

TRANSACTIONS
OF THE
WOOLHOPE
NATURALISTS' FIELD CLUB
HEREFORDSHIRE

"HOPE ON"



"HOPE EVER"

ESTABLISHED 1851
VOLUME L 2000
PART I

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Charity Regd. No. 521000

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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, 2000

SPRING MEETINGS

FIRST MEETING: 15 January: Mr. P. Thomson, president, in the chair.

Mr. P. G. Garner gave an illustrated talk on 'Herefordshire Dragonflies.' He explained that dragonflies were one of the oldest insects dating from 200 million years ago. There were 4,500 species in the world but only twenty-five or twenty-six in Herefordshire. He pointed out the difference between dragonflies and damsel flies. They both have two pairs of wings, the hind wings of the dragonfly are broader. When resting the dragonfly's wings are outspread whereas those of the damsel fly are folded back. They are recognisable by their distinctive flying around the riversides and ponds. They only live about three months and much of their life as a nymph is spent under water. Among the various sites where they can be seen are; the gravel pits at Mathon, the pool in front of Brinsop Church, Rushock Pool near Kington, and the Skewbridge at Monkhild. Their names explain their mode of flight such as four-spotted chaser, black-tailed skimmer, black darter and brown hawk. They can fly long distances and can be seen from May to August. The dragonflies of very early times, pre-dinosaur, had a wing span of thirty ins. the largest known for an insect.

SECOND MEETING: 5 February: Mr. P. Thomson, president, in the chair.

The Rt. Revd. J. Oliver, the bishop of Hereford, gave a talk on 'Whose Millennium: The Origins of Christianity' which it is hoped will be printed in the *Transactions*.

THIRD MEETING: 4 March: Mr. P. Thomson, president, in the chair.

Dr. John Eisel and Dr. John van Laun gave an illustrated talk on 'The Greyfriars Beam Engine; a Forgotten Aspect of Hereford's History.' Dr. Eisel gave a brief history of the 13th-century Greyfriars Priory site which was damaged during the Civil War in 1645. He used evidence from various maps and drawings such as Speed 1610, Stukeley 1721, Taylor 1757 and Wathen 1776 and 1794. By about 1790 there was a complex of buildings on the site. Due to a shortage of corn about 1800 the Herefordshire Subscription Flour Co. was established by 26 March 1801. John Allen, bookseller, had bought the property and by April 1801 two buildings were erected. From records in the Birmingham Library, Allen ordered from Matthew Boulton of Soho a 20 h.p. engine with an 18 ft. beam and 15 ft. flywheel. In April 1803 the subscribers wished to dissolve the business and an advertisement of 18 May 1803 offered for sale on 13 June 1803 two acres of rich meadow, a cider building and a wainhouse etc. The engine which was never used was sold in 1804 to Bootle Water Co. and the Flour Co. was wound up in 1809. The cellar for the engine is still to be seen under the E. part of Greyfriars. It is not known whether the subscribers ever received their money.

Dr. van Laun in describing the engine in detail said that it was an enterprise in advance of its time. He referred to the Dudley Newcomen engine of 1712, the development of the beam engine by James Watt which was followed by the rotative engine of Boulton and Watt.

SPRING ANNUAL MEETING: 25 March: Mr. P. Thomson, president, in the chair.

The assistant-secretary reported that the club had 773 members.

Mr. Thomson reviewed the club's activities during the year and said that the 125th Anniversary Exhibition held in the Woolhope Room was very successful. He gave his address 'Orchids of Herefordshire' which is printed on pp. 9-24.

Mrs. R. E. Skelton, B.A., M.R.T.P.I. was installed as president for 1999/2000.

FIELD MEETINGS

FIRST MEETING: 6 May: THE BLACK COUNTRY MUSEUM, DUDLEY

Members travelled via Ledbury and after a stop at the Strensham Motorway Services for coffee proceeded to the Black Country Museum where the party was given an introductory talk and shown a video. Many additions have been made to the museum since visited by the club in July 1987. The site which had been worked for coal, ironstone, limestone and clay has been made safe for the museum. Historic buildings from all over the Black Country have been moved and rebuilt in traditional designs.

Some members went on a boat into the canal tunnels which connect with the 200-year-old limestone mines, branch tunnels and open basins. An underground audio-visual brought the hidden world to life.

SECOND MEETING: 18 May: SPETCHLEY AND LEIGH AREA, WORCESTERSHIRE

Members travelled via Ledbury to Spetchley Park Gardens, a thirty-acre garden owned by Mr. and Mrs. John Berkeley of Berkeley Castle in Gloucestershire. The garden contains a collection of trees, shrubs and plants which is at its best in the month of May. Red and fallow deer graze in the adjoining park.

After tea in the Old Laundry Tearooms the party proceeded to Leigh to visit Leigh Court Barn which was built in the 14th century for the monks of Pershore Abbey. It is said to be the largest medieval cruck barn in England. It is 150 ft. long, 33 ft. 6 ins. wide and 34 ft. high, and contains eleven cruck trusses of which the end ones are half-hipped. The two threshing bays are also of cruck construction. Also visited was Leigh Church dedicated to Saint Eadburga. It has a Norman nave and chancel with a later Norman S. arcade and a late 14th-century tower. There was extensive restoration work in 1855. Monuments to Edward Colles, 1606, and William Colles, 1615, and to Essex Devereux, 1639, and Walter Devereux, 1642, were seen. The Colles and Devereux families were lords of the manor.

THIRD MEETING: 15 June: LLANDEILO AND ABERGLASNEY AREA, CARMARTHENSHIRE

After coffee at the Cawdor Arms Hotel at Llandeilo named after the Cawdor family of Golden Grove, members walked along Abbey Terrace and The Crescent to view the Towy Valley and the stone bridge constructed in 1847 which has the longest single stone span in Wales. The road which the party had just walked along bisects the churchyard and was constructed in the late 18th century and enlarged in the mid-19th. Llandeilo owed its prosperity to the owners of the nearby Dinefwr Castle which dates from the 12th century and was the seat of the Welsh kings and princes of Deheubarth.

The next stop was at Dryslwyn Castle where the majority of the party walked up to the ruined castle dating from 1225-45, and where only part of the hall and chapel survive. Good views of the Towy Valley were seen from this hill-top castle.

The afternoon was spent at Aberglasney Gardens which are being restored under the guidance of Hal Moggridge, a landscape architect, and Penelope Hobhouse, a garden designer. Members were given an introductory history of the site and taken on a tour by Hannah, an enthusiastic volunteer. The derelict house and neglected gardens were purchased by the Aberglasney Restoration Trust in 1995 when an American benefactor donated the purchase price. The estate was acquired from the Thomas family about 1600 by Bishop Rudd of the See of St. David's. He is said to have rebuilt the house. In 1710, Robert Dyer, a Carmarthenshire lawyer, purchased the estate and refurbished the house. Again it was sold in 1803 to Thomas Phillips who repaired the house. It was inherited by the Walters family who added Phillips to their surname. Through marriage it passed to Charles Mayhew who died in 1907 and then in 1939 devolved to Eric Evans who died in 1950. In 1955 and 1977 the estate was sold and split up. From this time the house and grounds were neglected. The Trust is restoring both and employing archaeologists who have so far proved that the Cloister Garden dates from late Tudor and early Stuart times.

FOURTH MEETING: 13 July: WARMLEY AREA, BRISTOL AND OWLPEN MANOR

This was the president's choice. After coffee at the Village Green Inn at Trelleck members went down the steps to see the well underneath the hotel. It is no longer used as the water supply.

At Warmley the party was taken on a tour of the industrial site and gardens. In 1738 William Champion patented a zinc spelter process and moved to Warmley in 1746 and flourished there until 1769 when he sold it to the Bristol Brass Company. This was dissolved in 1786 and the site was used for pin manufacture, pottery and stoneware drain-pipes. Since 1966 the site has become derelict but is now being restored. On the walk members saw the clock tower, the chequered wall constructed of clinker, brick and slag blocks, the echo pond, the statue of Neptune, the Mound, the Grotto approached through a dark passage but now roofless with walls of clinker and mortar. Warmley House, now a residential home, was built in the 1760s for William Champion, the Quaker industrialist.

In the Kingwood Museum on the site were seen displays depicting the various industries.

The afternoon was spent at Owlpen Manor, last visited by the club in May, 1994. In 1464 the manor passed by marriage from de Olepenn to the Daunt family. About 1850 it came into the hands of the Stoughton family and was uninhabited until 1926 when it was acquired and repaired by Norman Jewson, the Arts and Crafts architect. Since 1974 it has been owned, lived in and restored by Mr. and Mrs. Nicholas Mander. The hall and chamber above date from c. 1540 and the W. wing was added in 1616 with the initials of Thomas Daunt on it. The E. wing with timber-framing inside was remodelled in 1720. Of particular interest are the late 17th-century painted cloths in the great chamber. The gardens date from the 18th century and the barn with braced collar-trusses from the late 15th century.

On the return journey a stop was made at Coaley Peak to look at the Nympsfield Long Barrow. It is 90 ft. long containing a burial area of three chambers constructed of large upright stone slabs with a rebuilt stone entrance. It was restored in 1974 following excavations when the remains of seventeen individuals as well as flint artefacts and several pottery vessels were found. A short walk along the escarpment provided fine views over the Bristol Channel to Wales.

FIFTH MEETING: 19 August: SNAILBEACH, WELSHPOOL, GLANSEVERN AND MONTGOMERY

After coffee at the Craven Arms Hotel the first visit was to Snailbeach to view the lead-mine which had worked from Roman times until the 1950s, and was once Shropshire's largest metal mine. It probably has the best set of preserved lead-mining buildings in the country. In 1990 the site was purchased by Shropshire County Council and much work has been done to make the remains safe, accessible and understandable. Members walked around the site and visited the interpretation centre.

At Welshpool the party walked along the towpath of the Montgomeryshire Canal and visited the award-winning Powysland Museum and Canal Centre. In 1874 the Powysland Club built a museum which by the 1980s could no longer fulfil the requirements of a modern museum, so their collection was moved to a former warehouse on the Montgomery Canal and is now run by the Powys County Council. The building has been carefully renovated and in 1993 won the Gulbenkian Award. On the ground floor the displays illustrate the history and development of life in Montgomeryshire from prehistoric times to the 20th century. On the first floor there is an archaeological gallery depicting life from the Neolithic through the Bronze and Iron Ages, the coming of the Romans, the attacks by the Vikings and the growth of Christianity. There is also a social history gallery including displays on the cooper and a shoemaker. The Montgomeryshire Canal was constructed through Welshpool in 1797 and was closed in 1944. Restoration work commenced in 1973 and is continuing. The next visit was to Glansevern Hall Gardens which over the last eighteen years have been developed by Mr. and Mrs. Neville Thomas. The gardens cover eighteen acres which include a four-acre lake, a water garden and a rock garden with grotto as well as herbaceous beds and roses and unusual trees such as the maidenhair tree and the Persian Ironwood. The house was built 1802-7 by Joseph Bromfield for Arthur Davies Owen in the Greek Revival style. On the S. side there are five bays with four Doric pilasters and is faced in Cefn stone.

On the return journey a stop was made at Montgomery to see the castle which is constructed of igneous greenstone and was commenced in 1223. The walls were finished by 1253, the gatehouse was remodelled in 1283-8 and the well tower was rebuilt c. 1359. It was abandoned c. 1580 and had been the seat of the powerful Mortimer family and later the Herberts. It has been restored in recent years.

SIXTH MEETING: 7 September: LLANVIHANGEL AND LONGTOWN AREA

At Llanvihangel members were met by Mrs. Julia Johnson who gave an account of the history of the house. It is a stone, Tudor-style house with fine oak panelling, good plaster ceilings and staircase. It has been lived in by the Morgan, Arnold and Harley families. The house is approached by an avenue of Scots pines which are said to be the finest in the country. Members were conducted over the house which was last visited by the club on 10 August 1978.

After tea provided by Newton St. Margaret's W.I. at Longtown the party proceeded to Crow Wood and Meadow where some saw hurdle making and others visited the Nature Reserve which covers twenty-three acres. The reserve is largely pasture which is grazed from May to November and contains a variety of habitats producing a wealth of flowers, tress and birds.

AUTUMN MEETINGS

FIRST MEETING: 7 October: Mrs. R. E. Skelton, president, in the chair.

Mr. John Buchanan Brown, M.A., gave a talk on 'John Aubrey' which has been printed in the *Transactions*, XLIX (1999), pp. 379-403.

SECOND MEETING: 28 October: Mrs. R. E. Skelton, president, in the chair.

Mr. J. G. Hillaby, B.A., gave an illustrated talk on 'Leominster Priory, c. 1123-1539.' He referred to the foundation of Reading Abbey by Henry I who was buried there in 1135. Leominster Priory was a cell of Reading and was visited by Henry in 1121. The architecture was based on that of the Benedictine monastery at Cluny but ties were broken with Cluny when Reading was granted its own abbot. He suggested that Leominster could have been designed for three domes like some of the Cluny priories. There were twelve monks at Leominster. The prior held his own court in the Gatehouse with the gaol just inside the gateway. The stone wall can be seen in Church Street today. There were two bailiffs, one for the borough and the other for the rural area. Six of the thirty-two priors became abbots, one at Shrewsbury and five at Reading. There were disputes with the bishop of Hereford. Bishop Cantilupe supported the parishioners and excommunicated the prior in 1281 but in 1290 the bishop was entertained at Reading. In 1539 Prior Cholsey was unprepared for the Dissolution whereas the last prior, John Reading, had appropriated much of the priory's wealth. The priory was dissolved by Henry VIII; three of the monks received pensions of £5 per annum and one £6.

THIRD MEETING: 11 November: Mrs. R. E. Skelton, president, in the chair.

Mr. J. W. Tonkin, B.A., F.S.A., gave an illustrated talk on 'Herefordshire Houses, 1714-2000.' He explained that the materials were local. By this time timber-framing was of poor quality and in a few instances the infill was of stone slabs pinned on instead of wattle and daub. Red sandstone and limestone were used and from the 18th century onwards brick became more important, the larger houses having double brick walls and a platband and the cottages of single brick. In the market towns and cities and even the countryside back-to-back houses were built, quickly becoming slums. Often these were built on the burgage plots behind earlier town houses. The use of thatch was quite common and became fashionable during the Romantic Revival of the 1830s. The application of rough-cast on to buildings as well as construction in concrete and even wood spread in the 20th century. During and immediately after the 1939-45 war prefabricated building was used and some of these made from china clay waste still survive in Hereford. Today most domestic buildings are of brick but some are of timber and prefabrication construction. During this period from 1714, houses by Adam, Holland, Keck, Nash, Shaw, Smirke and Bettington in 1938/9 are in the county. Dormer windows, porches, parapets, hipped and penticed roofs and classical columns are noticeable. Probate records from 1700 onwards for the Hereford diocese and deanery provide little detail about buildings. Private collections of documents can be useful and the effects of the enclosure acts can be seen in the rural areas where cottages were built.

Mr. Tonkin illustrated his talk with slides of exteriors and interiors of houses from all over the county which included Brockhampton House, Moccas, Poston, Berrington, Sufton, Eastnor, Ridgebourne, the Royal Hotel, Ross, some enclosure houses, Cox's Cottage, Victoria Road, Kington, Goldhill, Cornish units at Hunderton and Broadlands Meadow of 1953.

WINTER ANNUAL MEETING: 25 November: Mr. C. E. Attfield, senior vice-president, in the chair.

Officers for 2001 were appointed. The accounts for the year ending 31 December, 1999 were presented and adopted. These are printed on p. 8.

Mr. Roger Beck, M.A. gave an illustrated talk on 'Wildlife of Herefordshire Nature Trust Reserves.' He said that the Trust owned some fifty reserves which included Clay Vallet, Lea Pagets Wood, Nupend, Titley Pool, Upper Welson Marsh and Leaping Stocks. The reserves consist of woodlands, meadows and wetlands containing all types of habitats and are managed for the conservation of their wildlife. Some of them are known for their specialities peculiar to a particular habitat, e.g. bluebells at Clay Vallet and Lea Pagets Wood; pyramidal orchid at Nupend; green-winged orchid at Stocking Meadow, Bromyard; and the bee orchid at White Rocks. At Lea Pagets Wood there are three species of woodpecker, wood warblers, pied flycatchers and redstarts at Clay Vallet, Butterflies, such as the white-letter hairstreak on elms are to be seen at Corfe Wood, the common blue at White Rocks, the marbled-white on knapweed at Woodside as well as the grizzled skipper, pearl-bordered fritillary, red admiral, comma and painted lady. To be

seen at Titley Pool are damsel and dragonflies, Canada geese, heron, pochard, goosander and tufted duck. The Lugg Meadows are of special interest and well known to the club.

To mark the 150th Anniversary of the Club, the *Herefordshire Miscellany* was published in November. The Club is greatly indebted to Mr. Paul Latcham for such an excellent production and for publishing it. The Club also thanks Dr. John Eisel and Mr. David Whitehead, M.A., as joint editors for editing the various papers on a variety of topics on Herefordshire written by members of the Club.

and as such are unlikely to be preserved in fossil form unless they are incorporated in anaerobic deposits. In addition they are pollinated by insects and therefore have no wind-borne pollen which could fall into stratified deposits such as lake muds or peat bogs.

The differences between lilies and orchids are very clear. Lilies have radially symmetrical flowers whose parts are in threes: three petals and three sepals. As the petals and sepals are often similar they are referred to as six tepals. They have six stamens in two whorls of three and three carpels in the ovary. The ovary is superior that is it is visible above the tepals in the centre of the flower. Orchids on the other hand have bilaterally symmetrical flowers and an inferior ovary. Like the lilies they have three sepals and three petals but two of the latter are similar whilst the third, the lip petal or labellum, is greatly modified to act as a landing platform for visiting insects. It is usually larger and often very different in form from the other petals and it is this lip which gives the flowers their very distinctive appearance. Structurally the lip is the top petal but in nearly all species the flower is resupinate—that is it turns through 180 degrees on opening so that the lip appears as the bottom petal and in this position is much more conveniently placed for visiting insects.

The greatest modification of the orchid flower as compared with the lily is in the stamens and stigmas. In all except the most primitive forms the number of stamens has been reduced to one whose two lobes are composed of pollen grains held together by fine threads to form the pollinia. These may be seen in the throat of the flowers in many species. The remaining stamens have either disappeared, been absorbed into some other organ or been modified as staminodes to perform some function other than pollen bearing. The stigmas have been reduced to two stigmatic surfaces on to which the pollen must be delivered preferably from another plant. Frequently the two have fused to appear as one sticky stigmatic surface. The third stigma has been modified into a rostellum which is firstly the source of the viscous adhesive which sticks the pollinia to the visiting insects and secondly forms a barrier between the pollinia, which lie above it, and the stigmas which are below thus reducing the risk of self-pollination. The stamens and styles are united into a single structure called the column whose form is delicately adjusted to facilitate cross-pollination.

The entire structure of the flower is designed with great ingenuity to ensure pollination by insects and the mechanisms by which this is achieved in many species is described in detail in Charles Darwin's book on *The various contrivances by which Orchids are fertilised by Insects*, the first edition of which was published in 1862, whilst a second modified edition came out in 1877. A more recent account of orchid pollination is found in *The Natural History of Pollination* by Micheal Proctor, Peter Yeo and Andrew Lack, Ch. 7, New Naturalist Series 1996. Representative pollination mechanisms will be described under the appropriate species.

Many insects effect pollination and some orchids such as the Pyramidal, *Anacamptis pyramidalis*, are blessed with at least 23 moth and butterfly pollinators according to L. van der Pijl and C.H. Dobson in *Orchid Flowers, their pollination and Evolution*. In the same account only one wasp is mentioned in connection with the Common Twayblade, *Listera ovata*, whilst the Frog Orchid, *Coeloglossum viride*, is the only species listed in which the

mosquito is a pollinator. Beetles too are mentioned in relation to the Frog Orchid and as one of many visitors to the Early Purple Orchid, *Orchis mascula*. The vast majority of pollinators are however bees, wasps, moths, butterflies and flies.

Once fertilised the orchids produce great numbers of seeds which in most species are very small, light and capable of being dispersed by wind. V.S. Summerhayes in *Wild Orchids in Britain* quotes figures of 500 per capsule in the Twayblade, *Listera ovata*, and up to at least 10,000 or even 20,000 or more in the case of the Bee Orchid, *Ophrys apifera*. These figures for two British species are very modest when compared with capsule contents measured in millions in some tropical orchids.

The very small seeds are unable to contain a food supply for the seedling which they are intended to produce and they will not germinate without additional food. This can be supplied in laboratory or horticultural conditions by supplying them with sugars, but in nature it is effected by a mycorrhizal association. This involves a fungus supplying nutrients, produced by breaking down organic matter, directly to the seed and later different fungi supply the developing orchid protocorm. The fungal mycelium may either clasp the surface of the root of the host plant, ectotrophic mycorrhiza, or it may invade root cells as it does in almost all orchids in which case it is an endotrophic mycorrhiza. In many orchids the fungus is not in permanent occupation but may re-invade when the orchid is under stress. In some species, such as the Bird's-nest Orchid, *Neottia nidus-avis*, the fungus is present throughout the plant's life as the plant produces no chlorophyll and is unable to manufacture its own food supply. The invading fungus can be digested in the host cells and does not invade the whole plant as the orchid produces toxins which confine the fungus to the root system.

Once growth has started the lapse of time before flowering takes place varies greatly from two to three years to as many as twelve to fourteen in such species as Autumn Lady's Tresses, *Spiranthes spiralis*. The relatively long period which may elapse before flowering takes place means that most orchids require a stable undisturbed habitat in which to grow and they frequently form part of a rich and interesting flora. Some orchid-rich grasslands contain more than a hundred plant species and a comparably rich insect fauna. The presence of orchids is thus often indicative of places of high conservation value.

Data on the age of orchid plants before the first leaf appears and the time of production of the first flower have been gleaned by T.E.C. Wells and are quoted in his essay on 'Population ecology of terrestrial orchids' in *The Biological Aspects of rare Plant Conservation*, edited by H. Synge.

Figures relating to some species found in Herefordshire are as follows:

	Year of first leaf	Year of first flower
Bee Orchid, <i>Ophrys apifera</i> .	2	3-8
Common Spotted Orchid, <i>Dactylorhiza fuchsii</i>	2	4-5
Green-winged Orchid, <i>Orchis morio</i>	2	4-5
Early Purple Orchid, <i>Orchis mascula</i>	4	6-8
Pyramidal Orchid, <i>Anacamptis pyramidalis</i>	4	7-8

Common Twayblade, <i>Listera ovata</i>	4	13-15
Autumn Lady's-tresses, <i>Spiranthes spiralis</i>	11	13-15

Herefordshire is not so rich in orchids as many other counties. In particular the counties of S.E.England have greater numbers as their proximity to the continent and the presence of extensive chalklands undoubtedly contributes to their richness. Many orchid species occur on lime-rich soils and in Herefordshire such soils are widespread. They occur on the Silurian limestone scarplands of the Woolhope Hills, the Ledbury-Malvern area and around the Wigmore basin in N.W. Herefordshire, whilst within the Old Red Sandstone areas limestones in the form of cornstone are frequent items in the succession.

The species, excluding hybrids, which have been recorded in the county are listed below in the order currently used in the *List of Vascular Plants of the British Isles*, D.H.Kent B.S.B.I.1992.

The names of genera are in bold type and species are inset below them. Species which have not been seen for a long time are marked with an asterisk. English names are those given in the *New Flora of the British Isles*, C.A.Stace 1997.

Cephalanthera

<i>C.damasonium</i> (Miller)Druce	White Helleborine
* <i>C.longifolia</i> (L) Fritsch	Narrow-leaved Helleborine

Epipactis

<i>E.palustris</i> (L)Crantz	Marsh Helleborine
* <i>E.atrorubens</i> (Hoffm)Besser	Dark-red Helleborine
<i>E.purpurata</i> Smith	Violet Helleborine
<i>E.helleborine</i> (L)Crantz	Broad-leaved Helleborine
* <i>E.leptochila</i> (Godfrey)Godfrey	Narrow-lipped Helleborine

Epipogium.

<i>E.aphyllum</i> SW.	Ghost Orchid
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Neottia

<i>N.nidus-avis</i> (L)Rich	Bird's-nest Orchid
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Listera

<i>L.ovata</i> (L)R.Br.	Common Twayblade
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Spiranthes

<i>S.spiralis</i> (L)Chevall	Autumn Lady's-tresses
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Platanthera

<i>P.chlorantha</i> (Custer)Reichb.	Greater Butterfly-orchid
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<i>P.bifolia</i> (L)Rich	Lesser Butterfly -orchid
Anacamptis	
<i>A.pyramidalis</i> (L)Rich	Pyramidal Orchid
Pseudorchis	
* <i>P.albida</i> (L)AandDLove	Small-white Orchid
Gymnadenia	
<i>G.conopsea</i> (L)R.Br.	Fragrant Orchid
subsp. <i>conopsea</i>	
subsp. <i>densiflora</i>	
Coeloglossum	
<i>C.viride</i> (L)Hartman	Frog Orchid
Dactylorhiza	
<i>D.fuchsii</i> (Druce)Soo	Common Spotted- orchid
<i>D.maculata</i> (L) Soo	Heath Spotted-orchid
<i>D.praeternissa</i> (Druce) Soo	Southern Marsh-orchid
Orchis	
<i>O.mascula</i> (L)L	Early -purple Orchid
<i>O.morio</i> L	Green-winged Orchid
* <i>O.ustulata</i>	Burnt Orchid
* <i>O.purpurea</i> Hudson	Lady Orchid
Ophrys	
<i>O.insectifera</i> L	Fly Orchid
<i>O.apifera</i>	Bee Orchid

Cephalanthera damasonium, White Helleborine, is rare in Herefordshire. A few plants survive at two sites although they are never prolific. It has been known in both sites for over a century but it is much more characteristic of the chalklands of S.E.England where it frequently occurs in partial or heavy shade under beech trees. Here the stony soil and lack of competition seem to suit it. This plant is regarded as one of the more primitive orchids as it retains powdery pollen only loosely aggregated into a form of pollinium and the rostellum is little developed but nevertheless produces a sticky secretion. Like many other orchids it deceives its insect pollinators, in this case small bees, to visit it without the reward of any nectar. When the flower is fully open the expanded lip is decorated with yellow lines leading into the throat of the flower. These appear to be pollen tracks and as the insect pushes its way in it brushes against the rostellum picks up some sticky material which in turn picks up pollen as the bee backs out of the flower. The white flower with its exposed egg yolk yellow lip gives the plant a local name of the egg orchid.

Herefordshire is more or less at the north-westerly edge of the plant's range as it is widespread in Central Europe and its distribution in S.E. England closely mirrors the distribution of chalk and some of the Jurassic limestones of the Cotswolds. In Europe it occurs in a wider range of habitats and soil types and is found up to 1,000 metres in the Alps.

Cephalanthera longifolia, Narrow-leaved Helleborine, is even more rare in Herefordshire and the rest of England than the previous species. In fact it may now be extinct in the county but as all the orchids tend to be sporadic in flowering it may yet produce the odd flowering spike.

Both these Helleborines have white flowers but in the case of the previous species these are produced in the axils of bracts which are longer than the flowers whilst this species has bracts shorter than the flowers thus producing a quite distinctive flowering spike. It also has longer, narrower leaves.

Like *C. damasonium* this is a plant of chalk and lime-rich soils but is perhaps tolerant of a little more ground vegetation and has a wider distribution. It is undoubtedly most abundant in some woods in the Meon Valley in Hampshire but it is also widespread in a number of coastal sites in W. Scotland. On the continent it extends to the Mediterranean areas but lacks the westerly distribution of *C. damasonium*.

Epipactis palustris, Marsh Helleborine, is a plant of calcareous fens and had already declined considerably across the country before 1960 as a result of drainage and reclamation of its habitat. Although wide-spread it had a stronghold in Norfolk but there it has disappeared from about ten of its former sites since 1960. In Herefordshire there are still several scattered localities where limy springs or seepages occur and at one in the Woolhope Hills where it still survives it was recorded as early as 1886. It seems, like many plants, to suffer if surrounding vegetation gets too dense or casts too much shade but in two areas it has been stimulated into action by removal of scrub in one and removal of conifers in the other. With increased interest in conservation and more assiduous observation new sites have been found and conserved by sympathetic owners in the Wigmore area. Whilst *E. palustris* is a treasured rarity inland it is perhaps most prolific in moist slacks amongst calcareous coastal dunes such as those of the Gower peninsula or W. Wales where the pale flowers may carpet the ground.

The flower itself is rather more advanced than that of the *Cephalantheras*. The lip petal is in two parts, an inner bowl-shaped hypochile containing nectar and an outer epichile attached to the hypochile by a delicate hinge mechanism allowing it to be depressed by a light touch. Lying above the lip is the column with a better developed rostellum which is thin skinned and contains a sticky secretion, whilst above this are friable pollinia. These may drop their pollen onto the rostellum even before the flower opens. When it does open it is visited by wasps, ants or diptera which depress the epichile on landing thus opening the way to the hypochile and its nectar which they can then reach by crawling below the rostellum. When satisfied and ready to retreat pressure on the epichile is reduced, it springs upwards forcing the insect against the rostellum causing it to remove the pollen and depart with its load to another flower.

Epipactis atrorubens, Dark-red Helleborine, may not even be a Herefordshire plant. There is a lengthy discussion in *A Flora of Herefordshire*, Purchas and Ley 1889, about the degree of similarity between a specimen found by Prof. Babbington and Purchas on the Little Doward in 1849 and other specimens from Dovedale, Settle and Ormeshead. In addition to the Little Doward plant one from Upton Bishop area is decreed to resemble the Settle and Ormeshead plants more closely. Even if this plant never appeared in Herefordshire it is worth noting that the Carboniferous Limestone screes, shallow stony soil and rock ledges of the Doward are the sort of habitats in which it could be expected. It is found in similar situations in N. Wales, Derbyshire, the Yorkshire Pennines and on Carboniferous Limestone hills at the head of Morecambe Bay. In Scotland it is found on the lithologically similar Durness Limestone in the Kishorn, Assynt and Durness areas. Elsewhere it is on calcareous Dalradian rocks in the Grampians and on the Magnesian Limestone of Co. Durham.

On our first visit to the Alps in 1968 one of the plants we hoped to see was the Dark-red Helleborine, but it eluded us so long as we were among the schist mountains. As soon as we started searching in the calcareous Pre-Alps it was present, in quantity, on the partially overgrown floors of limestone quarries. Elsewhere on the continent it is found at several sites in Central Sweden and in Norway as far as the northern tip. When in flower it is easily recognised by its dark wine-red flowers but any doubts about its identification can be dispelled by observing the two-ranked arrangement of the leaves which contrast with their spiral arrangement in other Helleborines.

Epipactis purpurata, Violet Helleborine. This species can easily be confused with the much commoner *E. helleborine*, Broad-leaved Helleborine, which may be suffused with a purplish tint. *E. purpurata*, however, frequently grows in clumps and thrives in relatively dense shade, especially in beechwoods where few other plants can cope with the low light intensity. The purple colour which gives it its name is found in all parts of the plant.

Within England this is very much a plant of the S.E. and in eastern Herefordshire it is virtually at the western edge of its range. On the continent too it has an easterly distribution only becoming widespread from eastern Germany eastwards. Most Herefordshire records are from the sheltered valley of the Sapey Brook. It is described by Purchas and Ley as 'very rare or local' but a small population was reported recently from the eastern side of Haugh Wood by Mrs J. Wynne-Jones and M. Lawley. In favourable conditions the plant is robust and may grow to a height of sixty centimetres or more. Although deep rooted it is assumed that it is more dependent on its fungal associates than species growing in lighter surroundings.

