to pin-point the site of such structures from the plant evidence visible above the surface. Only excavation below the water or documentary evidence would actually prove whether the plants are indicating a past man-made structure or a natural feature of the river bed.

ACKNOWLEDGEMENTS

I would like to express my thanks to Miss S. Hubbard and the staff of the County Record Office for a lot of help with documents, to Mr. P. Thomson for information about the formation of riffles and to Miss M. Monck-Mason and Mr. B. M. Brian for helpful criticism of the manuscript.

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APPENDIX

List of possible lock sites on the river Lugg from Leominster to Mordiford

Place	*Grid ref.*	*Physical evidence*	*Documentary evidence*
Eaton Hall	508580	drop in water level of about 2 ft. at bridge	material from Eaton mill sold *c.* 1700
Near Wheelbarrow Castle	513569	stone wall in right bank and signs of a weir	
Near Wharton Court	513560	stone wall in right bank	
Stone Farm, Ford	512554	weir	
Hampton Green Farm	515525	weir and space for lock	one mill
Isle of Rhea, Bodenham	536518	weir and island	weir 'afowed to be thrown down', one mill

Church Bridge, Bodenham	529597	weir in bed of stream and space for a lock	
Below Dinmore Station	509504	brickwork in right bank	
Wisteston	505495	extensive riffles	weir valued at £3 half-weekly, two mills
Moreton Bridge	513460	river divided	Kings mills weir valued at £30, two mills
Near site of Freens Court	517456	stonework in right bank	
Shelwick	533423	signs of lock wall in stream	weir valued at £27, three mills
Lugg Bridge	532418		weir valued at £38, two mills at 'Log berg gates'
Tidnor	553401	lock wall of stone and brick along left bank of river and remains of lock wall in stream	weir valued at £38, two mills
Hampton Bishop			weir valued at £8, two mills
Mordiford	568374	river divided, both sides of lock well preserved	

The documentary evidence for weirs is taken from the Quarter Sessions Records for 1679[11] and that for mills from Lloyd[10] said to be an authentic list of *c.* 1690. Both these lists include an unidentified site. This is called 'ffryer Mills' in the Q.S.R. and placed between Wisteston and Bodenham but Lloyd, recording two mills at 'friers wear', places them upstream of Hampton Court (Hampton Green Farm).

In the Hereford City Council Reports adopted by the Council 1904-7 remains of pound locks were said to be plainly visible at Mordiford, Tidnor and Lugg Bridge and these had been used within living memory.

Lepidoptera in Hereford City (1973-82)

WITH SOME ADDITIONS FOR 1983

By B. E. MILES

FOR the past ten years I have recorded and roughly estimated the number of moths and butterflies at my two homes in the parish of Tupsley on the eastern side of Hereford City, the first three years from Vineyard Road and the rest from Hampton Park Road a quarter of a mile away. In both areas there are large gardens with a good variety of trees, in the latter an elderly apple orchard spreading down to the river Wye, uncultivated within living memory and containing a surprising variety of meadow and river-bank flowers.

On the western side, Hampton Grange Home for the Blind has a two-acre uncultivated area by the river with numerous elm suckers growing to some fifteen feet before succumbing to the disease spread by its bark beetle; and incidentally a varied fauna including resident fox, rabbits, mallard, moorhens, pheasants, and in due season four different warblers and a visiting kingfisher.

In almost all cases the moths were captured by a Robinson mercury-vapour moth trap with a 125 watt bulb. Micromoths have only been recorded for the past three years.

The numbers of each moth have no statistical merit, depending to a large extent on the weather, my enthusiasm and my holidays; some must have been taken on more than one occasion even though I released my captures at some distance from the trap. Apart from migrants some moths probably came from far afield. The moths, especially micromoths, are certainly under-recorded due to my relative inexperience, nor are all moths attracted to light. Moreover Philip Boddington in 1974 and Philip Stirling and Robert Boddington in 1975/76 when at the Hereford Cathedral School trapped moths a mile away in Tupsley overlooking the Lugg meadows and recorded three moths which I have not come across. (*Woolhope Club Transactions*, XLII (1976), 108-10).

Anaplectoides prasina	Green arches
Acronicta tridens	Dark dagger
Panemeria tenebrata	Small yellow underwing

Many moths, especially micromoths, are extremely difficult to identify even with the most up-to-date reference books. There is so much intraspecies variation and for some microscopical scrutiny is required. My records would be worthless

without the help of Dr. Michael Harper, our first outstanding lepidopterist since Dr. J. H. Wood of Tarrington. He identified most of my difficult and rare captures either from photographs or the moths themselves. I present this report of 441 different lepidoptera (464 with the 1983 additions) mainly for my own satisfaction, partly to encourage others to take up this fascinating hobby and partly for the interest of future historians of local entomology. A few of the moths caught were sufficiently unusual to deserve comment and I am grateful for Dr. Harper's help.

MOTHS OF SPECIAL INTEREST

Dichomeris marginella

The eggs are laid on juniper and the larvae feed from a web amongst the needles. It has become adapted to cultivated junipers, of which I have two in my garden. Uncommon.

Lozotaeniodes formosanus

Eggs are laid on the needles of Scots fir to be found within a hundred yards of my home. The first British discovery was in Surrey in 1945. Probably rare in Herefordshire.

Acleris boscana

Eggs are laid on the leaves of elm on which the larvae later feed. Probably becoming uncommon.

Lobesia littoralis

Previously a coastal species with thrift as its larval food plant, it has now become adapted to the cultivated thrift found in rockeries, though not present in my garden. Uncommon.

Clavigesta purdeyi

The larva feeds on the needles of Scots or Corsican pine. Until about 1927 it was limited to a few localities in Britain but has since spread. New county record.

Cydia conicolana

Dr. Harper identified the moth I showed him and subsequently found a typical emergence hole in the tip of a scale of a Corsican pine cone which was conveniently lying in my wood basket. The moth had come to light. It is usually found in the south and east but also recorded in Oxfordshire and Dorset. New county record.

Acentria nivea

Eggs laid on waterweed and pondweed, the larvae in loosely spun leaves a few centimetres below the water surface. Possibly from the river Wye which has large variations in depth, perhaps more likely from a pond three hundred yards away. Local. (1983)

Nymphula nymphaeata 'China mark'

Both egg and larva are to be found under the leaves of pondweed, etc. Local.

Rhodometra sacraria Vestal

A passive migrant from Southern Europe and North Africa wafted here in anticyclonic conditions. (It is usually rare but in 1983, an exceptional year for migrants, I have captured 17. One on 8 August, the rest between 26 and 30 September. Two had a red stripe the others brown or reddish brown. Ten males and six females were present in the main batch. Early migrants may have bred in my vicinity but several caught elsewhere in the county suggests that these visitors may have been widespread.)

Eupithecia intricata arceuthata Edinburgh pug

The larvae feed on juniper, cupressus and thuja which is abundant in my neighbour's garden. The only other county record was from Bartestree (M. Young). Rare.

Furcula bicuspis Alder kitten

A birch and alder feeder, both trees on my property. Very local.

Furcula bifida Poplar kitten

Eggs and larvae on poplars and aspen. There is a large grey poplar in my orchard. Becoming scarce.

Lycophotia porphyrea True lovers knot

Caught at both my Tupsley sites and previously recorded at Callow (Sissons. Woolhope Club *Transactions*, XXXV, 1957). A moth of heath and heather now adapted to garden varieties of heather. Uncommon.

Naenia typica Gothic

Food plants sallow and apple, etc. Becoming scarce nationally.

Lacanobia w-latinum Light brocade

Cultivated broom or redleg by the river Wye would seem the most likely food plants. Uncommon.

Lacanobia suasa Dog's tooth

Mainly coastal and estuarine, found in salt marshes and flood meadows. Feeds on dock, plantain and knotgrass. Not recorded in Herefordshire since 1973. (Ledbury 1983)

Papestra biren Glaucous shears

Usually from hilly districts in the north and west. Has a wide variety of larval food plants. Probably a wanderer. Rare.

Hadena perplexa Tawny shears

The larva, as a rule, bores into the seed capsule of white-flowered campions. Rare.

Panolis flammea Pine beauty

The larva feeds on the needles of Scots and Maritime pine. Local.

Nonagria typhae Bulrush wainscot

The eggs are inserted by special spines and ovipositor into the stems of reed mace. This plant occurs three hundred yards away and I have seen the moth emergence holes there. It must be a wanderer. Widely distributed but local.

LIST OF SPECIES (1973-82)

		Ten Year Total	Year Last Seen	
HEPIALIDAE				
Hepialus	*humuli*	29	82	Ghost swift
	sylvina	31	82	Orange swift
	lupulinus	49	82	Common swift
NEPTICULIDAE				
Stigmella	*aurella*		82	
TISCHERIIDAE				
Tischeria	*marginea*		82	
TINEIDAE				
Tinea	*trinotella*		82	
LYONETIIDAE				
Lyonetia	*clerkella*		81	
GRACILLARIIDAE				
Caloptilia	*robustella*		82	

		Ten Year Total	Year Last Seen
YPONOMEUTIDAE			
Argyresthia	*arcella*		82
Yponomeuta	*evonymella*		82
Scythropia	*crataegella*		82
Ypsolopha	*sequella*		82
Plutella	*xylostella*		82
COLEOPHORIDAE			
Coleophora	*gryphipennella*		82
	albicosta		82
ELACHISTIDAE			
Elachista	*atricomella*		82
OECOPHORIDAE			
Telechrysis	*tripuncta*		82
Endrosis	*sarcitrella*		82
Carcina	*quercana*		82
Diurnea	*fagella*		82
Hofmannophila	*pseudospretella*		82
Depressaria	*daucella*		82
	albipunctella		81
Agonopteryx	*heracliana*		82
	purpurea		81
	alstroemeriana		82
	arenella		82
	ocellana		82
	nervosa		80
	liturosa		82
	conterminella		82
GELECHIIDAE			
Dichomeris	*marginella*		81
Brachmia	*blandella*		81
COCHYLIDAE			
Phtheochroa	*rugosana*		82
Agapete	*hamana*		82
	zoegana		81
Aethes	*cnicana*		82
	smeathmanniana		82
TORTRICIDAE			
Pandemis	*corylana*		82
	cerasana		82
	cinnamomeana		82
	heparana		82
Archips	*podana*		82
	crataegana		81

		Ten Year Total	Year Last Seen
Syndemis	*musculana*		82
Clepsis	*spectrana*		82
	consimilana		82
Lozotaeniodes	*formosanus*		82
	forsterana		82
Ditula	*angustiorana*		81
Pseudargyrotoza	*conwagana*		81
Cnephasia	*interjectana*		82
	incertana		81
Tortricodes	*alternella*		81
Tortrix	*viridana*		82
Croesia	*forsskaleana*		82
	holmiana		82
Acleris	*laterana*		82
	sparsana		82
	variegana		82
	boscana		82
Celypha	*striana*		82
Olethreutes	*lacunana*		82
Hedya	*pruniana*		81
	nubiferana		82
Apotomis	*betuletana*		81
Endothenia	*quadrimaculana*		80
Lobesia	*littoralis*		82
Gypsonoma	*sociana*		81
Epiblema	*cynosbatella*		82
	uddmanniana		82
	foenella		81
Spilonota	*ocellana*		81
Clavigesta	*purdeyi*		82
Enarmonia	*formosana*		81
Cydia	*pomonella*		82
	conicolana		82
Dichrorampha	*alpinana*		82
PYRALIDAE			
Chrysoteuchia	*culmella*		82
Crambus	*nemorella*		82
	perlella		82
Agriphila	*tristella*		82
	inquinatella		80
	geniculea		82
Catoptria	*pinella*		82
	falsella		82
Scoparia	*ambigualis*		82
Eudonia	*crataegella*		82
	mercurella		82

		Ten Year Total	Year Last Seen	
Nymphula	*nymphaeata*		82	'China mark'
Evergestis	*forficalis*		82	Garden pebble
	pallidata		82	
Pyrausta	*purpuralis*		82	
Eurrhypara	*hortulata*		82	Small magpie
	coronata		82	
Udea	*elutalis*		82	
	prunalis		81	
	olivalis		82	
	ferrugalis		80	Rusty dot
Nomophila	*noctuella*		80	Rush veneer (abundant 1983)
Pleuroptia	*ruralis*		82	Mother of pearl
Hypsopygia	*costalis*		82	Gold fringe
Orthopygia	*glaucinalis*		80	
Pyralis	*farinalis*		82	Meal moth
Aphomia	*sociella*		81	Bee moth
Phyctia	*roborella*		82	
Dioryctria	*abietella*		80	
Myelois	*cribrella*		82	
Euzophera	*pinguis*		81	
Phycitodes	*binaevella*		82	
PTEROPHORIDAE				
Amblyptilia	*punctidactyla*		82	
Pterophorus	*pentadactyla*		82	
Emmelina	*monodactyla*		82	
HESPERIIDAE				
Thymelicus	*sylvestris*		82	Small skipper
PIERIDAE				
Pieris	*brassicae*		82	Large white
	rapae		82	Small white
	napi		82	Green-veined white
Anthocharis	*cardamines*		82	Orange tip
LYCAENIDAE				
Lycaena	*phlaeas*		82	Small copper
Polyommatus	*icarus*		82	Common blue
Celastrina	*argiolus*		82	Holly blue
NYMPHALIDAE				
Vanessa	*atalanta*		82	Red admiral
	cardui		82	Painted lady
Aglais	*urticae*		82	Small tortoiseshell
Inachis	*io*		82	Peacock
Polygonia	*c-album*		82	Comma

		Ten Year Total	Year Last Seen	
SATYRIDAE				
Pararge	*aegeria*		82	Speckled wood
Lasiommata	*megera*		82	Wall
Pyronia	*tithonus*		82	Gate-keeper
Maniola	*jurtina*		82	Meadow brown
LASIOCAMPIDAE				
Poecilocampa	*populi*	60	82	December moth
Trichiura	*crataegi*	9	82	Pale oak eggar
Malacosoma	*neustria*	35	82	Lackey
Philudoria	*potatoria*	10	82	Drinker
Gastropacha	*quercifolia*	4	76	Lappet
DREPANIDAE				
Drepana	*binaria*	50	82	Oak hook-tip
	cultraria	1	76	Barred hook-tip
	falcataria	39	82	Pebble hook-tip
Cilix	*glaucata*	54	82	Chinese character
THYATIRIDAE				
Thatira	*batis*	10	80	Peach blossom
Habrosyne	*pyritoides*	255	82	Buff arches
Tethea	*ocularis*	48	82	Figure of eighty
	or	2	76	Poplar lutestring
Ochropacha	*duplaris*	3	82	Common lutestring
Cymatophorima	*diluta*	1	75	Oak lutestring
Achlya	*flavicornis*	1	75	Yellow horned (also 1983)
Polyploca	*ridens*	5	80	Frosted green
GEOMETRIDAE				
Alsophila	*aescularia*	31	82	March moth
Geometra	*papilionaria*	5	80	Large emerald
Hemithea	*aestivaria*	20	82	Common emerald
Hemistola	*chrysoprasaria*	20	82	Small emerald
Jodis	*lactearia*	10	79	Little emerald
Cyclophora	*annulata*	1	76	Mocha
Timandra	*griseata*	45	82	Blood-vein
Scopula	*imitaria*	19	82	Small blood-vein
	floslactata	2	79	Cream wave
Idaea	*sylvestraria*	2	81	Dotted border wave
	biselata	4	82	Small fan-foot wave
	dilutaria	1	82	Dwarf cream wave
	seriata	4	81	Small dusty wave
	dimidiata	38	82	Single-dotted wave
	subsericeata	5	80	Satin wave
	trigeminata	24	82	Treble brown spot
	emarginata	15	82	Small scallop
	aversata	708	82	Riband wave

		Ten Year Total	Year Last Seen	
Rhodometra	*sacraria*	1	73	Vestal (numerous 1983)
Xanthorhoe	*designata*	89	82	Flame carpet
	spadicearia	96	82	Red twin-spot carpet
	ferrugata	31	82	Dark barred twin-spot carpet
	montanata	47	82	Silver-ground carpet
	fluctuata	270	82	Garden carpet
Scotopteryx	*chenopodiata*	15	82	Shaded broad-bar
Epirrhoe	*alternata*	193	82	Common carpet
Camptogramma	*bilineata*	17	82	Yellow shell
Larentia	*clavaria*	4	73	Mallow (also 1983)
Anticlea	*badiata*	13	82	Shoulder stripe
	derivata	6	81	Streamer
Cosmorhoe	*ocellata*	9	82	Purple bar
Eulithis	*prunata*	14	82	Phoenix
	populata	4	79	Northern spinach
	mellinata	14	80	Spinach
	pyraliata	6	81	Barred straw
Ecliptopera	*silaceata*	21	82	Small phoenix
Chloroclysta	*citrata*	20	82	Dark marbled carpet
	truncata	254	82	Common marbled carpet
Cidaria	*fulvata*	3	82	Barred yellow
Plemyria	*rubiginata*	2	82	Blue-bordered carpet
Thera	*obeliscata*	11	82	Grey pine carpet
	variata	40	82	Spruce carpet
Electrophaes	*corylata*	14	82	Broken-barred carpet
Colostygia	*multistrigaria*	1	82	Mottled grey
	pectinataria	11	80	Green carpet
Hydriomena	*furcata*	18	82	July highflyer
	impluviata	2	77	May highflyer
Horisme	*vitalbata*	1	73	Small waved umber
	tersata	4	81	Fern
Melanthia	*procellata*	4	82	Pretty chalk carpet
Rheumaptera	*cervinalis*	7	82	Scarce tissue
Triphosa	*dubitata*	1	82	Tissue
Epirrita	*dilutata*	14	82	November moth
Operophthera	*brumata*	60	82	Winter moth
Perizoma	*affinitatum*	3	81	Rivulet
	alchemillata	70	82	Small rivulet
	flavofasciata	3	82	Sandy carpet
	didymata	3	76	Twin-spot carpet
Eupithecia	*haworthiata*	1	75	Haworth's pug
	pulchellata	20	82	Foxglove pug
	exiguata	6	82	Mottled pug
	centaureata	10	81	Lime-speck pug
	intricata	3	82	Edinburgh pug
	assimilata	2	76	Currant pug
	vulgata	46	82	Common pug

		Ten Year Total	Year Last Seen	
	tripunctaria	2	81	White-spotted pug
	subfuscata	18	82	Grey pug
	icterata	33	82	Tawny speckled pug
	succenturiata	13	82	Bordered pug
	indigata	8	82	Ochreous pug
	abbreviata	5	81	Brindled pug
	dodoneata	28	82	Oak-tree pug
	pusillata	2	81	Juniper pug
	lariciata	1	74	Larch pug
Chloroclystis	*v-ata*	7	80	V-pug
	rectangulata	26	82	Green pug
Gymnoscelis	*rufifasciata*	22	82	Double-striped pug
Chesias	*rufata*	1	77	Broom-tip
Aplocera	*plagiata*	34	81	Treble-bar
	efformata	1	82	Lesser treble-bar
Asthena	*albulata*	1	76	Small white wave
Hydrelia	*flammeolaria*	6	81	Small yellow wave
Lobophora	*halterata*	3	82	Seraphim
Trichopteryx	*carpinata*	1	81	Early tooth-striped
Acasis	*viretata*	18	82	Yellow-barred brindle
Ennominae	*grossulariata*	51	82	Magpie
Lomaspilis	*marginata*	17	82	Clouded border
Ligdia	*adustata*	11	82	Scorched carpet
Semiothisa	*liturata*	6	80	Tawny-barred angle
	wauaria	4	79	V-moth
Petrophora	*chlorosata*	15	82	Brown silver-lines
Plagodis	*dolabraria*	4	82	Scorched wing
Opisthograptis	*luteolata*	703	82	Brimstone
Epione	*repandaria*	3	82	Bordered beauty
Apeira	*syringaria*	6	82	Lilac beauty
Ennomos	*quercinaria*	21	82	August thorn
	alniaria	90	82	Canary-shouldered thorn
	fuscantaria	86	82	Dusky thorn
	erosaria	48	82	September thorn
Selenia	*dentaria*	98	82	Early thorn
	lunularia	5	77	Lunar thorn
	tetralunaria	28	82	Purple thorn
Odontopera	*bidentata*	48	82	Scalloped hazel
Crocallis	*elinguaria*	80	82	Scalloped oak
Colotois	*pennaria*	24	82	Feathered thorn
Apocheima	*pilosaria*	11	81	Pale brindled beauty
Lycia	*hirtaria*	20	82	Brindled beauty
Biston	*strataria*	11	82	Oak beauty
	betularia	119	82	Peppered moth
Agriopis	*leucophaearia*	2	81	Spring usher
	aurantiaria	1	82	Scarce umber
	marginaria	11	82	Dotted border

		Ten Year Year	Year Last Last	
Erannis	*defoliaria*	7	82	Mottled umber
Menophra	*abruptaria*	7	79	Waved umber
Peribatodes	*rhomboidaria*	174	82	Willow beauty
Alcis	*repandata*	25	82	Mottled beauty
Ectropis	*bistortata*	1	79	Engrailed
Aethalura	*punctulata*	1	79	Grey birch
Bupalus	*piniaria*	11	81	Bordered white
Cabera	*pusaria*	20	82	Common white wave
	exanthemata	4	78	Common wave
Lomographa	*bimaculata*	3	82	White pinion spotted
	temerata	8	80	Clouded silver
Theria	*rupicapraria*	4	82	Early moth
Campaea	*margaritata*	15	81	Light emerald
Hylaea	*fasciaria*	9	81	Barred red
SPHINGIDAE				
Mimas	*tiliae*	22	82	Lime hawkmoth
Smerinthus	*ocellata*	7	81	Eyed hawkmoth
Laothoe	*populi*	90	82	Poplar hawkmoth
Deilephila	*elpenor*	146	82	Elephant hawkmoth
NOTODONTIDAE				
Phalera	*bucephala*	53	80	Buff-tip
Cerura	*vinula*	16	80	Puss moth
Furcula	*bicuspis*	5	82	Alder kitten
	furcula	32	82	Sallow kitten
	bifida	14	82	Poplar kitten
Stauropus	*fagi*	4	81	Lobster moth
Notodonta	*dromedarius*	92	82	Iron prominent
Eligmodonta	*ziczac*	27	82	Pebble prominent
Peridea	*anceps*	1	74	Great Prominent
Pheosia	*gnoma*	50	82	Lesser swallow prominent
	tremula	183	82	Swallow prominent
Ptilodon	*capucina*	16	82	Coxcomb prominent
Pterostoma	*palpina*	26	82	Pale prominent
Drymonia	*ruficornis*	38	82	Lunar marbled brown
Clostera	*curtula*	17	82	Chocolate-tip
Diloba	*caeruleocephala*	36	82	Figure of eight moth
LYMANTRIIDAE				
Orgyia	*antiqua*	3	78	Vapourer
Dasychira	*pudibunda*	39	82	Pale tussock
Euproctis	*similis*	108	82	Yellow-tail
Leucoma	*salicis*	3	79	White satin moth
ARCTIIDAE				
Eilema	*complana*	83	82	Scarce footman
	lurideola	380	82	Common footman
Arctia	*caja*	95	82	Garden tiger

		Total Ten Year	Seen Year Last	
Spilosoma	*lubricipeda*	136	82	White ermine
	lutea	166	82	Buff ermine
Diaphora	*mendica*	73	82	Muslin moth
Phragmatobia	*fuliginosa*	110	82	Ruby tiger
Tyria	*jacobaeae*	140	82	Cinnabar
NOLIDAE				
Nola	*cucullatella*	21	82	Short-cloaked moth
	confusalis	2	82	Least black arches
NOCTUIDAE				
Euxoa	*nigricans*	4	81	Garden dart
Agrotis	*segetum*	27	82	Turnip moth
	exclamationis	7652	82	Heart & dart
	ipsilon	17	82	Dark sword grass
	puta	1677	82	Shuttle-shaped dart
Axylia	*putris*	554	82	Flame
Ochropleura	*plecta*	350	82	Flame shoulder
Noctua	*pronuba*	5865	82	Large yellow underwing
	comes	378	82	Lesser yellow underwing
	fimbriata	17	80	Broad-bordered yellow underwing
	janthina	564	82	Lesser broad-bordered yellow underwing
	interjecta	54	82	Least yellow underwing
Paradiarsia	*glareosa*	110	82	Autumnal rustic
Lycophotia	*porphyrea*	15	81	True lover's knot
Peridroma	*saucia*	5	81	Pearly underwing
Diarsia	*mendica*	72	82	Ingrailed clay
	rubi	357	82	Small square spot
Xestia	*c-nigrum*	319	82	Setaceous Hebrew character
	triangulum	238	82	Double square-spot
	sextrigata	8	81	Six-striped rustic
	xanthographa	553	82	Square-spot rustic
Naenia	*typica*	3	82	Gothic
Cerastis	*rubricosa*	5	82	Red chestnut
Hada	*nana*	1	77	Shears
Mamestra	*brassicae*	95	82	Cabbage moth
Melanchra	*persicariae*	464	82	Dot
Lacanobia	*w-latinum*	14	82	Light brocade
	thalassina	16	82	Pale-shouldered brocade
	suasa	2	73	Dogstooth
	oleracea	20	82	Bright-line brown-eye
Papestra	*biren*	2	74	Glaucous shears
Ceramica	*pisi*	4	82	Broom moth

		Total Ten Total	Seen Year Seen	
Hecatera	*bicolorata*	21	82	Broad-barred white
Hadena	*perplexa*	1	74	Tawny shears
	bicruris	58	82	Lychnis
Cerapteryx	*graminis*	16	82	Antler moth
Tholera	*decimalis*	170	82	Feathered gothic
Panolis	*flammea*	1	75	Pine beauty (also 1984)
Egira	*conspicillaris*	18	82	Silver cloud
Orthosia	*cruda*	331	82	Small quaker
	miniosa	10	80	Blossom underwing
	populeti	1	80	Lead-coloured drab
	gracilis	220	82	Powdered quaker
	stabilis	1124	82	Common quaker
	incerta	466	82	Clouded drab
	munda	56	82	Twin-spotted quaker
	gothica	1868	82	Hebrew character
Mythimna	*conigera*	35	82	Brown-line bright-eye
	ferrago	108	82	Clay
	impura	143	82	Smoky wainscot
	pallens	647	82	Common wainscot
	comma	17	82	Shoulder-striped wainscot
Cucullia	*chamomillae*	9	82	Chamomile shark
	umbratica	16	82	Shark
	verbasci	6	80	Mullein
Brachionychia	*sphinx*	7	82	Sprawler
Aporophyla	*lutulenta*	3	80	Deep brown dart
	nigra	365	82	Black rustic
Lithophane	*socia*	2	76	Pale pinion
	ornitopus	8	82	Grey shoulder-knot
Xylocampa	*areola*	132	82	Early grey
Allophyes	*oxyacanthae*	33	82	Green brindled crescent
Dichonia	*aprilina*	8	82	Meveille-du-jour
Dryobotodes	*eremita*	7	82	Brindled green
Antitype	*chi*	26	81	Grey chi
Eupsilia	*transversa*	10	82	Satellite
Conistra	*vaccinii*	21	82	Chestnut
	ligula	12	82	Dark chestnut
Agrochola	*circellaris*	3	82	Brick
	lota	61	82	Red-line quaker
	macilenta	23	82	Yellow-line quaker
	litura	220	82	Brown-spot pinion
	lychnidis	1839	82	Beaded chestnut
Atethmia	*centrago*	35	82	Centre-barred sallow
Omphaloscelis	*lunosa*	355	82	Lunar underwing
Xanthia	*citrago*	2	81	Orange sallow
	aurago	3	82	Barred sallow
	icteritia	42	82	Sallow
	togata	5	81	Pink-barred sallow

		Ten Year Total	Year Last Seen	
Acronicta	*leporina*	9	81	Miller
	alni	1	80	Alder moth
	psi	190	82	Grey dagger
	rumicis	93	82	Knot grass
Cryphia	*domestica*	124	82	Marbled beauty
Amphipyra	*pyramidea* and *berbara*	169	82	Copper underwing
	tragopoginis	55	82	Mouse
Mormo	*maura*	1	73	Old lady moth
Rusina	*ferruginea*	12	81	Brown rustic
Thalpophila	*matura*	15	81	Straw underwing
Euplexia	*lucipara*	14	82	Small angle-shades
Phlogophora	*meticulosa*	307	82	Angle-shades
Ipimorpha	*subtusa*	2	81	Olive
Cosmia	*trapezina*	164	82	Dun-bar
	pyralina	4	82	Lunar-spotted pinion
Apamea	*monoglypha*	1793	82	Dark arches
	lithoxylaea	222	82	Light arches
	crenata	2	82	Clouded-bordered brindle
	characterea	5	82	Clouded brindle
	remissa	2	82	Dusky brocade
	unanimis	1	74	Small clouded brindle
	sordens	2	82	Rustic shoulder-knot
	ophiogramma	6	81	Double lobed
Oligia	*strigilis*	827	82	Marbled minor
	versicolor	3	75	Rufous minor
	latruncula	3	76	Tawny marbled minor
	fasciuncula	126	82	Middle-barred minor
Mesoligia	*furuncula*	1	79	Cloaked minor
Mesapamea	*secalis*	2130	82	Common rustic
Photedes	*minima*	10	82	Small dotted buff
Luperina	*testacea*	606	82	Flounced rustic
Amphipoea	*oculea*	16	82	Ear moth
Hydraecia	*micacea*	194	82	Rosy rustic
Gortyna	*flavago*	16	82	Frosted orange
Nonagria	*typhae*	11	82	Bulrush wainscot
Charanyca	*trigrammica*	42	82	Treble lines
Hoplodrina	*alsines*	164	82	Uncertain
	blanda	364	82	Rustic
Caradrina	*morpheus*	13	82	Mottled rustic
	clavipalpis	4	78	Pale mottled willow
Bena	*prasinana*	2	78	Scarce silver lines
Pseudoips	*fagana*	3	78	Green silver lines
Diachrysia	*chrysitis*	401	82	Burnished brass
Polychrysia	*moneta*	26	82	Golden plusia

		Ten Year Total	Year Last Seen	
Autographa	*gamma*	695	82	Silver Y
	pulchrina	110	82	Beautiful golden Y
	jota	67	82	Plain golden Y
	bractea	2	76	Gold spangle
Abrostola	*triplasia*	188	82	Spectacle
Catocala	*nupta*	28	81	Red underwing
Scoliopteryx	*libatrix*	34	82	Herald
Laspeyria	*flexula*	2	77	Beautiful hook-tip
Hypena	*proboscidalis*	99	82	Snout
Polypogon	*tarsipennalis*	2	81	Fan-foot
	nemoralis	31	82	Small fan-foot

1983 ADDITIONS

GRACILARIIDAE		
Phyllonoryceter	*messaniella*	
YPONOMEUTIDAE		
Argyresthia	*goedartella*	
	semifusca	
Yposolopha	*sylvella*	
	parenthesella	
EPERMENIIDAE		
Epermenia	*chaerophyllella*	
TORTRICIDAE		
Acleris	*rhombana*	
Rhopobota	*naevana*	
Lathronympha	*strigana*	
Cydia	*splendana*	
PYRALIDAE		
Agriphila	*selasella*	
Acentria	*nivea*	
Eudonia	*angustea*	
PIERIDAE		
Colias	*croceus*	Clouded yellow
Gonepteryx	*rhamni*	Brimstone
SATYRIDAE		
Aphantopus	*hyperantus*	Ringlet
GEOMETRIDAE		
Chesias	*legatella*	The streak

SPHINGIDAE		
Deilephila	*porcellus*	Small elephant hawkmoth
NOCTUIDAE		
Xylena	*vetusta*	Red sword grass
Apamea	*ypsillon*	Dingy shears
Eremobia	*ochroleuca*	Dusky sallow
Rhizedra	*lutosa*	The large wainscot
Nycteola	*revayana*	Great marbled tortrix

GRAND TOTAL 464 SPECIES

The microlepidoptera are according to Emmet *A field guide to the Smaller British Lepidoptera* (1979).