Epipactis helleborine, Broad-leaved Helleborine, is by far the most widespread and the commonest of the genus. It is found across Europe and Asia and in Britain it occurs in most counties of England and Wales and as far N. as the Midland Valley of Scotland and there are scattered records as far as the N. coast. Even though it is the commonest of its genus it cannot be described as a common plant, but in Herefordshire it has been recorded in most areas.

E. helleborine is usually a plant of light to moderate shade growing beside woodland rides and in hedgerows. It is also very variable in colour, form and the density of foliage

and flowers. It can be mistaken for *E.leptochila* (see below) or *E.purpurata* as it is frequently tinged with purple in both stem and leaves the flowers have varying amounts of purple colour and may sometimes be markedly red. One feature which helps to distinguish this species is the sparsity of hairs on the ovary. According to Stace the ovary of *E.purpurata* is 'shortly pubescent,' that of *E.leptochila* being simply 'pubescent.' *E.helleborine*, despite its colour variation is usually a greenish plant and, if growing in shade among grass, can easily be overlooked. It is nevertheless worth looking for on calcareous woodland soils in Herefordshire. Pollination is mainly effected by wasps, but as in many species of orchid, self-pollination is possible and effective.

Epipactis leptochila, Narrow-lipped Helleborine, was formerly thought to be a variety of *E.helleborine* but was distinguished as a separate species in the early 20th. century. It is almost always self-fertile and the flowers rarely, if ever, open properly. *E.leptochila* favours shallow limestone soils, is reasonably tolerant of shade and can sometimes be found with other members of the genus. Only one plant has so far been confirmed in Herefordshire and that appeared on The Great Doward in 1970, continued to flower for a few seasons but has not been seen since.

Epipogium aphyllum, Ghost Orchid (formerly Spurred Coral-root), is one of the rarest plants in Britain and Herefordshire has the distinction of being the first place in the country in which it was found. That first specimen came from somewhere in the valley of the Sapey Brook near Tedstone Delamere and was found by Mrs. Anderton-Smith in 1854. Since then a Miss Lloyd found specimens on Bringewood Chase in the 1880s while a Mr. Mountford discovered one near Ross in 1910. Since then there have been unconfirmed reports of another near Ross in the 1950s and a final specimen was found in the centre of the county in 1982 by Dr. V. Coombs. This was confirmed by Miss L. Farrell, the then rare plants guru of the Nature Conservancy Council. Elsewhere in England plants have been found on a few occasions in beechwoods on the Chilterns near Henley-on-Thames.

On the continent the plant is found in E. Central Europe and the eastern half of the Scandinavian peninsula but in none of these places is it common. It is most frequently associated with deep, moist leaf litter in beechwoods but we have seen it in woods of Norway spruce in Sweden. The scarcity of the Ghost Orchid may be explained in various ways. It is a saprophytic plant growing in shade and seems to need a continuously moist spring to stimulate it to flower and even then it is very unpredictable. When it does flower it contains no chlorophyll, is pinky-buff in colour and could easily be overlooked, whilst the flowering period extends from June to as late as September. Little wonder that most finds have been happy accidents.

Epipogium, like the Bird's-nest Orchid and the Coral-root Orchid, depends entirely on its mycorrhiza for nutrition. Also it is non-resupinate, that is the flowers do not turn through 180 degrees on opening, so the lip remains at the top of the flower.

Neottia nidus-avis, Bird's-nest Orchid, is another saprophyte with no chlorophyll and a predilection for beechwoods. The English name refers to the tangle of fleshy mycorrhiza-infected roots which are reminiscent of an untidy nest. Like the Ghost Orchid, *Neottia* tends to be a dark buff colour and could be mistaken for a dead spike. The flowers and

pollination mechanism resemble that of the Twayblade, described below, and the plants occur either solitary or in clumps. The latter situation may be a result of several spikes arising from one root ball but is apparently more often the product of several root balls growing close together. Although the Bird's Nest Orchid is found throughout most of Great Britain and Ireland it is rare in the north and west of the region and much more abundant in S.E. England.

Herefordshire lies at the western edge of the area where it is reasonably common and there are more records for it in the S. and E. of the county than elsewhere.

Listera ovata, Common Twayblade, is among the commonest of the orchid tribe in this country but, like some of the previous species, it can easily be overlooked. It grows in meadows and among grasses at the edge of woodland rides, but being tall, slender and entirely green it is well camouflaged. The plant takes its name from its two prominent ovate leaves near the base of the stem.

The flowers form a narrow spike and the sepals and two petals make a hood over the column. The lip is very distinctive. Its lower part runs just below the column but then turns sharply through more or less a right angle to hang down parallel with the stem of the plant. The lip is notched about half way to the bend and between the top of the notch and the bend there is a shallow groove which secretes nectar. The open flower is visited by insects the most common being ichneumon flies but several diptera and some small beetles may also visit. The insects take nectar from the groove but on turning the bend into the head of the flower they touch the rostellum. The lightest touch causes a minor explosion the result of which is to deposit a sticky secretion on the pollinia and on the insect, thus attaching the pollinia firmly to its head or back. When the insect visits another flower the pollen will be in exactly the right place to be collected by the stigma. This process must be successful as the capsules usually contain seeds and self pollination is said to be poor.

In Britain there are two Twayblades, the Common, described above, and the Lesser which is a very small, slender plant often growing in sphagnum moss amongst heather and bilberry. In distribution the two are practically complementary, the Common Twayblade being widespread in England, Wales and Ireland whereas the Lesser is commonest in the Grampians but has been found as far south as Radnorshire and the Brecon Beacons. It may be only a matter of time before someone discovers it in Herefordshire. Probably the most promising place to look would be the upper parts of the north facing slopes of the Black Mountains. On the continent too their distributions are complementary with the Common in the trunk of Europe and the Lesser dominant in Scandinavia and at higher levels in the Alps.

Spiranthes spiralis, Autumn Lady's-tresses, is a plant of short turf on a variety of substrata but is perhaps most characteristic of chalk and limestone areas. With these requirements it is not surprising that it is most common in southern England and in coastal areas of Wales. Its frequency decreases rapidly from the midlands northwards and Herefordshire is graced with a number of recent records but on several former sites it has not been confirmed in the last few years.

In a number of cases the six-inch-high flowering spikes with their spirally arranged small, white flowers have appeared when a lawn owner has gone on holiday in August -

September and forgotten to arrange for the lawn to be cut! It is able to survive in these circumstances because, unlike most of the orchids, its leaves are in a basal rosette which is present over winter but dies away in about May. The flowering spike then comes up from where the rosette used to be. At about the same time new rosettes develop nearby for the following year's crop.

The plant does not thrive in shade or amongst tall vegetation. At a site on the Great Doward, where it used to grow in short rabbit and sheep-grazed turf on old spoil heaps, it has not been seen since scrub took over the area. It is possible that if the scrub was cleared or possibly only coppiced, and grazing was reintroduced it could yet return.

The pollination mechanism is similar in principle to that of the Twayblades and is most frequently effected by bumble-bees, but as the pollinia are removed intact it has similarities to the more complex arrangements found in the genus *Orchis*. The pollinia are collected on the proboscis of the insect as it is withdrawn from the flower and is out of reach of the stigma. As the bee works its way up the flower spike self-pollination of individual flowers is almost impossible.

Spiranthes as a genus is widespread in N. America, Asia and even Australia but in Britain and Ireland there are only three species. *S. spiralis* is by far the most common but of limited range. *S. aestivalis*, Summer Lady's-tresses, is probably now extinct in its former sites in the New Forest where collecting and drainage have contributed substantially to its demise, while *S. romanzoffiana*, Irish Lady's-tresses is a N. American plant which has somehow reached the west of Ireland and N.W. Scotland.

Platanthera chlorantha, Greater Butterfly Orchid, is a handsome plant which is widespread in Herefordshire growing on calcareous soils in light shade in woodlands and occasionally in meadows. In 1889 Purchas and Ley described it as 'rather common' but nowadays 'locally frequent' would be a better description of its status. Unlike many of the plants described so far it is conspicuous growing to a height of 30 cms. or more with a spike of white flowers. The main pollinating insects are evening flying moths for whom the flowers are easy to find especially as they produce a sweet scent which is said to be stronger in the evening. The lip on which the pollinating insect lands is strap shaped and extends into a nectar-secreting tubular spur. The pollinia of the flower are placed wide apart on the column and converge slightly upwards. This feature distinguishes the Greater from the Lesser Butterfly Orchid, as in the latter they are parallel and close together. When visited by the pollinating insect the pollinia attach to its head and eye by a sticky mass at the base of the pollinia and sometimes so many are carried as to render the insect blind.

The Greater Butterfly rarely appears in masses, growing more frequently as scattered individual plants, but about 25 years ago they appeared in quantity when a long neglected coppice area was re-cut on a limestone ridge near West Malvern. It was reported by Mr. Jim Watkins, the then reserves manager for the Herefordshire Nature Trust, that hundreds of spikes had appeared where none had previously been noted.

Nationally the plant occurs in most parts of Great Britain and Ireland but is more frequent in S. and S.E. England and W. Scotland. On the continent it is found in Central Europe and eastward into much of northern Asia.

Platanthera bifolia, Lesser Butterfly Orchid, is rare in Herefordshire and probably only hangs on by a thread. It tolerates a wide range of habitats from acid heathland where it grows alongside heathers such as Ling, *Calluna vulgaris*, or in damper heathlands with Cross-leaved Heath, *Erica tetralix*, but it seems equally at home in chalk grassland and occasionally in the moderate shade of beechwoods.

The Lesser Butterfly may be found in many parts of the country but is more frequent in the southern counties, western seaboard of England and Wales, whilst the western parts of the Highlands of Scotland seem to be its main stronghold. Unlike the Twayblades with their complementary geographical distribution the Butterfly Orchids are more clearly separated by habitats.

Anacamptis pyramidalis, Pyramidal Orchid, is described by Purchas and Ley as rather rare in Herefordshire and it would appear to be even rarer now. It is a plant of lime-rich soils and occurs mainly on sites in the east and south of the county. Nationally it is found in chalk and limestone areas and very frequently among calcareous dunes. It virtually reaches its northern limit in the Scottish borders, but on the continent extends as far S. as the Mediterranean.

The flower is a dark pink in colour but pale pink and even white forms are also found. The name pyramidal applies to the head of the flower, particularly at the time when the lower flowers are open and the upper ones are still in bud. The diagnostic feature which separates it from other species is a pair of ridges on the lower part of the lip petal so arranged that the trough between them guides the pollinating insect's tongue into the narrow spur. This guidance is necessary as the two pollinia are joined by a sticky bar. The insect's tongue touches the centre of the bar which clamps on to it thus pulling the pollinia apart. In this position they are correctly placed to be deposited on the widely spaced stigmatic surfaces when another flower is visited.

In recent reports into the habitat requirements of the Pyramidal (and Fragrant) Orchids, Helen Scott quotes work which indicates that the density of plants is greater in close-cropped turf and that eutrophication is the main cause of population decline. She also finds that 'the largest contributing factor to successful seed germination is the level of moisture in the upper soil.' The moisture triggers germination and mycorrhizal infection occurs before other factors come into play.

Pseudorchis albida, Small-white Orchid, is mentioned in Purchas and Ley, 1889. A single specimen growing with Fragrant Orchid is recorded from a hill meadow near Twyford, but a footnote indicates that it may well have been a white form of the Fragrant Orchid. A record of a number of spikes in the Grwyne Valley inspires more confidence but this lies beyond the county boundary.

By the time of publication of the *Atlas of British Flora* in 1962 the Grwyne site is shown as a pre-1930 record and the nearest specimens at that time were in W. Wales. We can hardly expect it to return even if it were ever here!

Gymnadenia conopsea, ssp. *conopsea* and *G. conopsea* ssp. *densiflora*, Fragrant Orchid. These two sub-species of the Fragrant Orchid are found in Herefordshire but both are rare. Ssp. *conopsea* is a plant of dry limestone grassland and elsewhere in the country is

a frequent associate of the Pyramidal Orchid, whilst *ssp. densiflora* is a plant of fens and sometimes of N-facing damp calcareous meadows.

In Purchas and Ley the two sub-species are not separated but as some of the sites mentioned are wetlands these records probably refer to *ssp. densiflora*. This sub-species is more robust than *ssp. conopsea* and is often associated with *Epipactis palustris*, Marsh Helleborine.

Coeloglossum viride, Frog Orchid. Purchas and Ley describe this species as 'rare but widely distributed' and list sites for it from many parts of the county, but I fear that it must now be described as extremely rare. The *Atlas of British Flora* marks several sites where it was present before 1930 but only two records for the 1950s. Since that time it has been known in a meadow at Clehonger which was ploughed many years ago and a similar fate has probably overtaken many of its other former haunts.

Elsewhere in the country the Frog Orchid has major strongholds on chalk downlands and on calcareous dunes in N.W. Scotland. At a site in the E. Highlands we have seen it flourishing as high as 900 metres. Normally the plant is green throughout and is well disguised among meadow grasses, but sometimes it has red pigmentation and occasionally the whole plant may be yellow.

Dactylorhiza fuchsii, Common Spotted-orchid, is by far the commonest species of Orchid in the county and is described by Purchas and Ley as being reported from every district, and by L.E. Whitehead 1976 as 'Sometimes (present) in great quantity,' a description which happily still applies in some sites. Its main habitats are base-rich soils in meadows, open woodlands and woodland rides, road verges and some churchyards. Elsewhere it is found in most parts of England and Wales and S. and W. Scotland, whilst on the continent it extends across the trunk of Europe but is less frequent in Scandinavia.

The flowers are very variable in colour, form and decoration on the lip petal. The colours range from dark pink or pinkish lilac to white, whilst the shape of the lip, although always three lobed with the central lobe longer and more pointed than the side lobes, may vary considerably in its proportions. On Dinmore Hill alone in the past I have found three different forms.

The *Dactylorhiza*, *Orchis* and *Ophrys* genera all use deception to attract pollinating insects. In the first two although the flowers have a spur it contains no nectar in any British species and only produces some in two on the continent. The pollination mechanism is essentially similar in both genera. The visiting insect lands on the lip petal and, in most cases, is guided by marks on the lip into the throat of the flower and towards the entrance to the spur. Above the lip is the column with its two pollinia looking like mini Belisha beacons standing above it. At the base of each is a sticky patch, the viscidium, whilst the pollen is borne at the top of a short stalk, the caudicle. When the flower opens and is visited by an insect, usually a type of bee in a vain search for nectar, its head touches the viscidium and the two stick firmly together. When the pollinator departs the whole pollinium is withdrawn standing upright on the insect's head. If it remained in this position it could not contact the stigma of another flower. In order to accomplish this the caudicle bends forward through 90 degrees after about 15 to 20 seconds thus bringing the pollinium into the precise position to deposit pollen on the stigma. The delay in bending

forward gives time for the insect to move to another flower head and avoid self-pollination. It is suggested that the variation in colour, shape and lip pattern of the Common Spotted-orchid may delude the insects into thinking that subsequent flowers may not be the deceivers they first encountered!

The Common Spotted-orchid is found almost throughout Britain but in areas of more acid soils in Wales, the S.W. peninsula and much of the Highlands of Scotland it is replaced by the Heath Spotted-orchid. Isolated populations sometimes develop distinctive local forms such as the small, pale-flowered *D. okellyi* in Ireland, or the rather darker coloured *D. hebridensis*. Both are now considered varieties of the type rather than separate species.

1993 was a particularly good year for the species and in Queenswood Country Park a volunteer student found over 5000 flowering heads in early June.

Dactylorhiza maculata, Heath Spotted-orchid, is a plant of acid soils and is therefore rarely found in Herefordshire. For a long time this and the previous species were regarded as varieties of the same species but were eventually separated on the basis of their habitats and the form of the lip petal. In *D. maculata* the two outer lobes of the three-lobed lip are larger and longer than the small more pointed central lobe. As there is so much variability in both species identification can be difficult. They also hybridise but Stace, 1997, comments that the hybrid 'is over-recorded for plants difficult to determine'!

Dactylorhiza incarnata, Early Marsh-orchid, is, as its name implies, a marshland species and may well now be absent from Herefordshire. It is mentioned in Purchas and Ley as growing in Pont-y-spig bog but this area has now been transferred to Monmouthshire so that our loss is their gain.

Dactylorhiza praetermissa, Southern Marsh-orchid, is a handsome plant when well grown and may attain a height of 50 cms. with flowering heads 4-5 cms long varying in colour from pale pink to purple with a lip decorated with dots rather than lines. The favoured habitat is damp, base-rich meadows or fens, but it may also tolerate slightly acid soils.

As this plant was only recognised as a distinct species after it was described by G.C. Druce in 1914 it does not receive separate mention in Purchas and Ley. Its certain identification lies in a minefield of marsh orchid taxonomy which is aggravated by hybridization with other marsh orchids as well as with *D. fuchsii* and *D. maculata*, the former being perhaps the most frequent orchid hybrid.

Herefordshire lies near the edge of the range of the Southern Marsh-orchid as it is most frequent in southern counties and S.W. Wales. It extends sparsely as far as Co. Durham but on the whole *D. purpurella*, Northern Marsh-orchid has a complementary distribution and replaces it in northern England and Scotland.

D. praetermissa is a rare plant in Herefordshire probably because its habitat has declined through drainage and reclamation for agriculture. At what is probably the best site for it locally, on former Ministry of Defence land, it grows in quantity and the plants have leaves marked with annular dark spots. In this form it is known as variety *junialis* (formerly *Orchis pardalina*, Leopard Marsh-orchid.)

Orchis mascula, Early-purple Orchid, must vie with *D. fuchsii* for being our commonest orchid species. It is also the earliest to flower usually at the time when the bluebells are at their best and they frequently grow together. Its range of habitats country wide includes exposed coastal and mountain grasslands, meadows, woods and woodland rides. Purchas and Ley describe it as 'common everywhere and reported from all districts with the exception of Kington.' By the time the *Atlas of British Flora* appeared in 1962 this shortcoming had been remedied and we can now say it is widespread in all parts of our county. On the continent the plant occurs throughout the trunk of Europe but, except for coastal sites, it is absent from Scandinavia.

Orchis morio, Green-winged Orchid. *O. morio* can easily be mistaken for *O. mascula* at first sight but the two wing petals and the sepals form a hood over the column whereas in *O. mascula* they are reflexed. *O. morio* also has sepals marked with longitudinal green stripes which give the plant its English name. These stripes are very noticeable in pale pink or white flowers but are more difficult to see in dark purple specimens.

O. morio is a plant of unimproved meadows and pastures where it may occur in thousands on a variety of soil types. Purchas and Ley describe it as 'locally very abundant' in Herefordshire and 'in hill pastures it is particularly abundant; and with the numerous shades of colour which its blossoms present, adds greatly to their ornament.' By 1976, however, L.E. Whitehead comments that 'ploughing, cultivation and (agricultural) improvements are causing a rapid disappearance of this orchid.' At the time of preparation of *The Atlas of Scarce Plants*, 1994, it had declined so much that it was included in the list of plants to be surveyed and when the relevant maps are compared, its decline since the preparation of the 1962 *Atlas of British Flora* is very evident throughout most of its range which extends from Yorkshire southward. In Herefordshire its present sites are few and far between and nowhere can it be described as abundant.

Orchis ustulata, Burnt Orchid. Purchas and Ley describe this species as 'very rare' and follow this by saying it had been found at the foot of Coppet Hill 'but that it had not been found there since 1849.' They also quote a report from Ernest Ballard that it occurred near Colwall in plenty. There seem to be no records of it since then and now its nearest locations are on the Cotswold Hills and the Wiltshire Downs. Northwards there are scattered sites as far as the Yorkshire Wolds.

When found *O. ustulata* is an attractive, small orchid of chalk and limestone soils with white flowers and a purple-spotted lip. The sepals are dark red and as the lower flowers open first the sepals of the upper ones produce the burnt tip effect. This species is the most widespread of a group of four mainly continental species which just reach their northern limit in S.E. England the others being the Lady, Monkey and Military Orchids.

Orchis purpurea, Lady Orchid. L.E. Whitehead noted that 'one specimen was found in 1967 in beech woodland and was confirmed at Kew. So far it has not re-appeared and it seems unlikely that it will do so.' This probably still holds true. Until recently the owner of the estate where it grew visited the site each year and reported on its non-appearance.

Its stronghold in Britain is in Kent and parts of Sussex where its main habitat is on calcareous soils in beech, ash and hazel woodland and occasionally in open grassland. It has, however, spread further west during the second half of the twentieth century. It

turned up in Oxfordshire in 1961 where it survived for a few years and then disappeared. The trees under which it grew were felled in the 1970s and in 1986 several plants grew and flowered; now this colony has increased further. Similarly it has turned up on Carboniferous Limestone soils in Somerset and its future there is awaited with interest. Perhaps Herefordshire will see more plants after all!

The Lady Orchid is much more at home in Mediterranean areas where the dark purple flowers with a white purple-spotted lip sometimes grow as large as a robust well grown hyacinth.

Ophrys insectifera, Fly Orchid. Although members of the genus *Ophrys* have a similar floral structure to the other orchids, the lip petals are quite distinctive as they mimic the female of the pollinating insect in both appearance and smell. The function of the mimicry was first worked out by Marcel Pouyanne in the early 20th century in relation to the Mirror Orchid which is a Mediterranean species. He observed that the pollinating insect pupated underground during the winter and that the males emerged before the females in the spring when the Mirror Orchids were in flower. The male insect landed on the flower and attempted to mate with it in the process removing the pollinia on its head. This method of pollination, called pseudocopulation, is resorted to by the *Ophryses* and by other genera elsewhere. In the case of the Fly Orchid the only regular pollinator is the solitary wasp *Argogorytes mystaceus*.

In Herefordshire only two sites are now known for this species and in both it is sporadic in appearance. Purchas and Ley note its presence on limestone soils, screes and quarry debris on the Great and Little Doward where periodically it still appears. As the flowers are small and the entire plant slender it is easily overlooked and may therefore be a little more widespread than we think.

Ophrys apifera, Bee Orchid, with its pink sepals and comparatively large bee-like lip petal is a most striking plant especially as a single spike may bear as many as ten or more flowers. It seems to flourish on immature limestone soils and quarry debris and may persist in old well grazed limestone turf. Purchas and Ley record the Bee Orchid in five of their fourteen divisions of the county and comment that it is most frequent on the cornstones. It still survives in several parts of the county and in one area at least has colonised vigorously relatively recently. The site is one where an old limestone quarry had been used as a refuse dump but was finally topped off with rubbly limy material. At the time the debris was tipped there was a small area of grassland nearby with two Bee Orchids growing on it. Some eight or nine years later about forty flowering spikes were found on the recently tipped material and there they persist ten years later. The population fluctuates greatly from year to year with up to a hundred in one year and very few the next.

Unlike the Fly Orchid, the Bee is rarely if ever visited by insects but is self-pollinating. This process seems to be effective as the dust-like seeds are produced in profusion. It is found in most parts of England and mainly on coastal sites in Wales, but is most abundant in S.E. England in chalk and oolitic limestone areas.

We are fortunate in Herefordshire to have two of the four species of *Ophrys* which grow in this country, the main headquarters for the genus appears to be in the Mediterranean where they are thought to be in a state of active evolution

In conclusion I must thank the Woolhope Club for asking me to be its President. This gave me both the incentive and the opportunity to indulge a long standing interest in wild orchids and draw together these comments on those found in Herefordshire. I have quite deliberately not identified where the less common species are found. This I regret as it means that the joy of sharing an enthusiasm for the plants has been outweighed by consideration for their safety. There are too many cases where plants have 'disappeared', even in this county, when their location has become widely known. Equally it is true that in many areas knowledge of locations has led to local pride in their presence and their subsequent protection. Now it is to be hoped that conservation bodies such as the Nature Trust and local action through Biodiversity Action Plans will not only encourage their survival but also lead to an extension of their territory.

I must also thank the friends who, over many years, have shared their interest in orchids with me and the Hortus Prefectus of the Oxford Botanic Garden for allowing me to use the Library there.

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The Travertine Deposit at Shelsley Walsh, Hereford & Worcestershire

By A. PENTECOST, H. A. VILES, A. S. GOUDIE and D. H. KEEN

Abstract: The Shelsley travertine is a substantial Holocene cascade deposit forming below a small limestone spring. As the deposit enlarged during the early Holocene, the stream braided and formed a flat-topped structure behind a small travertine dam. The stream continues to deposit travertine (c. 400-900 kg./yr.) but the rate of deposition in the past must have been greater since the existing mass far exceeds 7,500 tonnes. The deposit weight could not be supported by the underlying marls, and the travertine has fractured along its north-eastern margin into a series of detached blocks. The bulk of the exposed travertine has formed around *Palustriella commutata*, a common travertine-associated moss. A thin clastic horizon at the eastern margin yielded 30 molluscan and one ostracod taxa. The assemblage is dominated by shade-demanding species indicating forest cover. The presence of *Palustriella* indicates a broken canopy above the travertine itself. A q-corrected radiocarbon date for travertine immediately below the molluscan layer gave a date of 6,700 BP. Geochemical analyses show that the modern deposits contain the highest proportion of non-carbonate material, possibly associated with forest disturbance. Data are also provided on springwater chemistry and the modern aquatic biota.

INTRODUCTION

In the vicinity of Stanford Bridge, Hereford & Worcester, the river Teme has cut a valley through horizontally bedded sandstones and marls of Devonian age. To the W., the steep valley side is incised with a series of narrow side valleys or 'dingles' notable for their locally thick deposits of travertine, exploited since the middle ages for building stone. The source of the calcium carbonate is probably the *Psammosteus* Limestone which forms a narrow band skirting the valley side (Mitchell et al., 1962) (FIG. 1). The most notable of the travertines is a large fragmented mound called the Southstone Rock, a site of some antiquarian and archaeological interest. Murchison (1839, p. 566) notes: 'at the northern extremity it terminates in a bluff precipice from 50 to 60 feet high, faced with gigantic botryoidal stalactites which hang over the dingle'. It was thought at the time to be the largest deposit of travertine in the country. Supported upon its upper level surface was a small cottage. According to Nash (1782, p. 367) it was formerly the site of a chapel dedicated to St. John the Baptist and also of a hermitage. Stone steps cut out of the travertine led to the chapel which was also built of the material (Lees, 1856). No traces of either are visible today. Lees and Anon (1920) mention large fissures formed by part of the rock breaking away, and suggest that the present course of the stream is a modern diversion. Several 19th and early 20th century authors comment on the impressive nature of the deposit in contrast to the relatively low levels of travertine accumulation visible at the present time. Thus Lees (1856, p. 244) suggests that '...it is probable that a more powerful stream and quicker action must have been in existence in ancient times, ere such a mass of

FIG 1

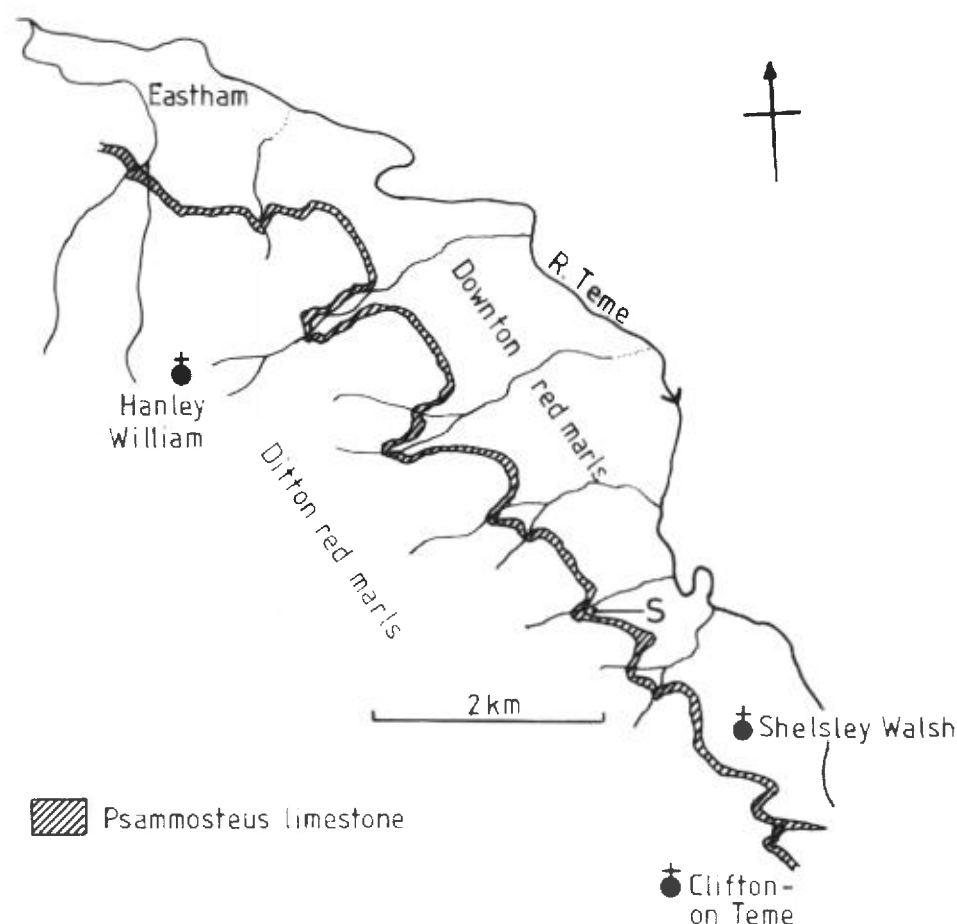


FIG. 1

Simplified geological map showing the drainage pattern and the travertine-depositing first-order streams S. Southstone Rock.

travertine as now meets the eye could have been accumulated'. Our investigation provides a modern survey of the site and examines briefly the fabric and fossils of the travertine, providing an interpretation of the deposit's history.

METHODS

Eighteen samples of travertine, (8 from the old deposit, 10 from the actively forming deposit) were subjected to simple laboratory analyses to determine the water absorption capacity (WAC) providing an estimate of porosity; organic content (ORG) and inorganic acid-insoluble residue (IR) by sequential treatment with dilute acid and H_2O_2 ; nitrate and phosphate (by colorimetric auto-analysis) and acid-soluble Al, Fe, Mg, Sr and Zn (using atomic absorption spectrophotometry). Samples of active travertine were removed for sectioning to observe the microfabric and encrusted algal and bryophyte flora. Water samples were obtained just above and just below the actively forming travertine and the travertine deposition rate estimated by measuring the dissolved Ca using a standard complexometric titration. Discharge was also measured, together with the approximate surface area of the active deposits. Other major dissolved ions were analysed as described previously (Pentecost, 1992). A 2.3 kg. sample of clastic travertine rich in fossil Mollusca was taken below a large overhang near the eastern extremity of the deposit (FIG. 2, z) then washed through a 0.5 mm. mesh sieve and sorted under a 10-60X binocular microscope. Immediately below this sample, a 100 g. sample of cascade travertine was removed for radiocarbon dating.

RESULTS

1. Site description.

The Southstone Rock is situated 500 m. W. of the Stanford Bridge to Shelsley Walsh road, on the S. side of a small valley at an altitude of about 90 m. (Nat. Grid Ref. 32/708639).

The deposit consists of an approximately semicircular flat-topped mound about 60 m. in diameter, abruptly terminated on its N.E. margin by a steep, fragmented travertine cliff up to 10 m. in height (FIG. 2). The steep face consists of four large detached blocks and further smaller blocks scattered irregularly on the valley slopes. The large blocks have evidently broken away from the main mass and have slipped several m. downslope. The largest block, to the N., overhangs by several m. and contains two small caves inhabited by bats. The caves appear to have been natural but altered by further excavation. The bulk of the travertine shows clear evidence of deposition around mosses. Where the structure is well preserved, the moss can be identified as *Palustriella* (*Cratoneuron*) *commutata*. Steep, often vertical bedding is frequent along the N.E. face which appears to represent an unquarried ancient cascade surface. Small areas of laminated flowstone occur, particularly on the steep undetached faces. At the eastern end, the cliff is lower as the steep ground rises up to meet it. Here the dip is reduced to about 30 degrees and beneath a conspicuous overhang (FIG. 2) a well developed clastic parting up to 50 cm. in thickness contains abundant Mollusca. Clastic deposits also occur at the foot of the large

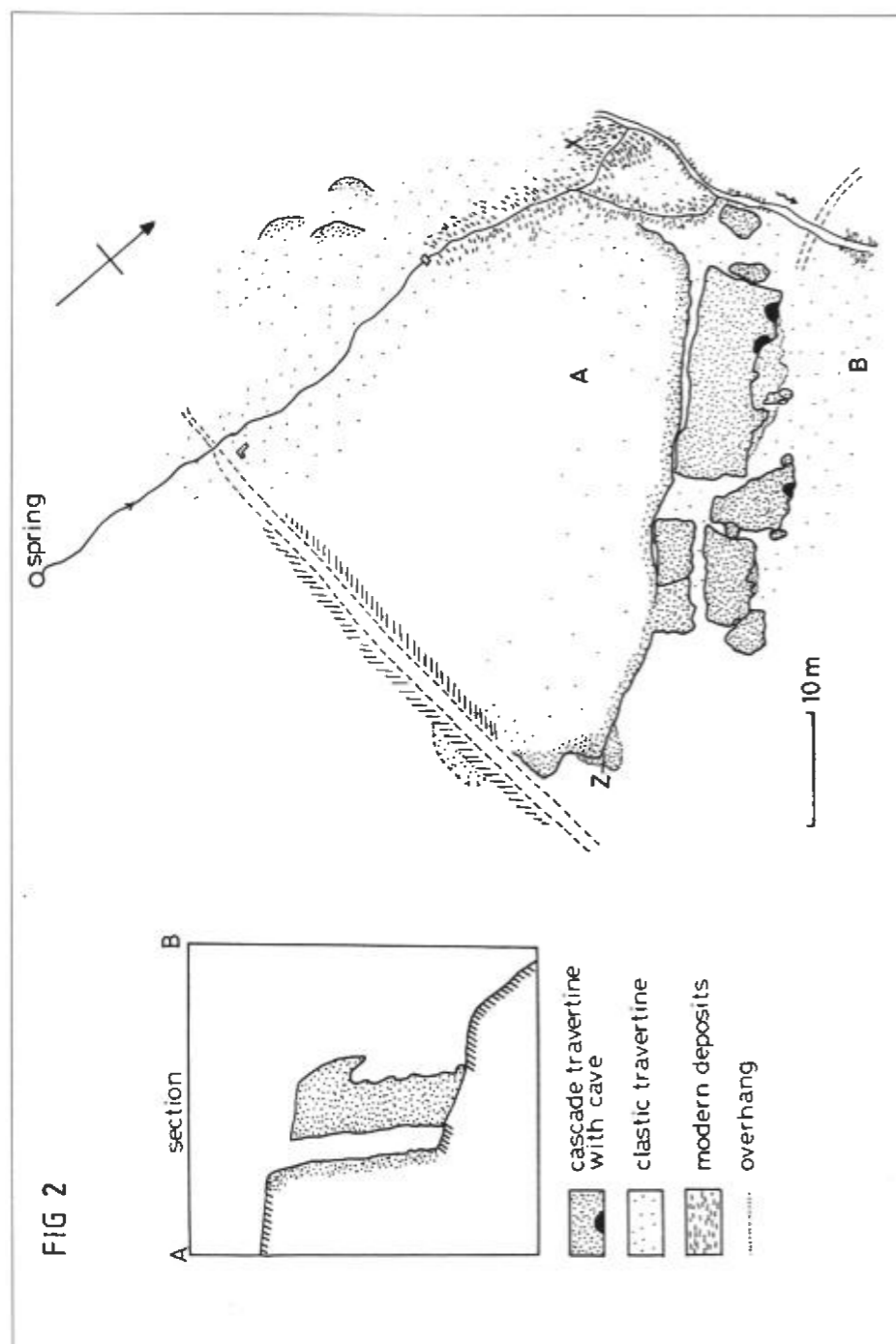


FIG. 2
Survey of the Southstone Rock travertine deposit showing the detachment of large blocks from the northeastern margin and the current stream position.

block. Close to its southern extremity, a track has been cut partway through the deposit. The remains of a building occur where this track crosses the small stream giving rise to the deposit. The spring rises about 60 m. behind the deposit and currently flows close to the western margin. A slight gradient is followed along the top of the mound, it then cascades over a man-made weir down a steep slope and deposits abundant cyanobacterial and *Palustriella* travertine along its path, before meeting the main valley stream (FIG. 2). The main stream continues to deposit travertine for a further 100 m. downstream.

2. Chemical composition.

The results of the travertine analyses are shown in Table 1. The modern deposits contain considerably more inorganic residue than the older deposits and are more porous, probably because of a lack of diagenesis. Otherwise, the compositions are similar.

Table 1
Composition of the Southstone Rock travertine

Determinand	Old deposits (N=8)	Modern deposits (N=10)	All samples (N=18)
IR %	3.9	9.4	6.4
WAC %	12.7	25.6	19.0
ORG %	2.2	3.2	2.6
TON ppm	20	10	16
PO4 ppm	110	145	130
Al ppm	390	570	470
Fe ppm	520	840	660
Sr ppm	360	350	360
Zn ppm	10	30	20

IR, acid-insoluble residue; WAC, water absorption capacity; ORG, organic matter content; TON, total organic nitrogen.

The difference in dissolved calcium between the top and bottom of the modern deposits ranged from 0.04–0.2 mM/litre (4–20 ppm CaCO_3). Using data from the spring discharge, which ranged from 4–10 litres/sec., approximately 700–900 kg. CaCO_3 is deposited as travertine each year. An independent estimate of the deposition rate was obtained by measuring seasonal laminae associated with the modern cyanobacterial deposits which gave an annual accumulation of 2 mm. This is equivalent to a deposition rate of about 400 kg. a^{-1} . The chemical composition of the water is given in Table 2.

3. Mollusca and dating.

A total of 1869 individuals of 29 taxa were identified in the sample (Table 3) plus a single individual of one additional taxon recovered from an earlier reconnaissance sample. The most abundant species were *Carychium minimum* (Müller), *Carychium tridentatum*

Table 2
Springwater chemistry, Southstone Rock travertine

Determinand	
Temperature °C	10.2
pH	7.89
Ca Mm/l	1.79
Mg Mm/l	1.05
Sr µM/l	0.2
Na Mm/l	1.2
K µM/l	19
Li µM/l	<0.2
Cl mM/l	1.5
SO ₄ mM/l	0.29
HCO ₃ mM/l	4.56
pCO ₂ atm. %	0.29

(Risso), *Discus rotundatus* (Müller) and *Vitrea crystallina* (Müller). In addition, thirteen valves of the ostracod *Psychrodromus olivaceus* (Brady and Norman) were recovered, plus curved larva cases of the caddis family Leptoceridae and two molars of *Apodemus sylvaticus* Linné. A conventional radiocarbon date of 7970 ± 90 yr. was obtained for the travertine sample immediately below the mollusc collection (RCD-2425, Otlet & Walker). This date will overestimate the true age by an uncertain amount because the carbonate carbon contains some 'dead' carbon present in the *Psammosteus* limestone. A correction factor 'q' has been successfully used on other U.K. travertines (Thorpe et al., 1981). Using a 'q' value of 0.82, a 'corrected' age of 6670 years BP is obtained.

4. Biota of the modern deposits.

The currently-forming travertine in the stream bed exhibits two contrasting morphologies. In the more turbulent areas the deposits consist of laminated sheets with a minutely nodular surface colonised by the cyanobacteria *Lyngbya* (*Phormidium*) *incrustatum*, *L. valderianum* and *Schizothrix fasciculata*. Encrusted tufts of *Vaucheria* sp. also occurred, and numerous diatoms, some of which were closely associated with small microspar nodules growing upon recently fallen leaves. Caddis of the family Psychomyidae were also abundant on the surface. The other morphology was formed around bryophytes and closely resembled that of the ancient deposits. The most abundant species was *Palustriella commutata* which formed a large boss near the base of the stream (X on FIG. 2). Other species included *Conocephalum conicum*, *Eucladium verticillatum* and *Fissidens viridulus*.

Table 3
List of Mollusca from the Southstone Rock travertine

<i>Carychium minimum</i> Mueller	390
<i>Carychium tridentatum</i> (Risso)	122
<i>Carychium</i> sp.	277
<i>Azeca goodalli</i> (Ferussac)	30
<i>Cochlicopa lubrica</i> (Mueller)	1
<i>Cochlicopa lubricella</i> (Porro)	1
<i>Cochlicopa</i> sp.	5
<i>Columella edentula</i> (Draparnaud)	1
<i>Columella</i> sp.	1
<i>Vertigo antivertigo</i> (Draparnaud)	1 ¹
<i>Vertigo angustior</i> Jeffreys	3
<i>Vertigo</i> sp. (not <i>V. angustior</i>)	3
<i>Leiostyla anglica</i> (Wood)	4
<i>Lauria cylindracea</i> (da Costa)	1
<i>Acanthinula aculeata</i> (Mueller)	76
<i>Ena obscura</i> (Mueller)	6
<i>Punctum pygmaeum</i> (Draparnaud)	30
<i>Discus rotundatus</i> (Mueller)	380
<i>Vitrea pellucida</i> (Mueller)	7
<i>Vitrea crystallina</i> (Mueller)	107
<i>Vitrea contracta</i> (Westerlund)	24
<i>Vitrea</i> sp.	72
<i>Nesovitrea harmonis</i> (Stroem.)	72
<i>Aegopinella pura</i> (Alder)	40
<i>Aegopinella nitidula</i> (Draparnaud)	27
<i>Zonitoides nitidus</i> (Mueller)	54
<i>Zonitidae</i> sp. indet.	61
<i>Milax</i> sp.	35
<i>Limax</i> sp.	9
<i>Euconulus fulvus</i> (Mueller)	5
<i>Cochlodina laminata</i> (Montagu)	2
<i>Clausilia bidentata</i> (Stroem)	4
<i>Clausilia</i> sp.	22
<i>Balea perversa</i> (Linne)	1
<i>Trichia hispida</i> (Linne)	3
<i>Cepaea</i> sp.	10
Total (30 taxa)	1869

¹ *Vertigo antivertigo* (Draparnaud) was present in an original reconnaissance sample, not in the 1994 sample, although a single *Vertigo* apex was similar in size and appearance to the complete shell from the original sample.

DISCUSSION

This deposit is the largest of many similar deposits in the adjacent valley streams (eg. the adjacent Piper's Brook and Sapey Brook) draining into the river Teme, all of which appear to obtain their calcium from the *Psammosteus* limestone (Mitchell et al., 1962). The geochemical analyses show the travertine to have a composition similar to many other moss-deposited travertines of Europe (Viles, unpublished) but the recent deposits contain considerably more insoluble residue, possibly due to recent site disturbance, namely the existence of a trackway crossing the stream and establishment of a conifer plantation above the mound. However, the phosphate levels are lower than the average for European sites, suggesting that they have been less affected by agricultural pollution than many others. The reduction in water absorption capacity in the older deposits is probably the result of infiltration diagenesis over years of exposure to stream and rainwater. The chemical composition of the water is comparable with other British travertine-depositing springs (Pentecost, 1993).

The mass of the entire deposit is impossible to estimate because a large proportion is covered by soil. The estimated mass of the detached blocks alone amounts to 7,500 tonnes which is probably a small fraction of the total. In addition, Lees (1856) mentions that thousands of tonnes have been removed for garden decorations, presumably from detached lumps since the currently exposed surfaces show little evidence of quarrying. With a current deposition rate of about 900 kg. per year (a generous estimate) it can be seen that this would be insufficient, assuming deposition had continued at the same rate, to account for all of the deposit in the Holocene. Either some of the material dates to a previous interglacial, which is unlikely considering its position, or deposition must have been more rapid in the past.

The characteristics of the fauna are similar to those of a number of other travertine assemblages of Holocene age described from Dorset (Preece, 1980), Lincolnshire (Preece & Robinson, 1984) and Yorkshire (Keen, 1989). The assemblage is dominated by shade-demanding taxa such as *C. tridentatum* and *D. rotundatus*, and by others such as *V. crystallina* which are characteristic of any wet environment from woods and scrub to marshy areas. The occurrence of *Acanthinula aculeata* (Müller) suggests abundant leaf litter, the preferred habitat of this species. There are no molluscs at variance with this general environmental indication.

Unlike travertines from other areas described by the authors cited above, the site is almost devoid of true marsh indicators. There are no Succinidae, no *Lymnaea truncatula* (Müller) and no inhabitants of shallow pools such as *Pisidium* spp. The only real marsh species present are *C. minimum* (Müller) and *Zonitoides nitidus* (Müller). Nevertheless, the occurrence of abundant charophyte oospores demonstrates the existence of standing water and the ostracod, *P. olivaceus*, which occurs in other travertines (Preece & Robinson, 1984; Keen, 1989) grows in calcareous springs or small pools, where it requires some degree of water movement. There was also a probable absence of grassland within the spring catchment as shells of *Pupilla muscorum* (Linne) and *Vallonia* spp. were not found.

There is nothing in the fauna which allows an accurate assessment of its age. All the recorded taxa live in the area today except *Vertigo angustior* Jeffreys, so the fauna could

be modern. However, the overwhelming occurrence of shade-demanding species indicates that the assemblage dates from after the Holocene forest cover became fully developed. Conversely, the total absence of open ground species suggests that the fauna dates from a period before any anthropogenic clearance of woodland and the most likely age is either biozones c or d as defined in Kent by Kerney (1977) and Kerney et al., (1980). It is most likely to lie within the zone beginning at 7500 \pm 100 BP. An absolute minimum age is likely to be 4540 BP. Thus the biostratigraphy is consistent with the corrected radiocarbon age of 6670 yr. BP.

Reconstructions showing the probable development of the deposit are shown in FIGS. 3 a, b. At the beginning of the Holocene, rising temperatures brought plant colonisation and soil development. Soil CO₂ levels rose leading to the increased dissolution of limestone by the groundwater. Emerging as springs, this excess of CO₂ was degassed or utilised by plants bringing about travertine deposition below the spring. The steep slope would ensure rapid degassing and the buildup of a small cascade deposit. As the climate ameliorated, the deposit would continue building and enlarging. Woodland developed around the mound, but probably not upon it as the travertine was well consolidated making root penetration difficult. A small open glade would exist on the broadening cascade, permitting sufficient light for the growth of light-demanding mosses such as *Palustricola*. This species forms boss-like mounds and would encourage the formation of a steep, probably overhanging cascade front, below which deposition was inhibited by shade (little moss growth) and lack of free-flowing water. Vigorous growth of *Palustricola* at the cascade margin would form a small dam holding back a pond accumulating clastic travertines and a bed of *Chara* with swampy margins.

At a later date, probably during the previous millenium, the stream was diverted. This may well have coincided with the building of the chapel. The pond dried and filled with hillwash and the mound top became colonised by woodland developing a thick soil. The diverted stream continued to deposit travertine though apparently on a much smaller scale. The heavy travertine accumulation encouraged the downward movement of the underlying incompetent marls leading to the partial disintegration of the cascade front which is seen today.

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FIG 3a

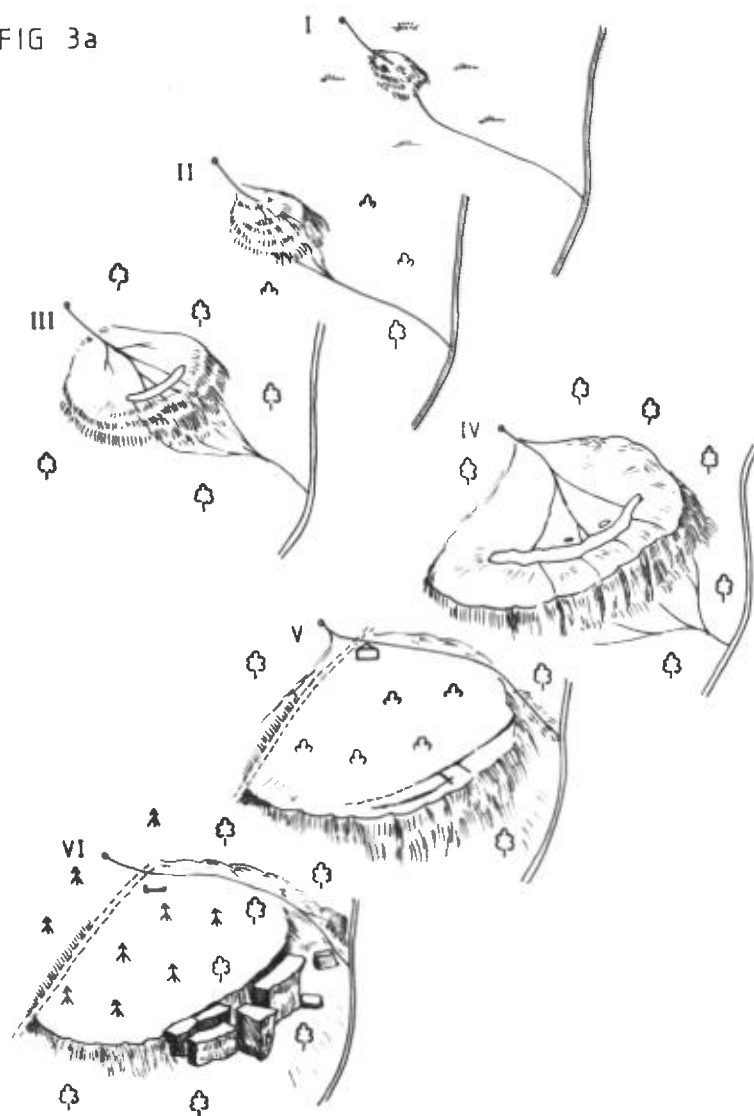


FIG. 3a

Probable development of the Southstone Rock deposit during the Postglacial I-II. Small protuberant cascade develops a short distance below the spring. III Deposits spread laterally and growth of bryophytes along cascade edge impound a small area of water; IV Further spreading of deposit accompanied by stream braiding and development of marshy areas suitable for growth of charophytes. Deposition reduced on flattened cascade top and confined to steeper prograding sides. Corresponding approximately to dated layer c. 6700 BP. V Stream migrates to northwestern margin (diverted?) and weight of travertine over incompetent clays leads to fracturing of the cascade front. Soil, with woodland cover develops on the flat top VI Blocks slump forward while stream continues to deposit small quantities of travertine at the northern margin.

FIG 3b

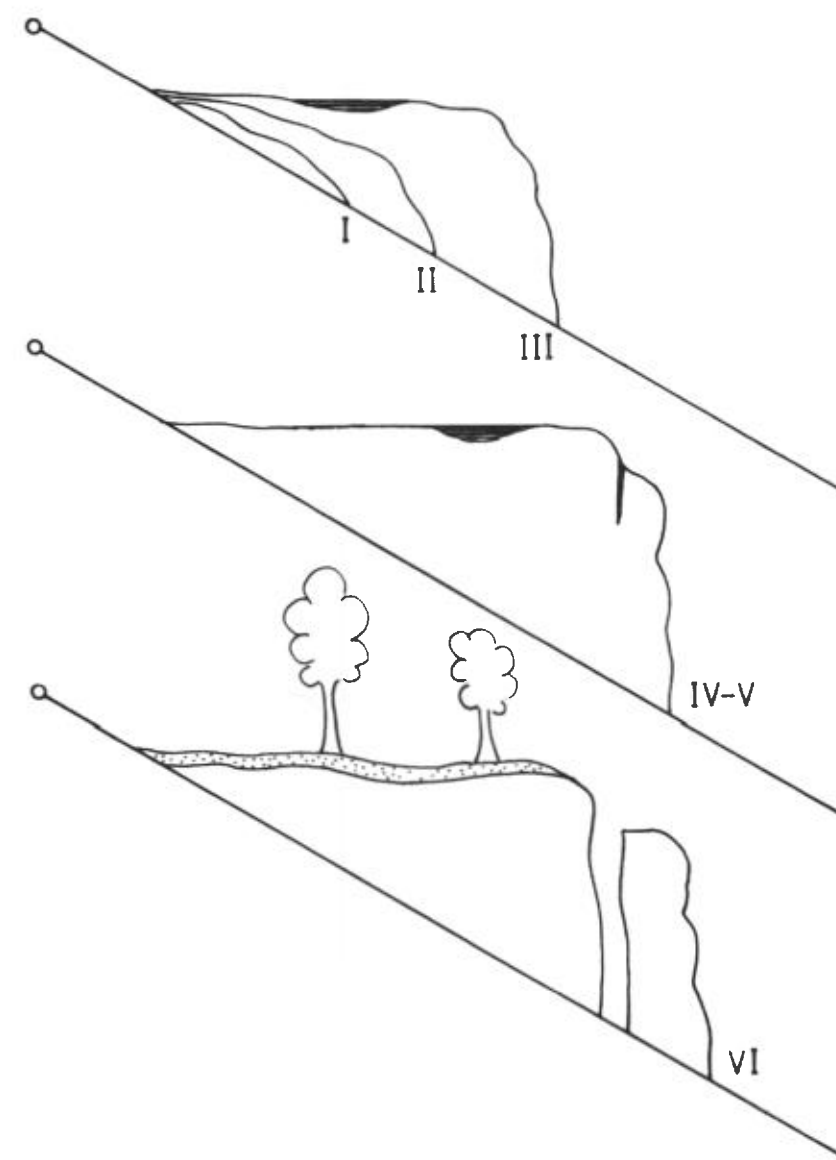


FIG. 3b

Diagrammatic section through the deposits I-VI.

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Paper submitted January 1996

A Neolithic Monument in Interpretative Transition: A Re-evaluation of Arthur's Stone, Dorstone, Herefordshire (SO 3189 4312)

By GEORGE NASH

INTRODUCTION

In this paper, I will re-evaluate a Neolithic chambered long cairn and highlight some of the misunderstandings and misconceptions that have accompanied its interpretation. The monument is Arthur's Stone, in W. Herefordshire (PL. 1). I will argue that re-evaluation is important not only for Arthur's Stone but also for other enigmatic monuments with questionable architecture within the Black Mountains Group (and elsewhere).

This impressive barrow is one of the most notable of all prehistoric monuments along the Welsh border. However, it is also a monument that has received only superficial investigation and discussion and has never been excavated (Castleden 1992; Daniel 1950; Darvill 1982; Grimes 1936a; Grimes 1936b; Hemp 1935; HWCC 1981; Stanford 1990; Children & Nash 1994; Nash 1997; Olding 2000; Sant 2000; Watkins 1928). Fortunately, antiquarian interest has been restricted to site visits. An account by members of the Woolhope Naturalists' Field Club on 25 May 1882 gives important and detailed observations of the site (Appendix 2). Within the recent past, its guardian, English Heritage, has erected a fence around the monument in order to protect the mound. Information boards give basic information regarding who may have used the monument, when and why. An artist's impression shows Arthur's Stone as the scene of ritual burial activity. The same reconstruction depicts the monument as a small mound with an enclosed entrance - nothing of the chamber or passage architecture is shown. Visitors therefore leave with the impression that, although the Arthur's Stone, with its (inorganic) megalithic architecture, is an impressive monument, the site, when in use, amounted to nothing more than a small mound used by a small community to bury their dead. This visual interpretation, along with the limited archaeological investigation, creates an interesting contradiction that certainly requires re-addressing.

FACTS AND FIGURES

The monument, once referred to as *Artil's Stone*, is first described by Nathaniel Salmon in his *A New Survey of England* (1728-9). Comments by Salmon suggest the monument had changed little in appearance over the past 200 years (FIG. 1). According to Crawford (1925:147), the northern edge of Arthur's Stone Lane (which runs past the monument) formed part of the parish boundary between Dorstone and Bredwardine. The lane, which runs along spine of Arthur's Stone ridge - from Merbach Hill to Dorstone Hill - is believed to be of ancient origin (see Appendix 2). During the recent past, the monument was probably used to delineate this recognised boundary.

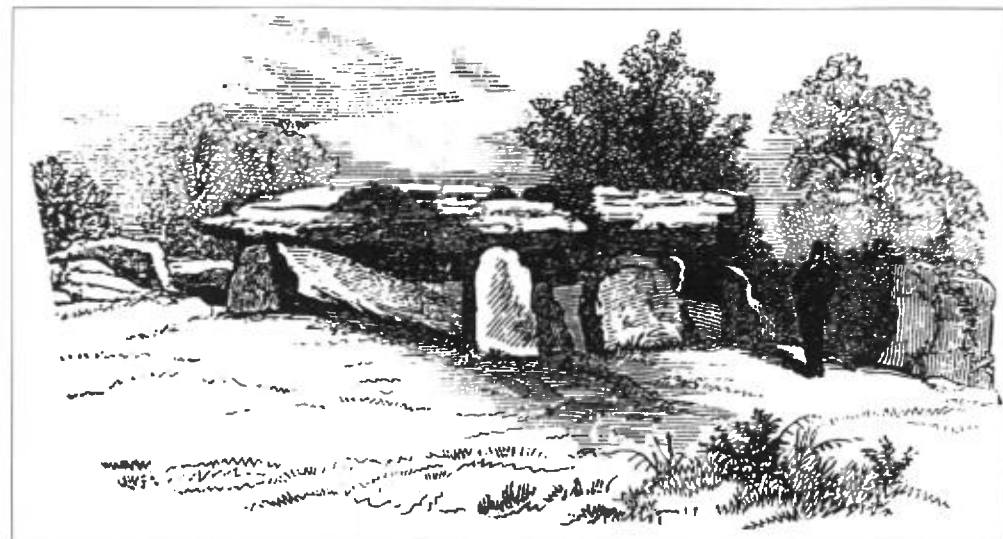


FIG. 1
The 19th-century sketch by Reverend J. Webb.

The monument, dating from about 3,500 B.C., is one of the most northerly chambered tombs of the Cotswold-Severn Group and is one of five tombs that dominate the Neolithic landscape of the northern reaches of the Golden Valley in W. Herefordshire (Children & Nash 1994; Darvill 1982; Nash 1997). Other monuments within the group lie further W. and occupy the hinterlands of the western reaches of the Black Mountains (FIG. 2). The high concentration of monuments within the Black Mountains Group (the only inland group in Wales) suggests that the hinterlands and valleys would have been attractive to the first agriculturists. Fowler (1983) argues that, annually, at least 240 potential growing days were available. This figure is relatively low compared with coastal areas such as the Gower, S.W. Wales, and Anglesey which annually have 365 potential growing days.

Located between nearby Cross Lodge Barrow (SO 33254168) and Arthur's Stone is the Dorstone Hill settlement (SO 326423). Excavated between 1965 and 1972 by C. Houlder and R. Pye, this rare example of a Neolithic settlement yielded 4,000 pieces of flint, including more than 30 arrowhead fragments and 60 polished stone axe fragments (HWCC 1981; Children & Nash 1994:17). The settlement is thought to cover up to eighteen acres and may have been enclosed by an earthen bank with a wooden stockade. A continuous line of post-holes from the top of the stockade, each measuring up to 0.13 m. in diameter suggests that the Dorstone Hill settlement was strategically important. Trial excavations within the area of the settlement exposed a series of post-holes, an (hut) occupation floor, along with associated domestic debris. The site appears to have been in use from the Neolithic to the Iron Age/Roman periods and would have had associations with Arthur's Stone and Cross Lodge Barrow. Another possible settlement site may be present on nearby Cefn Hill at Abbey Farm, Craswall (SO 2715 3816).

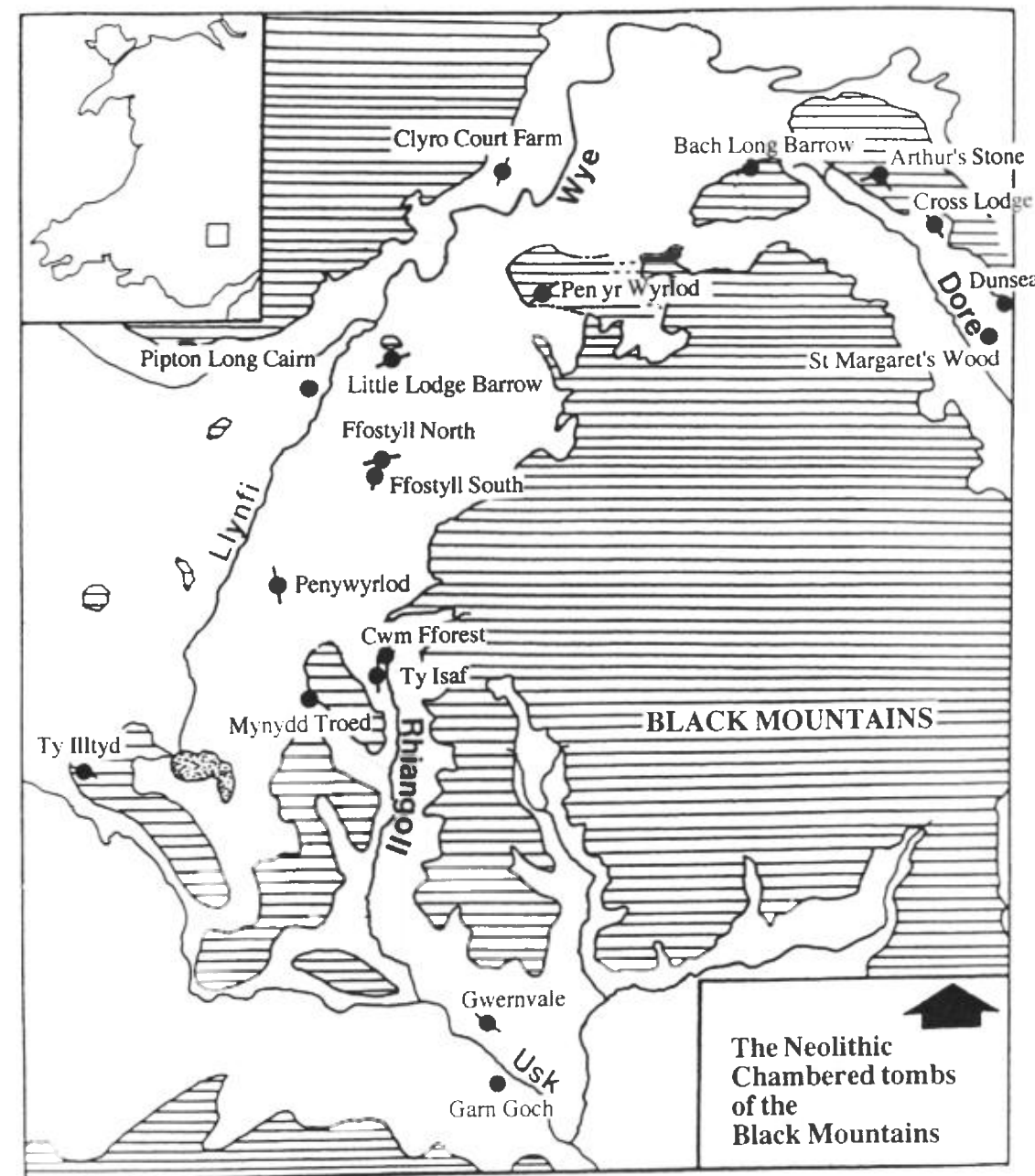


FIG. 2
Distribution of Neolithic monuments in the Black Mountains
(after Nash 1997).