The macrolepidoptera are according to Kloet and Hinks *A check list of British Insects*, XI, Pt. 2, (1972) and *The Moths and Butterflies of Great Britain and Ireland* IX, (1979).

ADDENDA 1984

ERIOCRANIIDAE
Eriocrania subpurpurella

GRACILLARIIDAE
Phyllonorycter corylifoliella

ELACHISTIDAE
Elachista pulshella

MOMPHIDAE
Mompha subbistrigella

TORTRICIDAE
Archips xylosteana

ARCTIIDAE
Atolmis rubricollis — Red-necked footman

GRAND TOTAL 470 SPECIES

The Norman New Town of Hereford: Its Street Pattern and its European Context

By JOE HILLABY

EVIDENCE was given by Joe Hillaby on behalf of the Club to an Inquiry held by the Departments of Environment and Transport on 7-9 June 1983, into a Draft Order to authorise the stopping up of the major part of Maylord Street, Gomond Street and Bell Passage, Hereford. The Club was supported in its opposition to the Draft Order by the Society of Antiquaries of London and the Hereford Civic Trust.

Mr. Hillaby's Proof of Evidence is printed below, omitting the second section, which dealt with the Hereford Jewry, as this, in a more developed form, was the subject of a lecture to the Club on 29 October 1983. It has, therefore, been decided to print it separately in the next *Transactions*.

"The Woolhope Club was founded in 1851 for 'the practical study, in all branches, of the Natural History and Archaeology of Herefordshire, and the districts immediately adjacent.' The Club's *Transactions*, published annually since 1851 have been the principal vehicle for the dissemination of research on the archaeology, history and natural history of the County of Herefordshire. In particular a series of articles by Watkins (1919) and (1920), Marshall (1940), Norwood (1957), Heys and Norwood (1958), Butler (1960), Stanford (1966), Noble *et al* (1967) and Shoesmith (1967, 1968, 1971) have illumined the complex evolution of the city of Hereford.

It was under the auspices of the Club that in 1946, George Cadbury's report *Hereford Walls* was published. In this the first detailed proposals were put forward for the 'opening up of the City Walls for their historic interest, and at the same time make Hereford a "Precinct" city by using the site of the old surrounding moat and Sally Walk as a by-pass for the traffic which now crowds the centre of the city'. However, the Inner Ring Road Scheme, when it was eventually realised, failed to put into effect two crucial recommendations by George Cadbury:

1. The city 'should only be approached at the points of the five ancient gates'.
2. 'No building should open on to this boulevard'—the new Ring Road.

The impact of the Ring Road proposals was a cause of continuing concern for the Club as were various proposals, including a 'skyscraper County Hall', for

development within the City. In consequence, on 13 February 1965, a special sub-committee of the Club, of which I was a member, was formed under the chairmanship of the late Frank Noble, M.B.E., to consider the plans for the re-development of the City. Eventually it issued a detailed report on this matter which was forwarded to the City and County Councils and interested national societies. This report is published *in extenso* in the Club's *Transactions* (1965), 169-73.

The final section entitled 'The Ancient Street Plan' states:

> 'We would emphasize that the really *unique* opportunity in Hereford is that of retaining an almost unaltered plan of early streets in a re-developed and attractive central area. Other towns may retain more in the way of ancient buildings, but none have such an opportunity of retaining the real setting and character of a historic centre without diminishing its capacity for commercial activity and growth.'

I should like to stress at this point that for the purposes of this Inquiry, the Club is not concerned with the merits or otherwise of the architectural details, either Mark 1 or Mark 2, of Norwich Union Real Estate for Sector C. At this Inquiry the Club is concerned to show that it is not persuaded that the stopping up of Maylord Street from its present eastern end to a point 43 metres east of its junction with Widemarsh Street is necessary to enable development to be carried out in accordance with the outline planning permission granted to Messrs. Edward Erdman (as agents of Hereford City Council) under Part III of the Town and Country Planning Act, 1971. The Club therefore believes that the draft order applied for by the City Council and prepared by the Secretary of State for Transport to authorise such a stopping up of part of Maylord Street should not be made. Additionally, the Club is convinced that such a proposal is wholly at variance with the fundamental policy carefully drawn up after the Pagebar Inquiry jointly by the County Council of Hereford and Worcester and the Hereford City Council. To demonstrate this it will be necessary to place that policy in its wider historical and archaeological context.

First outline planning permission was granted to Messrs. Edward Erdman, agents of Hereford City Council, by Hereford City Council to enable development consisting of a Shopping Centre, Cinema, Salvation Army Citadel, Discotheque, Car Parking and Bus facility and Servicing Areas under Part III of the Town and Country Planning Act, 1971 in the summer of 1981. Later that year, Norwich Union Real Estate and the Renton Howard Wood Levin Partnership, together with three other developers, presented highly detailed proposals for the development of Sector C. Very many people, including the Central Committee of the Club, were deeply dismayed by the nature and quality of these detailed proposals.

The Central Committee of the Club discussed the detailed plans of the Norwich Union Real Estate and Renton Howard Wood Levin Partnership at their meeting on 12 March, 1982 and instructed the Club's Secretary to write to Mr. Michael Falcon, Chairman of the Norwich Union Insurance Group to express 'its deep anxiety at the grave impact these proposals will have, if not modified, on the street pattern of Hereford, which in this area is more than 900 years old.' As this elicited an inadequate response from Mr. Falcon, the Central Committee at its meeting of 16 July, 1982 instructed me, as the Club's representative on the City of Hereford Conservation Area Advisory Committee, to indicate this concern 'in the strongest possible terms' when the CAAC considered a new application for outline planning permission, H/OA/25256/7 of 11 August, 1982—consisting of a red line drawn around the proposed development area by Norwich Union Real Estate. As a result, a formal Memorandum from the Club was presented to the CAAC, placing on record the Club's alarm at the way in which the current detailed proposals of Norwich Union Real Estate 'cuts right across the historical street pattern of Hereford within Sector C of the Central Development Area and is thus at variance with the planning directive, *Hereford Central Area Development: Preferred Choice.*'

The fundamental importance of the retention of the historic street plan of Hereford within the Central Development Area was clearly recognised at the planning stage which followed the Pagebar inquiry. The report prepared jointly by the Hereford City Council and the Hereford and Worcester County Council considered the future development of two areas of vacant land for re-development. These were called Sectors AB and Sector C and are clearly shown on Plan 1 of the report which was called *Hereford Central Area Development: Preferred Choice.* The introduction 1.4.1 states:

> *'The most important and interesting historic feature of Hereford is the pattern of the ancient streets preserved inside the line of its City Walls. From its origins in 700AD and early growth, the layout of the City Centre has been remarkably preserved as one of the clearest "copy book" examples of developments which took place in towns through Europe.'*

> *The Streetscape Survey Conclusions state, under Section 2 Conservation Generally, 'Any applicant for redevelopment of Sectors A, B, C should be made aware that Hereford city centre is an outstanding Conservation Area containing ... a mediaeval street pattern that should not be disturbed.'*

From Plan 1 in *Preferred Choice* it is clear that *the only place* to which this prohibition could fully refer is that part of Maylord Street within Sector C. There is no other part of 'the mediaeval street pattern' within the two development areas apart from the back of some of the burgage plots on the west side of

Widemarsh Street. There never were burgage plots on the north side of Bewell Street. This is one of the intriguing elements in the plan of mediaeval Hereford that has yet to be elucidated.

Any examination in adequate depth of this 'mediaeval street pattern that should not be disturbed' which provides 'one of the clearest "copy book" examples of developments which took place in towns through Europe' must consider three quite distinct elements:

1. The origins of the northern series of burgage plots on High Town, the rear of which form Maylord Street.
2. The important Jewish community which established itself at the eastern end of Maylord Street, the Jewry, in the late 12th and 13th centuries.
3. The European context of the Norman New Town of Hereford.

I THE ORIGINS OF THE NORTHERN SERIES OF BURGAGE PLOTS ON HIGH TOWN, THE REAR OF WHICH FORM MAYLORD STREET

Hereford is, in origin, not one town but two: the first Saxon, the second Norman. Although the Norman town is of principal interest it is necessary to say a few words about the former if we are to have an adequate understanding of the latter.

Saxon Hereford

A Saxon diocese was established at Hereford about 690. Here on the banks of the Wye a bishop established his seat or *cathedra* by an important ford, on land well above the flood plain, just upstream from the confluence of the Wye and Lugg. This was the centre of the tribal diocese of the *Magonsaetan* or Western Hecani, 'the folk who live in the west beyond the river Severn'. Its subject area included Shropshire west of the Severn as well as most of Herefordshire. This was long before this part of the kingdom was parcelled out into shires with a shire town or *burh* at its head. Hereford thus had a major administrative function long before its two sister towns on the Welsh March—Shrewsbury and Chester. Its administrative function was not, however, merely ecclesiastical, for it was also the political and military centre of the Mercian sub-kingdom of the *Magonsaetan* and the first minster, or cathedral, had a special *porticus* or mortuary chapel for its princes and bishops. (Hillaby, 1976)

At this time, almost all the land to the south and west of the Wye was Welsh in language and custom. As Hereford was thus in an extremely vulnerable position, a series of elaborate defences was constructed to defend the town in the period prior to the Norman conquest. The line of those defences, as established by recent excavation, in shown in red on Plan A. The size of the area within those defences, some 50 acres, is a clear indication of the economic and strategic importance of the town in the Saxon period. (Shoesmith, 1982)

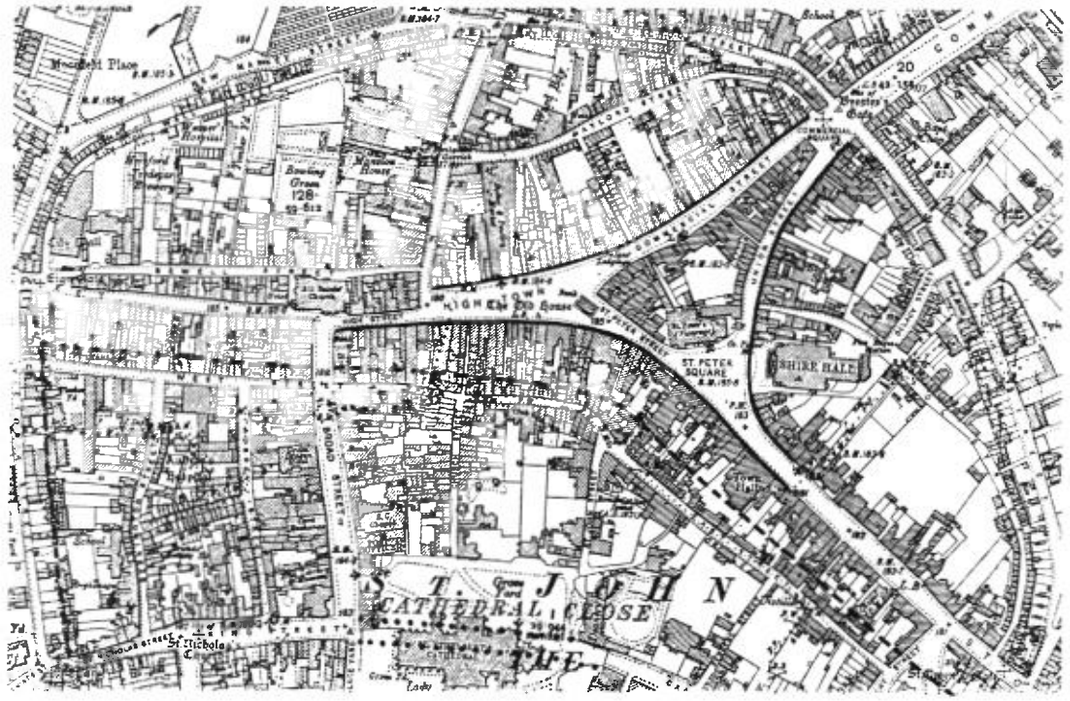
Conflict between English and Welsh became acute in the first half of the 11th century. The climax came in 1055 when the Welsh King Gruffydd ap Llewelyn, having overcome his rivals in Wales, attacked and conquered Hereford. This he did despite the adoption of a new defence system—including a castle—introduced by Edward the Confessor's Norman favourite, Ralph, earl of Hereford and son of the count of the Vexin. The Welsh slew seven of the canons who sought to bar their entry into 'the glorious minster' which Athelstan, the venerable bishop, had just rebuilt. City and minster were burned down. The treasures of the cathedral, with booty and captives in abundance, including many citizens of Hereford itself, were carried off to Wales. This occasion was merely the highpoint of a series of campaigns fought in and around Herefordshire. The murder of Gruffydd ap Llewelyn in 1063 did not provide a permanent solution to the problem of the adequate defence of the southern Welsh March.

The Norman Town

The solution to the problem was an elaborate and highly effective defence system constructed immediately after the Norman conquest. This was the work of William fitz Osbern who was appointed earl of Hereford by William the Conqueror in 1067. The Norman New Town at Hereford was the very heart of that defence system.

William fitz Osbern was the closest of all the Conqueror's friends. After fitz Osbern's father had been killed, thwarting an attempt on the young William, heir to the duchy of Normandy, the two boys had been brought up together. Later, fitz Osbern had been entrusted by duke William with the defence of the highly vulnerable southern frontier of Normandy, at the point where it marched with the lands of the French king. According to one account, it was fitz Osbern who pushed a somewhat reluctant duke William, at the Council of Lillebonne, 1065, into the enterprise against England. Certainly, his stature amongst the Norman magnates was such that William the Conqueror had no qualms about entrusting England to him as joint-regent with Odo, bishop of Bayeux, when he returned to Normandy in March 1067; that is at a time when the Conquest was far from complete.

Fitz Osbern thus had adequate authority to bring about dramatic changes in his palatine earldom and the lands adjoining. The process can be quite precisely dated to 1067-69. In 1067 Hereford castle was subjected to a vigorous attack by Edric the Wild. This event would have provided fitz Osbern with the right con-



PLAN A

1904 edition of the 25 in. Ordnance Survey plan of Hereford indicating the prime series of burgage plots to the north of William fitz Osbern's market place as they existed at the turn of this century

Key

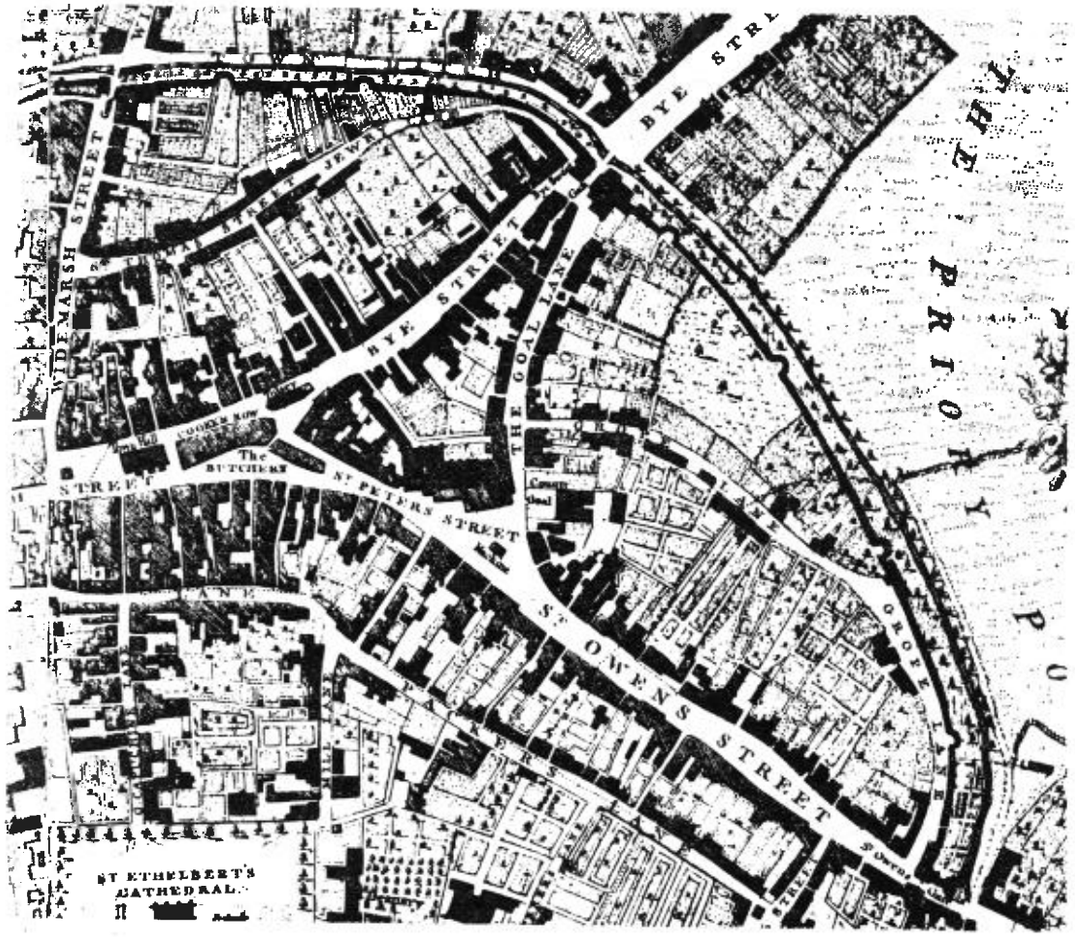
- – – – – – – – – – Approximate line of the Saxon defences
- ——————— William fitz Osbern's new market place
- •••••••••••••••••• Section of the east-west, Castle Street - King Street, axis of the Saxon town which disappeared when the cathedral precinct was extended northward in early Norman times

ditions, both psychologically and physically, to bring about revolutionary changes to the topography of the city. In 1069 he left England never to return, for in 1071 he was killed in an ambush in Flanders. The plan laid down and commenced by fitz Osbern was brought to final completion by his successors.

Earl Ralph's castle was rebuilt on a much grander scale, although the full sequencing of Hereford Castle has yet to be fully worked out (Shoesmith, 1980, 56-60). Much more important for the future, was the foundation of a New Town to the north of the existing Saxon *burh*. Its topography seems to reflect an earlier informal marketing area in the shadows of the northern walls of the Saxon town. This market was fed by roads from the west, the north and the east which are now represented by Eign Street, Widemarsh Street, Commercial Road (formerly Bye Street Without) and St. Owen Street (Plan A). Although elements of the plan of the New Town have yet to be elucidated, most of the outstanding questions relate to the western part which is not our immediate concern. It does seem certain that the existing road network provided the principal elements of the New Town plan. Onto this fitz Osbern grafted elements drawn from his experience in Normandy.

The creation of the New Town had a profound impact upon the Old Town which had been based upon the north-south axis of Broad Street and the east-west axis of a linked Castle Street - King Street. The ecclesiastical complex including the ruins of Athelstan's 'glorious minster', lay in the south-east quarter of the town. With the removal of the market from Broad Street to High Town, it became possible to extend the ecclesiastical precinct northwards to its present position athwart the former east-west axis. This provided the additional space required for a large new cathedral to replace Athelstan's minster. As far as earl William was concerned, it conferred the additional, very considerable economic advantage of ensuring that all east-west traffic would have to pass through his new market place in High Town.

Fitz Osbern's New Town belongs to what has been called the 'market based' type rather than the 'grid-plan' type which is well-illustrated and remarkably preserved at Ludlow. At the centre of his New Town in Hereford he laid out a vast wedge-shaped market place. Its bounds are now represented by High Town, Commercial Street (formerly Bye Street Within) and Union Street (formerly Old Street). The triangle of buildings now to be found within that area represent later mediaeval market encroachment, a common feature of our ancient market towns. At Hereford, as elsewhere, some of this market encroachment was removed in the late 18th and early 19th century (compare Isaac Taylor's, 1757 *Plan* (Plan B) with the 2nd ed. 1904, OS 25″ Plan (Plan A)). The foundation of this new market place is referred to in Domesday Book which explains that this area, with other land 'about the gate of Hereford', had belonged to bishop Walter,



PLAN B

Part of Isaac Taylor's plan of the city of Hereford of 1757 showing fitz Osbern's great wedge-shaped market place with the later encroachments. The plan is of especial value as it plots all those buildings between St. Peter's Church and the western end of High Town, except the 'Old House' which were swept away in a subsequent frenzy of borough 'improvement'

but William fitz Osbern had obliged the bishop to exchange 'the land in which is now the market' for the manor of Eaton (Bishop) and land at Lydney in Gloucestershire.

On each of the three sides of this market place, burgages were laid out. These were parallel plots of land of uniform length and breadth with a narrow frontage onto the market and a long strip of land to the rear. Such burgage plots are one of the fundamental physical characteristics of new and planted boroughs of the post-conquest period. The dimensions varied considerably according to local circumstances; many are known from borough foundation charters. Thus, at Altrincham they were 2 perches by 5 perches, at Stratford-upon-Avon $3\frac{1}{2} \times 12$; and at Burton 4×24. What is significant is not the individual variations in size but the common physical characteristics already indicated.

At Hereford the southern series backing onto the northern defences of the Old Town are quite short, for their length is dictated by the distance between those defences and the east-west routeway. The two series to the north and the east were not so constrained, as can be seen on Plan A. However, the northern series are the longest and many had a fine southerly aspect. Clearly these were the prestige series. Further, as Plan A shows, they are remarkably well preserved. Only at the extreme eastern end were they clipped back by the city defences. Most unfortunately, much of this part has already been swept away by Hereford City Council. This series is, in my view, of paramount importance. Is it mere coincidence that they are so excellently illustrated by aerial photographs on the cover of *Preferred Choice* and a number of text books on English town plans?

The urban plots of the pre-conquest period have been examined at Winchester, Southampton, Hereford and elsewhere. It is interesting to contrast the characteristics of the urban house plots of the pre- and post-conquest periods. There seems to be a remarkable difference. As Shoesmith (1982, 92) has observed, 'the shape of the individual plots in the area of the postulated grid pattern of streets (at Hereford) as shown by 18th and 19th century maps, is quite distinct from that in the area which developed *outside* the late 9th and 10th century defences. The latter are typical long narrow burgage plots *whilst the former are broader and much shorter.* These may represent the Saxon *masurae,* the term which was used for a plot of land in the Herefordshire part of the Domesday survey and which continued in use until the 13th century. By this date it had become interchangeable with the more common terms *burgagium* and *tenementum* but the distinction in *shape and size* between the plots in the two separate development areas apparently persisted.'

The same characteristics have been observed in other Saxon urban centres. The plots are much looser in definition and are much squarer in shape. If this is the case, its presents urban historians and archaeologists with a problem which

has not yet been fully articulated by the specialists in the field. What are the origins of the long narrow burgage plots first seen after 1066? It has been assumed by some of those who have written about the new and planted post-conquest towns that the burgage plots may be rural in origin—a reflection of the pre-existing open field strips for example. However, the origins of the burgage plot, like the origins of the castle, are still shrouded in mystery. Bearing in mind the evidence to be considered later of the Norman origin of the legal characteristics of land-holding in the New Town, it might possibly be argued that the burgage plot was also a Norman import.

Archaeologically and historically, this remains a problem of profound significance and this is possibly the most important context in which the present application for the stopping up of part of Maylord Street must be judged. The northern series of burgage plots of Hereford's New Town was one of the first to be pegged out in this country. It also seems equally evident that it is at present the best preserved very early Norman burgage series in the country. The similar series which were to have been seen at such other early Norman New Towns as Nottingham and Norwich have now been irreparably lost. The argument for retaining this series is therefore most compelling, not only in terms of its English but also its continental implications.

The case for retention must, however, also include some consideration of the especial character that the eastern end of Maylord Street developed in the late 12th and 13th centuries. By 1290 it was the home of the second largest Jewish community in the realm.

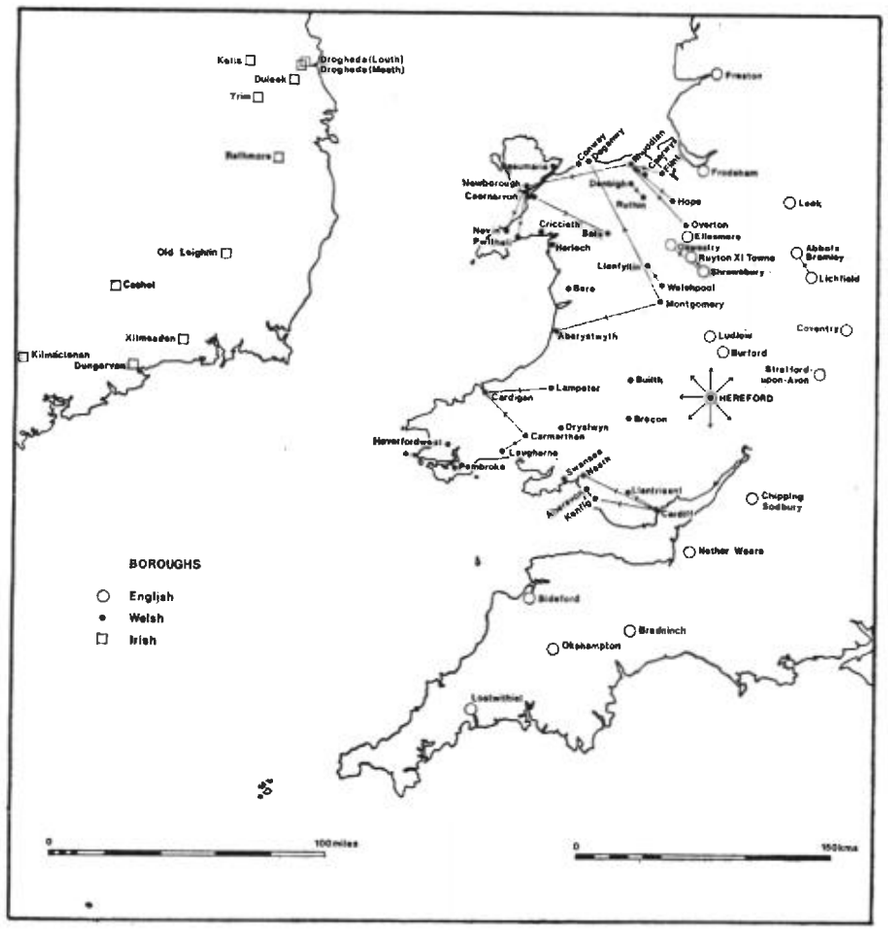
III THE EUROPEAN CONTEXT OF HEREFORD NEW TOWN

The motives for the foundation of Hereford New Town were military and strategic. To the Normans, castle and borough were regarded as complementary and they were usually associated with a major church—an abbey or priory. This can clearly be seen in earl William's two other British boroughs, at Chepstow and Monmouth. This was part of the process of 'conquest and colonisation from outside'. Such a fortified centre, with Norman knights, Norman monks and Norman or 'French' burgesses, was a 'formidable instrument of domination and exploitation to the surviving English and Welsh people'. They were all planted there 'to maintain the Norman hold upon the land and their large share of its production'. At Hereford, as at Nottingham, Northampton, Norwich, Southampton, Wallingford and York, the New Town was peopled by Frenchmen. No wonder William of Poitiers described fitz Osbern as 'especially dear to the Normans and especially dreaded by the English'.

At Hereford, these Frenchmen enjoyed an especially privileged position, no doubt because of the close proximity of the Welsh threat. This is made clear by the Domesday survey which records that 'the English burgesses who live there have their former customs. But the French burgesses have all their forfeitures discharged for 12d., except the three above' (breach of the peace, house-breaking and highway robbery). The attractiveness of such a bait is quite clear when one realises that in London such forfeitures were levied at 100s. and at Bristol at 40s. The privileges thus offered found a ready response across the Channel. Domesday book shows us how effective it was in building up the New Town at the centre of earl William's defence network. In the 20 years between 1066 and 1086, the City's render to the King had more than trebled, rising from £18 to £60, and the bishop's farm land outside the gates had doubled in value. Earl William's New Town was an unqualified success.

Yet it was but the centre of a much larger system which was designed not only as a means of defence but also as an instrument for further conquest and colonisation. After the construction of strategically placed strongholds at Wigmore, Clifford and Ewias Harold, an onslaught was made across the lower Wye as far as the Usk and castle-borough-priory complexes were established at Striguil (Chepstow) and at Monmouth prior to fitz Osbern's death. By the reign of Henry I, the widespread adoption of fitz Osbern's methods had brought about the Norman conquest of much of south and central Wales. The same techniques were shortly afterwards to be applied in Ireland. This is the wider context in which the foundation of the New Town at Hereford must be placed.

The context is, however, not merely British and Irish. The prototype applied by fitz Osbern had been fashioned by himself and others in Normandy. About 1050, he had been given the castle at Breteuil-sur-Iton on the southern frontier of Normandy. This castle had originally been built by duke William (William the Conqueror) as a counterweight to the castle established by the French king at Tillieres-sur-Avre. Fitz Osbern had strengthened his hold on Breteuil by the construction of a *bourg*, borough, and large church; a technique which he had already used at Cormeilles, not far away, and which duke William had used at Caen and elsewhere. Breteuil has a large wedge-shaped market place, with burgage plots to the sides as at Hereford. But this is not the only point of similarity, for the privileges which he had given to Frenchmen to cross the Channel to settle in the New Town at Hereford were the same privileges he had previously granted to those who would come to settle at Breteuil on the war-torn southern frontier of Normandy. These were the 'customs and privileges of Breteuil' of which the most important was that, for all but the three major offences, no new settler was to be fined more than 12 pence. Both in Normandy prior to 1066 and in Hereford and the Welsh March after 1066, fitz Osbern had used the same methods to attract battle-ready settlers for dangerous garrison duties.



MAP
English, Welsh and Irish boroughs that derived their laws or customs from Hereford

Another passage from Domesday book shows us the process, adopted by others, at the very beginnings of the conquest of Wales. Hugh d'Avranches, who was made earl of Chester sometime prior to 1070, founded a new town next to his castle at Rhuddlan. To the burgesses he gave 'the laws and customs which are in Hereford and Breteuil'. Other lords quickly followed this example. Many new towns in England were given the laws and customs of Hereford and, as the conquest of Wales proceeded, so the castle-towns which were founded to secure the Norman hold on the country were granted them as well. These they then passed on to their daughter towns. Thus Hereford New Town, it has been said, 'is the real mother town of the Welsh boroughs'. Finally, when the Normans invaded Ireland, the process was repeated all over again there. Thus some 60 English, Welsh and Irish boroughs were the children, grand-children and great-grand-children of the City of Hereford, Table I. The City records show it was not unusual for some of these children to turn to Hereford for advice concerning the true nature of their institutions as did Cardiff in 1284. The City records show that in that year:

> 'John Gaunter, chief bailiff of Hereford, having called twelve men unto him, requested (an account of) certain customs to be used in his time, and which were heretofore usual and approved, and what it behoved them to send and certify unto the men of Cardiff, desiring the same at the present, and for other towns whose necessity should require, in case they should be sought for him during his time.
>
> And those twelve men, by the counsel and assent of the discreetest of their citizens, say, as touching the customs of them sought, that:
>
> "Although as citizens of our Lord the King, who have the keeping of this city of Hereford, (seeing it is the principal city of all the market towns from the sea unto the limits of Severn), they ought to deliver these customs, by reason of an ancient law and tradition, to such towns when it shall be needful, yet they are not bound to do those things after the same manner for those towns which say they are not bound of the same condition."
>
> There are some market towns belonging to our Lord, the King of England, without a mediate lord, and to such we are bound to certify concerning our laws and customs as often and whenever it shall be needful, especially because we are of one and the same tenure, and nothing shall be taken of them in the name of a reward unless it be by our common clerk for his writing and pains as they can agree.'

The nexus of boroughs established by fitz Osbern in the late 11th century was still vitally linked at the end of the 13th century. The British connections I have been able to indicate with a fair degree of detail. It is not yet possible to do so with the connections on the other side of the Channel. Certainly Breteuil did not stand alone.

Appendix: The lineage of the English, Welsh and Irish boroughs that derived their laws or customs from Hereford.

Charles Gross, *The Gild Merchant*, I (1890), 242-57; Mary Bateson, 'The Laws of Breteuil', *E.H.R.*, XV (1900), 73-8, 302-18, 496-523, 754-7; XVI (1901), 92-110, 332-45; Edward Arthur Lewis, *The Medieval Boroughs of Snowdonia* (1912), 11-42; Adolphus Ballard, *British Borough Charters, 1042-1216* (1913); Adolphus Ballard, 'The Laws of Breteuil', *E.H.R.* XXX (1915), 646-58.
Edmund Curtis suggested in *A History of Medieval Ireland* (2nd edn., 1938), 409-10 that 'some 20 places in Ireland received these rights, but he is not always accurate in detail. Two more recent studies, G. MacNiocaill, *Na Buirgéisi*, I (1964) and G. Martin, 'Plantation Boroughs in Medieval Ireland', *Historical Studies*, XIII (1981), make further suggestions. Most are mere 'rural boroughs.'

CONCLUSION

I have sought to show that the ground plan, or 'street plan' as it has been termed by others, is not merely well preserved and of local interest. It is in a well-nigh unique state of preservation. One has only to look at such neighbouring ancient cities as Worcester, Bristol and Gloucester to appreciate this. Equally important that ground plan is not merely of national importance it is of very considerable significance in terms of the development of Western European Society—as I have sought to show.

This was clearly recognised at planning stage. *Preferred Choice* is quite unambiguous in this respect and the developers' attention has been formally drawn to that planning directive. What now seems to have happened is that in the interplay of forces—economic, architectural, political, engineering, etc.—the historical considerations have found no adequate advocate within the development machine. As far as now unborn generations are concerned their heritage now hangs on the thread of an inquiry to stop up a public highway. It is for this reason that the Woolhope Naturalists' Field Club implores the Secretary of State, on behalf of those future generations, our posterity, to ensure that this important part of their heritage is accommodated in whatever development scheme is adopted for Sector C in Hereford, by rejecting this closure order."

On 26 October 1983 the Secretaries of State for the Environment and Transport notified the Club that they agreed with the Inspector's conclusions, accepted his recommendations and that they had accordingly decided not to make the proposed Stopping Up of Highways Order. In his report, the Inspector said that, 'in the absence of a detailed planning consent it is necessary to consider whether the stopping up of the greater part of Maylord Street (in particular) is essential to every conceivable scheme.' The applicants had, of course, put forward only one scheme and have subsequently rejected a compromise proposal put forward by the City Conservation Area Advisory Committee which would have enabled them to retain both the full length of Maylord Street and their two principal stores at the northern end of the proposed development area as they wished.

The Inspector found as fact:

'Hereford has one of the best preserved medieval street patterns in the country. Maylord Street follows the rear boundaries of burgage plots laid out in early Norman times along the north side of High Town and Commercial Street. Its eastern end was the site of the second largest Jewish community in the country in the 13th century.'

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Religious Houses with Special Reference to Herefordshire

By J. W. TONKIN

VERY early in the history of the Christian church hermits are found following an old religious practice of withdrawing from the world in an attempt to serve God more fully in a life of prayer and solitude. In some cases a group of these men or women would live close to each other and in these communities is found the beginning of monasticism.

ORDERS

By *c.* 600 the order which bears his name had been founded by St. Benedict who drew up his Rule by which they were to live. Already there were Celtic monasteries at such places as Dingle, Glendalough, Kerry and Tintagel.

As monasticism spread so differences in customs and the strictness of their rules and life developed which eventually led to the foundation of new orders which adopted stricter rules or rules with a fresh emphasis, different colours for their habits and built new settlements in which to live and worship. About 1078 at Cluny in France a group of Benedictines set up a monastery in an attempt to live a stricter life and later many great Cluniac houses were built in Britain, but in Herefordshire there was only the one small priory of this order. The Cistercians, the white monks, were founded in 1128, building their monasteries in lonely places, having comparatively large numbers of lay brothers and, in this country, keeping large flocks of sheep. The Carthusians, founded fifty years later, lived in single cells coming together only for their services. The Grandmontines were claimed by the Benedictines, but strictly speaking were hermit brothers living under the rule of St. Augustine and it is not surprising to find them in an isolated place up beyond Craswall in the Black Mountains.

Before this, orders of canons had started, the earliest being the Augustinians, *c.* 1100, followed in 1143 by the Praemonstratensians, wearing respectively black and white habits. These canons lived together in a community in the same way as monks, but served a group of parishes from their monastery. In 1135 the English order of Gilbertines was founded by St. Gilbert of Sempringham in Norfolk. This was a mixed order of canons and nuns who lived in double monasteries. They adopted the black habit of the Augustinians and the white cloak of the Cistercians.

The Crusades to the Holy Land led to the foundation of military orders who wore a tunic over their armour with their distinguishing cross and colour on it. There was the red cross of the Knights Templars and the Maltese cross of the Hospitallers, or Knights of St. John, founded *c.* 1125 and *c.* 1144 respectively. The Templars were suppressed in 1311 for 'blasphemous and objectionable practices', their possessions passing to the Hospitallers.

In the 13th century came the friars whose task was to preach to people whom the church was not reaching and to convert heretics. They took vows of poverty some existing on what was given to them. St. Dominic, a Spaniard, founded his Dominican order, the Black Friars, in 1216 though he had been working towards it since 1204, and St. Francis of Assisi founded his Franciscans, the Grey Friars, in 1210 in Italy, though he also had started his religious life rather earlier, in 1207. Later came the Carmelites, White Friars, *c.* 1241, an order which had its origins on Mount Carmel, and the Austin Friars, 1248, also wearing a black habit.

COLLEGIATE CHURCHES

As well as the religious houses mentioned above there were the collegiate churches some of which had existed before the Norman conquest. These were colleges of canons or prebends living in a community rather like the monks but serving a group of parishes, going out from the main church to serve others in the area. This central church was the minster church for the district concerned, typical examples in Herefordshire being Bromyard and Wigmore. Sometimes, as in the latter case, the collegiate function was taken over by a monastery growing from it.

CATHEDRALS

Eight of the pre-Reformation cathedrals were also monasteries and served both functions. These were the Benedictine houses of Canterbury, Durham, Ely, Norwich, Rochester, Winchester and Worcester and the Augustinian canons of Carlisle. Bath and Coventry were also pre-Reformation cathedrals, both Benedictine, which did not continue as centres of dioceses after 1539. In 1542 six new dioceses were founded using the former abbey churches as cathedrals. These were Bristol, Chester, Gloucester, Oxford, Peterborough and Westminster, though within ten years the last named became a secular collegiate church. Of these all had been Benedictine monasteries except Bristol and Oxford which, like Carlisle, had been Augustinian canons.

Most of these establishments were at their peak by the early 14th century before the Black Death reached England in 1349. At that time there were twice as many monks in England as at the Dissolution in 1536 and 1539.

CHANTRIES

In addition to the above religious foundations there were the chantries. By the end of the 13th century these had become the most common form of religious endowment. Basically a chantry is a mass celebrated at an altar for the well-being and good estate of the founder during his life-time and for the repose of his soul after death. They are mentioned here because the chantry priest was independent of the parochial clergy and in a few wealthy cases there was a small group of them, three or four, living a more or less collegiate life.

DAILY ROUTINE

This varied a little from order to order and over the centuries, but a typical daily routine would start with Matins, usually as early as 2.00 a.m. or 2.30 a.m. and continue with Lauds at 4.30 a.m., Prime at 6.00 a.m. Sext, High Mass, None and finish with Compline. A daily chapter meeting was normally held, often after Prime, and in many cases Terce, Vespers and Evensong were included among the services. Thus the life of a member of these communities, while not necessarily rigorous, was certainly regulated.

LAYOUT

The basic layout of these religious houses followed a fairly standardised pattern, though clearly it varied according to the wealth and size of the establishment and to the rules and traditions of the particular order.

Normally there was a wall or a hedge and ditch surrounding the precincts which were entered through a gatehouse. This led into an outer court around which were the offices and stores including the almonry, bakehouse, brewhouse, granary, the guesthouse and sometimes the abbey mill. Beyond were the church and cloisters, the latter being on the south wherever the site permitted.

The church was almost always cruciform with a screen dividing the choir from the nave, frequently to the west of the crossing at the transepts. In many cases there was a second screen a bay further to the west, the nave being open to the laity. The services attended by the monks were held in the choir and in many of the greater old churches the misericords, the tip-up seats with their leg support beneath the seat, still survive, the actual support very often having been well-carved though it would not normally be seen.

The cloisters are usually approached from the south transept and the east side of them is often prolonged to the south because of the dormitory on the upper floor. The ground plan working south from the church in most cases is comprised of the parlour (literally a talking-room), the chapter house, the dormitory stairs and a warming-house where the monks could go to warm themselves in cold weather.

On the south side there would be the refectory, often on the first floor with a vaulted basement beneath. The refectory followed the pattern of a great hall of the type found in colleges of the time with the screens at the low end and a pulpitum projecting from the wall from which one of their number would read to the monks at their meals. On this side of the cloisters were sometimes carrels, recesses which were virtually little studies, in which the monks could write.

On the west side the ground floor was again normally a store with above it the abbot's lodging following the standard pattern of a hall, great chamber and chapel.

Somewhere near the cloisters, frequently to the east approached by a passage through the eastern range, was the infirmary for aged and sick monks.

THE MONASTERY IN THE COMMUNITY

The members of a monastic body played a considerable part in the life of rural England and Wales. Among them were craftsmen who built the abbey church and the associated buildings, carved both stone and wooden decoration for their church and in a different group of crafts wrote and illuminated the manuscript books, though with the advent of printing this became less important.

Not only did they dispense alms locally, but they looked after poor people travelling the countryside and provided accommodation for them and for pilgrims. Allied with this was their knowledge of herbs and medicine which they used to look after the sick. Unusual herbs can still be found growing near monastic sites.

Some of them were great sheep-rearers and the wool they produced helped to augment the wealth of England. The abbey at Winchester owned 29,000 sheep and St. Augustine's, Canterbury, had 13,780 in the Isle of Thanet. Perhaps not as well-known is their work in the north of England as coal producers and iron workers, while in other areas they became horse breeders. Their fishponds were a source of food and their vineyards and wine-making were found over much of the country.

THE END OF MEDIEVAL MONASTICISM

At the beginning of the 14th century there were over 2,000 religious houses in England and Wales, even though certain lesser orders of friars had been suppressed in 1274. The Knights Templars followed these in 1311, but otherwise they were flourishing until the Black Death dealt them a severe blow in 1349 from which some never recovered. Henry V suppressed about seventy alien priories in 1414 and as a result of these various happenings the total number dropped to about 1,700. However, by the early 16th century there were only about 650 together with 187 friaries and hospitals, a total of some 840.

Thus the decline in numbers had started long before the coming of the Tudor monarchy. Between 1524 and 1529 twenty-nine small monastic communities were suppressed by a series of papal bulls, but their total income only came to £1,800, about that of one fairly wealthy monastery.

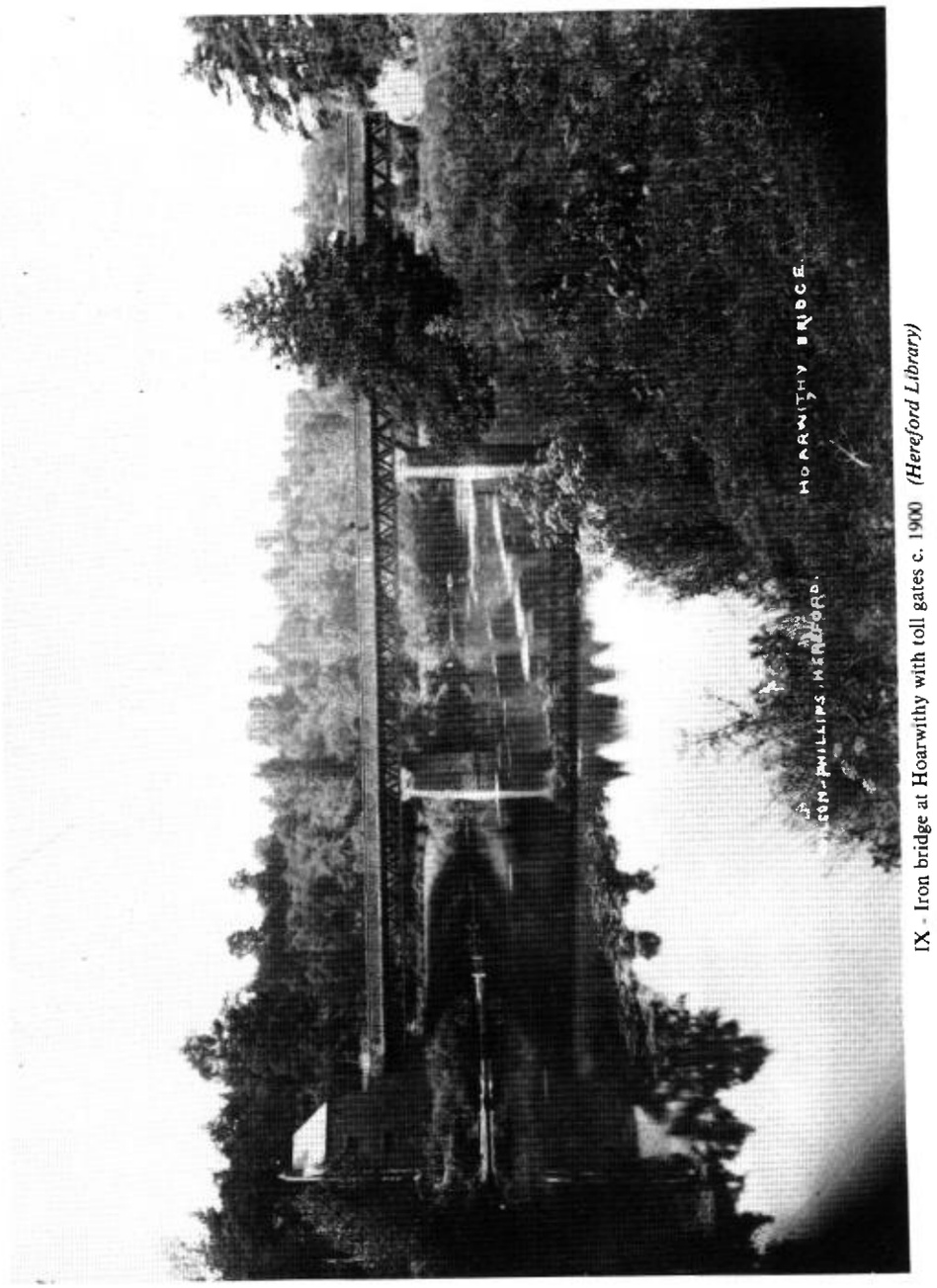
The suppression really started in 1535-6 when all those with an annual value of under £200 were dissolved. Three years later all the others with their great wealth were taken into the hands of the king and the gradual redistribution of their property helped to change the social and economic life of England and Wales.

In 1547 Henry VIII was succeeded by his son Edward VI who in the same year completed his father's work by suppressing the chantries and colleges with the exception only of Cambridge, Oxford and Windsor where the collegiate foundations were allowed to continue and have carried on to this day.

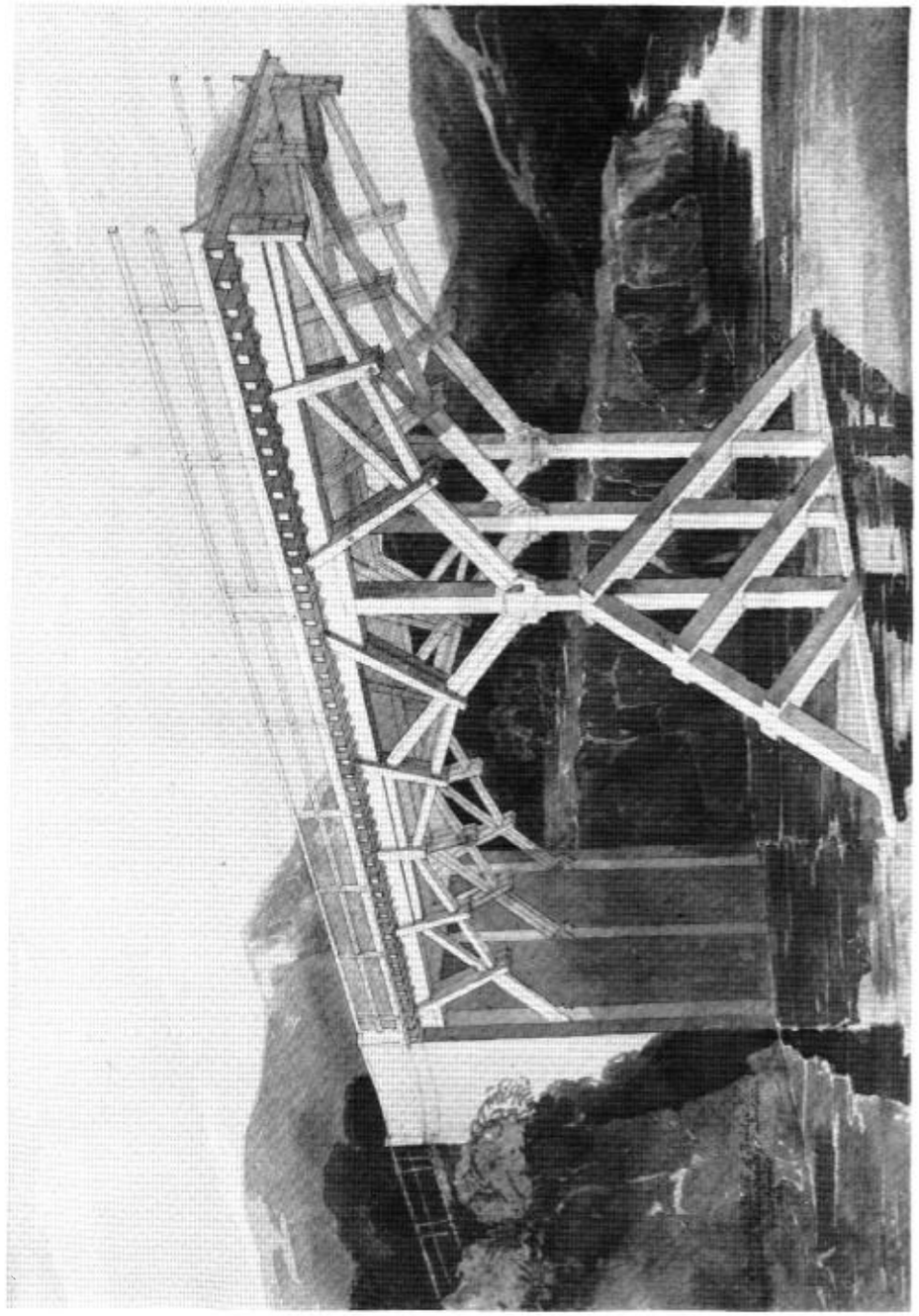
At St. Endellion in north Cornwall a collegiate church seems never to have been fully suppressed and in 1929 was re-established with its four prebendaries.

A list of pre-Reformation religious houses in the county of Herefordshire follows, but does not include chantries. Like the list of castles in the 1982 *Transactions* it was prepared some years ago for the use of those teaching history in the schools of Herefordshire. Again it should be noted that they are private property, but often permission to visit can be obtained from the owners.

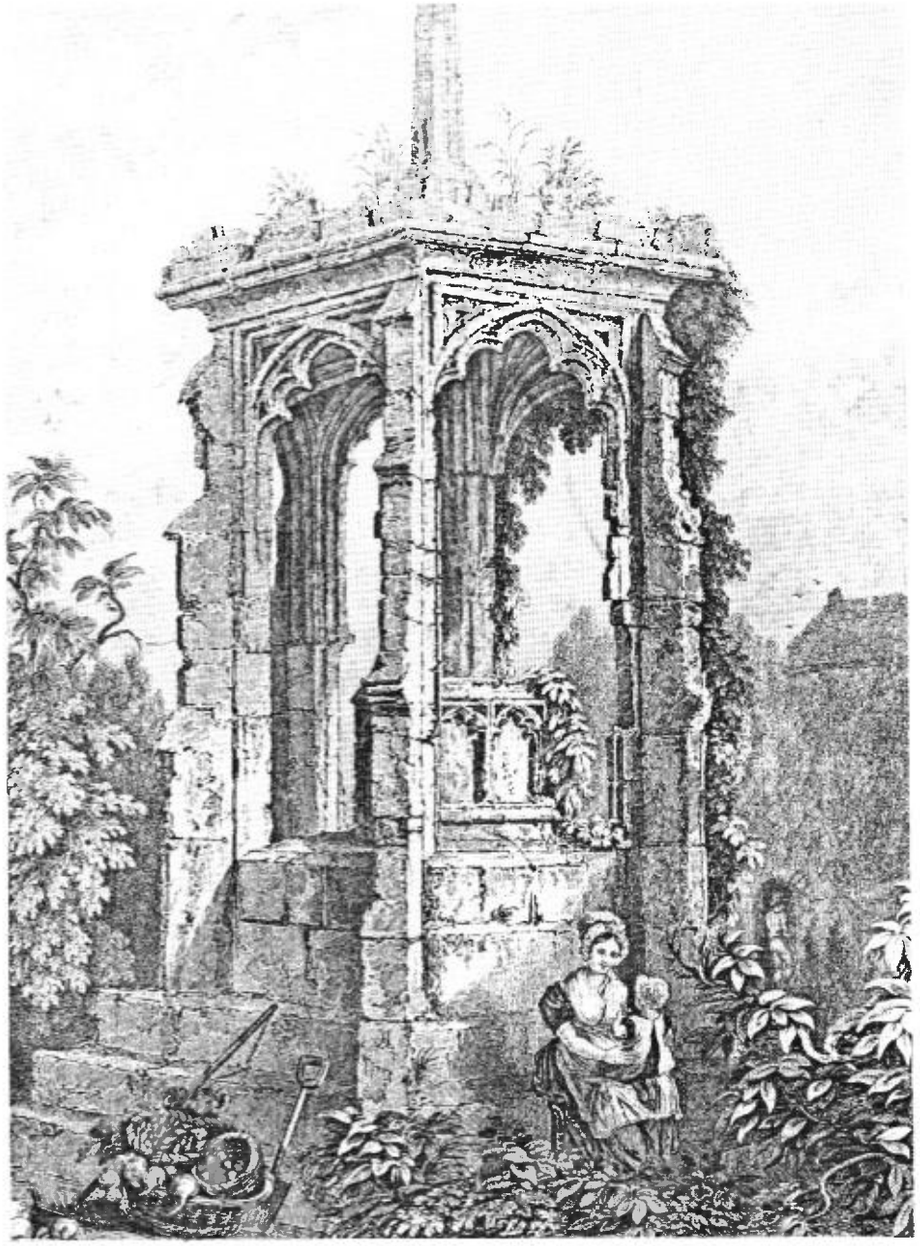
Name	*Grid Reference*	*Order*	*Accessibility*
Abbey Dore	SO 387304	Cistercian	Parish church
Acley (Livers Ocle)	SO 577464	Benedictine	Site only
Aconbury Nunnery	SO 517336	Augustinian	Parish church
Aymestrey (Wigmore ii)	SO 424654	Augustinian	On land of Crown Inn—site only
Brockbury	SO 746418	Benedictine	Cellars of private house
Clifford Priory	SO 253445	Cluniac	Incorporated in private house
Craswall Priory	SO 272377	Grandmontine	Ruins on farmland
Dinmore Preceptory	SO 486503	Knights of St. John	Open daily
Dore Abbey (see above)			
Ewyas Harold	SO 386286	Benedictine	S.E. of castle—site only
Flanesford Priory	SO 579194	Augustinian	Farm buildings