Arthur's Stone and other tombs in the area appear to represent continuous human activity since at least the Late Mesolithic (6,000-3,500 B.C.). Diagnostic lithics, in particular microliths, have been found beneath and around Arthur's Stone (Brown 1963:76-91; Children & Nash 1994:25; Gavin-Robinson 1934; Tilley 1994:118). So, even during the Neolithic, Arthur's Stone would have possessed a history and, more importantly, an affinity with its ancestors. It should also be highlighted that diagnostic lithics dating to the Bronze Age have been found along the west-facing slopes of Arthur's Stone ridge, including several barbed and tanged arrowheads (Brown 1963:80). The continuous use of Neolithic sites is not uncommon. During full excavation at the Gwernvale monument (one of the Black Mountains Group), 1.5 km. N. of Crickhowell, Upper Palaeolithic and Mesolithic flint were found beneath the southern section of the facade (entrance), which suggests that this site was in use (albeit periodically) for up to 7,000 years prior to the construction of the monument (Britnell & Savory 1984).¹ This site may represent only a fraction of the total number of open sites (as distinct from caves) that once existed in the lower Usk Valley. Likewise, along the western reaches of Merbach Hill to Vowchurch Common, to include Arthur's Stone ridge, substantial lithic scatters have been dated to the Late Mesolithic (Brown 1963; Gavin-Robinson 1934).

Set within an oval mound (approximately 26 m. x 17 m.), the tomb has nine upright stones forming a polygonal chamber, an unorthodox right-angled passage and an enormous capstone, estimated to weigh more than 25 tonnes (Corcoran 1969:23). Hemp (1935:288) describes the chamber as kite-shaped, approximating the form of the capstone. The chamber is regarded by Daniel (1950:74) as being laterally sited. Several m. S. of the capstone and chamber is a large upright sandstone slab which, allegedly, has as many as twelve large finger-dint cupmarks on the inner face, probably dating from the Bronze Age (Crawford 1925:147; Daniel 1950:118).² Also present and extremely visible on the upper part of the stone is a series of graffiti with clear dates, one of 1912. It is believed that this stone represents part of an anti-chamber (Daniel 1950). Lying between the chamber and the sandstone upright is a single stone setting. Crawford (1925:47) suggests this stone is actually recumbent. It is likely that this stone, along with the cupmarked upright, form part of a southern axis chamber entered by a separate passage on the S. or W. side of the mound (Children & Nash 1994).

The capstone (measuring approximately 5.8 m. x 3.0 m.) is split into three pieces (as a result of weathering processes) and is oriented N.E./S.W. with the S./W. end pointing towards the southern section of the Golden Valley. A large section of the capstone has also split horizontally, with an enormous fragment collapsing into the central chamber. The geology of the capstone is Old Red Sandstone (originating from the Pedolli Series of sandstones).

The chamber has, at its western end, a false portal stone (partly blocking the doorway to the main chamber) and an inner passage that is oriented N. However, the passage changes direction to the N.W., pointing towards the impressive Hay Bluff and the northern extent of the Black Mountains (Children & Nash 1994:26; Tilley 1994:140). Crawford (1925:147) has suggested the chambers of Arthur's Stone and Gwernvale (near Crickhowell) are similar, although the former is much larger. The unorthodox redirec-

tion, of the passage and the orientation of the capstone suggest that Arthur's Stone may have been positioned deliberately so as to completely encompass the visual aspect of the Black Mountains (FIG. 3). The tomb also incorporates views from both the southern and northern extents of the Golden Valley (Nash 1997:20). Many other tombs within the upper Wye, Lynfi and Usk valleys (in Powys) appear to be similarly positioned (Children & Nash 1994; Olding 2000).

Members of the Woolhope Naturalists' Field Club, visiting the site in July 1872, remarked that a series of stones laid out in a circular fashion surrounded the monument (Appendix 2). These may represent the outer kerbing, or what 18th and 19th-century antiquarians termed a *peristalith*, enclosing the mound.³ However, there was no sign of any kerbing by 1928 (Watkins 1928:150).⁴ An alternative view, and one that I support, suggests Arthur's Stone may have been trapezoidal in form,⁵ or at least elongated, and that the monument extended across the lane, with the present passage on the side of the monument. The actual facade area (with false portal) would have been located in the S.E. and is represented by the upright which is recognised as being an anti-chamber (FIG. 4). Within fields, E. of the lane are a large selection of stone which can not be considered as naturally occurring rock-outcropping. It is possible that these stones, along with smaller stone debris represent the terminal end of the Arthur's Stone monument. The destruction of this part of the monument must have occurred prior to the early 18th century; accounts by Nathaniel Salmon suggest Arthur's Stone was as it is today, although later witnesses remark that the site was being robbed of its stone for building (cf. Crawford 1925). Furthermore, discernible monuments such as Arthur's Stone, with its folklore and local superstition, would have suffered destruction especially during the 16th and 17th centuries. In support of this, it would seem unlikely that Arthur's Stone was the only distinct oval mound within this group (except for the first architectural phase at Ty Isaf, near Talgarth). The other eighteen monuments within the Black Mountains Group appear to use the long (or at least oval) mound as a blueprint. Those adopting the hybrid trapezoidal plan, including Gwernvale, Penywrlod and Pipton, are probably later monuments which have been specifically designed and built, but essentially develop from the long mound/oval principle.

ARTHUR'S STONE IN AN ARCHITECTURAL-LANDSCAPE CONTEXT

Arthur's Stone shares a landscape affinity with many other Neolithic monuments, both within the Black Mountains Group and elsewhere. The monument stands on the western ridge of Merbach Hill and has clear, uninterrupted views across the northern, western and southern extents of the Golden Valley, Cefn Hill and the eastern slopes of the Black Mountains - from Hay-on-Wye to Abergavenny - a total distance of about 40 km. To the E. of the site, views are restricted to the nearby eastern ridge of Merbach Hill, some 300 m. away. No other landscape features are visible. Interestingly, there is no further Neolithic activity, in the form of lithic scatters and monuments, beyond this point (Children & Nash 1994). This would suggest that such activity is confined to the visibility of the Black Mountains. A similar distribution of lithics and monuments is found along the lower Usk and Upper Wye valleys.

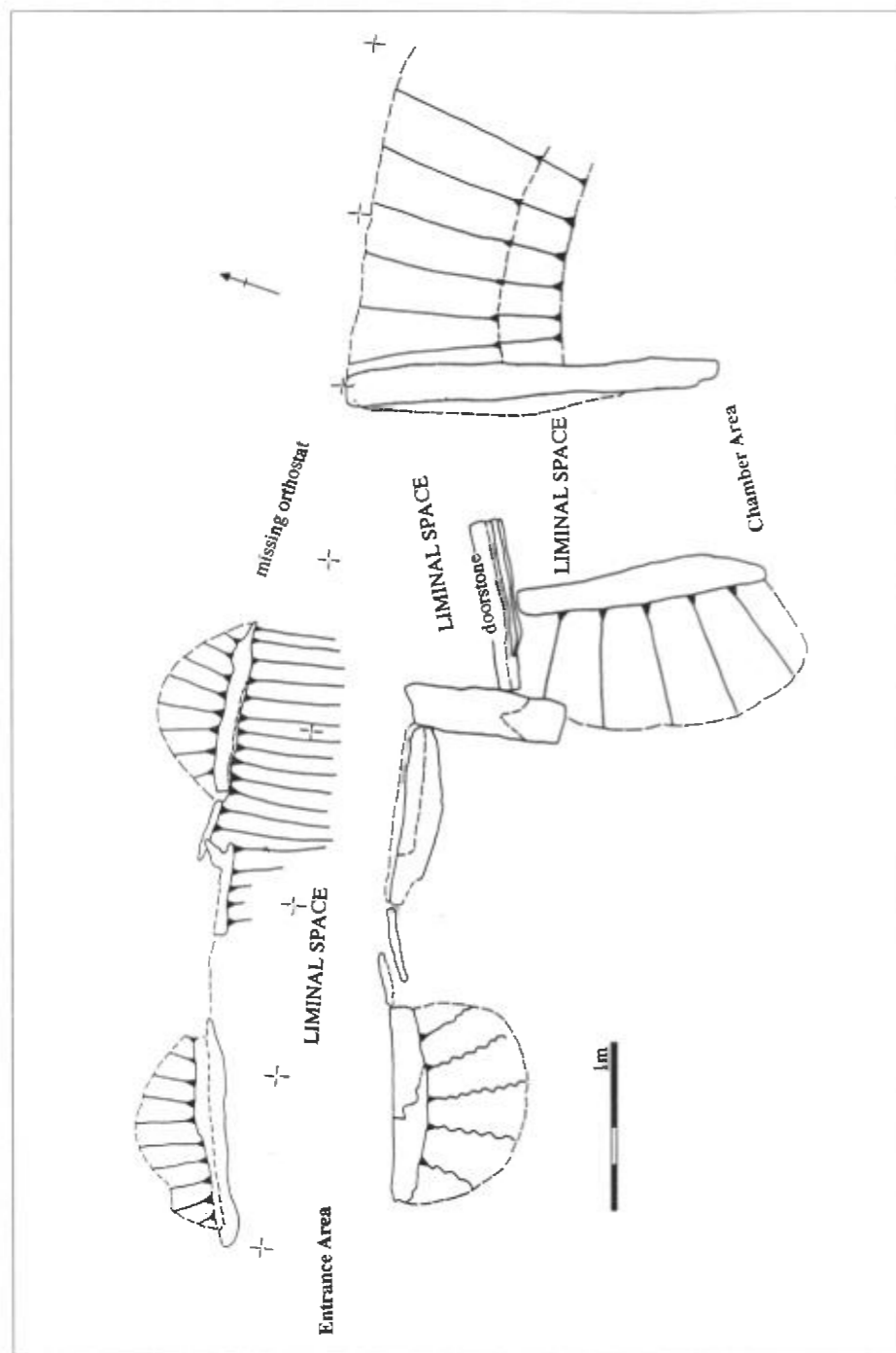


FIG. 3
Plan of the passage (drawn by the author).

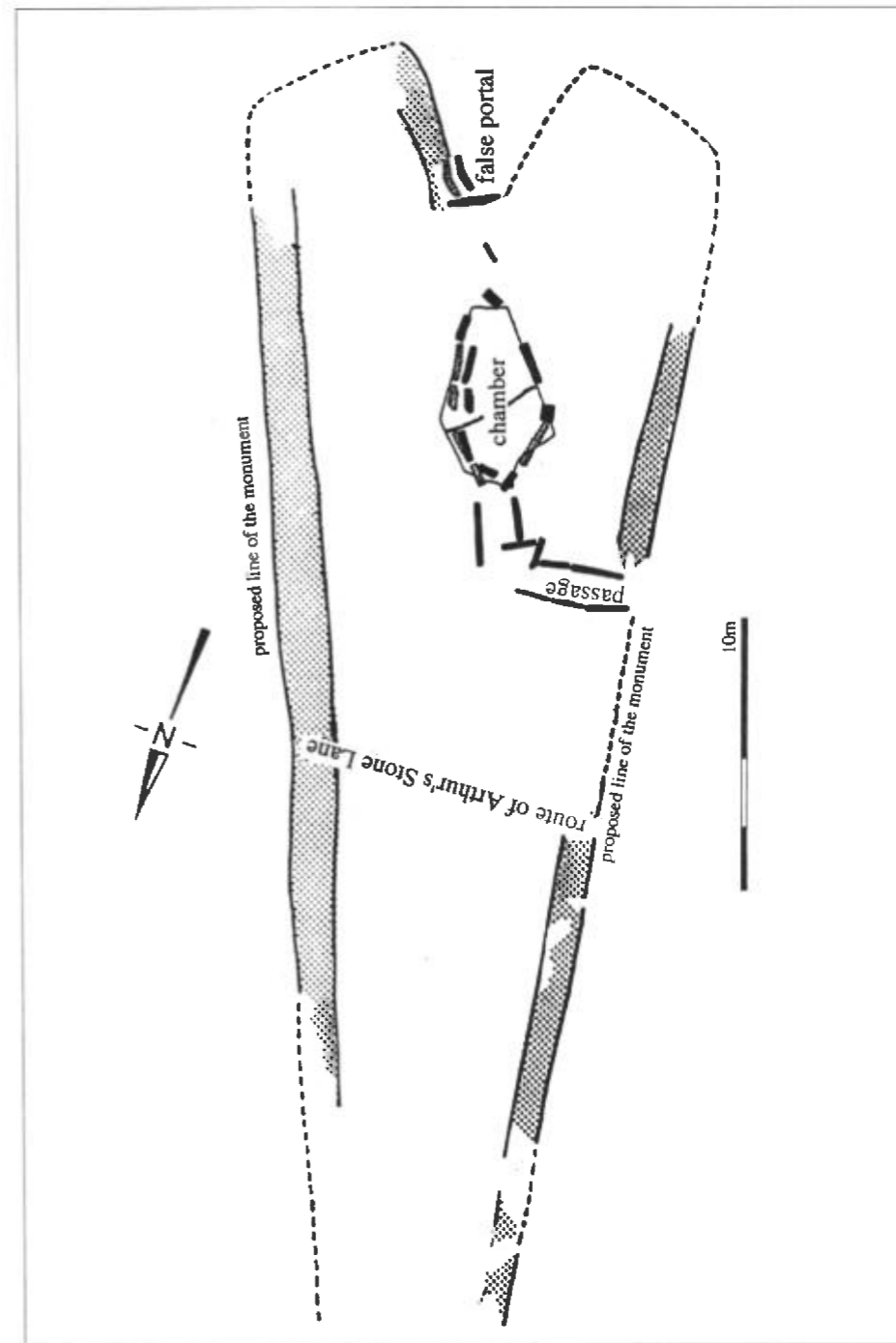


FIG. 4
The possible original shape of the Arthur's Stone monument using outline of the Gwernvale monument.

The relationship between Arthur's Stone and the immediate landscape, together with the spatial organisation of the tomb, suggests that its builders clearly understood how certain parts of the monument should be constructed and sited. Standing at around 274 m. A.O.D., views from outside the small facade area into the entrance and outer passage are uninterrupted. However views into the inner passage and chamber are restricted due to the 90° bend half way along the passage (PL. 2). Likewise, restricted visibility is in operation when viewing the outer passage and entrance from the chamber. It is as if, by a simple visual device, a conscious attempt is being made to separate human space, the realm of order and control, from the outside world, from nature. The transition between the two is achieved precisely at that point, equidistant between chamber and entrance, where the passage abruptly changes direction. It is here that culture meets nature and order. However, this is only part of the meaning behind the monument's construction. The redirection of the passage and the orientation of the capstone suggest Arthur's Stone may have played a key role in the socio-symbolic process of territory formation. The monument was probably constructed so as to visually encompass the entire length of the Black Mountains. In this way, the mountains were incorporated into the social and symbolic identity of the Neolithic settlers, helping to create a sense of belonging. Other tombs in the upper Wye and Usk valleys interact with the landscape in the same way.

Like many other chambered burial monuments of this date, Arthur's Stone is not on the highest point within the immediate landscape but slightly away from Merbach Hill's summit (Nash 1997:20). It could be argued that there is a clear attempt to control the surrounding landscape from the monument. However, the monument cannot be seen from any part of the Golden Valley. I would suggest that a form of restricted visual access was in operation, such that only certain members of the community could visit the monument, and then perhaps only periodically. If this was the case, then Neolithic communities were stratified on at least three levels. Those occupying the first level would have had no visual access to the monument. The second tier may have been allowed visual access, but only to the outside, while the third level were able to access the inside of the monument to bury the dead and perform ritual activities, probably associated with death, fertility and political and social consolidation. This could have been further complicated by the way in which the monument is constructed.

Social complexity can be especially seen with the passage arrangement (FIG. 5). Of the twelve Old Red Sandstone slabs recently recorded by the author (and previously by Grimes 1936a), eight large stones construct the walls of the passage. Stone 10 can be interpreted as a door stone, similar to door stones found at Parc-le-Broes-Cwm on the Gower Peninsula (SS 537898) and Ty Isaf, near Talgarth (SO 182291). The upright stones would have supported a series of small capstones, thus enclosing the passage. What has been noticed within this arrangement is that the passage appears to be constructed in order to restrict visual access. The door stone blocks visual access from the entrance/facade to the chamber and visa-versa. Further restricted visual access is also present with the way in which the passage stones are arranged. Between the entrance and the chamber, each of the stones appears to gain height. Between the door-stone and the chamber an individual can crouch through the upper section of the passage. As well as witnessing a gradual rise within the passage roofing, the uprights appear to widen as one



FIG. 5
Berwick's woodcut of Arthur's Stone (1804).

moves through the passage. A similar architectural trait occurs with the passage grave tradition in Wales, Ireland, central southern Sweden and Denmark (Children & Nash 1997; Tilley 1993). It could be the case that the passage acts as a boundary between life (outside the monument) and death (inside the chamber) creating liminal space or rites of passage - similar to the spatial divisions inside a Christian church.

I have suggested in previous research (1997) that Arthur's Stone, and other monuments within the Black Mountains Group, utilises both organic and inorganic architecture in its construction. Recently, the siting of monuments has been interpreted fundamentally as a form of statementing the landscape: turning a space into a place (Bradley 1993; 1998). Both ritual and socio-political knowledge make this place special. In part, this is fair comment. However, I would stress that Arthur's Stone, with its covering mound was hidden away; organic and incognito with its surroundings. Certainly, the artist's reconstruction of this monument, mentioned above, would suggest this. When one looks at tomb architecture, one is faced with only part of the monument, usually a few uprights and a fragmented capstone: what may be referred to as the *frame* or *skeleton*. Thomas and Tilley (1994) use the term *rib-cage* for the design plan of certain monuments in Brittany when discussing the tomb architecture. Here, chambers, along with passages physically and metaphorically represent the human torso; they are visible within the immediate landscape. Gone, from Arthur's Stone and other monuments within the Black Mountains Group is the drystone walling, cairn decoration, from some sites, the mound, the facade and small internal and external features, such as doorways, curbing, roofing slabs etc. The frame, becomes structurally and visually opposed to the landscape. Angular and mechanical, it clashes immediately with the irregular, disorganised organic landscape.

The structure suggests order, control and design. However, during the Neolithic, the frame (or skeleton) would have possessed *flesh*. Each capstone, each upright, would have been hidden beneath an earthen or cairn mound causing the shape and design to merge into an homogeneous whole, thereby becoming part of the landscape rather than opposing it. However, within the tomb, nature is in part rejected. Here, the social and symbolic order dominates. Space becomes legitimated, humanised and clinical. Although the raw materials (i.e. stone and earth) are organic, the construction is not. This would have created an interesting dichotomy. In one respect, the monument could be seen (by those who built and used it). However, it was also unseen; unseen by those whose visual access to the monument was controlled and by those looking at the monument from high points within the surrounding landscape (such as the eastern ridges of Cefn Hill). This restriction of the monument, along with the immediate concealment of the inner passage and chamber from inside the forecourt area, would have established two levels of visibility and suggests further that society was indeed complex.

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¹ The majority of Late Upper Palaeolithic flint discovered at Gwernvale was found within an ancient buried palaeosol and comprised an array of chalcedonic chert and backed blades (Healey & Green 1984:130). Tools included a *penknife* point, blades, a microlith and microburin. Also present were diagnostic Mesolithic tools, including 56 microliths (23 of these were broad-backed industries dating to the Early Mesolithic), 10 microburins, 2 notched blades and 10 truncated blades. Similar tool kits have also been found on Merbach Hill. However, these quite clearly date to the Mesolithic.

² It is generally assumed that cupmarks are a Bronze Age phenomenon.

³ What Crawford (1925) terms false-bedded stratification.

⁴ Within the recent past, the oval mound, has been damaged by the erection of fencing around its perimeter. This fence may delineate the extent of kerbing. Photographs taken in 1928 and 1935 show the site enclosed by a wrought iron fence (Hemp 1935: 291, Watkins 1928:149). Hemp refers to a *cart track* [which] *has cut away part of the north-eastern side, and the whole of the upper part has been removed* (1935:288).

⁵ It was probably the Woolhope Naturalists' Field Club's description, plus the present shape of the mound, that prompted the artist's reconstruction of the site, now featured on the English Heritage information board.

⁶ Ruth Richardson, Hereford Sixth Form College (pers. comm.). Figure 4 consists of the chamber and passage of Arthur's Stone superimposed over the mound of Gwernvale.

⁷ Although there is no account of any destruction of Arthur's Stone during this period, many other more prominent monuments were either partially or completely destroyed.

⁸ These monuments form part of the Black Mountains Group, which consists of at least eighteen chambered tombs. I have included none of the Welsh monuments in this appendix.

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APPENDIX 1 - DEFINITE MONUMENTS WITHIN THE EASTERN BLACK MOUNTAINS HINTERLANDS*

Parkwood, St. Margarets SO 356334

The precise location of this monument is unknown. Crawford (1925:149-50) suggests it can be found on a S.W.-facing slope within St. Margarets Wood. George Clinch remarks in 1854 that about 250 yards N.E. of a Medieval enclosure within St. Margaret's Park Wood is a flat, horizontal slab of limestone like the upright of a cromlech. According to Clinch, the stone measures approximately 9 m. x 3 m. and, in places, is more than 1.8 m. thick. In the same account, the Rev. Dr. Jenkins of Hereford remarks that this enormous stone.

'lies on the declivity of the wooded hill, its face on the western side being level with the adjacent surface of the ground and on this side there is a trench, 1.2 m. wide and 1.6 m. deep, which appears to have been at one time much deeper, and to have been filled up by soil brought down by the rain into it. On the E. side, and partially on the N., the ground slopes from it, and a cavity appears under the slab. Half a century ago [1804], as stated by an old man in the neighbourhood, it stood wholly free from the ground on certain upright stones. There is still at the W. end of the slab, but at a slight distance from it, an upright stone, flat at the top, which may have originally been one of those on which it was supported. It seems probable that these may be the remains of a fallen cromlech.'

Visiting the site in 1921, and failing to find the monument, Crawford (*ibid.* 149) nonetheless supports its existence. Despite being lost, there is a reference to this monument in *Megalithic Enquiries* (Powell et al 1969: 288). At present, its whereabouts is still a mystery, although on a recent visit to the immediate area, there was a large limestone slab still visible which may represent a section of the capstone (SO 35663354). Whether or not this represents part of the Parkwood tomb remains a question for debate.

The landscape position of the capstone is typical of other chambered monuments not just in Herefordshire, but farther W., around the upper reaches of the Wye and Usk valleys. As with other monuments, Parkwood has an almost uninterrupted view of the Black Mountains. It has been argued that Parkwood represents the S./E. limit of the Black Mountains Group (Children & Nash 1994:20-1). However, a possible long mound is present on Garway Hill, 8 km. farther S. (Herefordshire Archaeology SMR).

Long Barrow, Dunseal SO 39133382

This monument, together with the now destroyed Parkwood chambered tomb, may mark the most southerly extent of Neolithic influence in the Golden Valley. Possibly, Dunseal Long Barrow and Parkwood represent not only places for burying the dead but also territorial (boundary) markers. Beyond these, southwards, there are no other monuments and very few artefacts.

The origins of the site remain a mystery. The few surface finds (from ploughing) suggest a Neolithic or Early Bronze Age date. The mound itself is oval, approximately 27 m. x 14 m. in diameter and 2 m. high. The mound may once have been circular, hinting at a Bronze Age date. However, I would argue that, due to its location (high on a W.-facing ridge and occupying dominant views, especially to the S. and W.), the monument can only be a Neolithic long barrow.

Cross Lodge Barrow, Dorstone SO 33254168

Three large ash trees are growing out of the southern end of the mound. Possibly much larger during the Neolithic, the mound is an elongated oval, approximately 18 m. x 10 m. and 2.5 m. high. Locally oriented (N.W./S.E.) to the Golden Valley, this monument (as well as Arthur's Stone) has a commanding view of the Black Mountains. During the recent past, the northern section of the mound has suffered plough damage. Indeed, many stones now litter the corner of the field, some of which may belong to the original tomb structure.

During the Neolithic, Cross Lodge Long Barrow would have been visible from the valley floor and also from the large Neolithic settlement on Dorstone Hill approximately 1

km. N. The settlement is visible and central to both tombs, although there is no intervisibility between the tombs. Both the positioning of the settlement and the tombs appears to be deliberate. The settlement, moreover, represents a link between the socio-economic and the ritual/symbolism of the tombs.

Arthur's Stone and Cross Lodge Long Barrow differ in their construction, which suggests that they were built at different times and/or that they represent two different meanings; Cross Lodge Barrow is aligned with the valley, whereas Arthur's Stone may represent a valley-end territorial marker. Arthur's Stone probably predates Cross Lodge Long Barrow quite considerably.

Bach Long Barrow, Bach SO 27734294

This Neolithic long barrow is badly damaged at the northern end. Drystone walling can be clearly seen on the woodland side of the mound. The mound is oval-shaped, approximately 13 m. x 10 m., and 2 m. high. This tomb is the most north-westerly of the Golden Valley Group. Interestingly, Bach Long Barrow is sited on a N. -facing slope, overlooking the upper Wye Valley. Its position suggests, therefore, that it may not be associated with any of the Golden Valley tombs. The location and localised orientation (E./W.) suggest an association with nearby Clyro Court Farm Long Barrow (SO 2123 3413) and the now damaged Clyro Long Barrow (SO 212437), both just over the border in Powys. All three tombs would have had dominant views of the upper Wye Valley and all would have been intervisible. Unfortunately, to the N. of Bach Long Barrow is dense woodland and, therefore, visibility to other monuments is difficult to ascertain.

Garway Long Barrow, Herefordshire SO 43952550

This monument, located close to a television mast on Garway Hill, stands around 335 m. A.O.D. According to Olding (2000), Garway Long Barrow is well-preserved. The oval mound is aligned E-W and measures 30 m. x 16 m. x 2 m. The site has outstanding views of the eastern section of the Black Mountains, from Dorstone Hill in the N. to Skirrid Fawr in the W.

Peterchurch Long Barrow SO 34404140

A possible long barrow may be present on Woodbury Hill, Peterchurch. Located at around 287 m. AOD, the mound is approximately 1.8 m. in height. The barrow was discovered by Gavin-Robinson in 1936 and was later classified by Leslie Grinsell (referred to as Peterchurch I). When visiting the site in the late 1990s, Olding (2000) was informed that the site had been ploughed-out. There were a number of Neolithic diagnostic flint tools recovered within the vicinity of the monument.

APPENDIX 2 - EXTRACTS FROM AN ACCOUNT OF THE MONUMENT BY THE WOOLHOPE NATURALISTS' FIELD CLUB IN 1872

The very fine, and tolerably well-preserved Cromlech (Welsh, from *crom*, bent, arched or covering; *llec* a flat stone) on Merbage Hill, in the parish of Dorstone, known by the name of "Arthur's Stone" is one of the most perfect Druidic structures in our land.

The generally received opinion is that the name, Arthur's Stone, is simply a corruption of Thor-Stein, the Stone of Thor, or Thor's Alter, from which it is suggested the parish takes its name, Thorstein, Dorstein or Dorstone; but this is not wholly satisfactory or conclusive.

The title page of Ducumb's "History and Antiquaries of the County of Hereford," published in 1804, has a fine woodcut of the Cromlech, as it then appeared, and although not signed with Berwick's name, there can be little doubt that it is his work [FIG. 5]. We have it on the authority of that eminent geologist, the Rev. W.S. Symonds, F.G.S. [the excavator of King Arthur's Cave on the Doward, south Herefordshire], that "the large incumbent stone was no doubt hewn from the rock close by." The adjacent quarry was exposed which enabled a correct opinion to be formed. The other stones, stone of which have fallen from their originally upright position, belong, Mr Symonds says, for the most part, to the hard limestone of the cornerstones, and are not in situ on the horizon of the Cromlech, but lie scattered about as boulders upon the land. All the stones belong to the Old Red Sandstone of the Country. On the western side the Cromlech is close to an ancient road, probably British (as most of the British roads ran along the summits of the hills), in the angle, formed by another ancient road that comes up the hill to Dorstone, and is now used only for agricultural purposes, and as a line drawn from Skirred-fawr, near Abergavenny, northwards to Arthur's Stone, would pass over the Camp on the southernmost point of the Hatterill Hill, Old Castle, Longtown Castle, and Urishay and Snodhill Castles. It consists of several stones, about 18 may be counted now, besides fragments. The chief feature is the large incumbent stone broken into three parts, and resting upon about ten smaller upright stones of various dimensions. In form it is nearly oval, the sides, east and west, being straight; with two irregular sides north and south, the north somewhat curved, pointed at the extremity, and eroded considerably. An evident fracture of the stone has shortened the south end, which is about four feet in width. The long axis is due north and south, measuring about nineteen feet. The short axis, east and west, is about twelve feet. The straight side, on the west, is fifteen feet, and on the eastern side thirteen feet. The thickness varies, and probably nowhere exceeds two feet. Between the under-surface of the stone and the ground is a space of about four feet; formally the distance was greater as the hollow has been partially filled up by worm casts and other means. At a distance of eight feet from the south end of the large stone is an upright one, five feet high, and five feet six inches broad, standing with its edges east and west. A similar, but smaller stone may be seen further on, and several fragments lie around. A small Avenue occurs at the north end of the large stone, leading from it to the old road, and formed by five or six stones standing erect, with their edges north and south. They project from one to three feet above the turf, and bear evidence of much erosion; the avenue is in width about four feet, in length nine or ten feet. Fragments of stone lie scattered about more or less buried in the soil and covered by turf. The whole stands on a mound of oval shape, its long axis twenty yards, its short axis ten yards.

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Wye and Lugg Navigation, 1696

By E.D. EVANS

This subject has already been thrice noted in these *Transactions* in 1905, 1955 and 1994. The first article was contributed by Dr. H.C. Moore¹ as being of contemporary interest since there was a movement then afoot to make the river Wye more navigable, more particularly for pleasure boats, in order to attract more visitors to Hereford. The second contribution was by Mr. Israel Cohen² who treated the subject from the local angle making extensive use of local records. Dr. Anthea Brian in her article discussed a survey made appertaining to the river Lugg, preparatory to implementing the provisions of the Wye and Lugg Navigation Act which is the subject of this contribution.³ The intention of this paper is not to recapitulate on what has hitherto been adequately done, but to look at the subject in a wider setting and, in particular, its political and parliamentary associations.

The economy of Herefordshire at the end of the 17th century was entirely dominated by agricultural pursuits, summed up by Camden (1586) as 'wheat, wool and water.' To this pattern, the commerce and industry of its numerous small towns like Ross, Leominster, Ledbury, Bromyard, Kington and Weobley as well as Hereford itself, were integrated. The towns provided markets for grain and agricultural produce and also housed domestic industries which consumed locally-produced leather and wool, glove-making being particularly prominent. The importance of the river Wye and its valley to various aspects of human activity within the county is testified by the numerous references which have appeared in past numbers of these *Transactions* as the main line of communication between Herefordshire and the outside world. The local community's concern about the river is evident in records throughout the middle ages and 16th century.

One aspect of this concern was the importance attached to fisheries, especially salmon, since they contributed substantially to people's diet as well as providing needful occupation. As early as the reign of Edward I, the welfare of the fishing industry was the subject of royal concern, and he decreed that rivers throughout the kingdom should be unimpeded by the construction of weirs which might interfere with fish migration. That his injunction was ignored is amply testified by the numerous disputes which arose about weirs over the following centuries in which the interests of local gentry were often involved. Even in the 1690s, Parliament was still enacting measures for the protection of river fisheries, such was its concern.

Weirs were not constructed merely for fishing but also for providing water for corn and woollen mills, and one survey discloses that there were around thirty on the riverbanks between Hereford and the tidal reach of the Wye. That these mills provided an occupation for a large number of workmen in grinding, spinning, weaving, fulling and dyeing was always an important consideration, added to the fact that many more were occupied in land transportation connected with these operations. Many of them were tenant farmers who supplemented their income by the carrying trade and often, their

ability to pay rent to their landlords depended on this extra income. Though some landowners were satisfied with the *status quo*, by the end of the 17th century there was a new spirit of entrepreneurship becoming evident as landlords came to realise the economic potential of their estates. Already, on the lower reaches of the Wye, ironworks had appeared dependent on water for power, and there were a few scattered furnaces evident in Herefordshire. Improved means of communication was a basic factor of any infrastructure for economic development it was realised, and the initiative in this direction could only come from the class which owned the greater part of the county's land.