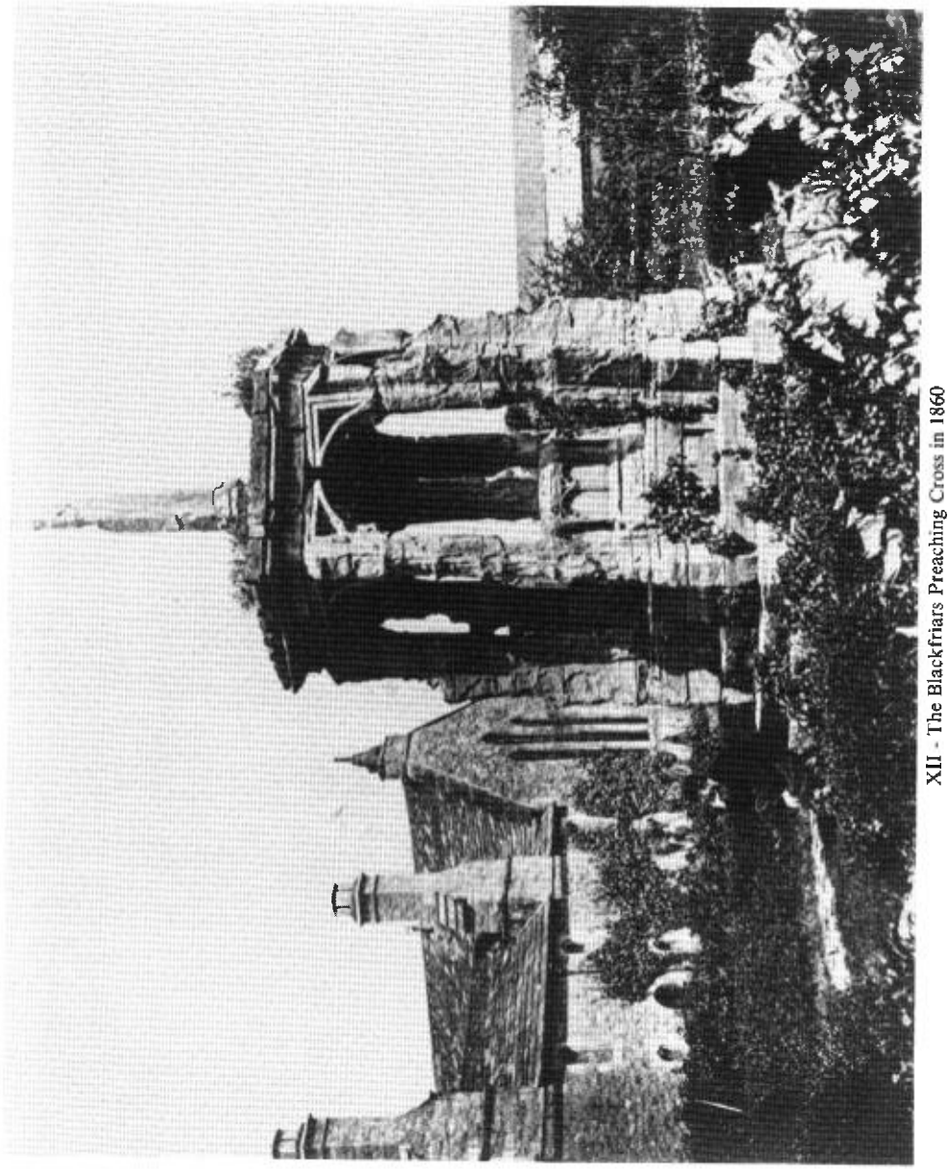
IX - Iron bridge at Hoarwithy with toll gates c. 1900 *(Hereford Library)*



X - Perspective sketch of bridge proposed over the Wye at Hoarwithy, Herefordshire, by Joseph Gwilt, 1812. *(By courtesy of the RIBA Library)*



XI - A detailed drawing of the Blackfriars Preaching Cross in 1830



XII - The Blackfriars Preaching Cross in 1860

Garway	SO 455225	Knights Templars	Parish church
Harewood Park	SO 530280	Knights Templars	Site only
Hereford:			
St. Guthlac's	SO 515401	Benedictine	Hospital & 'bus station—site only
Blackfriars	SO 512404	Dominican	Behind Coningsby Hospital
Greyfriars	SO 516397	Franciscan	West of St. Nicholas' car park—site only
Coningsby Hospital	SO 511404	Knights of St. John	Widemarsh Street—open daily
Knights Templars	SO 517396	Knights Templars	St. Owen's Street—site only
Holme Lacy	SO 555350	Praemonstratensian	Site only
Kilpeck Priory	SO 447303	Benedictine	Private house
Leominster	SO 498593	Benedictine	Parish church and hospital
Limebrook Nunnery	SO 373660	Augustinian	Ruins by road on farmland
Monkland	SO 460577	Benedictine Cell	Site only
Shobdon (Wigmore i)	SO 401629	Augustinian	Parish church
Shobdon	SO 400633	Augustinian	Arches from church on farmland
Titley	SO 331602	Cell of Tiron (reformed Benedictine)	Parish church
Wigmore Abbey (iii)	SO 411688	Augustinian	Site only
Wigmore Abbey (iv)	SO 410713	Augustinian	Private house
Wormsley	SO 436485	Augustinian	Overgrown ruins by road on farmland

COLLEGIATE CHURCHES

Bromyard	SO 656548	All are existing parish churches
Hereford:		
All Saints	SO 509400	
St. Peter's	SO 512400	
Ledbury	SO 713377	
Wigmore	SO 413691	

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The effect of orcharding and the cider industry on the landscape of West Gloucestershire c.1600-1800

By R. NEWMAN

ORCHARDING for the production of cider and perry was a significant element in the landscape of the 17th and 18th centuries in a number of regions in Britain, particularly in the south-west and in the Welsh Marches. Orcharding has received little attention as an element of landscape, yet it affected the appearance of the rural environment both directly and indirectly and deserves a more detailed study than it has previously received. In this article, it is proposed to study a part of a great 17th and 18th-century orcharding region stretching through Gloucestershire, west of the Cotswolds, through much of Herefordshire, Worcestershire and parts of Gwent. The choice of West Gloucestershire was conditioned by it corresponding to the area chosen for my doctoral research and by its historical importance to the 17th and 18th-century cider industry. The object of this study is to define the ways in which orcharding and the cider industry effected the landscape and to provide quantifiable data for the density of orcharding throughout the area.

The Romans certainly raised apples in Britain and they may have been grown at an even earlier period. It is unlikely that orcharding would have declined in the early middle ages, but evidence for its continuance is slight.[1] For most of the medieval period cider production was probably very limited; the contemporary literature from Beowulf to Chaucer indicates that mead and ale were the main beverages for the majority, with wine for the privileged minority. Yet, orchards in the 12th and 13th centuries were being used for the production of cider, as can be seen in the writings of Walter of Henley.[2]

It is likely that orcharding began to increase with the decline in viticulture during a climatic deterioration in the later middle ages. In the 12th century William of Malmesbury commented on the proliferation of vineyards in Gloucestershire, but by the late 16th century, Camden in his *Magna Brittanica* was bemoaning the decline of Gloucestershire's vineyards.[3] At present, the earliest evidence for orcharding and cider production in medieval West Gloucestershire, comes from the parish of Woolaston where an orchard was mentioned in 1261 and accounts for cider production are extant from the late 13th century.[4] Another early reference to orcharding comes from Staunton parish in 1348.[5]

Although a probable increase in orcharding took place in later medieval England, only a few apple and pear species are recorded by the early 16th century and the art of orcharding was immature in comparison to other areas of western Europe such as Normandy. The work of men like Leonard Mascall and Richard Harris, fruiterer to Henry VIII, in importing fruit varieties and in disseminating ideas concerning cultivation and stock improvement, did much to advance the situation.[6] Kent, as a market for London, particularly thrived from this 16th-century expansion in knowledge and interest, but the west country also appears to have benefited. In 1597 the herbalist, John Gerrard wrote 'Kent doth abound with apples of most sorts but I have seen in the pastures and hedgerows, about the grounds of a worshipful gentleman, dwelling two miles from Hereford, so many trees of all sortes that the servants drink for the most part no other drinke but that which is made of apples.'[7]

By the late 16th century, many of the parishes of West Gloucestershire have information relating to orchards contained in leases and deeds, but it is impossible to assess the importance of fruit growing for liquor production or its significance to the landscape.

Orcharding and cider production were actively encouraged by agricultural improvers throughout the 17th century and evidence of landowner encouragement of increased orchard planting can be found in West Gloucestershire. George Wyrral, of English Bicknor, in 1636 was leasing land in Bicknor for twenty-one years, on condition that each tenant, in addition to paying a fixed cash rent, had to plant and graft a set number of crab stocks, on taking up the lease, or plant a given number of stocks each year of the tenancy.[8] In 1638, similar agreements bound a Wyrral tenant in St. Briavels.[9] In 1651, three tenancies of the Winter estate at Purton, Lydney, contained agreements for increasing apple and pear stocks.[10]

By the later 17th century, parts of Gloucestershire were areas of national importance for the cider industry. Gloucestershire was used by Evelyn as one of his main examples of a cider area in his *Pomona* of 1664.[11] An unpublished manuscript 'History of Gloucestershire', probably dating to the later 17th century, comments on the importance of two West Gloucestershire parishes.

'Dimock and Kempley before mention'd are two of the most note'edst parishes of England for makeing the most and best, Rare Vinum Dimocuum or that transcendent liquor called Red-Strake Sider.'[12]

In 1788, William Marshall thought Mayhill was the approximate centre of the great fruit-growing region of Herefordshire and West Gloucestershire.[13] The importance of West Gloucestershire to the cider industry is further emphasised by four of the most eminent fruits of the mid-18th century originating in, or

largely being grown, in the area. Stire cider was generally recognised as the best cider of the mid and later 18th century. It was made from the Stire apple, often called the Forest Stire, due to its main area of production being the calcareous soils of the Forest of Dean. Regarded by many as second only to Stire, was the cider produced from the Hagloe crab, believed to have been first cultivated in Awre parish, in the later 17th century.[14] Similarly with perry, that produced from the Taynton-squash pear was regarded as the most worthwhile, with another favoured perry being that produced from the Hartpury-green pear.

This great burst of orcharding activity and liquor production had an impressive effect on the visual appearance of West Gloucestershire. Brome in 1700, described the county thus 'The very lanes and hedges being well-lined with apple and pear trees and the vales which in William of Malmesbury's time were filled with vineyards, are now turned into orchards.'[15] John Bravender in 1850 wrote, 'The orchards of Gloucestershire give to it a densely wooded character.'[16]

Unfortunately, the numerous literary references to orcharding in the region which occur during the 18th century do not give an accurate indication of the density of orcharding in any given vicinity.

Sir Robert Atkyns, in his historical survey of the county in 1712, mentioned the abundance of cider apple trees at Dymock which in a good year were said to produce thousands of hogsheads.[17] Kempley was also mentioned as well planted with cider apples.[18] Samuel Rudder, in a similar survey published nearly seventy years later, mentioned the same parishes, as well as Newent, Oxenhall, Pauntley, Preston, Taynton and Westbury, as areas noted for their orchards.[19] A contemporary of Rudder, Ralph Bigland, in his work wrote that, St. Briavels and English Bicknor were famous for the production of Stire cider.[20] However, none of these authors give precise figures for orchard acreage. The subjective nature of their conclusions is shown in the differing opinions of Bigland and Rudder over contemporary agricultural conditions. For example, Bigland claims Longhope to be largely arable; Rudder pasture.

The earliest sources for the overall statistical analyses of orcharding density within the region are the tithe surveys and the 6 inch to a mile ordnance survey maps of *c.* 1880. These sources are not capable of supporting hypotheses concerning 18th-century orcharding and the cider industry. The 19th-century increase in apple and pear growing for culinary purposes, the decline in the cider industry and the generally changed conditions of later 19th-century agriculture, minimise the usefulness of these sources in relation to the 18th century. Quantifiable data can be gained, albeit of a geographically fragmentary nature, from 18th-century estate surveys, deeds and sale particulars. It is these from which much of the following evidence is taken.

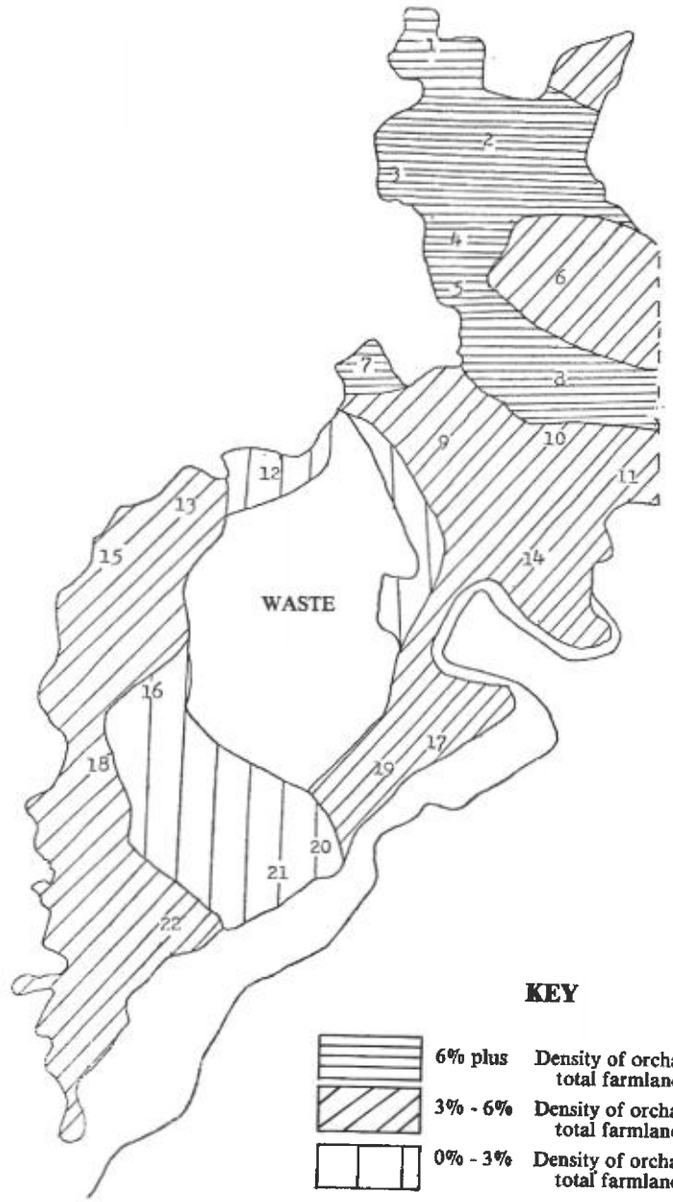
In Gloucestershire, from the early 18th century, the larger landowners began to acquire detailed mapped surveys of their estates. The type of information given is variable but usually orchards are cartographically depicted as well as referred to by name. According to Marshall, describing the Herefordshire region within which West Gloucestershire was included, these orchards were for apples, pears and cherries.[21]

Cherry orchards appear always to be named as such on maps whereas plums receive little mention in either the literary or survey evidence. If anything, they would appear to have been a garden, rather than an orchard, fruit. Apple and pear growing for the table during the 17th and 18th centuries in this area, receives little attention from the ciderists and other agricultural writers. It is unlikely that many apples and pears were grown that were not intended to be converted into liquor until the late 18th century with the growth of urban centres in the Black Country, particularly Birmingham. Prior to this, such fruit would be of little use unless a large urban centre was near to hand. Bristol was the nearest and its requirements could have been met locally. Marshall says of the Herefordshire-W. Gloucestershire region, 'in this country, fruit is of little value until it be converted into liquor.'[22] Most of the orchards in the area, recorded in the 17th and 18th centuries, would have been used for cider and perry production.

Only one relatively complete parish survey survives, for Lea in 1778.[23] Of 825 acres, 6.42% was under orchard. A survey of Lydney manor in 1756 records 33 acres as orchard which was 2.2% of the total surveyed.[24] A survey of Oxenhall manor in 1775 recorded 102 acres of orchard or 6.2% of the total area.[25] These bald statistics do not reveal the considerable variation that existed within a parish or manor. The Probyn estate at Longhope in 1717 consisted of 866 acres of which 2.16% of all the land was orchard or 3.55% of all farmland but on the 5 tenanted farms of over 20 acres on the estate, two were without orchards, two had less than 2% of their farmland under orchard and at the remaining one, orchards accounted for 6.37% of the farm area.[26] 6.57% of the Foley estate at Longhope consisted of orchard in 1775.[27] In 1780 the Hyett estate at Longhope was 13.8% orchard[28] and in 1785 the tenanted farm of Cornelius Blewett belonging to the Colechester estate contained 7.5% orchard.[29]

The majority of the parishes of West Gloucestershire during the later 18th century, probably had between 2 and 5% of their total landed area under orchard. Even this, apparently small total would have had a very significant impact on the landscape. At Newent, 3.42% of the manor was orchard in 1775, or a total of nearly 71 acres, divided into 39 separate orchards.[30] With 45.6% of the manorial area being woodland, it might be supposed that the landscape impact of the orchards was slight, but as the woodland was virtually all concentrated in one area, the significance of the orchards, for the appearance of the landscape of

ORCHARD DENSITY IN WEST GLOUCESTERSHIRE



Numbers relating to places in text

1. Preston
2. Dymock
3. Kempley
4. Oxenhall
5. Gorsley Common
6. Newent
7. Lea
8. Taynton
9. Longhope
10. Huntley
11. Churcham
12. Ruardean
13. English Bicknor
14. Westbury
15. Staunton
16. Clearwell
17. Hagloe
18. St. Briavels
19. Purton
20. Nass
21. Lydney
22. Woolaston

the rest of the manor, is increased. The more important cider producing parishes may have had 6% to 10% of their acreage under orchard and perhaps, the exceptional areas, such as Taynton and Kempley, had more than 10%.

During this study, 3 broad groups of farms[31] were noted in terms of orchard acreage. Those without orchards, those with between 2% and 7% of their land under orchard and those with 13% to 20%. Average farm size was between 40 and 100 acres but the size of the farm was not found to bias the orchard percentage of the total area, thus, the smallest farms were not necessarily found to have the highest percentages. Even where this did appear to be the case, it does not effect the argument concerning the impact on the landscape of a farm. 32.3% was the largest percentage noted, this was on a tenanted farm of 31a. 2r. 26p. at English Bicknor in 1766.[32]

The arrangement of fruit trees in an orchard, was only one of a number of ways of rearing apples and pears. Trees were also planted in walks and in hedgerows, a practice Marshall did not believe,[33] yet advocated by some 17th-century ciderists,[34] therefore, it may be assumed that this practice was less frequent during the 18th century thus accounting for Marshall's unfamiliarity. However, it is the orchard which is the most common method for producing fruit crops and also the method which had the greatest landscape impact.

The trees were standards, not the bush varieties found in many modern commercial orchards, and could grow to a considerable size, depending on variety. Old perry trees were often noted for their great girth and the stire apple tree was reckoned to be a particularly large growing variety. Marshall thought that around 40 trees to an acre was a reasonable maximum for orchard density.[35] On the Probyn estate at Longhope in 1717, the average orchard size was just under an acre and on the Probyn manor of Huntley in the same year, the average size was 2.3 acres. At Longhope, only one of 18 orchards was over 2 acres, but this is an exceptionally low proportion, which seems to be a local anomaly for which there is no obvious reason.[36] The majority of farm orchards in the later 18th century were about 2 acres in size but some were as large as 6 or 7 acres and a few were even larger. Why farm orchards were usually only small enclosures is difficult to ascertain. Average field size in the 17th and 18th centuries was much smaller than today, often little more than 5 acres. At Oxenhall in 1775,[37] the average field size, not including common land encroachments, was about $3\frac{1}{2}$ acres and at Redbrook, in the Wye Valley south of Monmouth, in 1800, it appears to have been around 7 acres.[38] Nevertheless, the average size of an orchard enclosure was still much less than that of normal field enclosures. Many farms may not have needed more than 2 acres of orchard to satisfy their needs. One factor may have been a desire to maintain orchards as exclusive to one variety so that a number of small orchards were necessary rather than a

couple of larger ones. It is possible that a small enclosure with high screening hedgerows was seen as giving a measure of protection from the vagaries of the weather, the same argument may be advanced to explain the small size of the 17th and early 18th-century hopyards. Planting in former hopyards was a practice advocated by some ciderists and this raises the question of whether orchards were 'purpose built'. Given the smaller size of orchards in relation to other fields, it is likely that a certain amount of field re-organisation was carried out to accommodate orchards. This probably resulted in nothing more than a little subdivision with the provision of a new hedge or dry stone wall within an already existing enclosure.

The orchard was generally enclosed with a thorn hedge although in the limestone country around St. Briavels and Clearwell, dry stone walls would have been occasionally used. Worlidge, in 1676, advocated the use of a 'quick-hedge' of whitethorn which would be thick enough to prevent cattle entry by the time the trees were ready for fruit.[39]

All the major 17th-century ciderists stressed the importance of ridging within an orchard, both for drainage reasons and particularly in a shallow dry soil to enable the trees to be planted at a greater depth. Orchards planted in such a fashion can still be seen at Taynton where ridging can also be seen denoting areas of former orchard, a feature common to other parishes such as Westbury and Dymock. The ridges vary in width from 2 to 6 metres, are straight, unlike those of common arable fields and often much shorter than the ridges of a strip.

A noted Herefordshire practice was the raising of orchards on arable land which was believed to give the benefits of better drainage, airing and manuring and the advantage of a double crop. It was a technique that was noted by Rudder[40] and Rudge[41] in the Dymock and Kempley areas. This practice was widespread throughout West Gloucestershire in the 17th and 18th centuries particularly in areas where a large proportion of agricultural land was under the plough. An arable orchard at Nass in Lydney was mentioned in a survey of 1651;[42] they also occur at Westbury in 1785[43] and at Newland in 1800.[44] Only in some areas adjacent to the Herefordshire border in the north-west of the county, were arable orchards more common than pasture. This is possibly due to it being a more popular method in Herefordshire. Furthermore, arable farming was a more important feature of the rural economy in the north-west of the county, the Ryeland district, than it was in the West Dean and Wye Valley district. In 1778 4.42% of Lea parish was occupied by arable orchards, compared to 2% by pasturage orchards. As the proportion of arable to pasture in Lea was 5:1 these figures are not surprising.[45] Rudder in 1778 described Oxenhall parish as largely arable intersected with rows of fruit trees.[46] This may account for the large size of some of the orchards there in the Foley survey of 1775, 5 orchards were over

5 acres.[47] Large orchards do seem to occur in the same areas as arable orchards. Two of the largest late 18th-century orchards noted in this study, one of 11 acres at Westbury[48] and another of 10 acres at Dymock,[49] were both situated on arable land. It is likely that arable orchards were larger on average than pasture orchards in order to increase the ease and efficiency of ploughing and, perhaps, to compensate for a smaller density of fruit trees per acre, probably necessitated by crop growing.

The choice of an arable or pasture ground was a significant factor in the location of an orchard. At Lea in 1778 and 1785, nearly all the pasture orchards, which averaged about an acre in size, were located near to a homestead, the arable orchards tending to be more greatly dispersed.[50] Marshall found orchard location away from the homestead to be a particular feature of the Herefordshire region.

'In this district, locality, with respect to the homestall, appears to have had little weight in determining the situations of orchards; which we frequently see scattered about in every part of a township; perhaps half a mile away from any habitation.'[51]

Nevertheless despite the location of orchards away from the homestead being a feature of the region, the evidence of 18th-century deeds and surveys suggests that about 75% of all orchards in West Gloucestershire were situated within a field of the homestead or adjoining other orchards that were. The proportion was probably higher in the early 17th century when there were fewer orchards. The usual reason for this location given by the 17th and 18th-century agricultural writers was that orchards close to the homestead were less susceptible to fruit theft. An equally important factor was probably, the difficulty encountered in transporting a bulky cargo of apples, over roads of a notoriously poor condition, to the cider mill at the homestead. It should also be pointed out that small pasture enclosures were usually found close to all farm homesteads, even where there was an absence of orcharding. These were so situated to provide stock enclosures, in particular, they were probably used for young stock. The planting of some fruit trees in them would not have impaired their other usage and would have increased their value.

A number of explanations can also be advanced for the location of orchards away from the homestead. Marshall attributed this to the great quantity of fruit grown in the area, so that stealing any became pointless.[52] The threat of fruit theft as a factor in orchard location was overemphasised by contemporary writers. Where a farm had a large acreage under orchard, 10 acres or more, part of the produce was probably intended for the market and not just for personal and labour-force consumption. With large acreages it was obviously difficult to locate

all orchards near to the homestead and factors of location such as slope, aspect and soil would have been taken into account. The same factors were of importance in the situation of an arable field, hence arable orchards were more likely to be scattered throughout a township. Furthermore, Marshall reveals that the top quality ciders were often sold as fruit to dealers,[53] under these circumstances the location of the orchard in respect to the mill would have been immaterial. Arable orchards, larger than average orchard size and the location of orchards away from the farm centre are all landscape features that are generally associated with one another. It can also be seen that the degree of orchard dispersal within a township tended to depend on the degree of settlement dispersal and on the porportion of arable land to pasture within the township. The greater the proportion of arable, the greater the dispersal of the orchards was likely to be.

One of the interesting features of agricultural geography in the 17th and 18th centuries is the apparent coincidence between the main orcharding regions and the regions of early enclosure of common-field land or lack of such land. Amongst these are Kent, Cornwall, Devon, Somerset, Herefordshire and West Gloucestershire.[54] Most West Gloucestershire parishes have some evidence pointing to the former existence of common fields, but by the late 18th century only some of the townships adjacent to the Severn and in the Ryeland district had any significant amount left. The practice of planting fruit trees in common fields was advocated by 17th-century improvers like John Evelyn, who wrote, 'T'were to be wished there was a law which should allow endeavours of this nature (fruit growing) out of the common field to enclose for these encouragements.'[55]

Planting fruit trees in common fields was practiced in West Gloucestershire. In 1538, John Holder of Churchham bequeathed to his daughter, a rudge of orchard.[56] In 1704, John Aylberton of Elton held 2½ acres in Wickeridge Field which consisted of a forehead and one rudge with pear trees.[57] It would then appear that fruit trees were being planted in common arable fields. This in itself may have provided sufficient incentive for enclosure in an area of weak, irregular common-field systems susceptible to piecemeal enclosure,[58] without Evelyn's suggested recourse to legislation, which was never employed. However, with only meagre evidence for orcharding within the common fields, and given the ease with which piecemeal enclosure appears to have been achieved in many areas of West Gloucestershire,[59] it is more likely that the weak common-field systems encouraged the spread of orcharding within the region, rather than orcharding having significantly encouraged the spread of enclosure.

Having viewed the direct impact on the landscape of the distribution structure and location of orcharding, it is necessary to look at the indirect impact through its influence on and interrelation with other elements of the landscape. In 1958, J. N. Jackson theorised the possible results of orcharding on the settlement pattern of Herefordshire. He postulated that nucleation would be avoided because orchards surrounding a homestead for 400 feet or more prevented the close accreation of tofts.[60] This argument was based on the evidence of a dispersed settlement pattern which was considerably older than the pattern of dense orcharding, which does not seem to have occurred until the later 16th century. In West Gloucestershire settlements that were nucleations by the early 17th century, such as St. Briavels, Clearwell[61] and Ruardean,[62] all had orchards around them in the 18th century. These settlements had all evolved their topographies well before the introduction of large-scale orcharding into the region. It was the settlement pattern which influenced the orchard pattern not vice-versa. However, in the case of encroachment settlements which evolved from the 16th century onwards, orchards formed a distinctive feature within their dispersed settlement patterns.

These settlements were largely formed between the 16th and mid-19th centuries from accretions of individual encroachments, usually upon common wasteland. In West Gloucestershire they are particularly common around the edges of the Forest of Dean and the woodlands in the north-west of the county. They had a number of distinctive landscape features, including an abundance of unhedged wide tracks and small roughly-built cottages encompassed by small enclosures many of which were orchards. In 1775, the Foley lands at Gorsley Common included 62 acres of cultivated land of which 18.4% was orchard or 5.2% of the whole area.[63] By analogy with other encroachment settlements it can be assumed that these were mostly, if not all, pasture orchards. The average size of these orchards was just under an acre. Although smaller than farm orchards, these cottage orchards were a very significant part of the landscape of an encroachment settlement. Marshall pointed out that after the farmers deliberately producing cider and perry for the market, cottagers produced more fruit and liquor for sale than anyone else.

'It is observable, however, that cottagers from encroachments made upon commons and larger wastes (paying, perhaps, the Lord of the manor a small quitrent) throw in collectively, no inconsiderable quantity of liquor. Some of them making, perhaps, in a plentiful year, eight or ten hogsheads, and having no thirsty work people to quench, the principal part of it goes to market.'[64]

A cottager would very rarely have possessed a cider mill and would therefore have sent his crop to a public one, such as the one Marshall mentions at Newnham.[65] In certain cases, arrangements were probably made with the manorial lord or some other large estate owner and some fruit was undoubtedly sold directly to the dealers. In the 1780s with ordinary cider averaging about £2 a hogshead and Stire £5—£15,[66] it can be seen that even after costs of milling and transport, a cottager could still net a handsome profit on a good fruit crop.

Orchards were the best way available to most smallholders of maximising the profitability of a small amount of land, hence the reason so many 17th and 18th-century cottagers possessed them. This ready source of revenue in West Gloucestershire may well have been a factor in the popularity of squatter encroachment in the region. It was not merely the cottagers who wanted these orchards, there is evidence to suggest that the manorial lords, who held the rights over the soil upon which the cottagers had encroached, also wanted them. Many of the Foley leases to cottagers in the 18th century, within the manor of Newent, contain similar conditions for the planting of apple stocks as had been imposed on tenant farmers in the 17th century.[67] Obviously, this increased the value of the land and therefore the rent that could be charged.

This type of orchard was nearly always on pasture land. This was due to the small size of the enclosures and probably to the greater investment needed in equipment for arable and the greater reliability of a return on investment given by pasture.

Orcharding and the cider industry had some other minor effects on the landscape, the most obvious of which was the construction of buildings in which to carry on the industry. On inventory evidence it would seem that in the 17th century at least, the majority of farm mills and presses were kept out in the open as illustrated in Worlidge's *Vinetum Brittanicum* in 1676.[68] A few farms however, had mill houses of which some were certainly purpose built, such as those at Taynton House and The Grove, Taynton. The diary of John Holder of Taynton House reveals that the mill house was built *c.* 1700.[69] The mill house at the Grove is so similar that it was probably also built about that time. The number of mill houses probably increased during the 18th century.

The cider industry required a great deal of wood for the construction of the different sized barrels in which the liquor was kept and this may have encouraged coppice maintenance in the area. However the close proximity of Bristol, which on the evidence of wood accounts from estates in the Wye Valley, was a centre of the coopering trade, may have been the stimulus for coppicing for barrel production rather than the local cider industry.[70]

The 17th and 18th-century landscape of West Gloucestershire owed much to orcharding and the cider industry for its composition. This study has attempted to define the nature of the effects of the cider industry on the landscape. The most obvious visual effect was the enhancement of the wooded nature of the environment but there were other more subtle ways in which the effects of the industry were manifested. These range from field size and location to farm equipment and buildings. The study has also attempted to add quantifiable data to the subjective statements of the 18th-century writers concerning the distribution and density of orcharding in the area. From this it can be seen that the major late 18th-century

centres of orcharding were in the north of the area and adjacent to the Herefordshire border. The effects of the cider industry were amongst the most prolific features of the landscape of West Gloucestershire and physically represented the importance of the industry to the rural economy of the area.

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[26] Glos. R.O., D1297.
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River Crossing at Hoarwithy

By HEATHER HURLEY

INTRODUCTION

FOR many centuries there has been a crossing over the river Wye at Hoarwithy connecting the parishes of Hentland and Kings Caple, lying opposite one another along the banks of the Wye nearly halfway between Ross-on-Wye and Hereford. The present crossing consists of a narrow road bridge with a weight limit of 7 tons, which is unsuitable for the heavy machinery and vehicles of the 1980s.

The Hoarwithy bridge is typical of the bridges built during the later part of the 19th century. It is constructed with a pair of iron girders under a concrete deck, supported by two stone pillars giving three equal spans of 25.908 metres. The tarmac carriageway is 4.53 metres wide, and stands 8.84 metres above the river bed. The stone toll-house remains on the western bank, now used as a holiday home.

Early travellers would have crossed the river Wye at Hoarwithy ford situated a few hundred yards below the present bridge, where a wide and shallow part of the river was crossed leading from the common land. At a later date, when communications had improved, there would have been a need for some kind of boat to convey men, goods and animals across the river, so a ferry was used which crossed the Wye at a convenient site within a few yards of today's bridge. In 1581 the ferry was referred to as 'ye greate passage Boote of Horewethie' and an earlier mention is found in the accounts of Aconbury Priory in 1347—'Item the free passengers of Horewythy I trug, for free passage there.'

The winter flooding of the Wye always created difficulties for those using the ford or ferry, so it became clear that a more reliable crossing was required during the 19th century with its growth in trade and population. At last in 1855 the Hoarwithy Bridge Act was granted which enabled a bridge to be constructed, and abolished all rights of the ford and ferry.

THE HORSE FERRY

It is difficult to imagine the horse ferry of the 1700s conveying its load of livestock and men across the Wye, where the swift currents and variable water levels caused many complications and delays. From illustrations of that period we know that these boats were connected to chains or cables, and that smaller boats were probably used for lighter loads. The Kings Caple Overseer's accounts 1771-93 provide us with a good description of the type of materials used for building

and repairing the 'horse and small boat'. From these accounts it appears that the Hoarwithy Boats operated by John Fidoe were in constant use, as many expenses were paid out for major repairs and in 1772 Wm. Hudson was paid £4-10-0 for building a new horse boat, and £1-5-0 for a new small boat.

Overseer's accounts read as follows:

1778 'John Fidoe £5. Repairing and halling the great boat of the river £3-8-3. Putting up a leaping block at the passage 12/4. pd. Wm. Hardwick for a boat chain 2/7.'

1780 '£5 Boatmans salary. Paid Jas. Wood for repairs 7/3. Pitch & tar 2/10. To halling the boat and straw for drying the boat 3/6.'

With John Fidoe still employed as boatman the 'great boat of the river' continued to undergo frequent repairs up to 1793 when the following notice appeared in the *Hereford Journal*:

'Any person willing to contract with the Parish of Kings Caple Building a BOAT for the USE of HOARWITHY PASSAGE, and will officiate as BOATMAN, at the usual rate paid at other Boats, is desired to treat with Mr. Wm. Morgan & Mr. S. Howells, of Penhaul, in the parish of Kings Caple. The Old Boat will be given up, and a term of years granted to any proper person who may contract for the same.'

Between the years 1727-1810 various Acts were passed to repair the roads leading into Ross and Hereford. These included the roads from 'Hoar-Withey-Passage', which in 1784 were described as 'at present ruinous, and almost impassable for Travellers and Carriages.' By the early 19th century the effect of these Acts would have improved the access to the crossing at Hoarwithy, so it is not surprising that the idea of building a bridge first occurred in 1812.

This proposed timber bridge of five spans to cross the Wye at Hoarwithy was designed by Joseph Gwilt, who exhibited the plan at the Royal Academy in 1813. He was a London architect, related by marriage to the Jones family of Poulstone, Kings Caple. But, Gwilt's bridge was never built, so the ford and ferry continued to be used with Thomas Fidoe living at the boathouse in 1839. Later in 1854 a William Fidoe appears as the occupier of the boathouse, operating the ferry and renting the landing and mooring place on both sides of the river, all from George Ferguson of Aramstone, Kings Caple.

BUILDING OF THE BRIDGES

Up to the mid-19th century it had been necessary for Kings Caple to provide the ferry, but with the coming of the railway it now became Hentland and Hoarwithy's need to cross the river, to reach the nearest station at Fawley. Therefore

the time had come for a more serious attempt to be made in replacing the ford and ferry, and on 30 November 1854 new plans of the proposed Hoarwithy bridge were deposited with the Clerk of the Peace at Hereford. An Act of Parliament was needed to enable the bridge to be built and on March 21 1855 the *Hereford Journal* reported 'we are happy to inform our readers that the Committee on the Hoarwithy Bridge Bill have declared the preamble proved' and 'hope to have the work begun by spring in order that the bridge may be open for traffic before floods of next winter.'

On 26 April 1855 the Hoarwithy Bridge Act was passed authorising the formation of a company, with powers to construct the bridge, purchase the ferry, erect toll gates and collect tolls. A couple of weeks later the Hoarwithy Bridge Company held its first meeting in Hereford under the chairmanship of G. R. Terry Esq. with the following gentlemen appointed as Directors:

George Roberts Terry, Esq.	James Wallace Richard Hall, Esq.
The Rev. Thomas Powell Symonds	William Stallard, Esq.
The Rev. Thos. Taylor Lewis	Mr. William Matthews
John Cleave, Esq.	George Thomas Taylor, Esq.

The company held meetings every fortnight at the Harp Inn, Hoarwithy, and the minutes show the difficulties in 1855 of purchasing land, compensating the ferry, raising capital, siting the toll-house, and discussing tenders which had been received after this notice appeared in the *Hereford Journal* of 4 July 1855:

HOARWITHY BRIDGE

TO BUILDERS, CONTRACTORS & OTHERS

The Directors hereby give Notice that they are prepared to receive Tenders for the ERECTION of a TIMBER BRIDGE with Stone Piers & Abutments over the River Wye at Hoarwithy, near Ross, together with the Approaches to the same & a Toll-house.

The Plans & Specifications may be inspected & copies of the quantities obtained at the Offices at Messrs. Law & Blount, Civil Engineers, 15 Essex-street, LONDON, or of Mr. Henry Minett, Solicitor, Ross, after the 14th July.

Sealed Tenders to be delivered at the Harp Inn, Hoarwithy, near Ross, before 11 o'clock in the morning of the 21st July.

J. F. SYMONDS)
HENRY MINETT) Solicitors

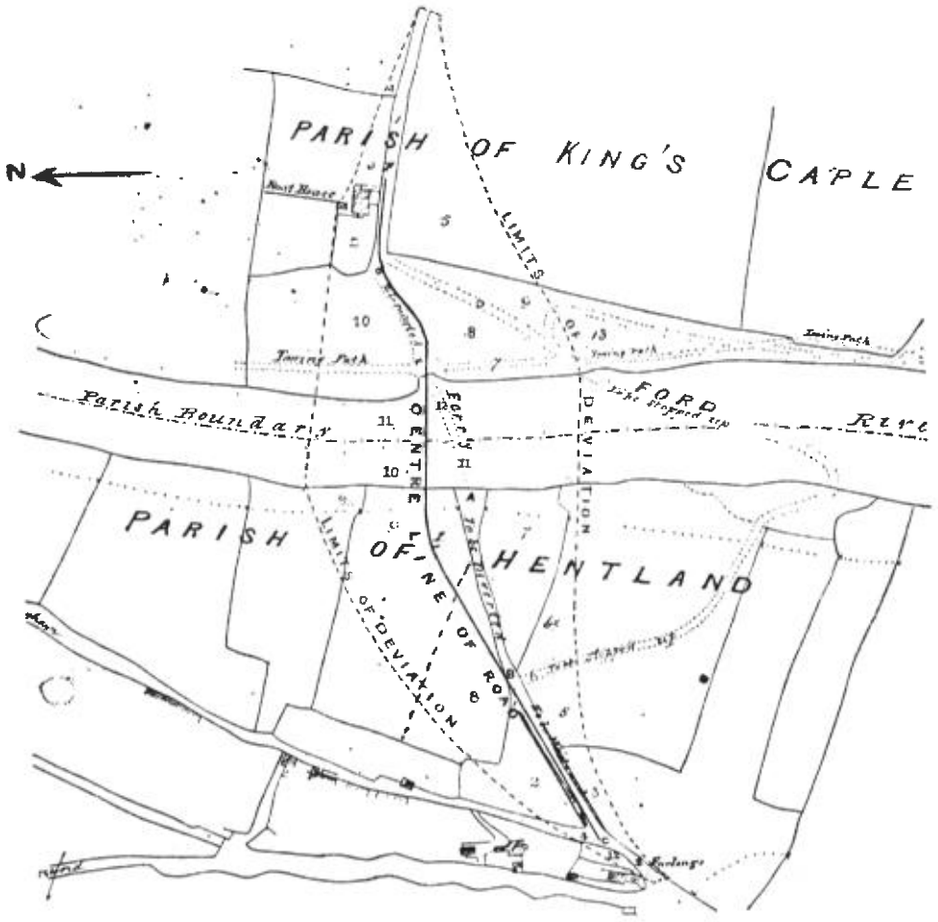

FIG. 1
Hoarwithy Bridge plan 1854 showing site of ford and ferry *(Hereford R.O.)*

On the 30 August 1855 the Bridge Company held its first general meeting, when the directors informed the shareholders that Messrs. John Pearce & Sons, of Kentish Town, London, had been instructed to build the bridge, approaches and toll-house for £2095, according to the plans prepared by a London firm of civil engineers, Messrs. Law & Blount. They also reported that the Hoarwithy Bridge was to be built of stone piers with a timber superstructure, and that work had already started on the construction.

The bridge progressed slowly during 1856, but in the meantime the Bridge Company had purchased the Hoarwithy Ferry for £90, and were to keep it open at the usual rate of toll until the completion of the bridge. A Table of Tolls had also been prepared as laid down by the Act of 1855.

TABLE OF TOLLS FOR HOARWITHY BRIDGE

'For every horse or other beast drawing any coach, stagecoach, omnibus, van, caravan, sociable, berlin, landau, chariot, vis-a-vis, barouche, phaeton, chaise, marine, calash, curricle, chair, gig, whiskey, hearse, litter, chaise, or other such like carriage, the sum of three pence;

For every horse or other beast drawing any waggon, wain, cart, or other such like carriage, the sum of three pence;

For every horse or mule, laden or unladen, and not drawing, the sum of one penny, and if carrying more than one person an additional sum of one penny;

For every ass, laden or unladen, the sum of one halfpenny, and if carrying more than one person an additional sum of one halfpenny;

For every ox, cow, bull, or neat cattle, the sum of one halfpenny;

For every calf, pig, sheep, or lamb, the sum of one farthing;

For every carriage drawn or propelled by steam, or any means other than animal power, the sum of two shillings and six pence;

For every foot passenger or person on foot (except the person or persons, not exceeding two in number, actually driving and accompanying any waggon, wain, cart or other such carriage) who shall pass over the said bridge the sum of one halfpenny;

> And for every person who shall ride in or upon any waggon or wain, or any cart or other such like carriage (not being a cart or carriage usually employed for the conveyance of passengers for hire), or who shall ride upon any horse or beast drawing any such waggon, wain, cart, or other such like carriage the sum of one halfpenny;'

Mr. Blount, the engineer, reported in June 1856 that at present 29 men were employed in building the bridge, but in his opinion 60 men were needed so that 10 could be employed as quarry and bargemen. If the company agreed, the bridge could be finished in five weeks, and the July issue of the *Hereford Journal* was optimistic.

'Hoarwithy Bridge—This structure is now progressing towards completion, & the exertions of the Company & staff are likely to be crowned with success in the opening of their bridge next month. The bridge is well worth a visit, & is a picturesque object across the river in this lovely locality. In many respects this new bridge resembles the elegant iron bridge of the Newport, Abergavenny & Hereford Railway, near the City. The railings & ornamental portion of it will be elaborately formed in strong timber, & present a fine effect upon the three graceful arches riding high above the flood level.'

The engineers reported the completion of the bridge to the company on 1 December 1856, little knowing that twenty years later it would be replaced by a stronger iron structure.

The design and structure of the new timber bridge was well described in the *Hereford Journal* of 3 December 1856.

'Hoarwithy Bridge—We are happy to inform our readers that this undertaking is now completed, direct communication between St. Weonards and Ledbury Districts of the County is established, and no longer will the public be obliged to pass through Hereford or Ross, in journeying to or from either of those neighbourhoods to the other. The bridge is built of chestnut timber grown in the neighbourhood and consists of three openings or arches, each 80 foot span. These rest on stone abutments and piers. The stone used is from a quarry on the Aramstone Estate and was given by Admiral Ferguson. The rise of each arch is 10 foot, the springing line is about the level of the highest flood that has been known. The total length of the bridge is about 260 feet. The width of the road over it is 15 feet clear, and 30 feet 6 ins. above the ordinary level of the water. On the bridge are two recesses projecting over the piers for the safety of foot passengers, to retire into in the event of meeting cattle etc. The spandrils are fitted with diagonal pieces to stiffen the arches and to support the longitude of the roadway. The bridge is stayed transversely by timber and iron stays, the whole was erected without centering of any kind. The length of the approaches is about

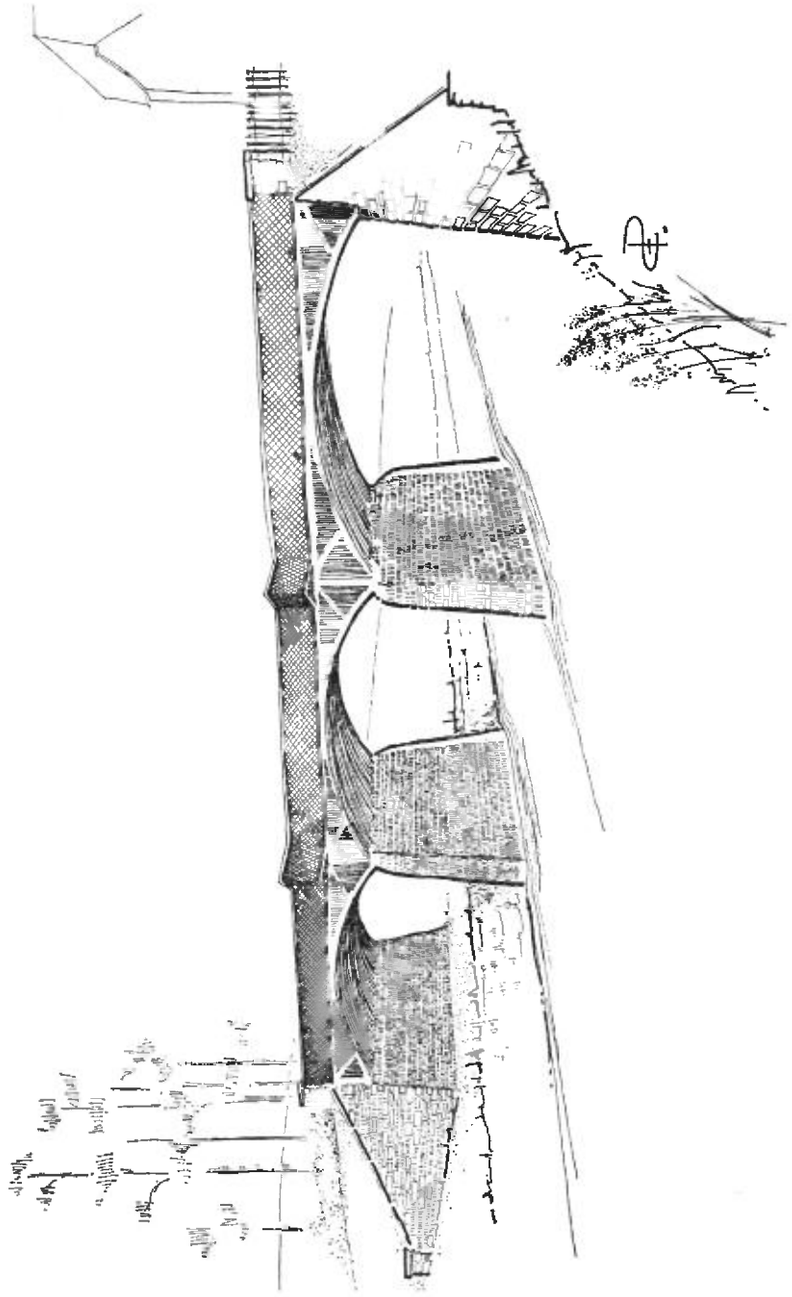

FIG. 2
An artist's impression of the timber bridge at Hoarwithy 1856-76 a sketch by David Grech RIBA

300 yds. The cost, including approaches and lodge was £2090. The slopes for the approaches are of considerable height, and entirely formed of earthwork, and the usual slippings occur after rain, and must of course, be expected till the work consolidates, and on this account, we understand, the directors delay taking any toll from the public at present.'

At the next general meeting held on 27 August 1857, the directors of the Hoarwithy Bridge Company announced that the bridge had been open to traffic during the last six months with tolls being collected since February. From this date the bridge, piers, embankments and fences were in constant need of attention and by 1869 the Bridge Company were faced with many setbacks. The company solicitors complained of lack of payment, the toll-house and its gates, drains and ditches needed overhauling, and the timber bridge was in urgent need of extensive repairs. These problems were partly solved by the directors with the assistance of Mr. Owens, engineer to the Great Western Railway Co., who was the first to recommend the use of iron girders, which were used at a later date. To keep the bridge open the Hoarwithy arch was shored up, but the Kings Caple span needed supporting the following year.

In 1872 the company directors decided to replace the collapsing timber bridge and an Iron Superstructure Committee was formed by Rev. William Poole, Vicar of Hentland and Hoarwithy, who eventually became a director. By 1874 the Bridge Company had arranged to extend its borrowings, selected Mr. C. W. Whitaker's design of an iron superstructure, and contracted Messrs. Westwood & Co. to build the bridge according to this letter:

'London Yard Iron Works
Isle of Dogs, Poplar, London E
5th August 1874

Dear Sir,

I have gone into the cost of proposed Hoarwithy Bridge 3 spans each 80 feet and find the same can be supplied and delivered at a Railway Station Main Girders weighing 50 tons and Patent Flooring 32 tons for the total sum of £1558 the Carriage and delivery I estimate at £1 per ton and erection £2 per ton making the total of £1804. On other side I hand you estimated weight of Flooring with buckled plates and cross girders and you will see I can with my method save 20 per cent. You have the names and addresses of 2 men I have no doubt would be glad to do the erection.

I am Dear Sir
Yrs vy truly
J. Westwood

C W Whitaker Esq.'

By 1875 work on the new bridge had not commenced, although the bridge was in such a poor state that the company asked for a ferryboat to be made ready, and some supports to be placed under the damaged arches. The last entry in the Minute Book dated 15 Jan. 1875 read as follows:

'The Clerk was directed to propose a notice of letter of the Bridge stating that the Directors would not be responsible for any accident that might happen to persons crossing the bridge and that it must be considered as closed.'

Later that year a quite independent description of the bridge at Hoarwithy appears in *The Diary of a Rowing Tour from Oxford to London*, by Howard Williams:

'We passed under a very dilapidated old wooden bridge, the two sides arches were propped up, but in the centre it had a tremendous drop, which made it appear very unsafe, although we were told that loads of grain sometimes went across without accident.'

Within a year however the iron bridge was completed and officially opened on Tuesday 11 April 1876 as reported in the *Hereford Journal*:

'Hoarwithy Bridge—which has been reconstructed, was opened for traffic on Tuesday, in the presence of the Rev. W. Poole, of Hentland; Mr. R. Wyndham Smith; the Rev. C. T. Wilton, of Foy; Mr. Stallard; Mr. Whittaker; and others. The bridge is built of iron, of very light appearance, but of great strength. The construction is of a novel description, there being no cross girders to support the roadway as in ordinary iron bridges, but the road instead is formed of corrugated plates which by an ingenious method of trussing give the necessary strength with little more than half the usual weight. This system is the patent of the builders, Messrs. Westwood, Baillie, and Co., and adopted by Mr. Whittaker, the engineer to the bridge company. The total length of the bridge is 260 feet, and it has a clear width of 15 feet. A novel feature in the construction of the new bridge (which has taken place under the superintendence of Mr. E. Hunter) was that it was built on the top of the old one, and then lowered by hydraulic pumps. The completion of the bridge has been eagerly anticipated for some time past, and the structure is not only a great boon to the neighbourhood but a worthy ornament to the river.'

Since the opening of the bridge in the winter of 1856/7 the collection of tolls had produced an income of between £103.4.11d. and £119.3.3d. The appointment of Toll Collectors had created a few difficulties with Mr. Fido, the original collector and former ferryman, replaced after this notice appeared in the *Hereford Journal* of 1857:

'TOLLS TO BE LET

HOARWITHY BRIDGE

The tolls payable by Act of Parliament at the above mentioned Bridge over the River Wye, with the Toll-house will be LET BY TENDER, from the 1st October next.

Sealed Tenders, containing the name & address of the person tending, with the name & address of two sufficient sureties, to be sent to Mr. Henry Minett, Solicitor, Ross, on or before the 23rd September next.

All necessary information may be obtained at the office of the the said Mr. Minett.

The Directors reserve to themselves the right of rejecting all the Tenders.

J. F. SYMONDS)
H. MINETT) Joint Solicitors'

John Ravenhill was then employed at only 3/- a week, immediately increased to 4/- as 'he wouldn't take less.' By 1861 seventy-five year old William Nicholas was the collector and occupier of the toll-house and six years later the tolls were leased out to Mr. Thomas Hart for an annual rent of £108. He was followed in 1871 by the widow Ann Wilcox, described in the Hentland Census as the gate-keeper at Hoarwithy Bridge.

THE LAST ONE HUNDRED YEARS

The picturesque but dilapidated wooden bridge was successfully replaced in 1876 by the new iron structure, which is still in use at Hoarwithy. This bridge has withstood the gradual change and increase in traffic from horse-drawn to motor-driven vehicles, and at the turn of the century we have a record of tolls received for one week, including one of the first motor cars to cross the bridge.

By 1920 William Haines appears as the gate-keeper at Hoarwithy Bridge, followed a few years later by his unmarried daughter Mary Ann, the last of the toll collectors. It was during this period that there was 'a strong feeling among those who live on either side of the Wye, that the time was over-ripe for the abolition of the toll.' The question of the County taking over the five toll bridges in Herefordshire was being discussed in 1928, but it was not till June 1935 that the bridge was purchased by the Herefordshire County Council from the Hoarwithy Bridge Company for £2500. This was made possible with the help of a 50% grant from the Ministry of Transport on condition that 'the bridge be freed of tolls.'

HOARWITHY BRIDGE

Tolls for Week beginning Oct. 6th and ending Oct. 12th

Number

	Sun.	Mon.	Tues.	Wed.	Th.	Fri.	Sat.	£.	s.	d.
Carriages....	1/1		1/1		1/1		2/2		5	0
Waggons			1/1	1/1			1/1		3	0
Carts			1/1							6
Traps	1/1	5/5	3/3	5/5	4/3	5/5	4/4		13	3
Horses	1/1	2/2	2/2	1/1	2/1	1/1			1	5
Foot Passengers	14/14	12/12	10/10	8/8	9/9	10/10	11/11		6	2
Cattle		Mr Haines				2	0		2	0
Sheep, Pigs, etc.	100								2	1
	Motor Car				5.	0			5	0
Total ...								1	18	5

When the Herefordshire County Council took over Hoarwithy Bridge in 1935 they dismantled the high spiked toll gates, and sold the toll-house, which was later used as a Block House during the war. Since 1946 the council have scraped, painted and repaired the bridge at regular intervals, and in 1982 the bridge was temporarily closed for several weeks while re-surfacing and repairs were carried out.

The bridge continues to be well used, and the County Surveyor and Bridgemaster assures me in his letter of 21 October 1983 that:

> 'the bridge will have to be replaced, that no plans have been prepared, and the decision when is a matter for my Council.'

ACKNOWLEDGEMENTS

I wish to thank the following for their assistance; the staff of the Hereford Records Office and Hereford Reference Library, also Elizabeth Taylor and Jon Hurley; and the Local History Library at Lewisham.

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Blackfriars Preaching Cross

THE RESTORATION OF 1864

By M. G. KNIGHT & R. SHOESMITH

A detailed survey of the Preaching Cross was commissioned by Hereford City Council and undertaken by the City of Hereford Archaeology Committee during 1983 in advance of restoration work. The survey established the extent of the repair work carried out by Sir Gilbert Scott in 1864 and further analysis has given some indication of the accuracy of this work.

INTRODUCTION

IN June 1981 the City of Hereford Archaeology Committee drew the attention of the City Council and the Department of the Environment to the deterioration of the fabric of the Preaching Cross due to weathering. As a result, a programme of survey and restoration was agreed mainly funded by the City Council but with grant aid from the Department of the Environment.

It was decided that the survey should include as complete a record as possible of the monument and should attempt to establish the amount of restoration undertaken in 1864. It was agreed that in the current programme of restoration stone replacement should be kept to an absolute minimum and only undertaken where dictated by structural necessity. The survey is therefore intended as a definitive record of the cross and its original mouldings and may be used in the future when further stone replacement becomes necessary.

The full set of original drawings which comprise the survey are deposited in the Hereford City Museum together with full details of the current programme of restoration works. A copy is also available in the National Monuments Record.

The Dominicans, Black Friars or Friars Preachers arrived in England shortly after A.D. 1200. They had been founded, by the Augustinian canon Dominic of Osma in Spain, as an Order of Preachers a few years earlier. They were not strictly monks at all as they were set up with a mission to the laity with freedom to move about the world preaching. The Order imposed strict personal poverty on the Friars and they were not allowed to own land and buildings apart from their churches and conventual buildings. Other buildings and land were often held in trust for the Friars by corporations of citizens, for, as they rapidly established themselves throughout the country, their sermons attracted much interest and large congregations and their cemeteries grew in popularity as fashionable burial places. Together with the Franciscan Grey Friars, they had

set up some seventy convents by the mid-13th century, which increased to over 100 by the early 14th century.[1] These convents were mainly in cathedral cities and county towns, sometimes in cramped quarters near the centre, but often, as in Hereford, in the suburbs where there was more room to develop. There was a large variety in the design of their houses but nowadays there are only a few fragmentary buildings which survive.

The Friars were dispersed at the time of the Dissolution of the monasteries between 1536 and 1538. Although many of them were left in penury, some became incumbents of parish churches or found other new employment.

The Dominicans reached Hereford in the mid-13th century and settled on a site in the Portfield outside St. Owen's Gate. They were granted ten oaks towards the building of their house in 1246, and, in the same year, were permitted to receive an extra plot of land on which to build their church. They were opposed by the local clergy and in the 1250s as they built their church by day, the Canons appeared by night, turned out the Friars by force and pulled down the unfinished buildings. This dispute continued for some time but in 1270 the Friars received letters of protection from the king. The dispute was referred to arbitration and it is uncertain what buildings, if any, the Friars erected in the Portfield, although they occupied the site till about 1319.[2]

In that year King Edward II granted to the Black Friars certain lands and tenements on which to build a new convent. This land presumably adjoined grounds given to them by Sir John Daniel and by the then bishop of Hereford and formed the nucleus of the new site in Widemarsh Street. They consolidated their holding in 1351 when they took over a lane called Frog Lane which led from Widemarsh Street to the brook and presumably cut their land in two.