Improvement of river navigation became a subject of increasing interest towards the end of the 17th century, and Hereford was one of the first counties to realise its potential. It had long been a matter of controversy in the county, which had produced at least one printed pamphlet entitled 'The River Wye (in true examination) very difficult and chargeable to be reduced portable beneath Hereford, but upward more difficult.'⁴ In 1661, a projector named William Sandys, proposed a bill in parliament to permit the construction of tow-paths along the river banks, together with the building of weirs and locks to deepen the channel. Though it was basically sound in principle, nothing came of the project, but it remained a topic of continuing interest in the 1670s and eventually bore fruit in a parliamentary bill in 1688.

Schemes for local improvements were becoming a recurrent part of parliamentary business after 1688. They were in the nature of private bills which received no encouragement from government, unlike France where state-sponsored schemes were put in hand. Thus they were conceived in isolation from other interests and did not conform to any premeditated national plan. It is a reminder that England was still a collection of local communities whose interests often prevailed over national considerations. Local improvement bills were often sponsored by M.P.s. from the area concerned and followed the usual procedure for bills before parliament. If successful at first and second readings, they were referred for closer scrutiny to a committee of M.P.s. which comprised of interested parties and friends, or who came from contiguous areas of the country.

The 1688 Wye and Lugg Navigation Bill was a county project which would be financed by a county levy, and may be regarded as a pioneer in the long series of local improvement bills which were to follow. After passing through the various stages, it was amended, added to and re-committed. Compensation was to be paid to legitimate weir owners and commissioners were to be appointed for the levy. It allowed owners to preserve weirs if they constructed locks at their own expense for the passage of boats. The bill, however, succumbed to opposition.⁵ M.P.s. often fancied that such projects might open floodgates which would get beyond control, and they exploited their power to defend proprietary rights and monopolies against inroads.⁶ The failure of the 1688/9 bill caused a good deal of recrimination in Herefordshire. Robert Harley, having attended a meeting of the county gentry at Hereford, informed his father, Sir Edward, that there was a strong feeling abroad that Paul Foley, M.P. for the city, and Sir Edward Harley, M.P. for the county had 'occasioned the loss of the Act for the Wye by being so narrow-spirited as not to lay down £3 a piece.' Robert Harley professed to identify 'from what bow this arrow came from.'⁷

The issue continued to be a source of local controversy throughout the year which followed and, on 1 March 1689/90, Thomas Foley, son of the afore-mentioned Paul Foley, and M.P. for Weobley, reported to Sir Edward Harley a meeting at Harold's Inn where a number of freeholders had assembled, clearly with the intention of opposing any further measures relating to Wye navigation. It was resolved at the meeting not to choose anyone as prospective candidate in the impending parliamentary election who was for making the Wye navigable. Foley had learned that a Mr. Gwyllim of Langston was very forward in his opposition at the meeting, and it was suspected that he was a spokesman for the earl of Kent.⁸ The earl was the person Robert Harley had earlier identified as the focus of opposition, though he was an absentee landlord and did not consort with the county's leading gentry. Opposition naturally arose within sectional interests in parts of the county which did not expect to benefit from the project. The eight M.P.s. who represented the four parliamentary constituencies, were firmly behind the scheme with Lord Coningsby, M.P. Leominster, being prominent.

A new parliament having been elected, Robert Harley was able to inform his father on 4 November 1690, that the House of Commons had on that day given leave to bring in another bill to make the Wye navigable.⁹ From the House of Lords, the earl of Kent kept up his opposition as Edward, Robert Harley's brother, reported on 22 November.¹⁰

We do not know who framed the bill but it is likely that Robert Price was its author as M.P. for Weobley. He was a barrister and was called upon by the House on more than one occasion to draw up bills. It was not until 13 January 1692/3 that the opportunity arose to present a bill to make the rivers Wye and Lugg navigable to the House. In the course of debate on the second reading, arguments were offered against the bill both on the score of expense that it would involve the county in, and its untimeliness since the country then was at war and taxation on that account was heavy. It was also averred that more people would be prejudiced by the bill than would stand to gain from it. Narcissus Luttrell, who is our source of information about the debate, reported the arguments of the opposition at length, but has left us ignorant of what was said in its favour.¹¹ The spokesmen for the opposition were the Members from Gloucestershire, Somerset and 'some Welshmen,' in other words, persons connected with the lower reaches of the Wye. On the division, the bill was lost, 107 voting for it and 118 against. One teller for the affirmative was Sir Rowland Gwynne, a Radnorshire man who sat for Breconshire, the other being Lord Coningsby. The tellers on the negative side were a Gloucestershire Member and a Member from Monmouthshire.

It was not until 1695 that a renewed effort was made to bring in a new bill. On 12 December, leave was granted by the House of Commons to bring in a bill to make the rivers Wye and Lugg navigable and Lord Coningsby and Thomas Foley were deputed to draw it up, which they presented on 17 December when it was given its first reading.¹² Before the time for its second reading came round, petitions both for and against rained on the House of Commons. The first came from the town of Monmouth which had proved immune to the blandishments of the citizens of Hereford that it should join with them in promoting the bill. The men of Monmouth feared that their markets which served a large locality would be by-passed if the Wye was made more navigable, and so they petitioned against the measure.

On 2 January 1695/6, the bill was given its second reading and was committed to a number of M.Ps. which included all local Members and a number from adjoining counties. Lest opponents should have their own way, petitions in the bill's support were also presented. These were evidently well-organised and were probably initiated by local M.Ps. to drum up support for their measure. On 6 January, a petition from Weobley, the constituency of Robert Price and Thomas Foley, set out the hindrances to the improvement of their trade occasioned by the dams and weirs on the rivers. It protested that their part of the county abounded with commodities whose value could not be realised because the costs of land transport were so excessive that they were scarcely worth cultivating.¹⁴ A similar petition was submitted by the inhabitants of Ross, pointing out the advantages that would accrue not only to them but to the whole county.

Some foul play was also resorted to. The mayor of Hereford, it was alleged, persuaded a Monmouth boatman to organise a petition which indicated his town's support for the bill, but the ruse was discovered and Monmouth reasserted its opposition in another petition.¹⁵ Leominster added its voice to that of Weobley in the first of two petitions on 14 January which was in similar language and suggestive of a common provenance. The citizens of Hereford in their petition argued the lower cost of fuel and other necessities that would accrue from cheaper water transport. They also advanced a telling argument, that the roads would not be so severely damaged by carts and wagons, the cost of road repairs being a heavy drain on parishes.¹⁶ It is not surprising that fears of added expense should drive many rural parishes like Coddington, Colwall, Eastnor and Ledbury to protest because they would have to bear their apportionment of the county levy, and the prospects of loss were more real than the gain. Their opposition was drowned by the chorus of support that came from the county authorities and the county town. Whilst the city complained of the lack of economic opportunities, it appreciated that some people would suffer loss, which they promised to compensate. On 21 January, the mayor, the high sheriff, the Grand Jury of the county and the justices of the peace in Quarter Sessions, added their weight to the campaign, arguing not only the economic advantages to Herefordshire and adjoining counties, but also the prospect that the river trade could become a nursery for seamen.¹⁷ By contrast, they pointed to the damage that was done to fisheries by the weirs. Opposition continued to come from outside, notably from Monmouthshire, where the high sheriff, the justices in Quarter Sessions and the Grand Jury of the county reiterated their claim that the bill would lead to their impoverishment. The inhabitants of Abergavenny not only feared the destruction of their own trade but also predicted that many farmers, mostly tenants of Lord Abergavenny, would be adversely affected. No doubt they believed this would put a more conducive face on the matter that would evoke sympathy from a parliament of landowners.¹⁸

Between 30 December and 25 January, some eighteen petitions are recorded in the *Journal of the House of Commons* in connection with Wye and Lugg navigation. All these were referred for the consideration of the Members to whom the bill had been committed at the committee stage. Due consideration was given to the petitions since, when Robert Price reported from the committee on 13 February 1695/6, he informed the House of some amendments that had been made to the original bill. It was then read twice and agreed to. A clause had been added to the bill which enabled the trustees to borrow £16,000 at 4%

interest to be used for the necessary work, such as demolishing weirs and improving the channel. It was then ordered to be engrossed and on 19 February, it was given a third reading.¹⁹

The safeguarding of proprietary rights was still a major consideration. The earl of Kent was allowed to maintain a weir for an ironworks provided he constructed and maintained a lock for the passage of boats at his own charge. He was also discharged from all obligations towards lessees of his fishing rights on repayment of the fines they had paid for such rights.²⁰ After approval by the House of Commons, the bill was taken up to the House of Lords on 20 February by Robert Price to seek their concurrence. The Lords proceeded to hear counsel on both sides before referring it to a select committee on 5 March which heard, among others, a petition from the inhabitants of Wormelow with 114 signatures which signified that they were not opposed to the bill so long as they did not have to contribute to its cost, though they feared a rise in the price of lime and coal under the misapprehension that water carriage was dearer than land carriage.²¹ Ewyas Lacy petitioners protested that they had not been exempted from charges under the bill as had been promised in 1689. On 7 March 1695/6, the Lords signified their agreement, and the bill got royal consent on the same day.²² The Herefordshire M.Ps. were among the trustees appointed, and they signed bonds made out to various persons by way of compensation. They were also signatories of orders under what was now an Act of Parliament to execute its terms.

The cost to the county was considerable, which led in April 1697 to five of its M.Ps. to protest to the duke of Shrewsbury, Secretary of State, against a militia levy because of the heavy wartime taxation and the cost of the Wye and Lugg navigation.²³ Much of the expense went on compensating the owners of mills and weirs affected by the scheme. The duke of Beaufort, a particular friend of Robert Price, was paid compensation for three weirs near Tintern, which was already a location of the iron industry whose importance for the future was scarcely yet realised. Stalling tactics by the owners of weirs also hindered the progress of the work. Moreover, there was much doubt about the viability of the project. This scepticism was to be fully justified when an Act of 1727 enabled the re-construction of weirs for the purpose of deepening the channel above Ross to allow vessels of greater draught to navigate the river. Other abortive schemes, such as the one proposed in a survey of 1763, would have had the same purpose had they not been superseded by the cutting of a canal.

It might well be asked whether the Wye and Lugg Navigation Act served any purpose. Though not productive of much good in itself, the Act opened a floodgate to a host of similar schemes as other counties followed Herefordshire's enterprise. Parliamentary consent was sought for navigation schemes in connection with the rivers Derwent, Avon, Ouse, Aire and Calder, Dee and Weaver. The projectors resorted to the same tactics as Herefordshire, namely, submitting petitions to parliament until it might almost be said that a petitioning movement was set afoot. For the subject to address petitions, usually for redress of grievances, was not new, but before the Revolution of 1688 most of them were addressed to the king or queen. The right to petition was enshrined in the Bill of Rights, 1689, and was exploited by numerous entrepreneurs following Herefordshire's example. Hearing petitions took up a great deal of parliamentary time, as a perusal of the

Journals of the House of Commons and House of Lords shows in the final years of the 17th century. Indeed, the practice gave rise to some apprehension on the part of the House of Commons, when petitions began to take on a more political character and presumed to advise the government on policy, which landed some gentlemen from Kent in custody by order of the House of Commons in May 1701 for their presumption. Although the right of subjects to petition parliament was long in dispute, a precedent had been set which could not be undone. The Herefordshire petitions are also significant for another reason, inasmuch as they provide an early example of the concept of the accountability of Members of Parliament to their constituents, since most of the petitions mention freeholders and burgesses as well as gentlemen as being party to them.

The Herefordshire petitions are of interest because they were successful while many petitioners who emulated them failed. In 1699, for instance, schemes for making the river Weaver navigable in Cheshire were defeated by vested interests in the salt industry which had friends in the House of Commons.²⁴ The Wye and Lugg petitioners were fortunate in having all the M.Ps. from Herefordshire behind the scheme and, what with their relatives and friends in parliament, they constituted a formidable parliamentary lobby. They were also fortunate in the fact that two of those M.Ps., Paul Foley and Robert Harley, were prominent political figures. Foley was elected Speaker of the House of Commons in 1695 and, as such, had a prominent part in the management of House business. The star of Robert Harley, a younger politician, was well in the ascendant by this time, and little business was transacted that he did not have a hand in it. Professor Plumb has been struck by the success of the Wye-Lugg navigation at a time when there was little sympathy for such schemes in parliament, and attributes it to its timing in a session when the influence of the Harley-Foley group was strong.²⁵ They had become the focal point of a group of 'Country' Members which came to be identified as the 'Harley-Foley connexion', which exhibited a consistent cohesion in divisions on the floor of the House.

The Wye and Lugg navigation scheme did not bring the expected economic advantages to Herefordshire, but as an exercise in early parliamentary democracy it has both interest and significance, and as a milestone in Herefordshire's political culture.

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- ⁶ A Classical example of this was provided by the project for improving the navigation of the river Weaver in Cheshire in 1699, discussed by Edward Hughes in *Studies in Administration*, 236, 247 ff.
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- ¹⁷ *Ibid.*, 399, 21 January.
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The Castle Mills, Hereford

By JOHN C. EISEL

In these Transactions and elsewhere there are passing references to the mill by Hereford Castle. This paper brings together those references in a connected way, amplified by manuscript and printed material, and outlines the history of the Castle Mill(s).

In view of the fact that, until the middle of the 12th century, St. Guthlac's Priory was located in what is now Castle Green, it is not surprising that the Priory owned a mill by the castle. By 1219 at the latest it owned three mills, one by the gate of the site to which the priory had moved, one outside Eign Gate ('super Yene extra portam occidentalem'), and one near the Wye beneath the castle ('juxta ripam Wayae sub castello') which had some land belonging to it. The last is evidently what became known as Castle Mill(s), using the outfall of the town ditch.

In 1265 Hereford stood a siege by the army of Roger de Mortimer. In order to render the defences more effective, encroachments on the ditch between Eign Gate and Widemarsh Gate were cleared away, and the mill outside Eign Gate that belonged to St. Guthlac's Priory was pulled down. An unsuccessful attempt to carry the city by storm was made on the eve of St. Martin's. That night the keepers of the castle, Walter de Muchgros and Richard de Bagginden, sent men out and burnt St. Guthlac's mill, and 'eight houses in the street called Bithebroke.' On St. Martin's day another assault was made on the city, during which houses in 'Bissopstret' (Bishop's Street, later Bye Street and subsequently Commercial Road) and the Prior's mill were burnt. After this the attackers desisted.²

The prior of St. Guthlac's was unfortunate that all three mills in the vicinity of Hereford belonging to the priory were destroyed. By elimination, the mill burnt by the defenders of the castle must have been Castle Mill, and the street called 'Bithebroke' can therefore be identified with some certainty as what is now called Mill Street. This early name, descriptive of its situation by the water defences, is not referred to in any of the published lists of early street names but may be an alternative name, the name 'Brutton-strete' being used in the second half of the 13th century.³

In 1307 there was a dispute about the fishpond and mill by the castle between the citizens and Robert, prior of St. Guthlac's '...concerning & upon a certain fishpool descending into the Rivulet from a Stank called the Stank (*sic*) leading unto the Mill of the s^d Prior & the Convent site upon the bank of the Wye near the Castle, & upon certain lands adjacent to the s^d rivulet w^{ch} s^d Rivulet & land we do claim to belong to the s^d City...' However, when it was investigated the claim of the Prior was upheld and on the 4 March 1307 the bailiffs and commonalty of the city issued a certificate to that effect.⁴

A surviving rent-roll of the property that belonged to the priory, beginning in 1436, lists seven mills as belonging to the priory, two of which were in or near Hereford. One was 'Monckmylle,' held by Katherine Taylor, not the widow of the late holder, at a rent of 30s., and the other was the mill 'juxta muros castelli Herefordi,' held jointly by Jenkyn Phylippe and Laurence Walker for 53s. 4d. Rents of the property of St. Guthlac's

remained the same for a century. After the suppression of the monasteries, an enquiry was held in 1539 into the value of St. Guthlac's and its land. In 1543 the site of the priory was granted to John ap Rice, and two years later the rest of the possessions were granted to him at the moderate annual rent of £4 6s. 0d. The rent roll referred to above continued to be used until 1559 by both John ap Rice (later called Sir John Price) and his son and successor Gregory.⁵ The estate remained in the hands of his descendants until the later 17th century, and then passed into other hands.⁶

Meanwhile, Hereford had been visited by John Leland, the King's Antiquary, whose testimony shows that there were then two mills outside the castle. On one visit, made during his tours in England and Wales about the year 1540, he said:

'Cummynge from Monemuthe into Herford I passed over a large bridge of stone set on iiii arches. This town is auncient, large and strongely walled, also having a mayne castel hard by the ripe of Wy. I take the castel to be of as great a circuite as Windesore. The dungyn of the castel is hy and stronge, and yn the dyke not far from yt is a fair spring cawled S. Ethelbertes Well... The walle of the towne is cumpased with a dike alway filled with morisch water gethering and descending onto hyt. Certen mylles servid with this water causeth the town dikes alway to have water, els they wold often be dry. This water resorteth to the botom of Wy.'

He gave a much more detailed description on another visit, the relevant parts of which are as follows:

'The name of Hereford toune of some in Welche is caulyd Heneford of an old forde by the castle, by the whiche many pasyd over, or ever the great bridge on Wy at Herford were made.

There is a litle broke that cummithe a 5 miles by west from Hereforde, and so circuitithe the diches of Herford towne walls, *ubi non defenditur vaga*, and goithe downe levyng the castle on the right hand, and there drivynge 2 mills for corne goith into Wy a flite shot bynethe Wy bridg and hard by benethe the castle.'

The two mills at the side of the castle, mentioned by Leland, show clearly on Speede's map of 1610, one by Hogg's Mount, where Castle Pool branches off the town ditch, and the other on the banks of the Wye. This latter is clearly Castle Mill while later evidence shows that name of the other is Dog Mill. These two mills also appear on the plan of the city drawn by a French visitor c.1645, just before the siege of Hereford. (PL. III).

The mill next comes into prominence (by inference) in the Civil Wars of the 17th century. Before Hereford was besieged by the Scots army in 1645, Barnabas Scudamore put the defences in order, including clearing away buildings near to the gates of the city and cleaning out the town ditch. While it is not specifically stated, it is probable that both mills by the castle were damaged as part of the Scots army was encamped on Bartonsham meadow and hence threatened the castle from that side. The only contemporary evidence relating to the mill seems to have been contained in a letter from Barnabas Scudamore to Lord Digby, published as a pamphlet later in the year. In this he refers to the 'singular men of all professions, very useful, and necessary to us in the distresse...' In particular he mentions 'an expert Carpenter, the only man in all the Country to make Mills, without

whom we had been much disfurnisht of a means to make Powder (after our Powder-mill was burnt) or grind Corne...¹⁰ It has been suggested that this 'expert Carpenter' was John Abel.

The next record that relates to land associated with the mill is a deed of 10 September 1656 when John Seaborne of Sutton, gent, and Grissill Burghill of Withington, widow, leased half an acre of land to John Garway for 999 years at a peppercorn rent.¹¹ This was a strip of land between the town ditch and the town walls (berm), leading down to the castle from St. Owen's Gate. On 11 September 1658 this was assigned to Richard Vernoll, who, on 1 January 1693 assigned it to Thomas Bushell of Hereford, blacksmith. He in his turn, on 10 January 1697, assigned most of it to Ambrose Crowley of Stourbridge, Daniel Desmille of Gloucester and Edward Dyson.

The involvement of the above-named persons is part of one of the more interesting episodes in the history of Hereford at this period. In January 1695/6 the Common Council of Hereford decided:

'That this House thinks fitt that Waterworks, as Pipes Engines Cisternes may be erected or sett up for conducting conveying or bringing up of Wye water to the Inhabitants of the said City for the com(m)on good & benefitt of the same, which Engine or waterworks is to be sett up at the Castle Mills or other place where this House shall appoint And that Mr Ambrose Crowley & Mr Edward Dyson, who are here p(re)sent to undertake the same have the offer of doing it before any other p(er)son or p(er)sons upon such terms coven(an)ts Agrements Mr Dobbins¹² shall think convenient for the terme of one and twenty yeares or three lives to be renewed as often as the Undertakers shall require at six pence fine two shillings sixpence & a couple of Capons yearely rent One Cisterne for the said Works to be erected at St. Peter's Crosse and any other Cisterne for the better carrying out of the said works to be set up where this House shall appoint.'

On 10 May 1696 a lease of possession from Ambrose Crowley to various parties was drawn up '...of all that the scite of all those the mill at or near the City of Hereford commonly called the Castle Grist Mill and the Dogmill together with all stanks waters fishponds watercourses dams Streams Wears & appurts...' This was followed on 18 May by an indenture between the Mayor, Aldermen and Citizens of Hereford and Ambrose Crowley of Stourbridge, Daniel Desmell of Gloucester, Richard Lowbridge and Edward Dyson, both of Stourbridge, who undertook to carry out the works agreed by the Common Council and were granted the lease of the Castle mill pool and the associated streams feeding it, with other privileges, for twenty-one years at the yearly rent of 2s. 6d. and a couple of capons. The undertakers could dig up the streets to lay the pipes and the main cistern was to be erected at St. Peter's Cross (where a weighing machine subsequently stood and where the War Memorial now stands) and they could lay and bore their timbers on any of the City wastes. From this it follows that the pipes would be of wood, elm being the usual wood for situations where it was continuously wet. At the end of the lease they were entitled to remove their buildings, engines, troughs and pipes, providing they left the streets and pavements in as good repair as they then were.¹³

Whether this was ever acted upon is open to doubt. At a meeting of the Common Council on 18 May 1696 it was agreed

'That the Com(m)on Seal of the City be put to the Ind(entu)re between the City and ye Wye Water Ingeneers (the draft whereof having been p(e)rused by M^r. Dobbins ye Eldr according to the former Ord^r of this house) and to be left with M^r. Dobbins ye Younger until his father returne from London (or to be sent to him in London if he comes not home before Trinity Term next) to p(er)use again before it be given into the hands of the Ingeneer and to be amended or cancelled if he thinks fitt.'

There seems to be no further mention of this enterprise in the records of the Common Council, although these are not complete in the early 18th century.

Ambrose Crowley died in 1713 and on 27 December 1723 his surviving executors and devisees sold his interest in '...all that water corn gristmill called the Castle Mills formerly called the Gristmill and the Dogmill with the tenement or Dwelling house stable and buildings belonging and situate in or near the suburbs of the City of Hereford...' to Gertrude Pritchard of Hereford, widow, for the sum of £20. At that time the castle mill was in the possession of Thomas Harper. Subsequently the mill was in the hands of his widow, for on 14 January 1734 the minutes of the Common Council recorded that it was

'Ord^d that the Town Clerk be desired to assist the Chamberlains in making a demand of the Wid of the late Thomas Harper Miller of the Castle Mill in Demanding & Recovering the Yearly Rent Charged in the Chamberlains book for the House & building or such Part thereof as had been lately built on the City Wast opposite to the Mill.'

Clearly Dog Mill was still in existence when Crowley's interest was sold. James Hill's plan of the city defences, drawn from a survey made in 1716, does not show the mill-pond or mills, but when it was redrawn in the late 19th century both the Castle Mill and Dog Mill were added.¹⁵ (PL. IV). By the time that Taylor's map of the city was published in 1757, Dog Mill had disappeared, although there is what appears to be a house and gardens near to the site. This map shows the town ditch, laid out as a walk with trees, and the castle mill. It also gives the first accurate plan of the castle mill and shows a causeway leading from Castle Green over the overflow from the mill-pond to the mill building, and separate from it is another structure, the mill-house. The outfall from the mill-race itself, which passed under the mill building, is shown entering the river Wye. (PL. V).

The next information comes in an advertisement which appeared in the *Hereford Journal* on 8 June 1775:

Hereford Castle Mills, 3 Jan. (sic) 1775

Whereas several persons have, by night and otherwise, diverted the water out of the stream that supplies the said Castle Mills, whereby in a dry season very little water flows therein, to the great loss and damage of the miller. I do therefore give this publick notice, that I am determined to commence an action or actions against every person that for the future shall be guilty of such illegal practices and I hereby offer a

reward or FIVE GUINEAS to any person or persons who will discover the same, so as the offender or offenders, may be brought to justice.

JOHN GRAINGER, Miller

Less than three years later there is the first pictorial evidence of the mill. On 1 January 1778 a set of four views of Hereford was published by George Powles. On the S.E. view of the city from the 'Bassom' - Bartonsham - can be seen the roofs of the castle mill. Also clear is a retaining wall on the riverside through which are the two outfalls, one for the mill-pond and the other for the mill-race. (PL. VI).

John Grainger was perhaps a difficult neighbour, and the Minutes of the Council of 4 May 1779 record:¹⁶

'The the Town Clerk be called upon to give an account at the next meeting what he has done as to the prosecution of Mr. Grainger of the Castle Mills, for a nuisance in erecting a pig's cot on the waste ground near the said mill, in pursuance of a former order of this House.'

Although a trade directory records John Grainger - a Freeman of the city - as still working at the Castle Mills in 1793, he was dead by that time and his son James had taken over. John Grainger made his will was made on 30 September 1791 and in it he left the Castle Mills to his son James.¹⁷ The will shows that the mill had been in the possession of John Grainger's father, and that under his will there was a charge of £300 on the mill which the inheritance by James was subject to. John Grainger died not long after making his will and his livestock and other goods were advertised in the *Hereford Journal* on 29 February 1792 to be sold by auction on 9 March 1792. John Grainger advertised on 14 April that he was carrying on his father's business. Whether the charge of £300 on the mill was too much to be born is not known, but James Grainger became bankrupt in 1794 and the sale by auction of his personal effects and the mill itself were advertised in the *Hereford Journal* from 13 August 1794 onwards. James Grainger had other interests, for on 10 September it was advertised that the lease of two meadows outside Eign Gate of which five years was unexpired 'late in the possession of James Grainger' was for sale by auction. In the same auction was the four years of unexpired lease on Widemarsh Mill, and the inference is that James Grainger also held that lease.

The Castle Mills were bought by a consortium which then decided to let the mill-house. The following advertisement appeared on 30 September 1795:

HEREFORD

TO BE LET

And entered upon immediately,

A NEAT DWELLING-HOUSE, in good repair, situate at the Castle Mills, in the parish of St. Owen's, upon the banks of the river Wye, within the liberty of this city, consisting of a Parlour, Kitchen, Scullery, and Brewhouse, upon the first floor; with Four very good Lodging-rooms, and convenient Closets, upon the second floor; and an excellent Cellar under the whole.

A good tenant, if required, may be accommodated with a very good Garden, Cider-house, Stable, Wain-house, and Coal Wharf, with the privilege of delivery, Turnpike free, into this city.

For particulars enquire of Messers. Price, Norbury, and Phillips, Bakers.

Three new full-sized BOLTING MILLS to be Sold. Apply as above.

It is not known at present who was then the tenant of the Castle Mills, or the mill-house, or whether the mill was kept in hand, but there was some trouble a few years later, for on 17 June 1799 it was ordered

'That the serjeants at mace do immediately remove the Gate and other encroachments made at the Castle Mill.'¹⁸

Meanwhile, in 1796 John Price published a view of the Infirmary from the Bishop's Palace Gardens. One of the roofs of Castle Mill or the mill-house can be seen, and what may be the outfalls of the ditch and mill-race are identifiable although, curiously, there is no sign of the retaining wall.¹⁹ At about the same period a view of the Infirmary from Castle Green was made by the artist S. Fisher, who lived in Hereford in the 1790s.²⁰ (PL. VII).

During the second half of the 18th century and the early part of the 19th century Castle Green was rented from the county by the Society of Tempers. At a meeting of the Society on 11 April 1804 it was resolved:

'The Society having received information that James Russell, the occupier of the Castle Mills, had lately cut down several trees on the side of the bank adjoining the Castle Mill pond, and cut the tops off several trees growing upon land leased by Benjamin Fallowes, Esq., late Clerk of the Peace for the county of Hereford, to Francis Campbell, Esq., and other members of the Society. It is resolved that Mr. W. Allen be employed to bring an action against the said James Russell, in the Court of King's Bench, and that the expenses thereof be borne out of the funds of this Society. Signed - William Allen, E. Lechmere, John Winston, James Wainwright, W. Allen, T.J. Bird, W. Ravenhill, jun., J. Griffiths, J. Duncomb, T. Gammon.'²¹

On 2 January 1811 Castle Mills were advertised as being for sale by auction. The particulars that appeared in the *Hereford Journal* give a good indication of the extent of the buildings.

'All that capital STACK of WATER CORN MILLS, called THE CASTLE MILLS, situate in the Parish of St. Owen's, within the Suburbs of the City of Hereford, and adjoining the River Wye; working Four Pairs of French Stones (with Two Dressing Mills) by Two very capital Water Wheels, lately new, the one Nineteen Feet diameter, upon a Plentiful Stream of Water, with good and convenient Store Room for carrying on a very extensive business; together with a substantial and convenient MESSUAGE or DWELLING-HOUSE, having dry and roomy Cellarage and Brewhouse, Stable, Cart-House, Pigstyes, and a detached building, containing a Stable, Store Room, and Granary over, with a Roomy Cider house behind the same, spacious Fold, excellent Garden, good Greenhouse, and a large Building that might

easily be converted to useful purposes, and the whole in an excellent state of repair. Also, a Piece of rich MEADOW LAND, adjoining to the Mill pond, containing about Half an Acre. The whole is in the occupation of Mr. J. Broome, whose time therein expires at Lady Day next, at the Annual Rent of Two Hundred and Sixty Pounds.

The Premises are chiefly Freehold, and discharged of Land Tax.'

The mention of a plentiful stream of water must be suspect, as in 1812 the proprietors of the Castle Mill were ordered to be indicted at the Assizes for not cleaning out the town ditch from Castle Ditch to Eign Gate.²²

Despite the evident problems with lack of water, on 16 June 1824 Castle Mills were advertised as being to let from the following Michaelmas, while on 26 April 1826 a third share in the mills was advertised as being for sale. The advertisement stated that the mills were capable of cutting seven hundred bushels of wheat weekly, and that they were let at the moderate rate of £200 p.a.

Meanwhile, there had been another problem with the supply of water. The lease on the Castle Green that had been granted to the Society of Tempers had not been renewed in 1822²³ and so improvements were proposed and a committee set up to carry these out. An advertisement outlining the proposed improvements and asking for subscriptions appeared in the *Hereford Journal* on 7 April 1824. Regular lists of subscribers appeared in the *Hereford Journal*, and in one of these that appeared on 7 July it was stated that the committee had started to clean out the Castle Pool, and that it was ready to sell the soil to anyone who would carry it away, at the cost of 1s. per cart load. When interim accounts were published in the *Hereford Journal* on 18 May 1825 the income from the sale of soil was £46 0s. 3d., indicating that over 900 cart loads of soil had been removed from the Castle Pool – and there was still more to be disposed of. Evidently the flow of water was disrupted during at least part of this work, and the accounts show that a payment was made to the Castle Mill for 'Stopping the Water,' but it is not possible to state what this was as it was lumped in with other payments.

Pigot's *Directory* of 1830 states that James Wheeler was then milling at Castle Mills but this seems to be an error, for Thomas Wheeler was there at about that time. The following advertisement appeared on 1 June 1831:

CASTLE MILLS, HEREFORD

RICH. WHEELER

Most respectfully begs leave to return Thanks to the public in general for the liberal Support he has experienced since his commencement in Business in Hereford, and to inform them that he taken to THE ABOVE MILLS, lately occupied by his Father, where he hopes to meet with a continuance of their Support.

N.B. FLOUR, BRAN, GURGEONS, COAL, &c. Sold Whole-sale and Retail. – May 25, 1831.

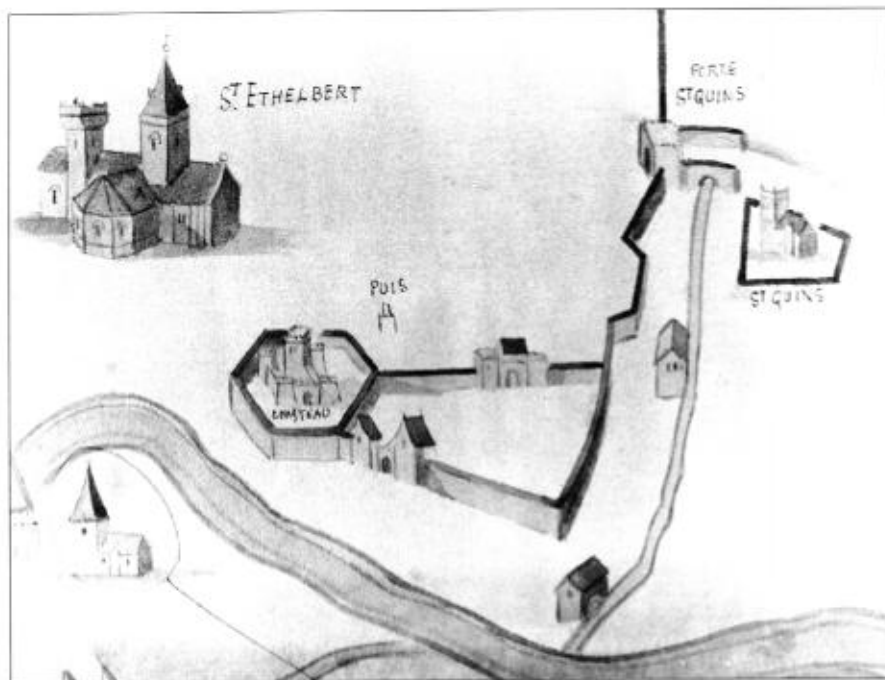
The reason that Richard Miller had taken over the mill was that his father had gone bankrupt, a notice to the effect that Thomas Wheeler the Elder, formerly of Castle Mills,



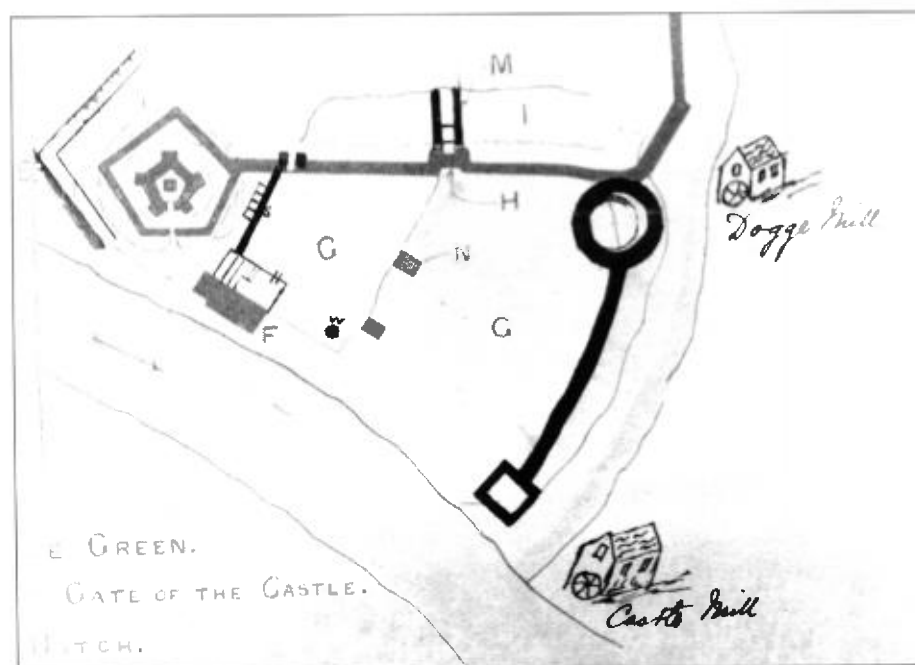
I — Arthur's Stone, Dorstone.



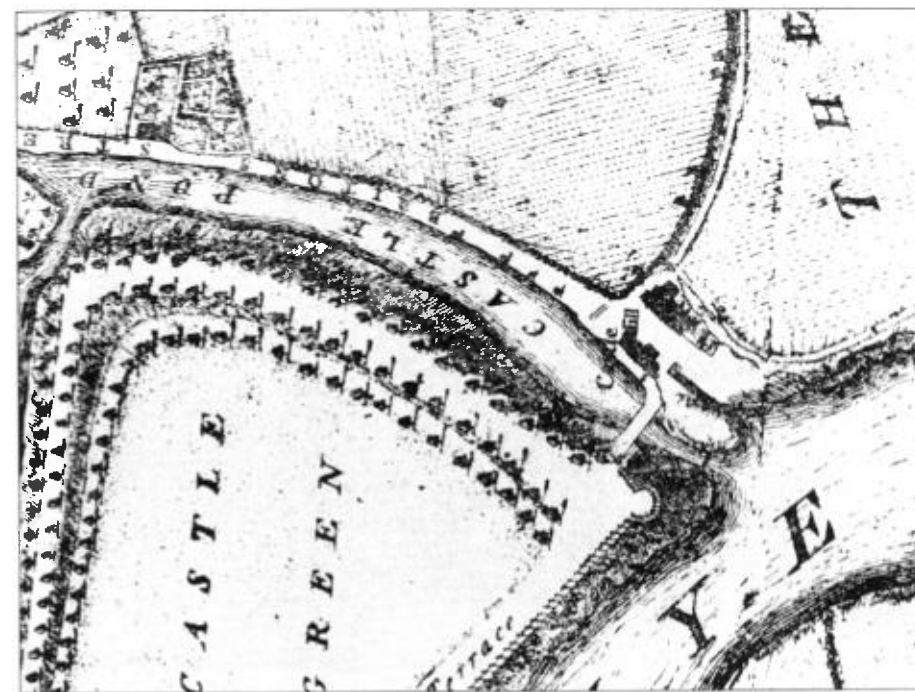
II — View of the unorthodox passage with door stone.



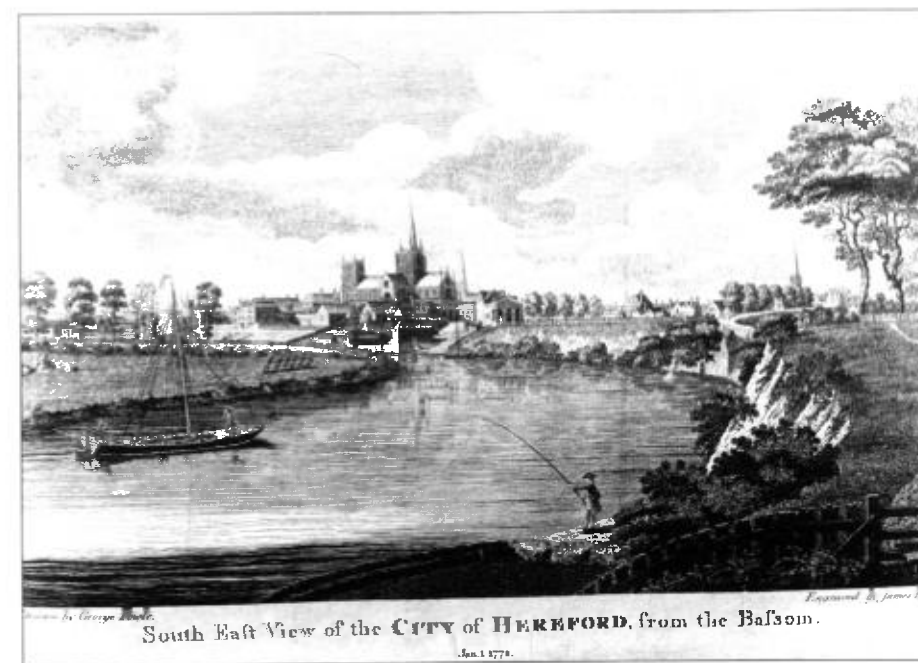
III — Part of a copy of a map of Hereford city defences, made by a French visitor c. 1645.
(Pilley 2327) (K. Hoverd)



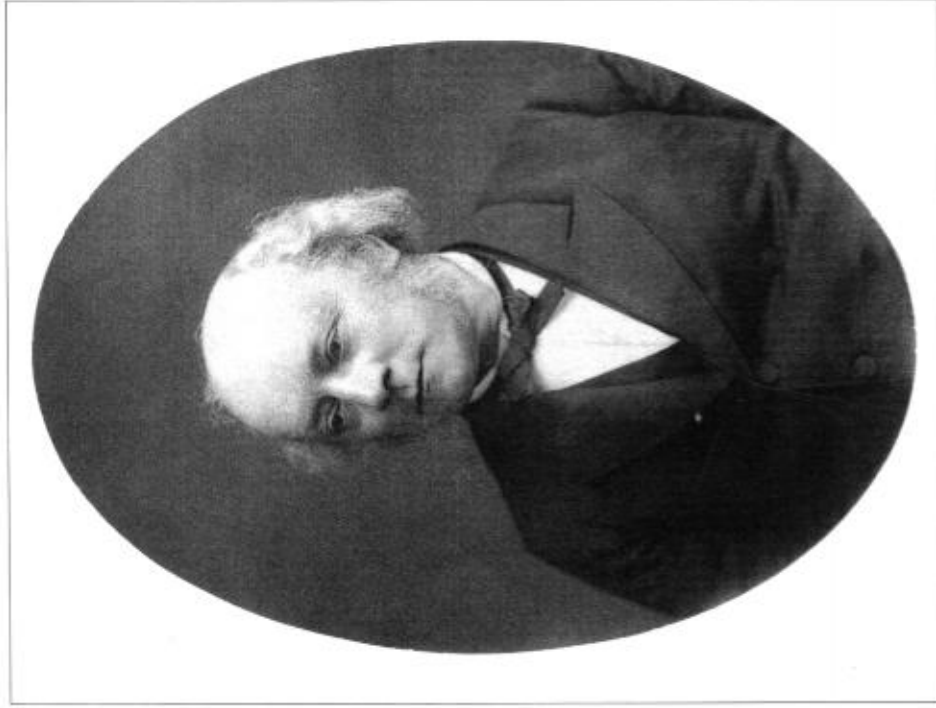
IV — Late 19th-century redrawing of Hill's map of the Hereford city defences, with manuscript additions by Walter Pilley.
(K. Hoverd)



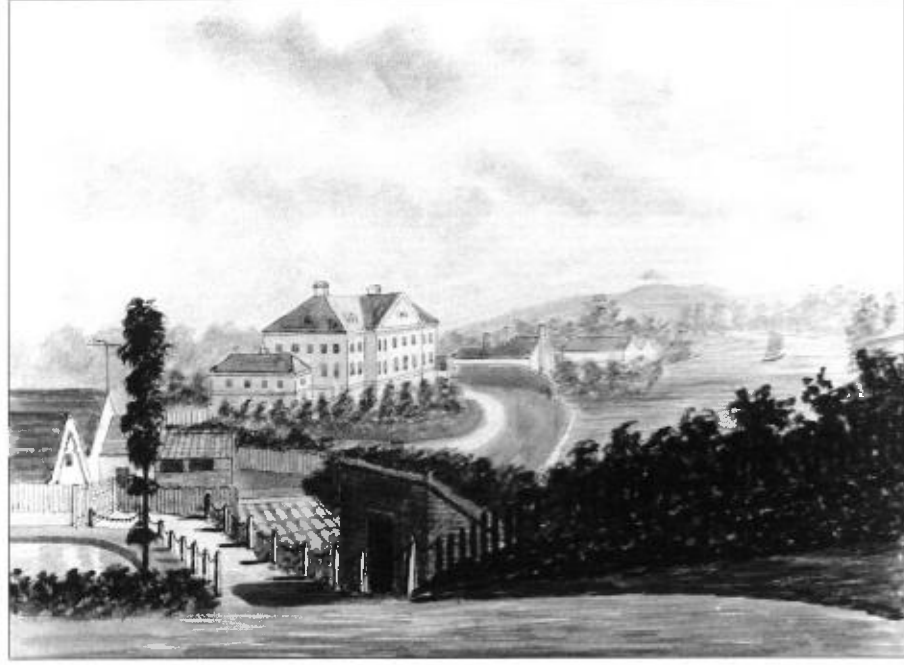
V — An enlargement of part of Taylor's map of 1757, showing the site of Castle Mill and the likely site of Dog Mill.
(K. Hoverd)



VI — Powle's view of Hereford from the S.E. The outfall of the ditch and mill-leat are just visible.
(K. Hoverd)



VIII — Dr. Henry Graves Bull, a founder of the Woolhope Club, President in 1866 and an active member for 34 years.



VII — Copy of Fisher's water-colour of the Infirmary from Castle Green in the 1790s, Castle Mill and dam in the left foreground.

(K. Hoverd)



X — Sir Roderick Impey Murchison, F.R.S., President of the Geological Society whom Dr. Bull considered grumpy and conceited.



IX — Mr. Thomas Blashill, F.R.I.B.A., F.Z.S., President of the Woolhope Club in 1882 and 1901 and an active member for 54 years



X1— Water-mill at Wellington Quarry.

near Hereford, and late of Tretire, Miller, had been discharged from bankruptcy appearing in the issue of the *Hereford Journal* of 13 July 1831. Richard Wheeler seems to have only worked at Castle Mills for a few years, for on 15 May 1833 Thomas Hiles advertised in the *Hereford Journal* that he had taken over:

THOMAS HILES,

Having taken and entered upon the CASTLE MILLS, Hereford, respectfully solicits the support of Meal men, Bakers, Farmers and the Public generally. By strict attention to Business, he hopes to merit a continuance of that support he has hitherto so liberally received. — Castle Mills, 13th May, 1833.

The name of Thomas Hiles appears in Pigot's *Directory* of 1835, but Richard Wheeler soon took over again, his name appearing in Robinson's *Directory* of 1835-7. In the collection of Dr. D. Foxton there is an invoice dated 30 August 1842 on a fine letter-head, relating to Richard Wheeler at Castle Mills. When Richard Wheeler took over the lease of the mill at Tretire in 1837, first taken out by his father in 1828, he was stated to be of the Castle Mills, Hereford but when, on 10 April 1844, the remaining term of the lease was assigned to another Richard Wheeler, of Michaelchurch, Richard Wheeler of Hereford was stated to be then of Lugg Bridge Mills.²⁴ He had agreed to buy these in 1840 and paid £4,275 for the mills, dwelling-house etc. and the residue of a 990-year lease.²⁵ He had moved to the Lugg Bridge Mills between the date of the bill-head and the making of the apportionment of the Tithe Map in 1843 which shows that James Howells was then working at the Castle Mills.²⁶ By 1850 the Castle Mills were in the hands of John Howell(s), his name appearing in Slater's *Directory* of that year. The census of 1851 gives more details. He was a widower, aged 39, and was described as a master miller. Living with him were three small sons, his brother William, his sister-in-law Susan Wainwright (described as a landowner's daughter), two house servants, and a miller's loader.

In the 1853 Public Health Act Report on Hereford, there are several references to the mill-pond. Mr. G.R. Terry, surgeon to the Union, stated:

'The brook and the mill-pond are great nuisances; the ornamental water being more or less putrid every summer. Every kind of animal and vegetable refuse is carried by the Town-brook into the mill pond.'

Mr. Johnson, the town clerk, stated:

'The stench from the Castle mill-pond is abominable in summer; it is an evil which calls loudly for remedy. In summer there is a kind of green slime which covers the pool, almost giving the appearance of a lawn.'

This was amplified by the evidence of Dr. Bull:

'The most glaring evil is the Castle mill-pond, which receives the drainage of St. Owen's-street, Widemarsh-street, Eign-street, and the line of houses on either side of the brook, throughout the extent of nearly a mile round the city; the mill-pond is filled to a great depth with the contents of the drains, which are deposited in still water; in summer, when the water is low, and the mill requires all the water it can obtain, this pond is a mass of mud, with a shallow stream flowing down its centre.

Three-fourths of the bottom of the pond are frequently exposed to the action of the sun's rays, and give off exhalations which must be prejudicial to the health of the inhabitants in the neighbourhood. When the pond is full of water, no doubt gases are given off, but not in such large quantities. The intensity of this nuisance is generally admitted, and has been frequently pointed out. The pond was cleaned about nine years ago. It is in contiguity with a number of houses, and distant about 60 to 70 yards from the boundary wall of the infirmary; the Castle-green, which is the public walk of the city, and in which are baths, adjoins the pond.²⁷

From this it is inferred that the mill was still working.

In June 1854 the Hereford Improvement Act received the Royal Assent. Among other things, it gave the city authorities power to construct sewers, sewerage and drainage works.²⁸ As part of this work the city ditch was culverted²⁹ and this survived until the ring road was built in the 1960s. The mill-pond was filled in and compensation of £72 was paid for diversion of water from the Castle Mill.³⁰ Subsequently the mill and associated buildings were demolished and in 1863 part of the site, where the main entrance lodge was built, was sold to the hospital authorities for £100. The area along the river bank, built up after the culverting of the ditch, was occupied by Mr. Augustus C. Edwards, who rented it from the Corporation for £1 per year. This consisted of an enclosed vegetable and flower garden. It was taken over as a public space in 1893 when a pathway was built along the river bank below the General Hospital.³¹

The retaining wall on the riverside survived rather longer than might have been thought and a photograph of Castle Green Ferry, taken between 1893 and 1897 when the Victoria Bridge was begun, clearly shows the two outfalls.³² However, no evidence of Castle Mill is now to be seen, whatever survives being buried.³³

ACKNOWLEDGMENTS

Most of the research for this article was carried out in the Hereford Reference Library and I should like to express my thanks for the help received over many visits, also to the staff of Herefordshire Record Office. The photographs used to illustrate this article are of material in the Reference Library, and which is reproduced by kind permission of the Herefordshire Library Service. Ken Hoverd kindly took the photographs. Thanks are also due to Dr. Derek Foxton for showing me Richard Wheeler's bill-head.

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- ¹ Preb. S.H. Martin, 'St. Guthlac's Priory and the City Churches,' *Trans. Woolhope Natur. Fld. Club*, XXXIV (1954), 221-2.
- ² F. Noble, 'Herefordshire and Simon de Montfort; 1265,' *Trans. Woolhope Natur. Fld. Club*, XXXVIII (1965), 111-2.
- ³ J.W. Tonkin, 'Early Street Names of Hereford,' *Trans. Woolhope Natur. Fld. Club*, XXXVIII (1966), 236-50.
- ⁴ Hereford Reference Library (HRL) Cooke MS, ff58-9.
- ⁵ Rev. A.T. Bannister, 'The Possessions of St. Guthlac's Priory, Hereford,' *Trans. Woolhope Natur. Fld. Club*, XXIII (1918), 34-42.

- ⁶ Rev. J.T. Duncumb, *Collections towards the History and Antiquities of the County of Hereford* (1804), 424. Gregory Price had one daughter, who herself had two daughters.
- ⁷ Lucy Toulmin Smith (ed.), *The Itinerary of John Leland in or about the years 1535-1543* (1907), vol. III, 47-8.
- ⁸ *Op. cit.* in note 7, vol. II, 65-6.
- ⁹ HRL, Pilley Collection 2327, f1.
- ¹⁰ *Op. cit.* in note 6, 279.
- ¹¹ Grissill Burghill was the grand-daughter of Gregory Price.
- ¹² He was the Deputy Steward.
- ¹³ Sir Ambrose Crowley was one of the great ironmasters at this period. See M.W. Flinn, 'Men of Iron and Sir Ambrose Crowley, Ironmonger 1658 - 1713' in *Explorations in Entrepreneurial History*, V,3 (1953), 162-80. Desmille/Desmill (more properly Denell) had previously worked with Ambrose in 1694/5 to provide a waterworks for Exeter. He was also subsequently employed to deepen the Exeter Canal. He surveyed the rivers Wye and Lugg in 1697 as part of the implementation of the 1695 Navigation Act. See Anthea Brian 'As to the River Lugg' - its vanished mills, broken weirs and damaged bridges,' *Trans. Woolhope Natur. Fld. Club*, XLVIII (1994), 37-9.
- ¹⁴ The deeds are summarised from Hill MSS vol.4, f3 *et seq.*, HRL. These were said to be 'Extracts of Mr. Grainger's writings relating to the Castle Mill etc.' These extracts were copied verbatim in Pilley 151. For 'Mr. Grainger' see below. It is likely that they were compiled from the deeds of the Castle Mill at the time when John Grainger was having difficulties with the water-supply. The minute book of the Common Council is in Herefordshire Record Office (HCRO), Ref. HLC/A/1 ff26, 29 & 596.
- ¹⁵ HRL, Hereford maps. Hill's map was originally included in vol. 4 of the Hill MSS, now in HRL but formerly in the library at Belmont Abbey. In the late 19th century Walter Pilley was provided with a copy of the map by Prior Raynal, of Belmont. See *Trans. Woolhope Natur. Fld. Club*, XVIII (1900-April 1902), 37. The manuscript additions to this map were probably made by Pilley.
- ¹⁶ W.T. Collins, *Modern Hereford Part II* (1911), 7.
- ¹⁷ HCRO Ref. P6/10.
- ¹⁸ *Op. cit.* in note 16, 12.
- ¹⁹ John Price, *An History Account of the City of Hereford* (1796), frontispiece.
- ²⁰ A copy of this water-colour is in HRL, Pilley 2327, f10.
- ²¹ J.W. Lloyd, 'Hereford Castle and its Appurtenances,' *Trans. Woolhope Natur. Fld. Club*, XI (1884), 164.
- ²² C. Watkins, 'Two Brooks called Eign,' *Trans. Woolhope Natur. Fld. Club*, XXIII (1919), 175.
- ²³ HRL, Minute book of the Society of Tempers 1786-1831, HA 112/1.
- ²⁴ HCRO Ref. C99/111/177.
- ²⁵ Lugwardine Historical Society, *Lugwardine in the nineteenth century* (1988), 13-4.
- ²⁶ HCRO Ref. X145/6 & 18.
- ²⁷ T.W. Rammell, *Report to the General Board of Health into the sewage...of the City of Hereford* (1853), 35,44.
- ²⁸ Diana C.D. Currie, 'Improvement in Hereford,' *Trans. Woolhope Natur. Fld. Club*, XXXIX (1969), 398.
- ²⁹ D.A. Whitehead, 'The historical background to the city defences,' in Shoesmith, R. *Excavations on and close to the city defences* CBA Res. Rep., 46, (1982), 24.
- ³⁰ *Op. cit.* in note 23, 399.
- ³¹ *Hereford Times* 8 July 1893.
- ³² Anne Sandford, *Hereford in Old Photographs* (1987), 157.
- ³³ Walter Pilley was of the opinion that the stones of the dam retaining the mill-pond were still buried in the ground. HRL, Pilley 2272, f162.

'The true friend of the working classes': Class and Politics in Nineteenth Century Hereford

By DAVID M. YOUNG

a) INTRODUCTION: CLASS AND URBANISATION

In recent years political scientists have claimed that social class is no longer the demarcation line that it was once was. However, for generations it has been the key variable in determining voting behaviour and party allegiance. Its origins are said to lie in the third quarter of the 19th century in the period after the 1867 Reform Act. The institutional development in this period – the extension of the franchise, the construction of party machinery – is seen as the accommodation of the working class to maintain political stability and national economic efficiency. Ralph Miliband contended that 'in the context of a solid parliamentary and political system decisively shaped by the forces of property,' the 1867 Act was 'more an act of containment than of emancipation.'

However, the astute management of the class factor by the Conservative Party – the defence of property and the constitution with more than a dash of populist imperialism – was a marked contrast with the Liberals more ideological approach which offered security to the middle class by way of social reform which would eradicate class conflict and preempt socialism. Yet the keen management of the class factor by the Conservatives forced the Liberals to canvass working class support to counter the middle class drift into Conservatism and the emergence of independent Labour. By the end of the century the Liberals were an unhealthy alliance of working class progressives and 'the faddists,' inheritors of the old cultural and status politics of early in the century.

This process of class formation has been described by P.F. Clarke.² He points out that the Great Reform Act of 1832 had effectively excluded the working class and therefore if class consciousness existed in the 1840s or 50s it was not, indeed could not be, expressed electorally. What was expressed was the clash of lifestyles in Victorian England; the most distinctive being religious and quasi-religious differences. He states that 'despite the evidence of secularisation, it was these rather than class divisions which did most to mould political consciousness.' It is this strong correlation between politics and religion which Clarke typifies, using Weberian terminology, as the principal axis of the status or 'cultural' politics of the years before and after 1867.

With the extension of the franchise and the introduction of the Ballot Act in 1872 voting behaviour was no longer centred on either influence from below or above but 'unambiguously one of political consciousness.'⁴ London in 1868 is seen as the exemplar of early class-based politics when the Conservatives captured the newly-created suburban seats. From then on the business vote together with the growing number of clerical workers moved away from the Liberal party. The Liberals were slower to react and it was not until the 1890s that social reform replaced religion as the 'felt need' of electoral politics for a mass electorate.⁵ The Liberals felt that the retention of the working class vote was necessary for their electoral survival.

Hence we can see that the quarter of a century after 1867 are the years when this crucial change in British politics took place with the transition from cultural politics to class politics. It was during the Victorian era that Britain became a predominately urban society. With the 1851 census it was discovered that the urban population comprised more than fifty percent of the whole. However, as Asa Briggs has written this period was regarded with some pride by Victorians as 'an age of great cities.'⁶ This is borne out by the fact that nearly one fifth of the urban population lived in the capital alone.

And yet the influence of urbanisation was not restricted to the megalopolises of the 19th century. Nearly one in four of the urban population lived in towns of between ten and fifty thousand people whilst Alan Everitt estimates that between a half and a third of English people lived in or were dependent on provincial market towns.⁷

Politically the Victorian era saw a shift in power towards the boroughs. The spectacular growth of the industrial centres did not bring political representation with it. The majority of political representation and hence political power lay with more modest towns. P.J. Waller points out that 'between 1867 and 1885 small market towns of fewer than 16,000 population returned over one fifth of the Commons' representation. After 1885 the complaint was different, that a vote cast in a medium sized borough of between 15 – 50,000 population was weightier than one cast in a larger town or suburban district.'⁸ In short, the bulk of what one might call the 'urban experience' was to be had in small and medium-sized towns which because of their ancient status and number had a political importance beyond their *individual* weight. Therefore, a study of a growing town of between ten and fifty thousand inhabitants such as Worcester, Gloucester or Hereford is likely to illuminate any change in the style, content, party organisation or social composition of political activity in the late 19th century.

b) HEREFORD IN THE LATE NINETEENTH CENTURY

The city of Hereford is almost equidistant between the large industrial districts surrounding Birmingham and Cardiff. It is sited at the centre of a county which had at the time no exploitable mineral resources and so had served the role of George Eliot's Treby Magna as 'a respectable market-town – the heart of a great rural district, where the trade was only such as had close relations with the local landed interest.'

The surrounding county in the 19th century was exclusively agricultural, specialising in the rearing of cattle and sheep, although cider, apples and hops were also produced. The city therefore maintained itself as a centre for administration and distribution although there was some manufacture in the shape of leather goods, hats and gloves and cabinet making.¹⁰

Following the Municipal Corporations Act of 1835 and the Hereford Improvement Act of 1854, the city acquired the trappings of 19th-century civilisation, namely; a water-works and water-mains, sewers and drainage works, the purchase of the gas-works by the Council, a public cemetery and the construction of a separate cattle market. These projects necessitated raising the rates which was a sign of the confidence and determination of the Whig/Liberal Council for the improvement of the city.

The changes were encouraged by the development of the railway to Hereford. There was no railway development in the city until comparatively late, in 1853, when the Newport, Abergavenny and Hereford line was opened. This was followed in 1855 by the Hereford, Ross and Gloucester railway and finally the link to the east to Ledbury in 1861. With the arrival of the railways, Hereford developed rapidly, no longer reliant on the 'unpredictable waters of the Wye.'¹¹ The city expanded to the west thanks to the Freehold Land Society,¹² whilst the population grew from 12,108 in 1851 to 18,347; a rise of fifty-one percent.¹³ This compares with population growth in England and Wales in the same period of 26.68%.

c) THE BY-ELECTION CAMPAIGN IN 1871

Hereford in the second half of the 19th century was an expanding, prosperous town but still limited by its dependency on the agricultural county. Politics after 1832 was apparently not divided along class lines as according to D.J. Mitchell, the 'Whig commitment to reform swung the tide of opinion heavily in their favour, though in essence they remained an aristocratic party.'¹⁴ This commitment to reform reflects the dictum of that Whig of Whigs Lord Macaulay who famously accepted 1832 with the advice that his party should 'reform that we should remain.' It is therefore no contradiction to speak of a reforming aristocratic party, one which accepts an accommodation with other social classes an elimination of 'Old Corruption' and a quieting of Painite criticisms, when the alternative was an upheaval similar to the French experience after 1789.

The political traditions of the town in the 19th century reflect its social composition. Unlike the surrounding area, which frequently returned Tory knights to the Commons, the borough seat tended to support Whigs and Liberals.¹⁵ The City Council from the Municipal Corporation Reform Act of 1835 until 1871 had only five Conservative mayors and from 1852-64 there were twelve consecutive Liberal mayors.¹⁶

At the general election of 1868, the year after the Reform Act, the Liberal candidates George Clive and J.W.S. Wyllie beat the Conservatives George Arbuthnot and the sitting member Richard Baggally. However, due to some malpractice on the part of the Liberals' supporters, sixty-nine petitions were lodged against them for bribery or specifically the 'indiscriminate hospitality' of one of their supporters.¹⁷ Clive and Wyllie were unseated but in the renewed contest of 30 March 1869, the Liberals Clive's son Edward and C.W. Hoskyns were again returned with a good majority. At this time money swayed elections because according to F.M.L. Thompson 'the choice before electors was so often between personalities whose policies were indistinguishable.'¹⁸

The by-election of 28 February 1871 came about as a result of the resignation of Colonel E.H. Clive from his seat in the House of Commons. He had been appointed Assistant Quarter Master General to the forces at Portsmouth by the duke of Cambridge and as he was required to reside on the south coast he was forced to retire from Parliament. This decision caused some anger and consternation in Hereford for a number of reasons. To begin with, the electors had sent Clive, at the second attempt, to London for the duration of the Parliament and not for as long as it suited his military career, secondly, the suddenness of his announcement and the immediate election ten days later caused

much annoyance, and lastly, the choice of A.D. Hayter, the son of Sir William Hayter the Liberal Chief Whip as the Liberal candidate allowed the Tories to portray the election as a 'party job.'¹⁹

The main issues of this election, apart from the betrayal of Col. Clive, seem to have been army reform and the effect of Forster's Education Act. Army reform, although not significant economically to the constituency, was popular with the candidates for obvious reasons. George Arbuthnot the Conservative candidate was at the time a serving officer in the Royal Artillery and Hayter had left the Grenadier Guards only a few years before. In addition to this the election was also going on against the background of the Franco-Prussian War. However, the two candidates seem to agree that the government, in rationalising army organisations did not provide enough personnel for the defence of the country, in view of the contemporary example of Prussian military science. Arbuthnot, as the opposition candidate, took advantage of this. The lack of confidence in the military was extended by the Conservative with his emphasis on the recent dismissal of a number of dockyard workers. 'Why not begin high up the tree' he asked, 'instead of below?'²⁰

A number of times the candidates stressed that there was very little difference between them politically and even less socially. Indeed it is remarkable how similar these two individuals were. Arbuthnot was born in 1836, Hayter a year earlier in 1835. Both were educated at Eton, Hayter then went from Oxford to the army and then into politics, Arbuthnot went from Cambridge to the army and had been trying to enter politics since his return from India in the 1860s. Politically Hayter had a reputation as an 'advanced Liberal',²¹ being in favour of shorter parliaments, registration reform, better working class housing and industrial compensation. Arbuthnot at the time declared himself in favour of every Liberal Bill although he gave only qualified support to those of ballot reform and army reorganisation. He clearly did not want his differences with the radicals to alienate any of the electorate.