The various constructional dates for their buildings are unknown but as the monastery reached the height of its prosperity in Richard II's reign (1377-99), when three successive priors occupied the post of Royal Confessor, it can be assumed that most of the building works were then complete. From 1376 there were regular interments in the Friary choir so it had been built by that date. The house of the Black Friars had been burnt down three times by 1424 when they received a grant of indulgence towards the repair of the buildings. The next hundred years were apparently uneventful and the Priory was eventually suppressed on 25 August 1538, when there were a Prior and seven Friars.

The ruins which remain formed the range of buildings and alley on the west side of the cloister of the Black Friars Priory.[3] There would doubtless originally have been other ranges of buildings also with alleys or cloister walks on the north and west of the cloister. The church would have been to the south of the cloister but its length and width are not known.[4] The whole site was bounded

by Widemarsh Street on the west, Coningsby Street on the south, the Tanbrook on the north, and probably Canal Road on the east, excepting the area occupied by the Hospital of St. John.

After the Dissolution the buildings generally fell into ruin but eventually the western range was adapted as a town house by the Coningsbys and was repaired from time to time thereafter. Parts of the 14th-century building remain but much of the work is of early 17th-century date and attributed to Thomas Coningsby.

THE PREACHING CROSS

Preaching crosses, for the delivery of outdoor sermons, were set up in many places throughout the country probably after the arrival of the various mendicant orders in the first half of the 13th century. They were often in public places and, in addition to their religious use, were often platforms for public announcements and many other civil events. The most famous was probably Paul's Cross in London which seems to have been the focus of every phase of life in the capital between the mid-13th century and the first quarter of the 17th century. It was probably demolished about 1640.[5]

The Blackfriars cross was not the only preaching cross in Hereford. One, which formerly stood in the area of the Bishop's Cloister, is illustrated in several works.[6, 7] It was similar to the one at Blackfriars but was apparently octagonal in shape and built above a well.

In many places the steps of the churchyard cross sufficed as a platform for the preacher and there are now only two crosses in the country which were obviously and primarily designed as preaching crosses: the one at Blackfriars and one in the churchyard at Iron Acton in Gloucestershire. The latter dates from the early part of the 15th century and is built on four piers on an octagonal stepped base. Three of the four openings are railed and the ceiling within is vaulted. It originally contained an octagonal shaft but this, and the upper parts, have disappeared.[8]

The Blackfriars cross is, however, the only surviving example in this country of the preaching crosses erected by the friars in their cemeteries. The exact date of construction is not known, but on architectural grounds it should be some time during the 14th century. It is likely that it was built shortly before or during the reign of Richard II, perhaps between 1360 and 1390. The Cross was restored by Sir Gilbert Scott in 1864.

The cross would have been situated in the friars' cemetery, to the west of the Priory church, and was used by the friars for preaching to the public at large. The cross provided shelter for the preacher and his books and would originally have been entered from one open side, possibly by means of a gate.[9]

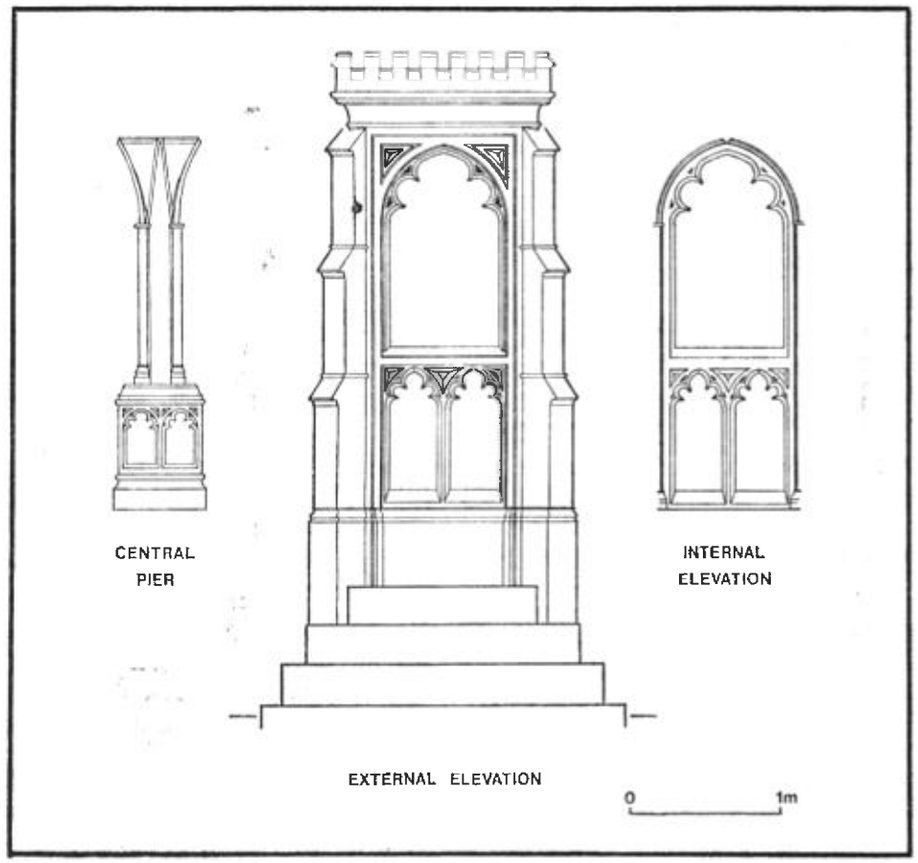

FIG. 1
The principal elevations which are repeated on all six faces

The structure is sandstone, soft and with a yellowish colour in the original work but including a fine conglomerate in much of the 1864 repair work. It is built as a regular hexagon and all six sides are identical (FIG. 1). The cross stands on four steps, also of sandstone, with buttresses at each angle extending part of the way down the steps. The buttresses are of three stages rising up to the cornice.

Each face has an open cinquefoiled arch in a square head directly underneath the cornice. The lower part of the face contains a stone balustrade with two open cinquefoiled arches. The decorative work around the openings is repeated on each of the internal faces. The moulded and embattled cornice completes the upper work.

The interior of the cross contains a stone bench on which the balustrade design is repeated as panelling. The central pier rises from this bench and is surrounded by six small shafts, each with a moulded base and capital. The moulded ribs of the stone vault spring from the tops of these small shafts and from the tops of similar shafts in the internal angles of the structure. The shaft surmounted by a cross, which rises above the roof of the structure, is supported on the central pier (R.C.H.M. I, 1931, 129).

The brief description given above gives an impression of the overall design of the cross as it stands at present. There is no indication of the complex structural details of the monument nor is there any mention of the restoration work of 1864. These are best seen in the series of cross-sections, plans and elevations which follow.

Two vertical cross-sections are necessary to appreciate the structure of the cross. One is taken through two opposed corners of the hexagon (FIG. 2) and shows the buttresses, the shafts in the internal angles, and the detached shafts around the central pier. The second cross-section (FIG. 3) is at right-angles to the first and relates the balustrade to the roof. It also shows the position and depth of the panelling on the stone bench in the centre of the cross.

These cross-sections would mean little if they were not associated with a series of horizontal cross-sections and plans. The main plan (FIG. 4) shows the relationship of the cross to the steps. The plan of the steps shows the individual stones and indicates those which are considered to be original though not necessarily in their correct places. The cross-section, which is superimposed on the plan of the steps, is taken through the base of the balustrade (see FIGS. 2 & 3) and includes the lowest stage of each of the buttresses. The central hexagonal bench is also shown and the plan indicates the very narrow space, 0.36 m. wide, in which the preacher had to stand. This plan also shows the numbering system used for the individual faces of the hexagon. The east-facing side is face 1 and the other five faces are numbered anticlockwise from this face.

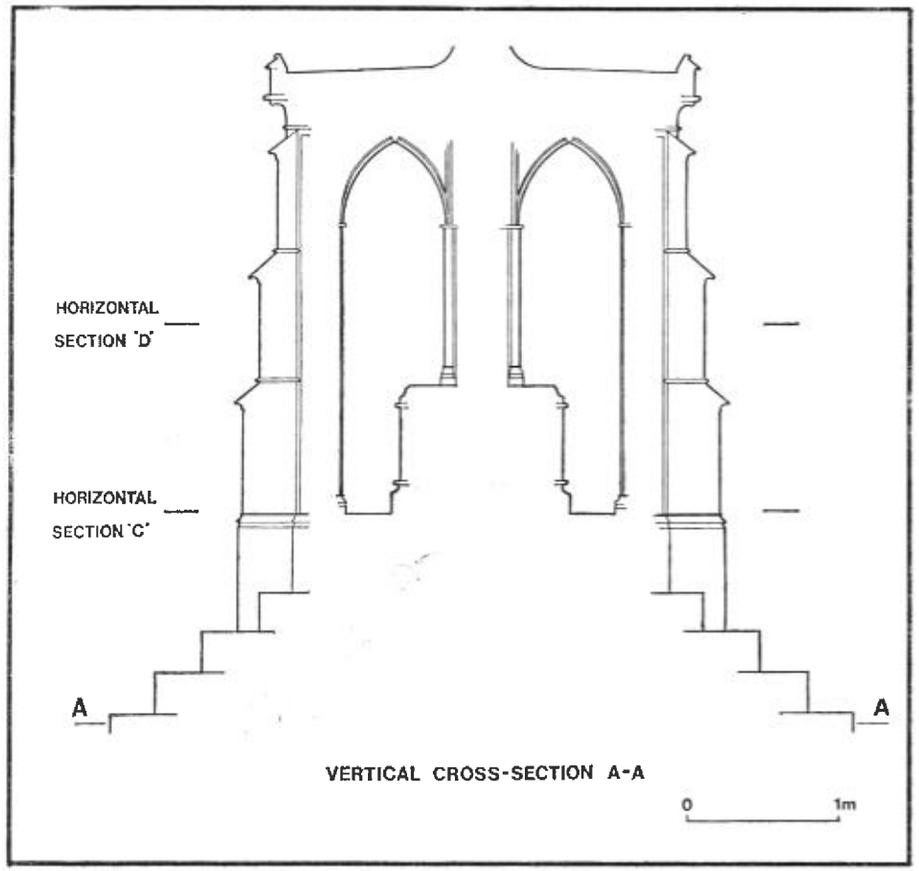

FIG. 2
This cross-section is taken through two opposed corners of the hexagon as shown on the plan (FIG. 4)

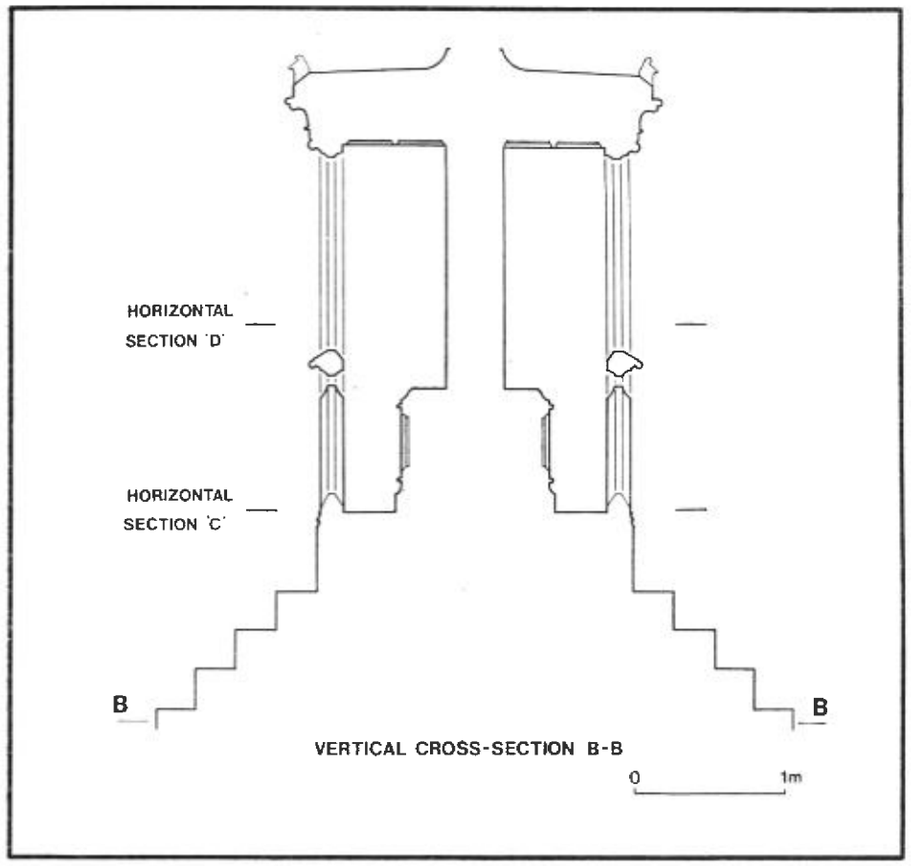

FIG. 3
This cross-section is taken at right-angles to FIG. 3 through the centres of two opposing faces.
It is positioned on the plan (FIG. 4)

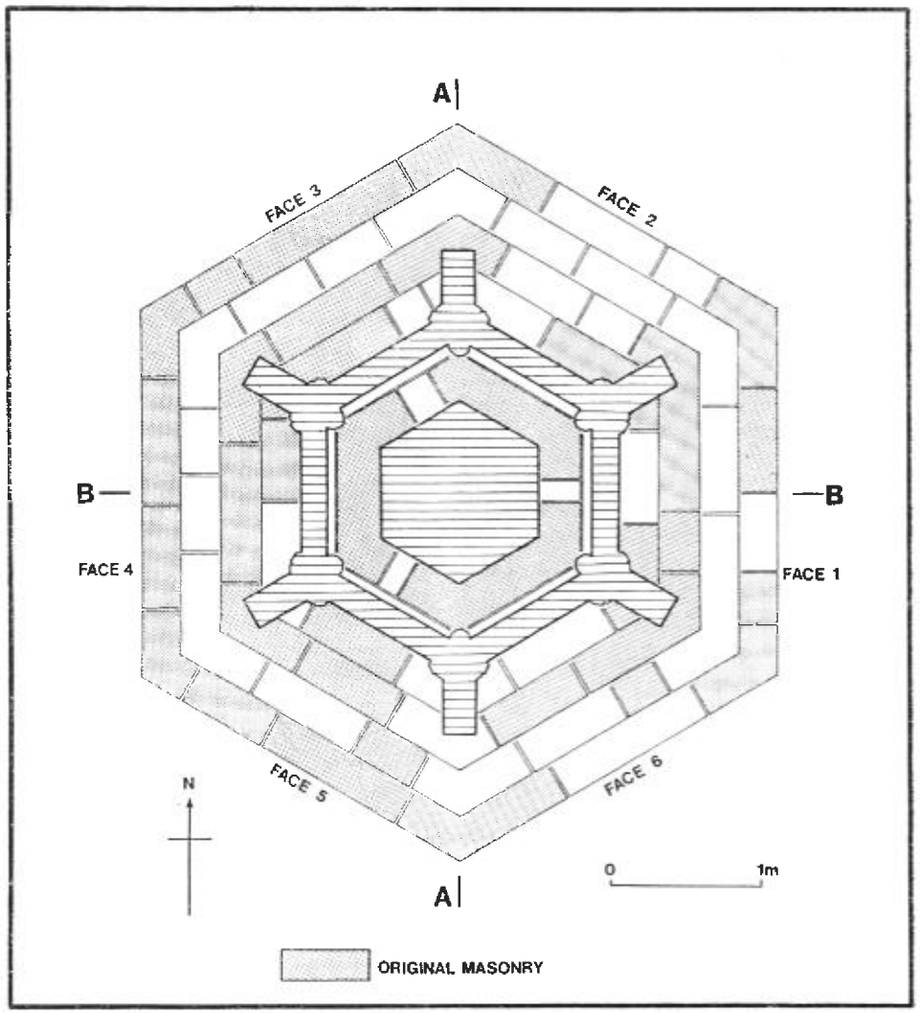

FIG. 4

Plan of the steps with the horizontal cross-section 'C' (FIGS. 2 and 3) through the lower part of the cross superimposed. The individual faces are numbered from the east anti-clockwise and this numbering system is used in the following figures.

The remaining cross-sections and plans are all shown on FIG. 5. FIGURE 5.1 is a cross-section through the upper part of the cross above the balustrade (see FIGS. 2 & 3). This is taken through the central stage of the buttresses and shows the attached shafts in the internal angles between the faces and the detached columns around the hexagonal central pier. The column beween faces 1 and 2 was missing at the time of the survey.

The roof is shown from above and below (FIGS. 5.2 & 3). The plan from above shows the position of the central cross shaft and the embattled edge of the roof whilst that from below shows the relationship of the vaulting ribs and the vertical shafting. In fact the roof consists of three layers of stones: the lower ones which form the cinquefoiled arch and the interior of the stone vault; the upper ones which comprise the capping to the roof and which slope slightly upwards to the central shaft thus allowing a run-off of rain water; and a layer in between which includes the cornice. In all these three layers substantial fragments of the original masonry were re-used in the 1864 restoration (FIGS. 5.4 & 5).

On the plan of the interior of the roof (FIG. 5.4) the vaulting ribs have been omitted for clarity and this should be compared with the design plan (FIG. 5.3) above. Sufficient remains of the original work, particularly inwards from faces 4, 5 and 6, to establish the detail of the internal vaulting and vaulting ribs. The new stone used on faces 1-4 has been cut to ensure that the pieces key together close to the outside edges.

Most of the stones around the edges of the roof capping were re-used (FIG. 5.5) with the exception of two large blocks adjoining faces 1, 5 and 6, which are part of the 1864 restoration. The slots in the re-used stones were carefully cut to take the individual stones which together form the embattlements. Only two of these individual castellations are original, one in the centre of face 4 and one at the corner between faces 4 and 5. The castellations on the replaced blocks on faces 1, 5 and 6 are not separate as on the other faces but are cut as part of the block of stone.

The arrangement of the blocks of stone used in the roof can be better appreciated by comparing the plans on FIG. 5 with the external elevations of the cross (FIG. 6). These elevations show each individual block of stone but are diagrammatic in that all details of the mouldings (see FIG. 1) have been omitted for clarity. On these elevations the cross can be considered in four parts: the roof, vaulting and cinquefoiled arch; the central part down to the bottom of the balustrade; the lower part of the cross; and the steps.

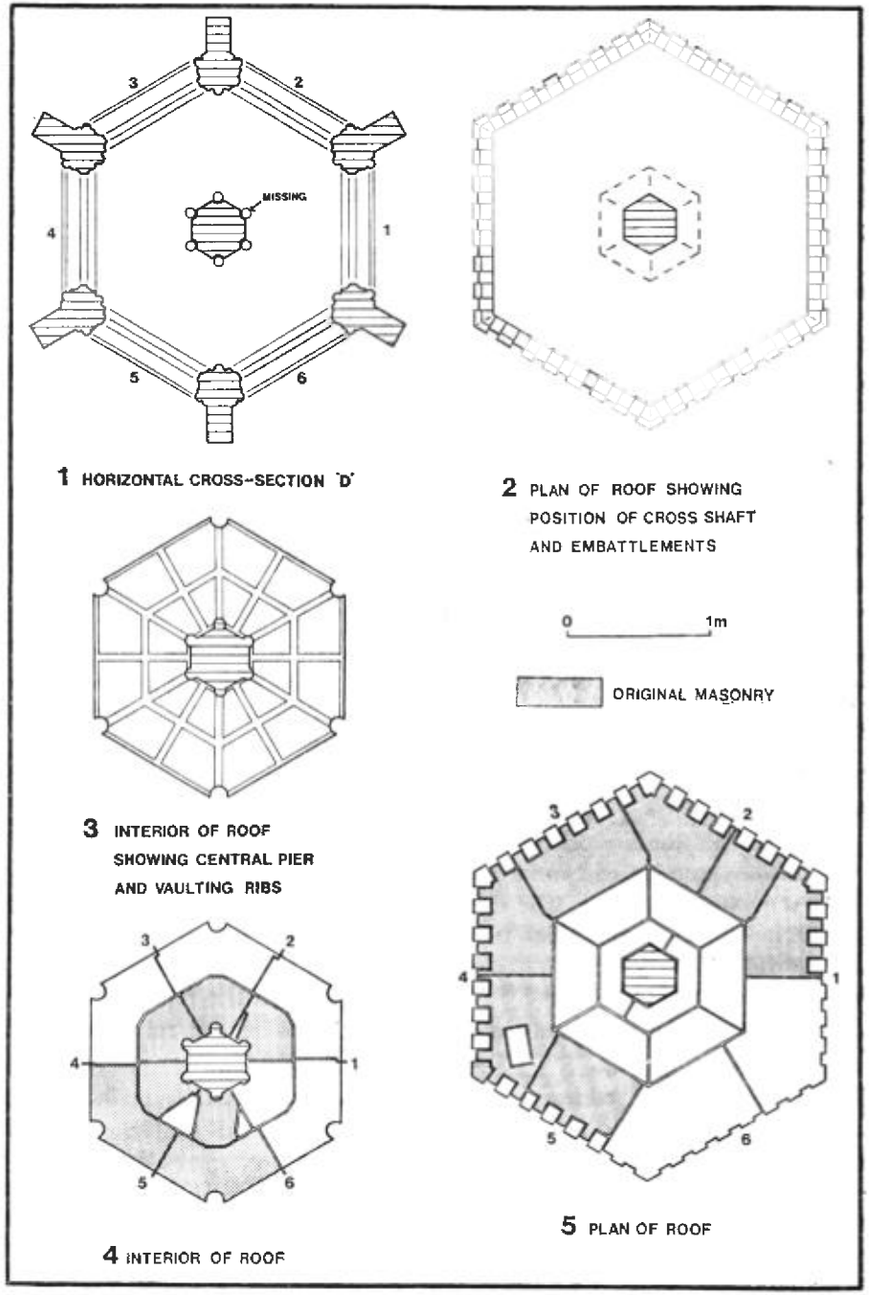

FIG. 5
Plans and horizontal cross-sections illustrating the construction of the cross and the extent of the original masonry in the roof

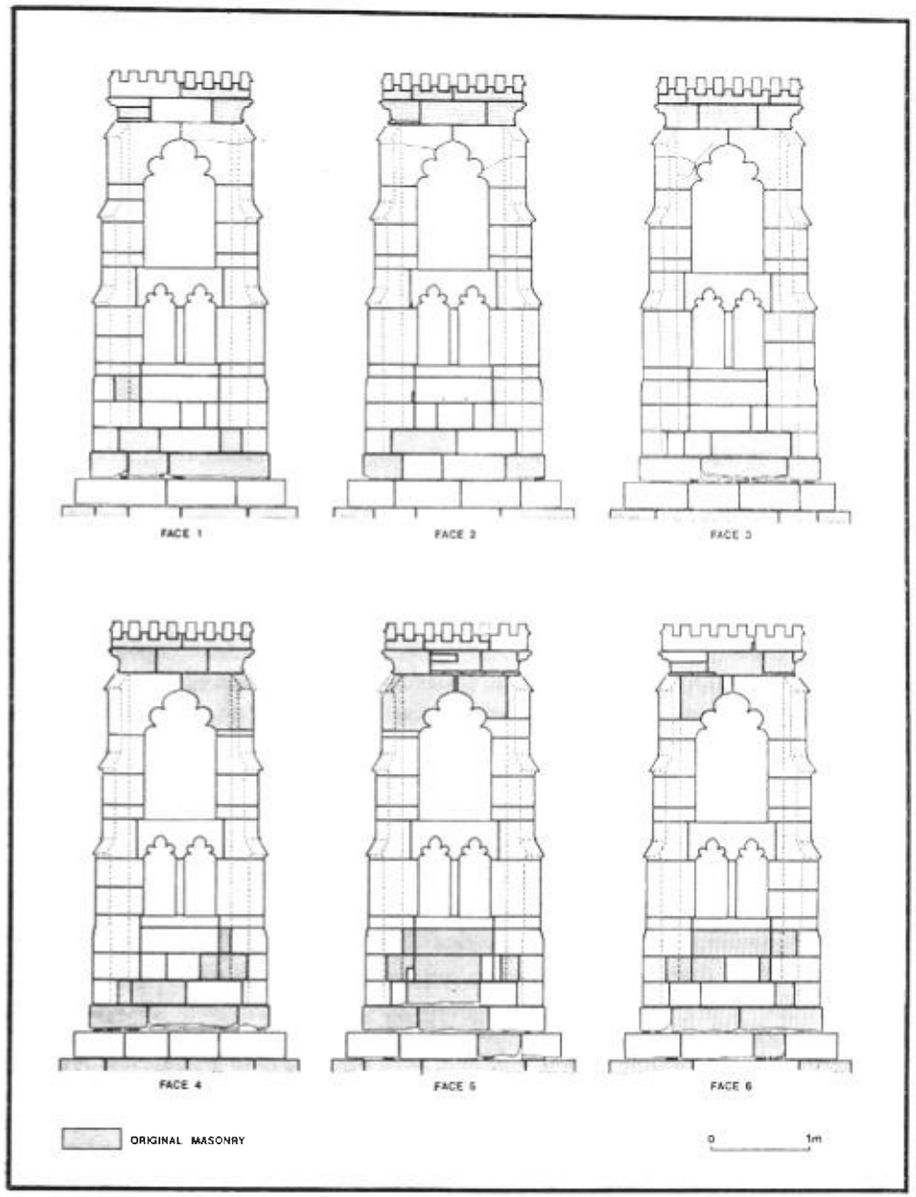

FIG. 6
The six faces of the cross showing the individual stones and the extent of the 1864 repair work. Moulding details have been omitted for clarity

As has already been indicated, sufficient of the stones which comprise the roof and vaulting were re-used in 1864 to be sure of the original design. The detail of the cornice is preserved on most faces and parts of the cinquefoiled arch and upper stage of the buttress are present on faces 4, 5 and 6 although now in a very eroded state. As previously mentioned these stones continue inwards as part of the vaulted roof (FIG. 5.4). Interesting constructional details include the use of packing stones between the arch and cornice levels, particularly on face 5 and the presence of an iron bar, in the underside of the arch in face 3, which has caused this stone to crack throughout its thickness.

From the bottom of the cinquefoiled arches to the bottom of the balustrade openings there is no original masonry in any face. This is completely the work of Gilbert Scott and it is only by comparison with early prints and photographs that we can establish the accuracy of his work. This will be discussed in the final section.

A few stones in the bottom part of the cross are very eroded and doubtless original. They are mainly on faces 5 and 6 and include parts of the moulding just below the bottom of the balustrade openings and part of the buttress between faces 5 and 6.

The re-used stones in the steps shown on the elevations have previously been seen in plan (FIG. 4). In elevation it is apparent that many pieces of tile and slate have been used to pack the undersides of these stones and it is suggested that they were re-used upside-down and not necessarily in their original places.

The internal parts of the structure were also replaced by Scott (FIG. 7) including the central stone bench. The original decayed base 'stood in the monastery ruins for many years'[10] but is now lost. The central shaft and columns were all replaced and the original masonry is only apparent in the vaulting of the roof.

THE NINETEENTH CENTURY RESTORATION

In the early 19th century the Blackfriars Preaching Cross was in such a tottering state that any great storm might have reduced it to a shapeless mass of ruin and as a result it was fully restored in 1864. The work was paid for by John Arkwright, Esq., of Hampton Court, who was then the owner of the Coningsby Estate which included the monastic ruins and cross. The architect was Sir Gilbert Scott, R.A., but unfortunately there are no details in the Hampton Court papers and only a sketch drawing of the cross, together with one of the cross which used to stand in the Bishop's Cloister, both taken from old prints, in Gilbert Scott's papers.[11]

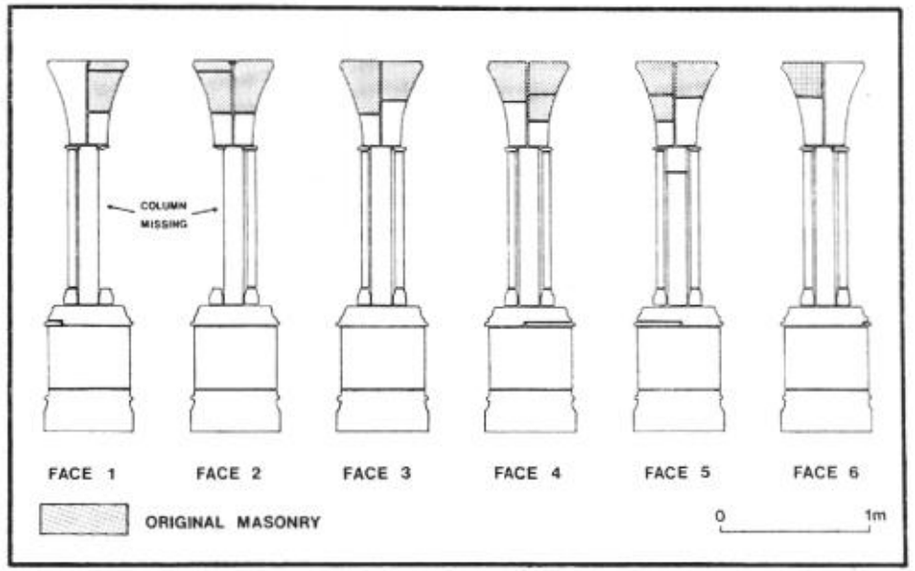

FIG. 7
The six faces of the central pier showing the extent of the original masonry in the interior vaulting of the roof

There are many pre-restoration sketches of the cross, the most detailed of which dates from 1830 and is shown in PL. XI. Only one pre-1864 photograph has been found; this dates from 1860 and is of exceptional quality (PL. XII). The extent of the work carried out in 1864 can be assessed from a study of these views and others available in the City Library and Museum and by examination of the fabric of the standing monument.