On the question of education, finance and therefore control was a matter on which the parties disagreed at a local level. In the Conservative mind, the parents should be compelled to send their children to school whilst the treasury pay for the institutions. 'I am strongly opposed to the educational expenses,' Arbuthnot told his audience, 'being defrayed by local rates, which already weigh with undue severity on the poorer classes.'²² There seems to be little of the ferocity of the education debate which had recently taken place on the national stage. However, the Liberal's non-conformist spokesman George King, a Baptist, called for the setting-up of a local school board, saying that; 'education in the city of Hereford is by no means satisfactory, nor could be until we have a school board - the object of which would be to bring the extreme poor to school, the children of the vicious and the degraded.'²³ Arbuthnot on the other hand seems to oppose secular, locally financed education which would take the development of the younger generation out of the hands of the Church of England.

Despite the bourgeois nature of the town the candidates do not seem to be afraid of appealing to the intelligence and fair-mindedness of the 'working classes.' The advantage made by the Conservatives of the sacking the Government dockyard workers was reflected in frequent references to the Tory party as the party of the working class. In an

editorial in the Tory organ the *Hereford Journal* Philip Ralph eulogised that 'the working class men who now in such large numbers possess the vote, have, in addition to their native intelligence, received all the advantages which free social and intellectual culture could secure them.' This speech came from one of the few members of Hereford's political elite who was of 'lowly birth.'²⁴ At the nomination after the Tory speaker had spoken in favour of radical legislation including the Ballot and Trade Unions bills, the Liberals put forward Hayter as 'the true friend of the working classes,' indeed the Liberals had 'proved themselves the true friends of working men.' 'Who repealed the Corn Laws? Who repealed the tax on tea, sugar and other household necessities? Who gave them cheap postage but the Liberals?'²⁵

This type of language in which the candidate appeals to the fair-mindedness of the honest worker was common amongst radical Liberals and populist Conservatives of the period. The rhetoric elevated all the industrious classes – whether industrial workers or industrialists – to the same level as having a stake in society. The language of work and criticism of the idle, whether the unemployed or members of the House of Lords remained in British radicalism well into the 20th century but it is distinct from a class-conscious language of labour or socialism. Socialists would speak of the working classes as victims of an unjust system perpetuated by the employing class – a language where the interests of the classes are opposed to one another. This is not the type of language which is adopted in Hereford at this point.²⁶

What can be seen from the evidence of 1871 is that the two parties very much reflect each other in style and content, both lay claim to a progressive tradition and agenda and appeal to the working class, though not necessarily to the poor. Where there were differences it seems to be on connected cultural or 'lifestyle' issues such as religion, education and temperance. Notably Arbuthnot's opposition to both the Education and the Ballot bills was that they would increase government expenditure. The parties attitude to the working class was probably a reflection of the nature of the constituency, the only sizeable industrial grouping were the railway workers who made up approximately five percent of the electorate and so appeals to the workers were appeals to elect a 'friend' of the working classes rather than someone who would actively represent worker's interests. F.M.L. Thompson describes the late-Victorian Conservative Party as behaving as if they 'had succeeded to the idea that opportunist pursuit of immediate party advantage was the essence of politics and that steady defence of the established interests was no longer possible or desirable.'²⁷ This goes some way to explaining why the two parties in 1871 were so markedly similar in their policies in a period before the Conservative discovery of the alchemic popular imperialism.

d) THE BY-ELECTION CAMPAIGN IN 1893

Between the years 1871 and 1893, an almost biblical generation apart, some changes occurred in Herefordian politics. The agricultural slump of the 1870s brought the formation of an agricultural labourers union in Leintwardine in the north of the county which by 1874 had almost thirty thousand members in six counties, whilst a branch of the Amalgamated Society of Railway Servants was formed in the city during the 1880s.²⁸ The pop-

ulation of Hereford grew from 18,347 in 1871 to 20,703 in 1891, a growth of 12.8% a marked slow down in growth since the middle of the century.

In the general election of 1874, Arbuthnot lost his seat and the city returned a member from each party. In the succeeding general elections the borough managed to return a member to join the governing party. At the general election of 1892 Hereford elected William H. Grenfell as the Liberal M.P. for the city. The 1892 contest, fought mainly on the question of Irish Home Rule brought a close result, Grenfell recorded 1,507 votes whilst his Conservative opponent gathered 1,380. Although elected as a 'Gladstonian Liberal', Grenfell lasted barely twelve months and on 28 July 1893 he resigned ostensibly over bimetalism – the devaluation of the Indian rupee – and the proposed payment of M.P.s, but it was popularly suspected that the true reason for this resignation was Grenfell's change of heart over Home Rule. As a leader in the Liberal *Hereford Times* put it; 'he was elected by the Liberal party to support Mr Gladstone in carrying the Home Rule Bill on well recognised lines of which the retention of the Irish members at Westminster was one of the best recognised of all.' Bimetalism was seen as a smokescreen for Grenfell to change his colours.²⁹

The two candidates for the by-election were this time both seasoned politicians. For the Conservatives, Charles W. Radcliffe-Cooke had been M.P. for West Newington from 1885 to 1892, a fifty-two year old Cambridge graduate, a lawyer who had contributed to the Agricultural Holdings Act of 1883 but was latterly a landowner at the Hellens estate near Ledbury.³⁰ He was faced by the seventy-one year old Joseph Pulley who had made his money as a financier in London, had represented Hereford from 1880 to 1886 and had since retired as a landowner in the county. The background of the candidates outlines the interchange between town and country, business, land and the professions. The successful city middle class retired to the position of a country squire. A Tory described Pulley as 'a gentleman of wealth and influence and deservedly respected by all classes and political parties.' Pulley was a somewhat old-fashioned radical in the mould of Gladstone but as for the current government he had 'found nothing in its policy – either at home or abroad – to weaken [his] allegiance to the great Liberal party or [his] devotion to its illustrious chief.'³¹

The overwhelming issue or 'Great Question' of the campaign was again Irish Home Rule. Grenfell had offered his resignation just as the bill was to go to its third reading in the House of Commons in September and, with the Liberal majority as narrow as it was, the Hereford election developed a national dimension. The Conservatives attracted the Church Defence Association from Ulster, Byron Reid and George Arbuthnot. Joseph Chamberlain was also billed to appear. The Liberals for their part brought in Herbert Gladstone, T.P.O'Connor and Frank Edwards M.P. According to Radcliffe-Cooke Irish Home Rule was the issue to 'threaten the very existence of the British Empire.'³² Speaking for the Liberals, a Mr. Burrell appealed to the voters' boredom by arguing that 'they would agree with him, he was sure, in saying that they had had enough of Ireland and the Irish Question.'³³ The Anglican Reverend Whittingham speaking for the Church Defence Association had come to Hereford to persuade them that Home Rule meant 'Rome Rule' and if once the Unionists lost the seat, it might be difficult to get it back.³⁴ Radcliffe-

Cooke claimed that a new Irish Parliament would bring about the disintegration of the British Empire, a poor move when compared with the recent unification of the German and Italian empires. 'Home Rule, the audience was informed, would mean an annual addition of £2,500 to the taxes of Hereford.'³⁵ However it was the fiscal benefits that the Liberal Pulley stressed, in that the tax-payer would be relieved of the financial burden of Ireland in the form of policing, justice and administration.³⁶ According to Arbuthnot, the victor of 1871 and subsequent M.P. for the borough, 'Mr Cooke, would never let himself become a baronet for letting the Irish people govern themselves and Herefordshire.' He describes Pulley less obliquely as 'a puppy of Gladstone and the Party.' The hero of '71 again went for the disintegration of Empire theme, warning electors to 'think of the wrong, socially and financially, which would fall on Ireland and the Empire if this vile conspiracy for the disruption of the Empire is successful.'³⁷

Chamberlain when he had split from his parent party in the 1880s was well aware of the poor regard in which the average Englishman held the Irish and therefore Home Rule. In a letter to Labouchere he claimed that 'the anti-Irish feeling is very strong with our best friends the respectable artisans and non-conformists.'³⁸ It is this latent, or not so latent, racism that Byron Reid, the former M.P. for Bradford East exploited against the 'assassins' and the 'traitorous rebel Irishmen' and called for 'England for the English.'³⁹

Other issues in the campaign included the temperance and the Local Veto Bill. Radcliffe-Cooke 'believed that the temperance vote in the city so far as it was in existence was going to be given to him. Why, he did not know, for he was a temperance man ... [Although] it was entirely unjust that a man carrying on a business allowed by the legislation should be deprived of his profit and license without compensation...' Teetotalism like Sabbatarianism had started off as a popular movement but it had become in working-class eyes increasingly a symbol of an upper-class dominance as the century progressed. Whatever forms of state intervention the Victorian working class may have welcomed, interference with their drinking habits was not one of them. Radcliffe-Cooke latches on to this when he tells his audience that; 'a great deal of this teetotalism was due to the fact that a large number of rich people ate too much and lived too well and had to go to the German spas where the waters came up from the infernal regions.'⁴⁰ An editorial in the Liberal *Hereford Times* claimed that 'more than the Irish visitors do the Liberals dread the influence of the liquor trade, and the houses are already under surveillance, information having reached the Liberal headquarters that beer and cider, with or without tickets, and with or without money, is to be freely had.'⁴¹ At a Tory meeting Radcliffe-Cooke derided the temperance lobby saying; 'he should not wonder that he found the water purer than the ginger beer they wished to put duty on,' and as for the Local Veto Bill, it was 'a serious interference with the liberty and convenience of the people, besides robbing those who had invested in licensed property.'⁴²

The final major concern of this campaign was the working conditions of the railway workers and the Report of the Parliamentary Commissioners of that year. At a meeting at the start of the campaign the Prime Minister's son Herbert Gladstone denounced Radcliffe-Cooke as an enemy of the working class because of his service on the Railway Service Committee and because he had opposed Board of Trade regulation of working condi-

tions.⁴³ Later T.P.O'Connor spoke of the railway owners as 'iniquitous enough to overwork their men to dangerous illnesses and dangerous accidents.'⁴⁴ Radcliffe-Cooke saw himself as representing the 'independent view' on the Parliamentary Commission and claimed he had had a great deal to do with the report that was the basis of the bill that was due to go to the House of Commons.

In his compendious work on British elections, Henry Pelling notes that Hereford was lost to the Liberals after 1892 as a result of their advocacy of disestablishment of the Church of Wales. Pelling sees this as a principle issue in Hereford as the diocese would be likely to lose income and influence in a number of Welsh parishes.⁴⁵ In this by-election a year into the Liberal government that has disestablishment as a part of its acknowledged programme the issue is non-existent.

e) COMPARING THE CAMPAIGNS

The key battleground issues of 1893 bring out a vocabulary which was not heard in the contest in 1871. The Tories have learnt the language of popular imperialism; appealing to electors that the British Empire is a 'good thing' worth defending. The Liberals seem to have caught on to the notion that the industrial working class is their natural constituency and it is their role to defend it.

The conduct of the campaign and the election also differed between the two by-elections. The 1871 campaign was run on similar lines by both parties. The main thrust of the attack in 1871 came from public meetings and the reports of them in the local press. On the final day of the campaign Arbuthnot went on a tour of the city's pubs to garner working class support. His last call was at the Hop Pole where he addressed 'a well attended meeting composed solely of working men.' Arbuthnot again used this opportunity to gain the support of the workers. The Tories, he said 'sought to place the burdens of taxation on the rich, whilst the Liberals... made any amount of promises to secure the working class vote, but as soon as they got into power did nothing to redress their promises.'⁴⁶

In 1871 the poll itself took place between 8 a.m. and 4 p.m. on Tuesday 28 February at ten booths around the city. The electorate on the day stood at 2,112, of whom only 1,624 voted, a turn-out of 76.8% compared with 86.8% in 1869. The result was a quite convincing majority of 934 over 665 in favour of the Conservative Arbuthnot. According to Martin Pugh 'Victorian elections were expected as a matter of course to be punctuated by excessive drinking, mob action ranging from exuberance to intimidation, an exchange of cash and a judicious application of the "screw".'⁴⁷ He could have found a good example in the case of Hereford in 1871. After the close of the poll both Hayter and Arbuthnot chose to speak to their supporters from their headquarters. However the Conservative rooms were at the Mitre Hotel which faced the Liberal headquarters in the Green Dragon Hotel. At 4 p.m., Arbuthnot 'was cheered by his party and the Liberal party was no less enthusiastic in groans and discordant noises indescribable.'⁴⁸ Flour bags came from the Green Dragon only to be followed by flower pots, mud stones and later a knife and an iron bar. Damage caused by the riot was assessed at between £70 and £100. Fourteen people were arrested, most of whom were unenfranchised workers.

In the post-mortem to the election the Tories praised the intelligence of the working class⁴⁹ whilst the Liberals blamed their own lack of organisation. Hayter in his last speech poignantly declared that 'if we want to win the battle here we must remember that "Strength is Unity".' The Birmingham newspapers blamed the defeat on the idea that the Hereford Liberals had been 'victims of a party job' and therefore 'worked without heart'.⁵⁰ This may have been the cause of the large number of abstentions. It is certainly the attitude of the correspondents to the Liberal newspaper the *Hereford Times* following the election. 'We have beaten ourselves' was the general feeling, whilst comparing their disunity over the candidacy with that of the French army beaten by the Prussians.⁵¹

Unlike the campaign of 1871, the candidates in the 1893 by-election were either courted or were publicly endorsed by active pressure groups. These included the Amalgamated Society of Railway Servants for the Liberals as the only organised group of industrial workers in Hereford, the churches in the form of the Church Defence Association from Ulster endorsed the Conservative and the Methodists the Liberal. The temperance movement backed Pulley and the British Empire Defence Association Radcliffe-Cooke.⁵² This form of pluralist politics is a reflection of the development of the local parties own political organisation in the preceding generation. In 1879 Charles Anthony, a leading Hereford Liberal, had claimed that in 1874 the party had lost the General Election campaign because they were not as organised as the Tories.⁵³ Hence with the development of party membership and machinery from 1877 onwards, interest groups, be they workers, churchmen Unionists or teetotalers, developed in parallel. It is this orderly endorsement of candidates at meetings and in the newspapers that is the basis of the campaign. There was no pre-poll tour of the pubs by Radcliffe-Cooke and the polling day itself seems to have passed without any physical violence. A sign perhaps that the working class were being accommodated within the system and did not feel the need to vent their frustration through rioting.

The result of the poll was a victory for the Conservative of 1,504 votes over Pulley's 1,460. The turn-out was in the region of 95%, the real rush coming when the railwaymen and tanners ('the skinyard men') added their tally to the Liberal vote. However, despite these workers, the Liberals did not remove the majority the Unionists had throughout the day. Abstentions could not be seen as the cause of the Tory victory as in 1871. The *Hereford Journal* celebrated the intelligence and wisdom of the electors whilst the *Hereford Times* in its post-mortem gave a variety of reasons for the Liberal defeat. With the Tories appealing to apparently cross-class issues such as Home Rule and the defence of the empire, the Liberals needed to retain a hardcore of working-class support to hold the borough. The largest group were the railwaymen of between four to five thousand or between twelve and fifteen percent of the electorate and allegations were made that employer's representatives had 'confused and menaced local men.' Alfred Watkins – brewer, photographer, discoverer of ley lines and Hereford Liberal – claimed that 'obstructions' had been put in between the late shift of rail workers and the polling booths. This, along with the claims of "Ulster Gold", a combinations of the 'gold and threats' of the Church of England clergy to Liberal tradesmen and the 'combined action of all publicans,' leads one to believe that "the screw" had not passed out of Herefordian politics.⁵⁴

1) THE PARTY ACTIVISTS

It is possible from the sources to build up some sort of picture of the social composition of the two local political parties in the late 19th century. In the 1870s despite their title of Conservative Working Mens Association and the declaration in the group's rule book that it was interested in 'improving the welfare of the working classes,' the members of the Association are decidedly non-proletarian.⁵⁵ Of the eighty-nine identified, twenty-five (28%) are from the church or the landed classes, whilst twenty (22.5%) may be described as professionals, ten of these being solicitors. Shopkeepers account for a further twenty-nine (32.5%) whilst artisans or skilled workers amount to fourteen individuals (15.75%). There is one further individual who remains unclassified; a coachman. So despite the ambitions of the local party to be of the "working classes," the make up of the elite identified from the sources is very top heavy with the establishment and the non-commercial bourgeoisie.⁵⁶

Religiously, the Conservatives do seem to be quite homogeneous. There are four Church of England priests and two church workers amongst this party elite, whilst all the laymen whose denomination can be ascertained are from the established church. Although some non-conformists voted Tory (six or 18.5% of those non-conformists identified from local church histories and records), no non-conformist is to be found amongst the Conservative activists. Another aspect, which is quite noticeable, is the late-Victorian connection between the Tory party and the drinks trade. The six members of the elite who were either publicans or wine merchants and the party using pubs as venues for Arbutnot's meetings bears out the contrast with the temperate Gladstonian Liberal Party.

The Hereford Liberal Party in the early 1870s seems to be much more diverse. Although it is harder to produce a cross-section of the party because there are fewer individuals who can be successfully identified, it is still possible to illustrate the middle class nature of the organisation. Of the sixty-one identified only 14.75% (9) are from the church or the landed classes, this includes two dissenting and one established church minister. A more significant group are the professionals with 33% (20). Shopkeepers and merchants make up 36% (22) and skilled workers and artisans 13% (8), figures very similar to the Tories. There are two unskilled members of this elite, an ironmonger's assistant and a railway worker. The difference between the two parties seems to be that the Liberals have a tendency towards the professional middle class prevalent in Hereford as a service centre, whilst the Conservatives, even in borough politics have a tendency towards the landed, or at least the gentlemanly, interest. There is but one individual who is involved in the drinks trade with the Liberals – a cider merchant – whilst his presence is perhaps counter-balanced by two owners of temperance hotels.

Religiously the Liberals are much broader affiliations. It has been possible by going through the church records of the early 1870s to build up a group of leading churchmen; deacons, lay-preachers, elders and churchwardens. Within the dissenting churches, the Baptists, the Congregationalists, the Wesleyan and the Primitive Methodists, it is possible to cross-check the churchmen with the political elites to see if there are activists in both groups. This worked well with the Baptists and the Congregationalists, but none of the

twenty-seven leading Methodists identified were active in Liberal politics in the 1870s, indeed none of them appears to have had Conservative sympathies either. This lack of activity may be a result of the lower class Methodists being unenfranchised. Of the thirty-three non-conformists who can be identified as registering a vote in 1871 only six or 18% voted Tory, this leaves the rest as an overwhelming majority of Liberal voters.

Within the Liberal Party elite of sixty-one men, eight can be positively identified within the dissenting elite. However an almost equal number of active Liberals (six) were upholders of the established church. The Hereford Liberal Party was not the dissenting church at prayer. During the campaign of 1871 the Baptist minister the Rev. E.L. Forster asked Hayter if he and the Liberal Party supported Morgan's Burial Bill to allow dissenting ministers to conduct funeral services in parish churchyards.⁵⁷ Although Hayter said he would support the measure, there seems to be a split in the Party over this, as some supporters appear to condone Mr. Forster's exclusion from the churchyards.⁵⁸ Though himself a member of the Church of England, Hayter supported disestablishment in Ireland although would be careful to check the measure in the rest of the country.

The last poll book for Hereford was produced in 1874 and so it is harder to build up a social composition of the electorate in 1893. What can be used are the extensive lists of supporters and individuals at the various party meetings published in local newspaper, and the rather incomplete membership lists for the early 1890s found amongst private papers.⁵⁹ From this we can identify nearly 200 political activists within an electorate of a little over 3000.

Within the Tory group of ninety-two we can separate them into five constituent groups. Group A – professionals and employers, has twenty-three members (25%), whilst Group B – the church and landed, has considerably fewer with eight (8.5%). The largest sections are Groups C – shopkeepers and merchants, and D – artisans, with thirty-seven (40%) and twenty (20%) respectively. Group E – industrial workers and unskilled workers, have an almost negligible four (4.5%). Compared with twenty years before there has been a move away from the first two groups which dominated the party in the 1870s to a more petite bourgeois, urban membership. This is possibly a reflection of the growth in numbers, a larger survey sample, as well as a *socialising* of the party.

The Liberals for their part seem to have encountered a similar phenomena but to a greater extent. The largest groups within the sample of 100 are the middle groups C and D at 31% each. The 'higher' social groups A (16%) and B (9%) show their reduced presence, whilst the industrial workers make up a small but significant 13%. This is a marked change from the 1870s when the Liberal Party was dominated by professionals. The Liberals seem to have been colonised by a more heterogeneous set of activists which is reflected in the diversity of their support.

g) CONCLUSIONS

Despite the notion that class has been recognised as the over-riding influence in politics from the 1870s, it does not seem from this study to have entered the arena of the politics of Hereford to any great extent by the 1890s. Candidates have adopted a language which recognises working people as an important component in the political community

but do not identify with any 'class' interests. What can be seen are two coalitions vying for the support of around sixty percent of the adult males. As Biagini and Reid have put it in connection with the centrality of religion 'coherent thought and rational argument had little relevance in mid and late Victorian constituency politics, since local peculiarities, religious animosities, "fads" and Gladstone's charismatic power were what really mattered.'⁶⁰ However it seems that, in Hereford, the Liberal coalition did not effectively make its mark. In comparison the Conservatives seem to have a cogent ideology. While it is true to say that the Hereford Liberals of this period are more of a cross-class party than their Conservative counterparts they still reflect the service-centre nature of the town at this point, hence an appeal to class would not have had a galvanising effect. A bourgeois, urban Liberal Party such as that in Hereford could not adopt a trade union consciousness as many did in London, Manchester and other big cities,⁶¹ and so failed to make the transition from status politics to class-based politics.

ACKNOWLEDGEMENTS

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Letters of Dr. Henry Graves Bull to Thomas Blashill 1864 to 1885

By JOHN ROSS

Dr. Henry Bull's books and his articles in the *Woolhope Transactions* and medical journals are well written and display evidence of his remarkable powers of observation, and of his extensive biological, historical and literary knowledge. Reports of meetings in the *Transactions* give us an indication of how active he was as an organiser and several articles detail his career and achievements.^{1,2}

Diaries and letters can give us more personal information about an individual than such records; comments are made which would never be made publicly, real feelings about events and other people are expressed and the backgrounds to developments are revealed. It is fortunate that a collection of letters from Bull to a friend has been preserved; these letters tell us a little more about him and his thoughts about his colleagues and the Woolhope Club. He becomes more human.

The architect Thomas Blashill kept the letters which his friend Dr. Henry Bull wrote to him from 1864 to 1885, annotating some of them; there are 157 now preserved in the Woolhope Library. Two-thirds of them were written in the six years up to 1870, the year Bull ceased to be editor of the *Transactions*. It is not surprising that these two men were friends and frequent correspondents; both were enthusiastic about natural history, county history and archaeology, were very active members of the Woolhope Club, each competent in his profession as well as helping with numerous public activities and having many public appointments. They criticise each other's papers in a forthright but often humorous way.

Blashill was born at Sutton-in-Holderness, near Hull in 1830 and was educated in Hull and Scarborough. After some business training he came to Hereford in 1851 to work with an uncle, a land agent and surveyor. He joined the Woolhope Club during its first year and was prominent in all its activities from then on in spite of moving to London in 1854 to study and practice architecture. He worked on many projects in the City of London including the design and execution of the Holborn Viaduct, became a district surveyor and superintending architect to the Metropolitan Board of Works and later to the London County Council: he was concerned with health and safety measures in many projects. He was President of the Architectural Association in 1862 and was considered a pioneer of 'architectural education.' He lectured on carpentry, fire prevention, was examiner for the Science and Art Department at South Kensington, served in the Honourable Artillery Company for forty years and was involved with many other public activities and travelled widely in Europe. He was an enthusiastic botanist. A polymath like Bull.

He contributed a number of papers to the *Transactions* on botanical and architectural subjects and was President of the Club in 1882 and in 1902, three years before his death. We are fortunate that in his annual address in 1902 he reminisced about the early

days, providing information about the founders and foundation of the Club unrecorded elsewhere.

Bull's letters mainly concern the activities of the Club - arrangements for meetings, suggestions and comments on papers for the *Transactions* and his and Blashill's botanical, archaeological and historical excursions and plans. They reinforce the impression that Bull was the driving force behind the Club's activities and publications during these years; he mentions so many outings, publications and meetings concerned with the Club with which he had been or was about to be involved and so many botanical or archaeological excursions he was making for his own interest that it is difficult to see how he had time for his medical work and his many other activities in Hereford. But he is recognised to have been a good, caring and innovative doctor, to have published good medical articles, to have helped with hospital administration and to have taken part in many Hereford City activities as well as bringing up a large happy family - remarkable energy.

He must however have been worried about Club activities interfering with his professional work when he wrote in 1866:

'I am in a fix - in spite of a strong determination to have nothing to do officially with the Woolhope club this year - and having point blank refused overtures for the Secretaryship in place of Mr Lingwood - they have made me President for the year..... I really feel rather provoked at my eminence for I am so much occupied this year.'

Later he was conscious that he had on occasions neglected his professional work; in 1872 he wrote:

'I have only been out with the Club once this year for the days have not suited me, and you must remember that now I have ceased openly to have anything to do with its management, and am not on the executive even, I do not set aside work in the rash way I formerly did!'

His medical work was, of course, very demanding at times:

'A week of intense hurry, worry and fatigue has pretty nearly knocked me up - everybody would die, and all things went crooked - but so it must be sometimes. My back aches now like a woman's....'

and in March 1885, probably just after his return from Rouen in triumph ('to have taken a gold medal for Herefordshire apples in the centre of Normandy is not a thing to be forgotten'), he wrote '....there are so many people ill just now that it is as much as one can do to get home at meal times.'

It is not clear what he meant when he wrote on 15 January 1869 'Having just got over that disagreeable phase in a country doctor's life his 'Xmas letters to his friends' I am delighted to refresh myself in Woolhope history by a few lines to you.'

THE CLUB

Bull was always keen to make the Club a more active and productive organisation. He had supported its formation because of the inactivity of its predecessor the Hereford Literary, Philosophical and Antiquarian Society which he once criticised as 'hearing

almost unceasingly lectures upon things of antiquity; he had urged, without success, the Society to have summer excursions and publications which 'would tell the people in ages to come that it had existed usefully.'⁹

He frequently mentioned, in these letters, his desire to increase and improve members observations, activities and articles and introduce more science into them. Referring to a forthcoming meeting, he writes: '.... we want a little enthusiasm thrown into our sluggish natures'¹⁰ and when advising Blashill about a publication '... only dont expect the Club to help you, its all very well to talk of this but it is moonshine, the Club and its members hardly help anybody to anything.'¹¹

In 1882 he wrote

'There can be no doubt but that science in the Woolhope Club is just now at a very low ebb indeed - with some 160 members real workers may be counted on the fingers (and of one hand I am afraid) - there is not, as far as I am aware, any one single Geologist in the Club worth his salt - even Mr Curley never very strong is now incapacitated by illness.'¹²

He could be scathing about members' physical inactivity

'Garnons won't do for a meet - nor Lady Lift either - unless we are dreadfully put to it - remember 50 people who wont walk above 4 miles in a day - and must dine well - and trains wont suit to bring them back for dinner to Hereford.'¹³

Blashill, when President in 1882, planned a meeting which was criticised by Bull

'too much walking - members wont come for more than 5 miles.....need papers as well as 'country walk' otherwise few will care to come.'¹⁴

Bull was keen to have the Club well known and to compare well with similar organisations; there is a suggestion of jealousy and criticism in these letters when other clubs and associations and their representatives are mentioned. For example, referring to the British Archaeological Association in 1867

'Professor Babbington was here - and a Mr Freeman, a constant writer in the Saturday Review (a very superior fellow indeed - but rather offhand) they have not left a very high impression behind them.'¹⁵

An authority on old maps came to Hereford to study the Mappa Mundi in 1868 and Bull wrote:

'... Mr Wright....seems much too big a man to take any trouble on himself for we small people.'¹⁶

The Caradoc Field Club was mentioned as

'....a smaller and less important Club as we think than the Woolhope....'¹⁷

and the Cambrian

'....they toady too much and could not get a President to their taste - one of information was ready but not one of aristocratic luncheon-going predilections.'¹⁸

'....I dont care 2d for the Cambrian...'¹⁹

'....the Cambrian archaeologists are generally speaking a queer lot...'²⁰

Blashill, in 1902, added a note to one of these letters 'His criticisms of the British Archaeological Association - too well justified - as a member of Council I struggled against evil Councils [sic] for 20 years. It is now useless and I think nearly defunct !'

Bull wished the Club to be well known and respected and was pleased when Blashill, then president of the Woolhope, attended Darwin's funeral in London in 1882 - '....that comes of having a President in London you see...'²¹

PERSONALITIES

Bull set high standards in everything he did and expected others to do the same. He did not criticise others' shortcomings in public but did to his friend.

Sir Roderick Murchison, the famous geologist, has been thought by some to have been an arrogant and insensitive man because of his failure to give due credit to those who worked with or before him^{22,23,24} and it is interesting to find that Bull found him an unappealing character; in a letter of 18 July, 1868 about a fossil which he, Bull, had found and which was in a London museum and which he wished to draw, he wrote

'.... that Old Grumpy conceited Sir Rodk Murchison wont lend it to me....'²⁵

In June 1866, the Rev. Key read a paper 'On the two species of the English oak.'²⁶ A number of people, including Blashill, disagreed with some points he made and wished for the subject to be discussed again. Bull obviously did not appreciate Key's work and, in January 1867, wrote to Blashill 'By no means divulge your line of argument to Mr Key - it is to be an open and free discussion and the more spirit the better. He likes a little opposition and I in particular wish him to get it.'²⁷ A long discussion ('The relative value of the two species of British oaks') took place at the annual general meeting in February 1867 and curiously Bull was not very polite when he reported it in the *Transactions* beginning 'The Rev. H.C. Key who spoke in so low a tone that his remarks were very indistinctly heard, said, so far as we could understand him,....' The subject was vigorously discussed again in March 1868.

Worthington Smith was a competent mycologist and artist and Bull must at least have appreciated his famous drawings for the menus at dinners after fungus forays but nevertheless wrote about his 'almost useless illustrations' in a book about fungi.²⁸

Bull's communications to the Club were often lengthy (giving thanks to Rev. H. Cooper Key for a paper in 1867 he spoke for twice as long as Key) but he could be critical of the lengthy delivery of others. The President of the Club, James Rankin, gave his retiring address on 22 February 1870. On the following day, Bull wrote

'We had a very full meeting yesterday but it was spoilt in two ways first by a museum mania [this refers to a discussion at the AGM about the establishment of the museum in Hereford in which Rankin played a big part] and secondly by an address from the President 1 hour and 10 minutes long!!! about protoplasm and pangenesis to such an extent that made me blush and someone say [sic] that it would do for a preface to Mordaunt and Mordaunt - I am very sorry for both these misad-

ventures for the first will stop our book and the second I shall not be able to get over without giving mortal offence I fear since nobody likes to be asked to suppress half an address and if it isn't suppressed our Volume can't lie on drawing room tables The President's address bored everybody to death...²⁹

He continued to be worried about Rankin's address when he wrote during the next two weeks

'Our president don't like being pulled up short and has sent for his paper! - it is mighty poor in all respects I think and I am only too glad he did not tell me to alter it for him.'³⁰

and

'The president has returned his address with its indecenty [Bull's underlining] removed doubtless but I have not read it - it is too long by half and not so able as I hoped it would have been.'³¹

We will never know what this 'indecenty' was which 'should not be seen on drawing room tables'; there is none obvious in Rankin's lengthy address recorded in the *Transactions*.³² 'Mordaunt v Mordaunt' possibly refers to a case Mordaunt v Mordaunt, Cole and Jackson, 1870, (this is mentioned in Halsbury's *Laws of England* vol. 30, 'Mental Disorder and Legal Incapacity,' for the proposition that 'If a person who is mentally disordered but who knows the nature and quality of his act commits a tort, it is no defence that he does not know what he is doing is wrong').