It is evident that the whole cross was taken down, at least to the present ground level, and rebuilt using much new stone. The extent of re-use of the original masonry has already been discussed and it is the intention in this section to consider in detail what changes and alterations Scott made to the original structure during his restoration works.

Apart from the insertion of much new stone into the fabric the most obvious changes made by Sir Gilbert Scott were the replacement of the broken stump of the shaft above the roof with a new shaft and cross and the insertion of balustrades on all six sides.

The upper parts of the cross and shaft must be entirely to Scott's design and are not included in any of the drawings in this article. The shaft is considered by Watkins to be far too long[12] but the thickness and detailing in the lower parts appear to be identical with that indicated on the pre-restoration illustrations (PLS. XI and XII).

The balustrades, which fill all six sides, are perhaps the most contentious part of the 19th-century restoration work. Most early prints have no trace of a balustrade although the 1860 photograph (PL. XII) seems to show slight traces of where the stones of a balustrade may have fitted into the vertical members. Two drawings of the cross (Taylor, 1757 and Hooper, 1776) have indications of what may be a balustrade across at least one opening, but with very little detail. The initial drawings made by Sir Gilbert Scott[13] are taken from these prints and may have been his first attempts at designing a new or replacement balustrade. The final result is compared with the other cinquefoiled arches on the cross later in this article (p. 241).

Scott put his new balustrade across all six openings but it would seem most likely that, as several writers have suggested, in the original state one side of the cross would have been open as an entry for the preaching friar. Although Alfred Watkins, who was born in 1855, did not remember the cross before restoration he notes that:

> 'An old corporal of the Coningsby Hospital, in which grounds this Blackfriars Cross stands, told me he remembered the wooden gate which closed the entrance in the stone rail necessary for the preacher to enter, as existing in his earlier days.'[14]

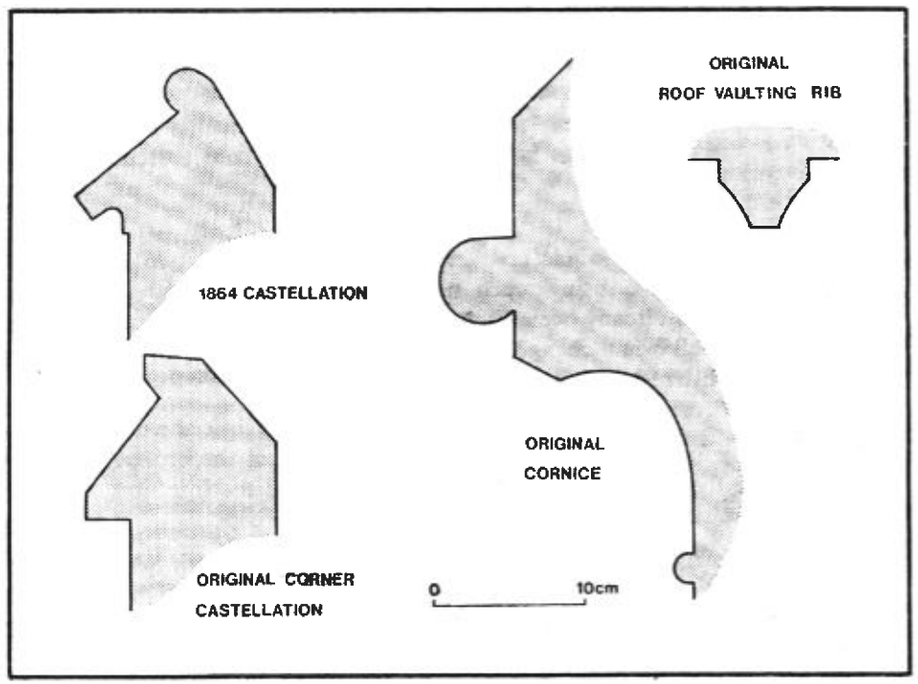

FIG. 8
Details of various mouldings

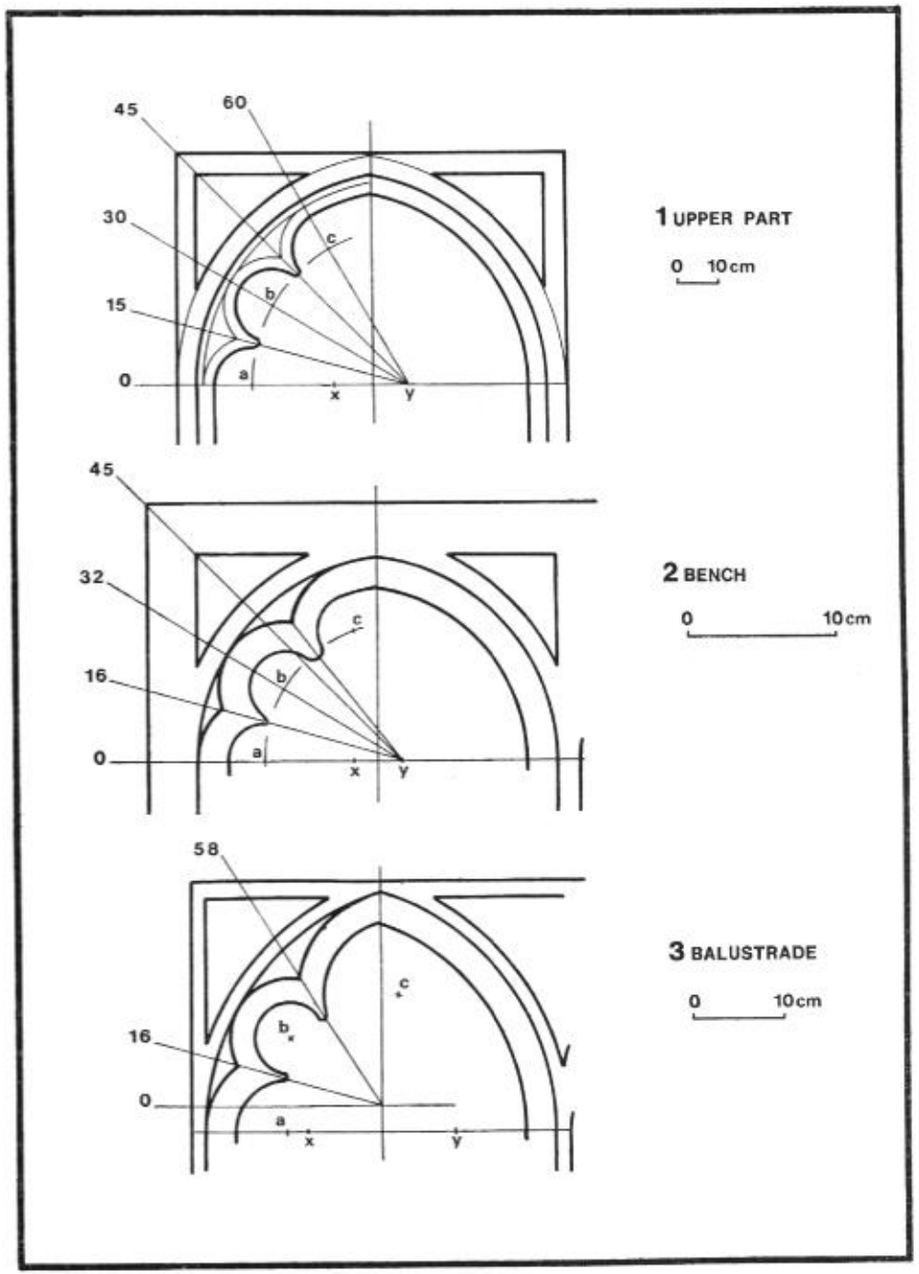

FIG. 9
Design features of the cinquefoiled arches: 9.1, the upper part of the faces; 9.2, the central stone bench; 9.3, the balustrade: x and y are the centre points for the principal arches; a, b and c are the centre points for the foils

This would seem to be the most likely arrangement—the evidence from the early prints suggesting that the stone rails were broken away or otherwise removed by the beginning of the 19th century. The lack of rails or a balustrade would have added to the general instability of the cross as a whole as they would have acted as ties holding the central part of the structure together and preventing the corners from bowing under the weight of the roof.

Slight changes from the original are evident in the shapes of some of the mouldings where Scott's work can be compared with the original. The new castellations around the roof have a more rounded profile than the originals (FIG. 8) and the small sections of cornice which were replaced are not identical with the original (FIG. 8—new cornice not illustrated).

The variations of Scott's work from the original can be best seen in the design of the cinquefoiled arches of which there are three examples on the structure each repeated six times. These are the main arches, the balustrade arches, and the arches on the panelling of the central bench. These three examples had significantly different histories during the restoration work: sufficient of the main arches survived in reasonable condition to be re-used and as a result the replacement stones had to be faithfully copied from the originals; the bench was completely replaced but the original was available for copying; and the balustrade had to be completely designed and built.

The design of the main arches (FIG. 9.1) is based on simple geometry. The centre point of each half of the principal arch is at the intersection of the base line with a line which bisects the upper right-angled corner of the rectangular frame of the arch. The cusps are set at 15° and 45° and the centres of the equal radius curves are all on equal radii from the two central points of the arch.

The bench panelling, copied from the original, is an approximation to the design of the main arches (FIG. 9.2). The erosion evident on the original work (PL. XII), the small scale and the copying process would all have caused such irregularities. Careful inspection has demonstrated that all the arches on the bench are slightly different although not sufficient to be apparent on reduced drawings.

The balustrade, built in 1864, may have been inspired by other examples of medieval work but it seems likely that a new template was made to fit into the fixed size of the openings in the cross. Unlike the main arches, the bench, and other medieval examples on tombs in Hereford Cathedral, the design is not based on the use of a principal point on the baseline of the arch, nor are the curves forming the tracery of equal radius. Instead several, apparently random points

have been used and these together with the variable radii of the foils have produced a design which lacks the geometric symmetry of the medieval arch design.

In conclusion, it should be appreciated that although the structure suffered considerable restoration in 1864 sufficient remains of the original fabric to appreciate the design of the medieval cross and to identify some of the variations in detail and construction used by the restorer.

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14 *Op. cit.* in note 9, 21.

A Roman Pewter Plate from Blackwardine

By R. SHOESMITH

A FRAGMENT of a pewter plate was taken for identification to Hereford Museum in 1980 by Mr. Reeves of Leominster. It was found in the Blackwardine area, outside the scheduled site, by a Mr. Atwell with the aid of a metal detector. The fragment remains in the possession of Mr. Atwell.

The complete plate was approximately 350 mm. in diameter with a simple lip, 17 mm. across, raised above the surface of the plate by some 4 mm. (FIG. 1). The lip is slightly ridged at the edge. The plate has a slight foot ring, about 1 mm. in thickness, with an external diameter of 168 mm. The plate is about 2 mm. thick and consists of an alloy of lead (62%) and tin (38%).[1] This is a very high proportion of lead for Roman tableware which normally falls into the range 20-30% lead. A few items of tableware have been found with over 50% lead,[2] and are thus comparable with the Blackwardine piece. They should really be considered as lead alloys but as they are items of tableware they were clearly intended to be pewter.[3]

The surviving fragment of the Blackwardine piece measures *c.* 90 by 160 mm. and includes 153 mm. of the rim. It is thus less than 15% of the whole plate. The fragment was apparently partly cut and partly torn off the plate. The torn edges are bent upwards in the lower right hand corner (FIG. 1) forming a primitive spout.

Scratched on to the surface of the plate is a crude graffito of a naked woman with prominent sexual characteristics. The body is square with 'matchstick' arms and legs and a circular head on top of a thin neck. Scratched next to the rim are the letters:

C CNOVIL . . S

The penultimate letter(s) are not clear. Dr. R. S. O. Tomlin comments 'The final "s" precludes a genitive case-ending (except perhaps *illius* or *ullius*) of a personal name after *c(un)no*, a possibility suggested by the nature of the drawing. Instead one should probably read a personal name *Cuno* . . ., perhaps *C(u)novill(iu)s*, which is apparently unattested.'[4]

The graffito and writing are presumably contemporary and apparently Roman. It is not certain if they were incised after the piece was broken or when it was whole. If the former is the case then a secondary use as some sort of 'skimmer' could have been intended. If the latter then the part with graffito and writing could have been deliberately broken away.

I am grateful to Messrs. Atwell and Reeves for bringing the piece to my attention, to Dr. Tomlin for his assistance in identification, to Dr. Pollard for the analysis and to Miss C. S. Knowles for the drawing.

REFERENCES

[1] The plate was analysed by means of X-ray diffraction by Dr. M. Pollard of the Oxford University Research Laboratory for Archaeology and the History of Art.
[2] High lead pieces are tabulated and discussed in R. F. Tylecote, *Metallurgy in Archaeology* (1962), 67-71.
[3] English pewter from the middle ages to the 19th century contained 20% lead but the lead content has been decreased considerably since it became known that lead may be dissolved from certain grades of pewter (*Ibid.*, 67-8).
[4] A short note on the piece was published by Dr. Tomlin of Wolfson College, Oxford in *Britannia* (1981), 385-6.

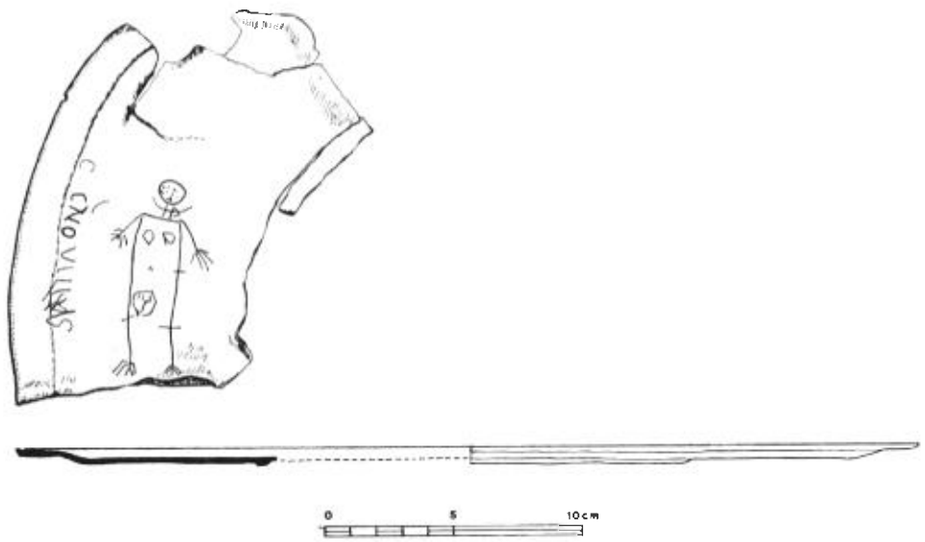

FIG. 1
Roman pewter plate from Blackwardine

Reports of Sectional Recorders Archaeology, 1983

By R. SHOESMITH

THE CITY OF HEREFORD ARCHAEOLOGY COMMITTEE

THE archaeology unit has now settled down in its new office in the basement of the Town Hall and, due to a recent kind offer by the City Council to make up any deficit in the Director's salary, can now be considered as a permanent establishment in Hereford.

During 1983 the Committee has been mainly concerned with pre-restoration and rescue survey work on ancient monuments and with preparing reports for publication. In the latter field the third volume in the Hereford city excavations series, which details the finds, is now ready for publication. Reports completed include Chepstow excavations 1973-4, to be published as a monograph in the Cambrian Archaeological Association series, Blackfriars Preaching Cross, and a short note on a Roman plate from Blackwardine. Work has also continued on the processing of material from the Trinity Almshouses and Tesco's sites in the city.

Progress in designating the centre of Hereford as an Area of Archaeological Importance under the 1979 Act has been slow but the order should be confirmed within the next few weeks and the act would then come into force in the middle of 1984.

The Committee undertook a watching brief for the DoE during the excavations for foundations and drains for the new Mental Illness Unit in Stonebow Road early in 1983. This was part of the site of St. Guthlac's Monastery which moved into the suburbs about 1144. Any remains of the main monastic buildings and church are probably underneath the 'bus station but the watching brief was instrumental in recording several walls and some monastic burials. A report which will record these observations and earlier ones in the main hospital area,[1] is now being prepared.

The archaeological unit carried out a detailed survey of the Blackfriars Preaching Cross on behalf of the Hereford City Council and the DoE prior to restoration works. The survey established the extent of the Victorian restorations.

Detailed survey work at Goodrich Castle in advance of consolidation works by the DoE continued throughout the year. The south-eastern tower is now completed and the next part with which the Unit is concerned will be the large south-western tower.

Minor sites examined during the year included the road works at the Belmont roundabout, the construction of an extension to Marks and Spencers on the south side of East Street, an extension to 16 Old Eign Hill adjacent to Scots Hole and trenches at the rear of properties in Gwynne Street. The Committee provided advice on these and other sites in the city to the City Council Planning Department and to private developers and was also involved in discussions on several applications which involved changes to listed buildings.

In the county area the Unit continues to be concerned with the problems associated with redundant and derelict churches and chapels. Several visits have been made to Urishay Chapel to record the extent of the new building works which, unfortunately, have involved the destruction of much of the north wall although the chancel and a small part of the nave is now roofed.[2] Advice was also given on a proposed extension to farm buildings close to Yatton Chapel and concern has been expressed about the rapidly deteriorating state of Avenbury Church near Bromyard.[3] The main survey work, however, has been outside the county, but still in the Hereford diocese, at Burwarton Old Church in Shropshire, last visited by the Woolhope Club in 1893.[4] The ruins are now in a very dangerous condition and the unit carried out a full stone-by-stone survey and complete photographic survey during the summer of 1983 on behalf of the DoE. It is hoped that the results of the survey will be published as an article in the *Transactions of the Shropshire Archaeological Society*. It is likely that the ruins of this 12th century church, which is not scheduled as an ancient monument, will be totally demolished in 1984.

There is an increasing awareness and interest in archaeological work and particularly in recording and conservation which has resulted in several projects being undertaken. The Committee is bound to help with this type of project as one of its aims is to encourage the participation of part-time archaeologists and local societies providing that a consistent professional standard is achieved. During the year the Unit has provided advice to the Weobley Local History Society which has been investigating the village defences with help from Miss R. Crosskey, a qualified archaeologist from Bromyard. A trench was dug through the remains of the internal bank and part of the ditch in the north-eastern corner of the village and it is expected that a report will eventually be published. Several members of the Committee have also helped in the formation of the Craswall Grandmontine Society which is particularly concerned with the rapidly deteriorating condition of the Craswall Priory remains[5] but also has a country-wide, and indeed international, interest in the Grandmontine Order. The Committee's director, Mr. R. Shoesmith, is acting as secretary for the society and can provide details for anyone who is interested. Mr. and Mrs. Nutman of Sellack are helping with a survey of churches, initially in the deanery of Ross and Archenfield, which will up-date the details of the Royal Commission survey of 1930[6] and, it is hoped, will indicate potential problems.

THE COUNTY ARCHAEOLOGICAL SERVICE[7]

The review of the County Structure Plan in 1982 presented an opportunity for a complete revision of archaeological policies. The redesigned statement of County Council responsibilities in this area is a great improvement on the policies of the three separate Structure Plans for the pre-1974 county authorities and forms a most encouraging commitment by the County Council for future provision for archaeology in Hereford and Worcester. The reviewed Plan is currently under consideration by the Secretary of State for the Environment.

The current preparation of Local Plans by District Planning Authorities, which will determine the location and character of development over the next ten years, is providing an opportunity to bring archaeology into the planning process well before the development control stage so that strategic decisions on the siting of future development and the design of conservation programmes may take into account important archaeological sites and landscapes. In 1981 the first of these archaeological studies of Local Plan areas was undertaken in south-west Herefordshire. In 1982 similar studies were prepared for the towns of Leominster and Ross-on-Wye, and in 1983 for Tenbury. The existing historical and archaeological information for each of the three towns has been collected and used with the results of fieldwork to present an analysis of the settlements' origins and development. General and site-specific archaeological and conservation policies have then been recommended for inclusion in the Local Plan.

In addition to strategic planning work, archaeological advice on individual development proposals has been provided for the County and District Councils and consultation has taken place with the Departments of Transport and the Environment on the archaeological implications of the Leominster, Ledbury and Ross-on-Wye bypasses. Field survey of the routes of these was undertaken and produced a number of previously unknown sites which have now been recorded.

On 22 March 1982 the completion of a long-standing County Council project with which the Department had been concerned was marked by the formal, public opening of the renovated Leominster Priory conventual buildings. The Department continues to be involved in discussions (with both the County and Leominster District Councils) concerning the future of this scheduled ancient monument and the surrounding land.

Herefordshire contains exceptionally well preserved archaeological sites and landscapes of all periods, but few have been systematically recorded. Accelerating change in both urban and rural areas threatens much of this archaeology and while attempts have been made to deal with development in the urban areas (and that which is concerned with such matters as quarrying and road construction) through the planning process, as described above, changes in the rural

landscape (particularly those associated with agricultural processes) are more difficult to monitor.

Towards the end of 1982 the Department therefore initiated three rural field survey projects: in south-west Herefordshire (the parishes of Peterchurch, Turnastone and Vowchurch), in the Leominster area (the parishes of Leominster, Ford, Stoke Prior), and near Ledbury (the parishes of Ledbury Rural, Donnington, Eastnor, Wellington Heath). These areas of the county are contrasted in respect of their landscape and archaeology, as well as in current land use and types of agriculture.

The survey projects have been funded by the Manpower Services Commission, initially for twelve months. Each has carried out intensive field survey of the whole landscape including both surviving monuments and sites on ploughed land which are located by field walking. In addition they are monitoring and assessing the effect of agricultural change on different types of archaeology.

Analysis of the information collected by each survey team is now in progress. In the Leominster area field-walking has located new prehistoric and Roman sites, and a very large number of deserted or shrunken settlements of the medieval and postmedieval periods, surviving as earthworks and with associated field systems, has been recorded. Information about these later sites has been enhanced by aerial survey and also by documentary research. In south-west Herefordshire new prehistoric sites have been identified from surface collection of flints and several hitherto unknown barrows have been located. Medieval field systems with ridge and furrow survive in all areas of the Golden Valley, even on the steep slopes, indicating a considerable acreage of arable cultivation and a pressure to expand on to less favourable land. The implications of this for population size are supported by the existence of many deserted village and house sites. In the Ledbury area extensive survivals of medieval agriculture, settlement and routeways were recorded, as well as more scattered evidence of earlier periods. A survey of standing buildings has revealed the familiar picture of severe underrepresentation of these in the inventories published by the Royal Commission on Historical Monuments and the Ministry of Housing and Local Government. All three surveys have recorded hedge boundaries in some detail and current theories on hedge dating are being tested against this evidence.

The results of the surveys will be incorporated into the County Sites and Monuments Record which is the basic data bank of the County Council's Archaeological Service. In addition the results will be published both as archaeological reports on each area and in the form of more general booklets and leaflets. From this basis a longer term strategy for fieldwork in the county will be formulated.

Work continued in 1982 on the recording of archaeological features exposed in the sides of the railway cutting at Blackwardine. Preparatory work on the site prior

to its use for rubbish disposal involved the removal of a 2 m. wide strip on each side of the cutting. Archaeological features exposed in the sections were recorded and finds were collected. Over 40 pits and ditches of Roman date were identified including an extremely large ditch about 4 m. deep which may have marked the western boundary of the settlement. A report on this site is in preparation.

Part of the scheduled ancient monument at Canon Frome was disturbed by the laying of drain pipes, and a quantity of charcoal, stone, tile, animal bone, iron artefacts and Roman pottery was recovered from the spoil. The site lies a few metres north of the Roman road junction at Canon Frome and probably represents occupation around this focus.

Conversion of the redundant church at Longtown for residential use was begun in August 1983. An initial site evaluation suggested that archaeological deposits inside the nave had been completely removed in the 19th century. Observation of the site during conversion work continues and it is hoped to undertake a survey of the standing building.

The provision of a new water supply by the Welsh Water Authority in Ewyas Harold involved the cutting of a trench across the enclosure to the south of the castle. In the south-western corner of the enclosure a layer of occupation material *c.* 0.3 m. deep containing burnt stone, burnt clay, charcoal, animal bone and medieval pottery was recorded. This was sealed by *c.* 0.7 m. of clean clayey silt probably representing material eroded from the sloping interior of the enclosure and accumulating against the bank marking its southern boundary. A report is in preparation.

Post-excavation work has continued on the preparation of the results of the 1980 excavations (rear of 22 High Street) of the Roman settlement at Leintwardine for publication. A report is also in preparation on the results of eight small excavations carried out in 1976 and 1977 within the northern sector of Hereford City which were intended to assess the survival of archaeological deposits in these areas.

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[6] R.C.H.M., *An Inventory of the Historical Monuments in Herefordshire*, I (1930) and II (1932).
[7] I am indebted to Ms. J. Wills, the archaeological field officer for the following report.

Botany, 1983

By F. M. KENDRICK

During the year I have received the undermentioned records.

Phytolacca americana. Pokeweed

This coarse glabrous perennial was discovered in a garden at Broomy Hill, Hereford. A native of eastern North America this plant has probably been introduced with bird seed and may survive in its present surroundings.

As far as I can determine this is a new record for Herefordshire.

Ruscus aculeatus. Butcher's Broom

This plant uncommon in the county has been recorded in two stations, both in hedges: (a) near St. Weonards (b) Wigmore.

Digitalis purpurea. Foxglove

A white flowered form of this plant was reported from Grafton.

Buildings, 1983

By J. W. TONKIN

AS explained previously these reports tend to get shorter as more of the county is covered by the Old Buildings Recording Group. This year it has been working in the Wormelow Hundred for a second season and a report of its findings will appear in due course. As in the past we are once again indebted to the University of Birmingham and the W.E.A. for encouraging this work.

Two week-end schools with the writer as tutor were based on Tenbury Wells.

In the notes below information in the R.C.H.M. Inventory has not been repeated, though sometimes the two need to be read together.

ADFORTON

PAYTOE HALL. SO 412715 (R.C.H.M. 2)

A lobby entrance house in which some of the later timber-framing shows classical influence, a rare feature. The beams have a 4 inch slightly hollow chamfer with bar stops. The roof was raised probably as early as the 18th century, the original roof having two trenched purlins on each side and a ridge purlin.

BODENHAM

BANK HOUSE. SO 534512

A head was found with some other cut stone when some walling was demolished and has now been built into a wall. It is similar to the work at Kilpeck, Leominster Priory, Rowlstone, Shobdon and Wigmore Abbey and possibly dates from the mid-12th century. On the other hand it is quite flat-faced and rather more lifeless than the Shobdon-Kilpeck School and could be of Celtic origin rather like the faces on some of the Cornish crosses.

ENGLANDS GATE INN. SO 543512 (R.C.H.M. 35)

A fairly typical building of *c.* 1600 with a gable entrance. It is interesting in containing evidence of a post and stud partition which must have once divided the main room into two. The wide chamfer on the beams points to a late 16th-century date, the present kitchen probably having been the parlour of the original

house. The present parlour wing with its small, square panels is no doubt a later 17th-century addition. The roof is of a typical Marcher collar and tie-beam type with struts and trenched, through purlins and the heavy sandstone covering was probably quarried locally.

The timber-framed outbuilding has the usual square panels of the 17th-century and appears to have been re-roofed in the 19th century with the Herefordshire upper base-cruck construction typical of malt-houses and granaries.

EARDISLAND

KNAPP HOUSE. SO 418585 (R.C.H.M. 15)

The cruck truss has a hollow chamfer on the blades continued on the arch-braces. The truss in the northern bay has the peg-holes for the posts and braces of a spere truss at the entrance to an open hall, but like the Marsh at Eyton has no room beyond it. Presumably there was once a lean-to service room at this northern end.

The ogee-moulded stone fireplace in the southern end of the house could be the original parlour fireplace. In the partition opposite this the post on the south side of the doorway has a mortice in a position which probably indicates that the high seat was here facing the fire. The carpenters' assembly marks on the spere truss are differentiated at the various levels by a line and above that a circle.

GRENDON BISHOP

LOWER BROCKINGTON. SO 602559 (R.C.H.M. 3)

There was evidence of the high seat in what is now the parlour, and in the floor above the lobby entrance is a hop-treading hole.

LEDBURY

CANAL BARRACKS. SO 702367

A very unusual building, now a light engineering works, but almost certainly built as a barracks or lodgings for the labourers on the construction of the Gloucester-Ledbury-Hereford Canal. It probably dates from the last decade of the 18th century and the original building seems to have been 286 ft. long by 25 ft. 5 ins. in width. Eighteen bays of the original thirty-one survive. The roof trusses are of king-post type with two wall-plates running the length of the building with an additional support for a tie-beam on each pier.

LEINTWARDINE

3 Church Street. SO 404740 (R.C.H.M. 12)

This house adjoins the Post Office which has the date 1768 over the doorway. Clearly the two were remodelled in the 18th century, but there is still much of an earlier building of *c.* 1600 remaining. The chamfers are 3 ins. and a little more in width and have ogee stops in what seems to have been the parlour. The carpenters' assembly marks are of the scratch type with a line to differentiate them on the upper floor and crescent-shaped marks on the central truss. The cross-wing truss has the herring-bone type decoration which is popular further north.

MADLEY

The Bage. SO 415397

The barn at this farm is a three-bay cruck building right by the side of the road, yet strangely enough had not previously been recorded as such.

ORLETON

Comberton Farm. SO 497678 (R.C.H.M. 28)

The house appears to have been built in three stages, the hall and cross-wing being the earliest part with a lean-to service bay on the eastern end. Later the house was extended to the east and there was a brick addition to the wing probably early in the 19th century. The longitudinal beam in the main chamber over the hall is supported by a Renaissance-type bracket. However, the main interest is in the mural design in the chambers in the parlour wing, a rare survival. It is continued over plaster and timber alike and below the frieze is a floral pattern with six-petalled flowers of various sizes which are best preserved on the doorhead and posts. The colours used are red, blue, white and yellow, but the pattern has been damaged by a number of layers of wallpaper.

PEMBRIDGE

St. Mary's Church. SO 390580 (R.C.H.M. 1)

The belfry was stripped for repair and this gave an opportunity for inspecting the structure of this most unusual building, dated by dendrochronology to *c.* 1250.

Moorcot Farm. SO 357555 (R.C.H.M. 81)

A fine house which has proved to be earlier than the previously accepted dates; restoration has revealed quite tall cruck-trusses probably of the 15th century.

WEOBLEY

House at N.W. corner of Broad Street. SO 402517 (R.C.H.M. 23)

The hall part of this house running along Broad Street has a spere truss remaining and this helps to clarify the plan as a hall in this street with a jettied cross-wing on the street leading down to Bell Square.

WIGMORE

Brook House. SO 413689 (R.C.H.M. 15)

The opportunity was taken of examining this brick house while it was empty. It seems to have been built in at least two stages, the bricks on the western side and at the rear of the house being smaller than those on the eastern side, the bondings changing in the various parts of the house.

The roof of the 16th-century house still exists in part and there is some evidence of it having been the roof of either an open hall or, more probably, an open great chamber. It has been raised, quite probably at the time of the second period of brickwork. The staircase is between the front door and the stack and is of quite delicate workmanship of *c.* 1800. The partitions between the western rooms are timber-framed, probably of vertical framing. Some of the floor-boards are as wide as 1 ft. 2 ins.

The outbuilding seems to have been built as a dwelling. It is of normal, square-panelled, timber-framed construction with hazel wattle and re-used in its northern gable is an ogee doorhead from a late medieval house. It could well be of the same period as the moulded beams and the earlier roof in the main house.

During the year 23 planning applications were received. As usual most were for comparatively minor alterations and additions. One was for the demolition of Caerwendy Farm, St. Weonards. It was already described as being in bad condition when the R.C.H.M. Inventory was prepared in the 1920s and when visited in 1982 was roofless and ruinous. The condition of this isolated building was such that nobody could have been expected to restore it and no objection was raised by the Club.

As in the past my thanks are due to a number of people especially the members of the Old Buildings Recording Group and those owners and occupiers who have allowed me to wander round their buildings. In the case of the Pembridge belfry I am grateful to the DoE and the architects Leonard Baart Associates, for permission to visit it while it was stripped.

Deserted Medieval Villages, 1983

By ROSAMUND SKELTON

THIS year the Hereford and Worcester County Archaeological Department sponsored three teams funded by the Manpower Services Commission to carry out rescue field surveys around Ledbury, Leominster and Peterchurch. The objective of the surveys was to record all visible archaeological features and establish how modern agricultural methods were affecting their survival. A detailed report on the findings of each survey will be published. I shall therefore only give a brief summary of the main findings of these surveys which relate to deserted or shrunken medieval settlements. I am grateful to Dr. Nigel Mills supervisor of the Leominster team for supplying the information on the Leominster area.

This is the first time that whole parishes have been surveyed in detail in Herefordshire, and the number of finds of deserted or shrunken settlements indicate that nucleated settlements with associated open-field cultivation were once widespread in the county. Of the twenty-seven sites noted here only eleven are recorded in the medieval tax documents referred to; it is evident that these documents are a poor guide to the pattern of settlement in medieval times in the county. The occurrence of the settlements in the relevant documents is indicated by the following initials after the national grid reference for the site:

DS Domesday Survey 1086 A.D.
NV Nomina Villarum 1316 A.D.
LS Lay Subsidy Rolls 1334 A.D. P.R.O. E179/117/65.
PT Poll Tax 1377 A.D. P.R.O. E179/117/12-5.

The settlements are listed under the modern hundreds and where these differ from the medieval hundred, the name of the medieval hundred is given in brackets.

WOLPHY HUNDRED

Aulden SO 463548
Broadward SO 497572
Coldwell, Stretford SO 524581
Ford SO 512552
Hennor SO 538586 and SO 543583 LS (LEOMINSTER)
Humber SO 537562 NV LS (LEOMINSTER)
Hyde SO 453551
Ivington SO 475567 NV LS (LEOMINSTER)
Newtown SO 477577
Risbury SO 548551 DS LS (LEOMINSTER)
Brierley SO 496560
Cholstrey SO 466595
Eaton SO 509579

Stagbatch SO 464584. A shrunken settlement which was still functioning in part as an open-field village in the 18th and early 19th century. The earthworks consist of substantial hollow-way with well-marked house platforms adjacent.

Wharton SO 512557 and SO 508557 DS LS (LEOMINSTER). Well-marked building platforms and trackways survive.

Wickton SO 523545

Wintercott SO 473552 and SO 472546. This settlement seems to have died out between the 15th and 16th centuries.

RADLOW HUNDRED

Unnamed site in Eastnor parish SO 738357. A moated site with two enclosures and evidence of platforms adjacent in parkland with part of the site possibly lying in an adjacent ploughed field.

WEBTREE HUNDRED

Chanstone SO 365357 DS NV LS PT. Earthworks consisting of a trackway and at least two rectangular building sites and an enclosure recently filled with bricks.

Lyonshall SO 355391 NV LS. Finally deserted *c.* 1900 when the farm was sold. A trackway and platforms, dam and pond.

Monnington Straddle SO 383367 DS NV LS PT 27. Slight earthworks visible in field south of the motte and bailey castle site.

Snodhill SO 320403 NV LS. Shrunken village with a deeply-sunken hollow-way and platforms adjacent in the middle of the village and also very slight earthworks on the west wide of the village again of trackways and possible house platforms and a mill site.

Trenant SO 342376 LS. Thanks to references supplied by Mrs. R. Hancorn this can now be certainly identified as the Thorlokeshop of the Lay Subsidy Rolls. No earthworks visible, only leats related to three mill sites.

Urishay SO 323376 LS. Earthworks in the form of platforms visible south of the castle, several hollow-ways and the base of what might be a circular stone dovecote.

Wellbrook SO 353387 DS. Earthworks possibly related to a mill site.

Wernhir SO 319387. Slight hollow-way with four house platforms on the south side in Old House Meadow. There is no identifiable medieval documentation for this site but it may be recorded in Domesday under another name as there are several unidentified Domesday places in the Golden Valley.

Unnamed site SO 364362. Evidence of hollow-ways and a possible mill leat suggesting a settlement site.

Entomology, 1983

By M. W. PRYCE

THIS report is limited because I have been unable to make journeys to contrasting areas in the county. It is based on the area around where I live (Colwall) and several visits to the Ross-on-Wye and Little Marcle areas.

After a fairly mild winter, a cold wet spring delayed insect activity this year. Prior to 19 June, there were 35 days during which rain was recorded daily, and between the falls of rain, skies generally remained overcast. During this time the winter gnat *Trichocera sp* was much in evidence. Sunshine on 28 April, and at odd intervals during the following week, brought out *Gonepteryx rhamni*, Brimstone butterflies, which appeared again on and after 29 July. Orange Tip butterflies *Anthocharis cardamines* did not appear before 18 May. Butterflies whose larvae feed on nettles—the Small Tortoiseshell *Aglais urticae*, Red Admiral *Vanessa atalanta* and Peacock *Nymphalis io*, were not so common this year and appeared later than usual.

During May, large numbers of the shield bug *Palomena prasina* were found in Colwall on dead nettles *Lamium album*—the nymphs are gregarious, and later in the hot sunny days, the adults were very active and showed strong flight. Other members of the Fam. Pentatomidae, seen later in the year, were several specimens of *Sehirus bicolor* and *Pentatoma rufipes*. Shield bugs are of interest in that some species exercise parental care, especially *Elasmucha grisea*, a specimen of which was seen in West Malvern. The female lays her eggs on birch, and protects the young nymphs until they are able to fend for themselves.

The green weevils *Phyllobius virideaeris* and *P. urticae* were seen in large numbers on nettles in Colwall, and *P. argentatus* was seen on hazel and other hedgerow plants on Peterstow Common (19 June). Another large beetle of this Fam. Curculionidae *Otiorrhynchus singularis* which feeds on the roots of many garden plants, was common this year. During May the yellow ladybird *Propylea 14-punctata* was quite abundant in Colwall.

On 30 May, during a visit to Catley, near Bosbury, large numbers of *Philudoria potatoria*—caterpillars of the Drinker Moth, were seen on the grass verges, and also spectacular numbers of *Cercopis vulnerata*, the large red and black froghopper which lives on the roots of grasses about six inches underground, but is usually associated with sallow or alder trees. They had probably just emerged from the ground, because they were quite undamaged and strikingly beautiful.

Three visits to Peterstow Common, near Ross, between mid-June and mid-July revealed a few interesting species, particularly in the hedgerow bordering the common. Hogweed attracted several interesting species of beetles and flies, including the metallic green beetle *Malachius bipustulatus*. Diptera (true flies) included the brightly coloured *Geosargus iridatus* a metallic green fly, *Crysops caecutiens* the 'thunder fly', *Rhagio scolopacea* the snipe fly, and several hover flies including *Sphaerophoria scripta*. The wasp beetle *Clytus arietis* was seen on *Rubus sp* (blackberry)—an example of mimicry in insects, where the beetle closely resembles a wasp, giving warning colouration and affording it protection from possible predators. Two members of the Order Orthoptera were found—the common green grasshopper *Omocestus viridulus* on the grassland, and the ground hopper *Tetrix undulata* in the hedgerow. A mayfly (Order Ephemeroptera) *Caenis sp* was found on 17 July—illustrating that mayflies are not only to be found in May. This is one of the Fam. Caenidae—an example of very small mayflies which have lost their hind wings, and venation on the front wings is much reduced. The less common lacewing fly (Order Neuroptera) *Sisyra fuscata* was present in small numbers. Comma butterflies *Polygonia c-album*, Small Tortoiseshells *A. urticae* and large numbers of Meadow Browns *Maniola jurtina* were seen. Hymenopterous specimens (ichneumon flies) of the species *Pimpla rufata* (parasitic on the Large White butterfly), *Ichneumon amatorius*, and *Perispudus facialus* were found.

During visits to an orchard at Pixley (Ledbury area) in September, large numbers of Speckled Wood butterflies *Pararge aegeria* and Red Admirals *V. atalanta*, and lesser numbers of Comma butterflies were seen. Very large numbers of *Coccinella 7-punctata* (seven spot ladybirds) were found sheltering between crowded apples—suggesting that they are still a very dominant and successful species. They were in association with equally large numbers of the common earwig *Forficula auricularia*. The shieldbug *P. prasina* was also common here.

In the Colwall area the Holly Blue butterfly, *Celastrina argiolus*, is usually a common species, but this year the Common Blue *Polyommatus icarus* was seen in greater numbers. Small Copper butterflies *Lycaena phlaeas* were very common in July and August. The migratory Clouded Yellow butterfly *Colius crocea* was seen in West Malvern, Colwall, Bosbury and Little Marcle, and other sightings were made at Presteigne, Eardisley and Bodenham. I believe I saw a specimen of *Colius hyale* (Pale Clouded Yellow) on Colwall Common on 26 August.

The day-flying Cinnabar moths *Callimorpha jacobaeae* were very common in August. Usually associated with ragwort (a noxious plant to farm animals and to predators of the moth, to which it appears to pass on the poisonous substances, and thus offer the moths protection) this year the larvae were very common on groundsel and I even saw a female laying her eggs on *Senecio greyii* in my small garden.

As the summer progressed many species of hover flies (Fam. Syrphidae) became common. These included *Eristalis arbustorum, E. tenax, Volucella bombylans, V. zonaria, V. pellucens, Syrphis balteatus, S. ribesii.* A single specimen of *Criorrhina floccosa* was caught. Another fly (Fam. Tachinidae) *Tachina fera,* usually associated with water mint in late summer, was a frequent visitor to mint flowers in my garden—far removed from water.

A member of the Fam. Chrysomelidae (the tortoise beetle) *Cassida sp* (possibly *C. rubiginosa*) was very common this year. These are bright green beetles in which the elytra and thoracic terga completely cover the insect, and they flew actively in the hot weather.

Jonathan Cooter (Keeper of Natural History at Hereford Museum) has kindly made available records of his own, and also records made with associates connected with the Nature Conservancy Council. He is particularly interested in woodland Coleoptera, and of great importance are his records of the rare 'Blood-red Longhorn' beetle *Pyrrhidium sanguineum,* which since the 1930s was known in Britain only from Moccas Park. In 1979 a single specimen appeared in the Forest of Dean, then in 1980 J. Cooter found the beetle a few miles north of Knighton (Llanvairwaterdine). The following year he found it breeding in an ancient oak in Brampton Bryan Park. After many years of fruitless searching in Moccas Park, he finally found the beetle at the woodland/parkland boundary—about 30 specimens breeding on a fallen branch of oak. He describes how 'the larvae feed at the bark/hardwood interface, making tunnels parallel to the axis of the branch. . . . Most favoured are branches about 6 inches-1 ft. in diameter. Unlike other Cerambycids, *Pyrrhidium* does not seem to feed as an adult at flowers in order to attain sexual maturity. The adults overwinter in their pupal cells, after spending 2 weeks in the pupal stage. During the winter the adult "colours up", and awaits the warm spring weather, and is generally seen during the last week in May.' He thinks *P. sanguineum* is probably quite widespread throughout the Welsh borders, but, because of its secretive habits, it remains little known. Despite its blood red colour and relatively large size (15 mm.) it is difficult to find.

J. Cooter visited The Flits, Preston-on-Wye, with Mr. Alan Stubbs (N.C.C. entomologist, and a leading Dipterist) and Dr. Michael Darby, when the new owners approached the Hereford and Radnor Nature Trust to prepare a report on the conservation value of the area, and in addition to varied and interesting flora, some rare insects were found. Among these were 8 species of 'soldier flies' (Fam. Stratiomyidae) superficially not dissimilar to the hover flies. Dr. Darby found some interesting Ptiliid beetles (feather-wing beetles) the largest British species being barely over 1 mm. long. Of several hundred taken, 4 *Ptiliola kunzei* (highly localised but widespread) and 6 *Acrotrichis dispar* (a very local and rare species). The rest were the common *Ptilium fuscum, Ptenidium nitidium,* and *Acrotrichis grandicollis.*

Dr. Harper of Ledbury visited the place many times, and recorded a number of interesting Lepidopterous species:

Stigmella cartharticella feeds on *Rhamnus catharticus*
Thumatha senex 'Round-winged Muslin' feeds on algae
Eilema griseola 'Dingy Footman' feeds on lichens
Catarhoe rubidata 'Ruddy Carpet'
Crambus uliginosellus feeds on grasses
Hysterosia inopiana feeds on *Pulicaria*
Phalonidia manniana feeds on *Mentha acquatica*
Epermenia illigerella feeds on *Angelica*
Coleophora alnifoliae feeds on *Alnus*
C. striatipennella feeds on *Stellaria sp*
C. inulae feeds on *Pulicaria*
C. troglodytella feeds on *Pulicaria*
C. potentillae feeds on *Filipendula*
Caloptilia falconipennella feeds on *Alnus*
Lygephila pastinum 'The Blackneck' feeds on *Vicia* and *Lathyrus*

Diptera (identified by Mr. A. Stubbs):

Calobata sellata
Pteromicra angustipennis
Physiphora demandata
Sympycnus aenenoxa
Dolichopus longitarsis, also several uncommon crane-flies
Fam. Stratiomyidae:
Stratiomys potamida 'infrequent as far north as Warwickshire'
Oxcera formosa 'very local, S. England'
Oxcera pygmaea, O. pulchella, O. trilineata
Odontomyia viridula 'scattered throughout S. England'
Nemotelus nigrinus
Nemotelus pantherinus

Jonathan Cooter also made visits to Downton Gorge (near Leintwardine) a site of scientific interest, and in Tin Mill Wood at the eastern end of the gorge, the rare beetle *Nossidium pilosellum* was found in great numbers breeding in a decaying/wet rotten wych elm, its typical habitat. This is possibly a new county record. Also at Downton Gorge, the White-Letter Hairstreak *Strymonidia-w-album* was found with the oak-feeding Purple Hairstreak *Quercusia quercus*. The White-Letter Hairstreak was also found in Haugh Wood. This butterfly is becoming rare because its food plants are wych elm and common elm, now sadly rare in this county due to its destruction caused by the fungal disease carried by the beetle *Scolytus*.

J. Cooter kindly sent some flies (Order Diptera) to Ian McLean of the N.C.C., which he identified as follows:

Fam. Stratiomyidae *Chloromyia formosa* ('soldier fly' with a metallic sheen)

Fam. Platystomatidae *Platystoma seminationis*

Fam. Heleomyzidae *Scoliocentra villosa*

Fam. Tachinidae *Tachina fera*

Siphona sp

I. McLean stated 'They are all common and widespread species with the exception of *S. villosa*, which is a scarce species (which I have never found) apparently associated with badger setts.'

Industrial Archaeology, 1983

By C. H. I. HOMES

HEREFORDSHIRE TRANSPORT

OWING to other commitments I have been unable to undertake much field-work this year, but I have had numerous enquiries from as far afield as Scotland and the Isle of Wight.

Reading through these requests, I note that all the enquiries relate to some form of transport. For this reason I intend to speak on transport in Herefordshire through the ages. There is evidence that Herefordshire has used most types of transport in the past.

The earliest road system of which evidence still exists is Roman with paved roads crossing the county north to south and east to west. Evidence exists in place-names, e.g. Watling Street, and at Abbey Dore a portion of a Roman road with wheel ruts is uncovered.

During the Dark Ages and the medieval period transport was on foot, horse-back or by pack-horse. Evidence of this is the deep cut, narrow lanes and tracks that still exist all over the county, and can be traced for long distances across the country, often from village to village.

From the 16th century roads gradually improved enabling carts and broad wheel wagons to be used. In the 18th century improvements by the various Turnpike Trusts meant that carriages and coaches to distant towns could operate. By the early 20th century steam road vehicles and motor cars were operating. By the mid-20th century air services were operating from Hereford to Birmingham and Cardiff.

During the whole of this period another form of transport was in use, i.e. water transport. There has always been a limited navigation up the Wye to Hereford and in some cases as far as Hay. Also up the Lugg to Leominster. Evidence exists in names, features and documents, e.g. The Warehouse, Fownhope, and Quay Street, Hereford, the remains of a lock at Mordiford and the building and launching of boats at Hereford. When Tidnor forge at Lugwardine was offered for sale in the 1820s it was described as having water transport from the door to Bristol. There is faint evidence that small streams were occasionally used for transport especially for timber.

In 1774 a canal was proposed from the Severn near Gloucester to Hereford. Seventy years later it was opened for traffic all the way. There were proposals to extend this canal to Bromyard and Leominster, but little was done. In the 1780s a canal from Kington to Stourport via Leominster was proposed. A short section from Leominster to Southnett was opened at great expense, but it was never finished. Parts of these two canals are still visible today.

In 1820 a horse-drawn tramway was opened from Brecon to Kington, and in 1829 a similar tramway was opened from Abergavenny to Hereford. Much of the route of these two tramways can still be seen.

These tramways were followed by steam railways, and soon every market town in the county and many villages had a railway station, while Hereford city had lines to Shrewsbury, Worcester, Gloucester and Newport.

The one type of transport which did not operate in the county was electric street cars or trams. Early in the century there were proposals for trams from High Town to the railway station, to Eign Road railway bridge, to St. Martins roundabout, and to Whitecross. A map of this system is at the Hereford record office.

Another type of transport which operated in the 19th century from most villages to Hereford or the nearest market town and sometimes to market towns in adjacent counties were carrier carts. Most of these operated a weekly service returning the same day, for goods and passengers. Using carrier carts it was possible to travel long distances. Most of them were replaced by motor bus services in the 1920s.

Over the years there have been various trades in the county connected with transport, e.g. wheelwrights and carpenters making and repairing carts and wagons; farriers shoeing horses, coach builders constructing carriages, traps and horse-drawn vehicles. Bicycles, motor cycles and motor cars have all been manufactured in the county.

Today, roads have been improved. Most households own a car. Long distance coaches run regular services to distant parts.

The satellite world telephone service operates from Madley. Future air pilots are taught at Shobdon. Many of our railways are closed and bus services curtailed.

Ornithology, 1983

By C. W. SHELDRAKE

FOLLOWING south-westerly gales on 2 and 3 September, two Manx shearwaters were found in Herefordshire, one at Ledbury which was dead, and one at Mordiford which was later released from the Clifton suspension bridge, Bristol. At the Herefordshire and Radnorshire Nature Trust Reserve, Bockleton, a dead gannet was found.

During October a massive invasion of jays occurred, firstly from the continent and secondly from the south of England, due to the failure of the acorn crop. Up to 90% of the crop was destroyed by the parasitic wasp (*Andricus quercus calcis*) which creates knopper galls on pedunculate oak. Late arrivals of the redwings and fieldfares took place this year due to fairly good food supplies in the east and a windy period in the middle of October holding them up.

The wren population has risen following the bad winter of 1981-2.

Details from the Nest Box Scheme of the Nature Trust:

	1983		*1982*	
	Nest boxes used	*Fledged*	*Nest boxes used*	*Fledged*
Pied Flycatcher	271	1118	170	713
Blue Tit	212	1400	95	737
Great Tit	145	873	82	559
Marsh Tit	5	41	5	42
Coal Tit	18	141	9	77
Redstart	10	39	9	34
Nuthatch	12	59	8	42
Wren	5	34		
Tawny Owl	2	2	5	3
Tree-Creeper	1	6		
Total Boxes	1044		1032	
Boxes used	681		383	
% used	65.2		37.1	

	Dates of first eggs laid	*Clutch size average*
Pied Flycatcher ...	5 May	6.2
Blue Tit	20 April	10.8
Great Tit	26 April	8.8

In general there has been a recovery from the effects of the disastrous winter of 1981-82.

Archaeological Research Section, 1983

By MARY THOMAS

MEMBERSHIP of the Section stands at 40 this year. Six field meetings were organised and two editions of *Herefordshire Archaeological News* produced, one in March and one in November. It was decided at the Annual General Meeting, in December 1982, to make more of our Field Meetings include known and well documented sites and monuments. This did not, however, increase the number of people attending which remained at eight to twelve members. The faithful few enjoyed the following visits and are grateful to the leaders and organisers who planned the meetings.

PREHISTORIC

Burial mound Llowes, Powys. SO 163435.

A cairn of probable Bronze Age date stands to a height of 7 to 8 ft. with a summit diameter of 28-35 ft. There is a robbed out crater at the centre. The mound is of large stones bonded in clay and turf.

ROMAN

Stretfordbury, Nr. Leominster. Roman Bath-house. SO 526583.

This site was excavated by Mr. F. Atwell in 1981 and is fully reported in *H.A.N.* 41. Unfortunately, the trenches were no longer open when the group visited but Mr. Atwell showed members where the three buildings lay with their hypocaust channels and furnace room. The latest coins from the excavation give a late-4th to early-5th-century dating. Mr. Atwell has searched the surrounding area for a 'parent' building to which his bath house belonged but has found no further stone foundations.

Clifford. Roman Fort. SO 249467.

This site was discovered by J. K. St. Joseph and reported in J.R.S. Vol. LXIII 1973. It has an area of 16 acres, and commands a defensive position where the valley makes a right-angled turn. Three ditches show up on the aerial photograph, two close together and one 65 ft. further out. No earthworks show up on the site. The fort is not likely to have been occupied for a long period because of flood liability. The fort at Clyro is only 2½ miles away. Possibly the Clifford fort pre-dated Clyro as the two are not likely to be contemporary.

Clyro. Roman Fort. SO 228435.

This fort holds a commanding position of considerable strategic importance high above the left bank of the river Wye. Excavations in 1964 showed two periods. The second phase probably saw the extension of the area to some 26 acres. It seems to have had a short life and to have belonged to a period of campaigning. All finds are pre-Flavian.

MEDIEVAL

Kentchurch. Moated Mound. SO 422270.

This mound measures 50 ft. by 43 ft. and is surrounded by a dry ditch except on the S.W. side where there is a natural slope to a small stream. The height is 12 ft. above the ditch. On top of the mound are three small platforms. The southernmost one could have been a rectangular building of which some stone debris remains. The northern platform appears to have been semicircular. Traces of walling follow the edge of the summit on part of the W. and S. sides. There is a causeway entrance on the N.E. side. Mr. R. Kay who has surveyed the site suggests a fortified house rather than a castle and offers a 13th-14th-century dating.

INDUSTRIAL

White Hill, Shucknall. Ring of oak trees. SO 595434.

This feature was investigated but not surveyed. A rough circle of trees—some of which are lost, encloses the remains of a large rectangular platform with considerable masonry wall footings still evident. These are more substantial on the N. side. No domestic debris was found and there was no sign of roofing slate. It seems almost certain that this was an out-lying barn, possibly with an open side and fold. Dating is difficult but late 18th century might be a reasonable guess. The trees could have been planted to provide shelter and shade for stock in the open fold.

Begwyns Common, Powys. Dams, known as Maes Gwyn Pool. SO 163436.

A dam 20-30 ft. thick and 8 ft. high was built in two lengths, 630 ft. and 82 ft. The junction of the two lengths was the site of the sluice (no longer in position). The dam held back a large shallow pool (now dry) which was prevented from overflowing on the western side by another bank, 690 ft. away, measuring 2½ ft. in height and 30 ft. in width. The south boundary of the pool is a straight bank, showing only slight traces of artificial scarping, which is topped with fir trees forming a wind break. There is no indication of the date or function of this feature.

Herefordshire Archaeological News Nos. 41 and 42 contain full descriptions of these sites and monuments. They also contain details of the following well-documented sites which have been visited during the year.

White Castle)
Penrhos Castle) Gwent
Parish church of St. Teilo, Llantilio Crossenny)
Parish church of St. John the Baptist, Weston Beggard
Hereford and Gloucester Canal at Monkhide
Abergavenny to Hereford Tramway at Wormbridge

Natural History Section, 1983

By C. W. SHELDRAKE

This year one indoor and six outdoor meetings were held.

7 March. The Annual General Meeting took place in the Woolhope Room followed by a talk and slides by Mr. Tim Barfield on a 'Survey of Plants of Herefordshire Streams.'

24 April. A walk led by Mr. C. W. Sheldrake was held in Queens Wood, Dymock, a mixed woodland owned by the Forestry Commission. Owing to the late spring many wild daffodils were still in flower.

15 May. A meeting was held at Bodenham. The perimeter fence was followed by the gravel pits to observe wildlife.

18 June. A visit was made to Mr. Williams, Clifford Cottage, Kings Acre. Members wandered in both the formal and wild garden which has been laid out to attract wildlife and in particular butterflies. After tea, members were taken around the production section of Wyvale Nurseries Ltd.

16 July. A joint meeting with Herefordshire Botanical Society to Crook Peak, Mendips, took place.

20 August. A geology meeting led by Mr. P. Thomson was held in the Aymestrey area where the effects of the Ice Age were explained and observed.

22 October. Westonbirt arboretum was visited. It was a week too early for the brilliant colours of the *acer* trees. Members noted that the Forestry Commission financed by the E.E.C. is conducting experiments on the Dutch elm disease.

Following the mild winter of 1982-3 April and May were very wet. This has been attributed to the eruption of El Chichon, Mexico, on 4 April 1982. Very high temperatures followed in July and August. Other global weather patterns have been disrupted by the El Nino warming phenomenon in the eastern Pacific. This has caused extensive rainfall in Peru and on collapse very cold weather in the U.S.A.

Weather Statistics, 1983

Month	*Sunshine Hours*	*Day with sun*	*Max. Temp. Screen °F*	*Min. Temp. Screen °F*	*Nights Air Frost*	*Nights Ground Frost*	*Rainfall ins.*	*Max. Rainfall /Day ins.*	*Days with Rain over 0.005 ins.*
January	54.5	23	57	29	—	14	1.56	0.46	15
February	57.1	18	57	24	14	18	1.21	0.38	5
March	93.8	27	59	32	—	6	1.18	0.2	9
April	131.6	28	62	32	—	—	3.77	0.73	25
May	118	29	67	37	—	—	3.23	0.82	10
June	171	28	79.7	45	—	—	1.40	0.8	6
July	235.5	31	90	46	—	—	2.29	1.13	8
August	223.6	28	84	45	—	—	0.50	0.19	7
September	106	23	73	43	—	—	3.09	0.78	12
October	119.6	27	67	30	2	Not recorded	2.51	1.27	14
November	31.7	15	64	21	4	Not recorded	0.98	0.31	11
December	66.4	18	59	26	5	10	3.19	0.46	14
Totals	1408.8						24.91		
Totals for 1982	1317.75						32.65		

(By courtesy of Messrs. Chave and Jackson Ltd., Hereford)

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