THE FUNGUS FORAYS

Bull is credited with initiating the Woolhope fungus forays which became famous internationally and which led to the formation of the British Mycological Society. These letters provide some information about the background to the starting of the forays. Bull wrote on 19 August 1867 'I am thinking of suggesting that the Club should publish 3 coloured plates of Edible Funguses - with a paper of course and proper receipts for cooking them - which of course I must manage.'³³ Blashill pencilled a note on this letter 'Beginning of his Fungus enthusiasm'. On 16 September 1867 Bull wrote to Blashill asking him to go to the British Museum and obtain some information from a book by Mrs. Hussey about British Mycology. In this letter he mentions starting the forays

'Lees wants me to have a special meeting for Fungus hunting in October, but I don't think of doing so, certainly not until he will give us his paper - that he has been a long time at work at - on Fairy Rings - which I don't expect he will.'³⁴

Mark Lawley, after seeing this letter, suggested that Edwin Lees, who was vice president of the Malvern and Worcestershire Naturalists' Clubs, was actually the first member of the Club to propose fungus forays.³⁵ Bull later said that he had been indebted 'for such practical knowledge as he may possess on funguses, to Lees and for 'many a pleasant ramble' with him³⁶ and it is likely that together they conceived the idea of forays during their rambles and made more definite plans on 26 March 1868 when Bull read his paper 'Illustrations of the Edible Funguses of Herefordshire.' Fungi really took over in a big way with the first foray on 9 October 1868. It was a remarkable day starting at the Mitre Hotel

in Hereford at 9 a.m. with *fungus* identification, specimens having been brought by members. Then on in a 'well filled coach' for intensive *fungus* gathering in Holme Lacy Park and on Caplar Hill. Back to Hereford in the evening for *fungus* examination followed by *fungus* eating, diluted with soup, fish and kidneys (there is no mention in the *Transactions* of a meal in the middle of the day but abundant sweet chestnuts were munched). After dinner there was *fungus* discussion with two papers by Bull, one by the Rev. J. D. La Touche ('Why We Should Not Eat Funguses'), one by Worthington Smith on fungus spores and finally Lees gave his lengthy controversial paper on Fairy Rings and Fungi which was followed by a 'lively' discussion. No mention in the *Transactions* of the time when members left for home but a comment '....it [the foray] promises to become 'an institution' of the Woolhope Club.'

THE WOOLHOPE CREST AND MONOGRAM

Bull and Blashill, with the aid of this correspondence between them, designed the crest (or 'device' or 'seal' or 'arms' as they, at times, called it) which appears on volumes of the *Transactions* and some other books associated with the Woolhope Club. Bull first mentioned this when writing on 11 December 1866 about his intentions for the coming volume of *Transactions*

'...all bound in crimson cloth, with gilt letters!!! and the Device and Motto of the Club thereon - now what is this to be - think on the matter - it is to be decided at the annual meeting - the Caradoc have a trilobite - others only a monogram with the initial letters of the club - I am for a Device or Motto of our own!'³⁷

Bull was anxious to produce something impressive 'I want to set other clubs a good example.'³⁸ In January 1867, he suggested having a monogram as well as a coat of arms, this was to be used on notices, illustrations in the transactions and notepaper. Frequent letters with suggestions and sketches passed between the two during the next four months. All manner of possible inclusions were mentioned or drawn - mistletoe, insects, water ouzels, stags' horns and eagles as well as the fish, hills, hammer and vasculum which were eventually part of the crest and the monogram. The crest first appeared, with the motto alongside in the *Transactions* for the year 1867, on the page listing the Officers of the Club, and the same volume has the monogram on some of the illustrations.

Bull's last letter to Blashill, two months before his death, sadly indicates his continuing concern about the Club and his fears for the future

'....we want a little more spirit thrown into the Club. What say you to being President again in 1886 or 1887? I should like to have you once more in my day before the Club sinks into history.'³⁹

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ABBREVIATIONS

TWNFC *Transactions of the Woolhope Naturalists' Field Club*

BBL Bull to Blashill Letters

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The *Anglo Saxon Chronicle* for 1055 and Bishop Tramerin of St. Davids

By ANDREW BREEZE

The Welsh destruction of Hereford, on 24 October 1055, provides a sombre passage in the *Anglo-Saxon Chronicle*.¹ Amongst those dying in the aftermath of the attack was an expatriate Welsh bishop. The Abingdon manuscript (C) of the Chronicle says of him, 'In the same year, soon after the raid, Tremerig, the Welsh bishop, passed away; he was Bishop Athelstan's deputy after he was unwell.'² But the equivalent sentence in the Worcester manuscript (D) gives a different name, the scribe here first writing 'Trymerin,' and correcting it to 'Tremerin.'³

Douglas and Greenaway read 'Tremerig' in their translations of C and D.⁴ Garmonsway, more carefully, retained the 'Tremerig' of C and 'Tremerin' of D.⁵ Florence Harmer opted for 'Tremerin' or 'Tramerin' (citing *Chronicon ex Chronicis* attributed to Florence of Worcester).⁶ Swanton now gives 'Tremerig' in his translations of both C and D.⁷

What follows contends that the personal name 'Tremerig' does not exist; that this form in the Abingdon Chronicle is therefore a ghost; that its retention by translators has prevented correct identification of this bishop; and that all future scholars should here read *Tremerin*.

The arguments for this are as follows. The personal name 'Tremerig' is unknown in the Welsh genealogies, saints' lives, and Book of Llandaff, our main sources for early Welsh nomenclature. It can also be rejected on historical grounds. There was a bishop Tramerin of St. Davids who (according to Ralph de Diceto) was consecrated by archbishop Aelfric of Canterbury (995-1005).⁸ A Tramerin also figures in Gerald of Wales' list of bishops of St. Davids.⁹ Since Gerald's bishop comes immediately before bishop Joseph (who died in 1063), it seems likely that it is he who acted as auxiliary to bishop Athelstan of Hereford (though Haddan and Stubbs are wrong in giving Tramerin the name 'Trahaearn,' which does not appear in Gerald's list).¹⁰

Despite chronological difficulties in relating the Tramerin consecrated by Aelfric to the Tramerin of Gerald's list, the upshot of all this is clear. There was a Welsh name *Tramerin*; Gerald's bishop Tramerin of St. Davids apparently acted as auxiliary for Athelstan at Hereford and died in 1055; and (presumably through vowel-harmony) his name was heard by the English as 'Tremerin,' the form recorded in the Worcester Chronicle. As for the origin of *Tramerin*, R. J. Thomas derived it from Latin *Transmarinus*.¹¹ The expression *tra merin*, which appears in the earliest Welsh poetry, certainly means 'across the sea.'¹²

In short, we can be sure that the *Chronicle* reading was *Tremerin*, an English version of Welsh *Tramerin* 'One from across the sea.' The supposed personal name 'Tremerig' can thus be ruled out as a ghost, perhaps due to confusion with Welsh *Meurig* (<Latin Mauricius).¹³

REFERENCES

- ¹ Cf. F. M. Stenton, *Anglo-Saxon England* (1971), 572-3.
- ² The *Anglo-Saxon Chronicle*, (tr.) M. J. Swanton (1996), 186.
- ³ *Two of the Saxon Chronicles Parallel*, (ed.) Charles Plummer (1892-9), i, 186, 187.
- ⁴ *English Historical Documents 1042-1189*, (ed.) D. C. Douglas and G. W. Greenaway (1953), 133, 134.
- ⁵ The *Anglo-Saxon Chronicle*, (tr.) G. N. Garmonsway (1953), 186, 187.
- ⁶ Florence Harmer, 'A Bromfield and a Coventry Writ of King Edward the Confessor,' in *The Anglo-Saxons*, (ed.) Peter Clemoes (1959), 89-103, at 94.
- ⁷ *Op. cit.* in note 2, 186, 187.
- ⁸ *Councils and Ecclesiastical Documents*, (ed.) A. W. Haddan and William Stubbs (1869-78), i, 288.
- ⁹ Gerald of Wales, *The Journey through Wales*, (tr.) Lewis Thorpe (1978), 163.
- ¹⁰ *Op. cit.* in note 8, i, 291.
- ¹¹ R. J. Thomas, *Enwau Afonydd a Nentydd Cymru* (1938), 210-11; *Geiriadur Prifysgol Cymru* (1950), 2435.
- ¹² *Canu Aneirin*, ed. Ifor Williams (1938), xxx, 24, 48; K. H. Jackson, *The Gododdin: The Oldest Scottish Poem* (1969), 107, 108.
- ¹³ Henry Lewis, *Yr Elfen Ladin yn yr Iaith Gymraeg* (1943), 42.

Paper submitted October 1998

A Welsh Etymology for *Kennet* 'Grey Cloth'

By ANDREW BREEZE

KENNET 'a kind of grey cloth' is a rare word. The *Oxford English Dictionary* gives only three attestations of it. The first is from Caxton's *Ovid's Metamorphoses*, a translation finished in 1480 (but not published till this century) which refers to an old man's grey head 'lyke as hit had been of kannette.' The second, from a parliamentary act of 1541, lists 'kenettes' amongst certain Welsh cloths. *OED* also cites 'kenet coloure' for *cendré* in Palsgrave's French dictionary of 1530.

OED derives the word from unattested Old Norman French *canette*, *kenette*, a hypothetical equivalent of rare Old French *chenette* <Latin *canus* 'white, hoary, grey.' Welsh scholars thus cite English *kennet* as giving Welsh *caened* 'a kind of grey cloth; grey, hoary, aged,' even though *caened* predates English *kennet* and is a commoner word.¹

Yet the evidence indicates *OED* is wrong here. English *kennet* surely derives from Welsh *caened*, not vice versa: Norman French *canette* and *kenette* never existed. This is made clear by records for the household of Richard Swinfield, bishop of Hereford 1283-1317, which show that in the winter of 1289-90 he wore 'keyneth or strong cloth, together with a surcoat trimmed with doeskin, hoods of miniver and a mantle.'²

Keyneth in this Latin text from Herefordshire must be a borrowing of Welsh *caened*, itself from Welsh *caen* 'layer, peel, coating' plus nominal suffix *-ed*, and used in the sense 'grey cloth' by the bard Llywelyn Goch ap Meurig Hen (fl. 1360-90).³ In the next century it was used as an adjective 'grey,' so that Guto'r Glyn writes of a grey crag (*craig gaened*) in Gwynedd.⁴ In the 16th century *caened* 'grey' refers to an old man's grey jaws (cf. Caxton's *cannette* of grey hairs); and, finally, the humanist William Salesbury (1520?-84?) and cleric Edmund Prys (1544-1623) both use it of *kennet*, the grey cloth.⁵

The evidence indicates that *kennet* derives from Welsh *caened* 'grey cloth' and not from Norman French. The 'keyneth' worn by Bishop Swinfield of Hereford in 1289-90 and the Welsh 'kenette' of Henry VIII's parliament must both derive from *caened*. In short, like *flannel* (<*gwlanen* 'woollen item'), *kennet* is a Welsh word for a Welsh manufacture. It is testimony for the export from the 13th century to the 16th of Welsh cloth to England, for which some of the earliest evidence comes from Herefordshire.

REFERENCES

¹ T. H. Parry-Williams, *The English Element in Welsh* (1923), 106; *Geiriadur Prifysgol Cymru: A Dictionary of the Welsh Language* (1950-), 383.

² J. R. H. Moorman, *Church Life in England in the Thirteenth Century* (1945), 177.

³ On which *Geiriadur*, 383, is corrected at *Gwaith Llywelyn Goch ap Meurig Hen*, (ed.) D. R. Johnston (1996), 25. For this reference I thank Andrew Hawke of the editorial staff of *Geiriadur Prifysgol Cymru*.

⁴ *Ibid.*, 383.

⁵ *Ibid.*, 383.

Paper submitted October 1998

Reports of the Sectional Recorders Archaeology, 2000

By R. SHOESMITH

In the following report I have once again provided a section for each archaeological group or unit working in Herefordshire in which all their main sites are recorded alphabetically. Sites that have not produced any archaeological evidence are summarized at the end. The reports on some sites may be or have been included in a variety of national journals, but inclusion here is the only simple and straightforward summary for people living in Herefordshire. In each section I have indexed each report by city, town or parish and site name with a six-figure grid reference where appropriate. References and further reading, again where available, are included at the end of each entry. Several refer to internal unit publications, some of which are available in the City Library, others may be consulted in the County Sites and Monuments Record. Where County Sites and Monuments record numbers are given they are prefixed by HSM; Scheduled Ancient Monument numbers are prefixed SAM. The report of the County Archaeological Service is treated separately.

Once again I would like to offer my most grateful thanks on behalf of the members of the Woolhope Club to the staff of the following organisations: Archaeological Investigations Ltd.; Archenfield Archaeology; Gifford & Partners; Herefordshire Archaeology; Marches Archaeology; Monmouth Archaeology; and Worcestershire County Archaeological Service who all willingly provided the information that has made up this report.

GROUP AND UNIT REPORTS

HEREFORD CATHEDRAL

The 1993 New Library Building excavation.

Progress continues to be made in establishing, with help from English Heritage, how to complete the assessment of the skeletal remains from this site.

Audley Chapel.

The Audley Chapel is a five-sided projection built on the S. side of the Lady Chapel in the early 16th century. It is two stories high with the upper floor being approached by a spiral stair in the north-western corner. The two chambers are separated from the Lady Chapel by a fine decorated stone screen, which extends upwards to a balustrade in the upper chamber. It is apparent that the lower chamber has always been used as a chapel, but the upper chamber had no indications of an altar and was probably used as an oratory or singing gallery. An organ was installed in the upper chamber in 1951. It is now proposed to replace this organ with a new one and a detailed report has been prepared.

New Toilets.

Excavations in advance of the construction of new toilets exposed several skeletons which became the subject of a television programme in the series 'Meet your Ancestors.' On 2

August 2000 with due ceremony, cameras and re-takes, the first of the 'ancestors' was reburied in a hole specially dug just outside the toilet block. The remaining 'ancestors' have been buried within the Chapter House. Several interesting facts have emerged from the study:

1. The remains of 10 skeletons were found; one was complete, two almost complete (80%) and the remainder partial.
2. The remains included 5 male, 2 probably male. There were no remains that were definitely female. Several were buried with base metal chalice and paten.
3. The ages at death were approximately:

1	8-9
1	early to mid 20s
1	about 30
2	mid to late 30s to early 40s
1	45+
4	adult (25+)
4. Heights of adults varied between 168.5 and 176 cm. (5 ft. 6 ins. to 5 ft. 9 ins.).
5. One skeleton had his right knee joint almost destroyed, probably due to septic arthritis or tuberculosis.
6. The people represented did not have an easy life style — there was much degenerative joint disease present, particularly in the spine.
7. Four of the bodies showed evidence of trauma — a very high proportion. In two cases there was minor damage to the frontal lobe of the skull; one also had rib fractures and the loss of some of his upper teeth. Deliberate violence is indicated—fighting possibly. One wonders how often medieval clerics got involved in brawls?

Stanbury Chantry.

The Stanbury Chantry on the N. side of the cathedral had its roof replaced. The work involved the replacement of some of the timberwork and a pictorial report is in the cathedral archive.

Chapter House Yard.

The Friends of the Cathedral agreed to finance the landscaping of Chapter House Yard. The proposals had some archaeological implications and a desk-top study was produced in March 2000.

The ground level in the Chapter House Yard was probably lowered in 1850/51 when the grave slabs from around the Cathedral were moved into the Yard. This was the time when the foundations of the Chapter House were fully exposed. It would seem that before this the general level of the Chapter House Yard was considerably higher than now—plans drawn before the mid-19th century show considerable uncertainty about the shape of the Chapter House, but

Havergal's plan of 1881 shows the foundations in considerable detail and also positions all the grave slabs that were then in the Chapter House Yard; a new plan of the gravestones was produced as part of the archaeological survey.

During the landscaping work all the broken and discarded gravestones were placed within the Chapter House and covered with soil to raise the internal ground level. It has now been established that the present upstanding walls were constructed in 1937 on top of the original foundations of the Chapter House to better indicate the plan. The original floor level inside the Chapter House is a little way above the level of the top of these walls, and to reach that level there would have been an approach from the bishop's cloister up a flight of steps similar to the approach to the surviving Westminster Abbey Chapter House. A new photographic record of the exposed surviving walls of the Chapter House and vestibule has been made and two pits for trees were excavated. One exposed an articulated skeleton and the tree was moved by about 0.4 m. to leave the burial *in situ*.

ARCHAEOLOGICAL INVESTIGATIONS LTD.

BARTESTREE, Bartestree Court. (SO 565 411)

Archaeological monitoring of ground disturbances and a Level I (RCHME) photographic survey was undertaken prior to the conversion of a barn that butts the 17th-century farmhouse. The finds recovered were post-medieval in date, consisting of floor tiles and kiln debris, probably from the local tile works. (Mayes, S.R. & Rouse, D., (Hereford Archaeology Series, henceforth HAS 457B)

HEREFORD, Bath Street. (SO 513 401)

An excavation within the medieval suburb, just outside the medieval town gate, identified a mid-to-late 12th-century tannery. A series of timber-lined, clay-lined and gravel-filled pits within a structure was recorded. External to the structure was an associated oven. During the 13th century the structure and pits were relocated to the opposite end of the site, with the pits of the earlier phase being backfilled with domestic and tannery waste. By the mid-14th century tanning had ceased and the structure went out of use. A hiatus till the 17th century is reflected by a 1.5 m. thick soil horizon overlying the earlier activity. During the 17th century the site was re-utilised and boundaries were established which differed in alignment from those of the 12th to 14th century. (Vyce, D., HAS 495)

HEREFORD, Castle Cliffe. (SO 512 396)

Monitoring of groundwork within the garden of the late-13th-century Old Water Gate House identified its early foundations and an original stone threshold to a now blocked in entrance. (Lockyer, D., HAS 482)

HEREFORD, Cathedral School. (SO 512 397)

Archaeological monitoring and a borehole survey prior to a proposed development identified deposits that indicate that the northern section of the castle moat extended within the perimeter of the site. (Lockyer, D., HAS 476)

HEREFORD, County Hospital. (SO 515 403)

Archaeological monitoring of groundworks during the installation of a gas main encountered a small section of a late medieval surface, representing the N.E. route from the medieval town. The site lies within the area of the 12th-century St. Guthlac's Priory. (Vyce, D., HAS 474)

HEREFORD, County Hospital. (SO 517 403)

Nine trenches were excavated in advance of construction work, with the aim of establishing the nature and depth of any archaeological deposits in order to facilitate *in situ* preservation. The area under investigation occupies part of the site of St. Guthlac's Priory, after it was refounded in 1143 A.D. Archaeological and documentary research over the past twenty years have failed to establish the position of anything other than the burial ground and a wall considered to represent its perimeter (HSM 26278).

The excavation established the location of a total of twenty-five burials of medieval date, which were analysed and left *in situ*. Two parallel ditches were recorded and interpreted as the north-western boundary of the monastic burial ground. Two walls, considered to be associated with the priory, were also recorded. The larger wall was associated with two surfaces and possibly represents part of one of the priory buildings. The other wall is interpreted as representing a boundary. Dating evidence was scarce, although roof stones, glazed roof tiles and worked stone are presumed to originate from the priory buildings. (Crooks, K., HAS 485)

HEREFORD, The Former BP site, St. Martin's Street. (SO 508 393)

An evaluation at the former BP site, prior to the construction of a new residential development, revealed deposits and features of significance. The site lies within the southern suburb of the medieval town and fronts onto the road leading towards the medieval Wye Bridge. Archaeological deposits and features of medieval date were found to be well preserved across the site, with the highest density concentrated towards the road frontage. A small quantity of bone, medieval pottery and roof tile was recovered. The extent and nature of the southern medieval suburb was previously unknown. The site is therefore significant as the evidence suggests that during the medieval period residential buildings fronted the approach road to the town in this area. (Jones, E., HAS 469)

HEREFORD, Wye Bridge approaches. (SO 508 395)

A watching brief was undertaken during resurfacing and cable laying along the 15th-century Wye Bridge. A post-medieval cobbled surface at the southern end of the bridge was the only significant deposit encountered. (HSM 21) (Eisel, J. & Rouse, D., HAS 454)

KNILL, The Parish Church of St. Michael and All Angels. (SO 285 601)

Archaeological monitoring during restoration work identified the foundations of the 13th century tower. A burial within a coffin was partially exposed within the church below the

archway to the tower. As a result of the limited depth of excavation the burial was left *in situ* and was not sufficiently exposed to determine age or sex. (Arthur, C., Boucher, M., & Vyce, D., HAS 451)

No features of archaeological significance were encountered during the following excavations and watching briefs:

CANON FROME, Hereford Lodge. (SO 636 431) (Jones, E., HAS 471)

CODDINGTON, Coddington Court. (SO 723 430) (Mayes, S., HAS 480)

FOWNHOPE, Land Adjacent to Fownhope House. (SO 579 345) (Rouse, D., HAS 466)

HAMPTON BISHOP, Rectory Road. (SO 556 382) (Vyce, D., HAS 449)

HAMPTON BISHOP, Land Adjacent to Church Farm. (SO 5578 3790) (Crooks, K., HAS 452)

HEREFORD, Eign Gate. (SO 507 240 & SO 508 240) (Lockyer, D., HAS 487)

HEREFORD, Gaol Street Clinic. (SO 513 3 99) (Lockyer, D., HAS 468)

HEREFORD, St. James's Parish Hall. (SO 517 396) (Mayes, S.R., HAS 455)

LEA, Crown Inn Barns. (SO 662 218) (Mayes, S. R., HAS 470)

WHITBOURNE, Linceter New Road. (SO 691 574) (Crooks, K., HAS 459)

WEOBLEY, Burton Gardens. (SO 405 514) (Rouse, D., HAS 448)

ARCHENFIELD ARCHAEOLOGY

HEREFORD, Commercial Rd. (SO 514 402)

In August 2000 a borehole survey in the car park behind the old KwikSave supermarket in Commercial Road revealed the corner of the early-19th-century chapel.

The frontage of the present site reflected the nature of the street and had a mixture of residential and retail uses in the 19th century when it consisted of five small properties. At various times they included usage as lodging houses, a butcher's shop, a tailor's shop and the workshop of an upholsterer as well as private houses.

In 1837 the Zion Baptist Chapel was constructed on land to the rear of the street frontage properties. The foundation stone was laid by Edward Francis, the pastor, and the chapel was opened for worship on Good Friday, 13 April 1838. Part of the garden in which the chapel had been constructed became a burial ground, which remained in use until non-conformists could be buried in parish burial grounds.

The site was sold in 1955 when a report mentions the removal of 'handsome tombs and gravestones.' Further archaeological work will be conducted at the site before the construction of the new extension to the building.

HEREFORD, 58 Commercial Rd. (SO 514 402)

The four-storey steel-framed building, at the front of the property was erected as a furniture warehouse for Messrs. Greenlands at the beginning of the 20th century. The basement,

ground and first floors of this building were to be converted into an inn—the Litten Tree; the upper floors being transformed into accommodation units.

T.A. Building Solutions commissioned a programme of archaeological monitoring and recording in response to a planning application to construct a new two-storey extension to the rear of the main building. An early stage in the project entailed the demolition of extensive out-buildings including a row of mid-19th-century terraced cottages called Hop Bine Place. The fieldwork took place during May 2000. The removal of gravel, brick and stone, which formed the early-20th-century yard, exposed what appeared to be a medieval garden soil into which several pits had been cut. There appeared to be no disturbance of the medieval archaeology apart from truncation caused by a general lowering of the ground surface. Apart from where they would have been disturbed by the construction work, the pits were left *in situ*, but where they were excavated, animal bones, pottery and samples of soil were recovered. The evidence suggested that the pits were 12th or 13th-century rubbish pits dug to the rear of street-front housing. Horn cores from the pits suggest that the manufacture of horn utensils may have been a nearby industry. (HSM 30348) (Pikes, P.J. & Sherlock, H.D., AA/00/9).

ROWLSTONE, Coedy Geifr & Lakes Wood. (SO 383 002)

In October 2000 a rapid field survey was made of these two pieces of woodland following a request from the Marches Woodland Initiative. Both were found to be potentially of ancient origin and show evidence of coppicing until relatively recent times. Species such as small leaved lime were found in parts of the site, which may indicate that these areas have been woodland continuously since prehistoric times. Some evidence of quarrying, probably for limestone, was recorded, and two large limekilns were surveyed photographically. Both woods are very overgrown and the potential for further archaeological features is a distinct possibility. (Pikes, P.J., & Sherlock, H.D., AA/00/12)

No features of archaeological significance were encountered during the following excavations and watching briefs:

WEOBLEY, Dairy Farm. (SO 401 518) (HSM 30643) (Pikes, P.J. & Sherlock, H.D., AA/00/18)

WEOBLEY, Parkfields. (SO 402 519) (HSM 30644) (Pikes, P.J. & Sherlock, H.D., AA/00/19)

GIFFORD & PARTNERS

DINEDOR, Rotherwas Royal Ordnance Factory

In 2000 Gifford & Partners carried out a Conservation and Management Study of the former Rotherwas Royal Ordnance Factory, now an industrial estate, on behalf of Herefordshire Council. The study was commissioned as a first step in realising the full potential and significance of the site. Small pockets of the site had already been built upon to accommodate the industrial estate, but large tracts had lain undisturbed since the end of the Second World War.

The study area originally formed the site of Rotherwas manor. Rotherwas is known to have been in existence from at least the time of Edward the Confessor (1042-1066). Several

families owned the property until the 15th century when it was inherited by the Bodenham. The chapel on the site contains 14th-century masonry and was taken over by the Ministry of Works in 1928. A mansion—Rotherwas House—is known to have existed on the site from the 16th century. The house was altered and extended in the 18th century, from which period the surviving stable block and a barn date. In 1912 the house and estate were auctioned. Rotherwas Park (which may have been a medieval deer park surrounding the house) was bought in 1916 by the Ministry of Munitions to build the Ordnance Factory.

The project started out as a Historic Study associated with a desk-based assessment, but developed into a Conservation and Management Study to be used for development purposes. The buildings were recorded to RCHME level 3, and comparisons with other First and Second World War buildings noted. The significance of the site and its individual components were assessed according to national guidelines, to allow comparability with other sites. The guiding principle of retaining certain groups of linked structures was used, in order to retain the overall scale and rhythm of the site so as to produce an effective snapshot of the processes undertaken. Following this, guidelines have been produced for the management of the archaeological and historical remains at Rotherwas.

MARCHES ARCHAEOLOGY

ABBEY DORE, Dore Abbey. (SO 387 305)

In 1998, four trenches were excavated at the W. end of the church to establish the position of existing drains. They were found to lie 1.2 m. from the wall at a depth of between 0.35 m. and 0.4 m. below ground surface. During this evaluation no deposits of archaeological significance were seen. Further evaluation trenches and some building recording took place in 1999. Some stone footings were seen in drainage trenches and the ground level from the time of the dismantling of the main body of the church in 1634 was recognised. Little else of archaeological significance was seen, though some tile fragments were recovered from the area of the sacristy, no new forms were found. (Appleton-Fox, N., Marches Archaeology Series henceforth MAS 109).

BYFORD, The Church of St. John the Baptist. (SO 397 429)

Drainage works involved the digging of a soakaway N. of the church with two drain runs leading to it, a drain run from the S. roof round the E. end of the church and the lowering of the soil level on either side of the porch. In the majority of the trenches nothing of interest was seen. The soils were typical of those found in graveyards and a certain amount of disarticulated bone was encountered.

However, a ditch running E.-W. appears to pre-date the 12th-13th century, probably by a considerable period based on a stratigraphic relationship with a grave cut. Outside the churchyard, the ditch survives as an earthwork running down to the pond, and this was still in use to take the run off from the church roof until the present works. It may be that the ditch was dug to act as a drainage trench for the church or perhaps as a boundary. It may pre-date the church itself, and be associated with pre-Conquest activity. A series of earthworks in the fields imme-

diately around the church (HSM 1770, 1774) are interpreted as medieval - however, this has yet to be verified by investigation. Unfortunately in the short length of the ditch exposed no datable finds were recovered to show which is the correct interpretation. (Appleton-Fox, N., MAS 165)

EARDISLEY, Land on the east side of Church Road. (SO 321 492)

A watching brief was carried out associated with the development of fourteen houses by Virgin Western Limited. Despite extensive damage by ploughing from the 17th century onwards evidence survived of the frontage area having been used as dwellings in the medieval period. Parts of at least two medieval buildings with stone footings were excavated, but the ground plans were not fully identified. A hearth associated with one of the buildings was excavated. Further N. was the stone footings of a wall interpreted as a property boundary between two tenement plots. At the N., slightly behind the frontage, there had been extensive pit digging. Further E. the archaeology suggested that the area has always been open ground, presumably agricultural, and a field boundary was identified following the course of a major boundary to the N.

The medieval archaeology of the site is indicative of domestic settlement in a village or town, with an agricultural area beyond the built up area. The project therefore calls into question the 'urban form' of Eardisley as defined by the Central Marches Historic Towns Survey which stated that this area lay outside the settled area. (Stone, R., MAS 164)

HATFIELD, St. Leonard's Church. (SO 596 595)

The insertion of new drainage around the church uncovered an alignment of stones which may represent footings for a porch over the blocked N. door. A single sherd of medieval pottery was recovered together with a small quantity of post-medieval pottery. (Appleton-Fox, N., MAS 139)

HEREFORD, 4 St. Martin's Street. (SO 508 395)

The only feature of archaeological interest was a pit which produced pottery of medieval date. It was sealed below a thick layer of modern disturbance which produced 20th-century material and appeared to have been derived from deliberate levelling of the site in preparation for its most recent use. (Appleton-Fox, N., MAS 140)

HEREFORD, Gwynne House. (SO 509 397)

A programme of archaeological works was undertaken associated with refurbishing work on Gwynne House and the nearby warehouse. Initially two evaluation trenches were excavated within the warehouse. These showed that any levels likely to be affected dated to no earlier than the 18th century. Underpinning work on the house itself necessitated the digging of pits up to 2 m. deep. These showed that the upper levels had been heavily disturbed. The lower levels consisted of damp peaty soils which produced well-preserved leather and timber piles supporting early walls and some possibly representing an early trackway. Fragments of medieval

pottery also came from the lowest layers seen. No structures were encountered that could be securely dated to the medieval period. (Appleton-Fox, N., MAS 152)

LEOMINSTER, Croft Castle. (SO 450 655)

The excavation of a trench for the laying of a new water pipe at Croft Castle uncovered a feature that was interpreted as a ditch, aligned N.-S. Although no dating evidence was recovered from the fill of this ditch a sample of charcoal was taken which could be radiocarbon dated. It is provisionally suggested that this ditch is part of an Iron Age/Romano-British field system perhaps similar to the one identified on Bircher Common to the E. It could also be associated with Croft Ambrey hillfort which is sited to the N. It is likely that features associated with this ditch exist nearby and any change in agricultural practices could possibly damage or destroy the ditch and any other associated features. The trench also crossed seven sites that are registered on the local Sites and Monuments Record as sites of archaeological interest but no new information about these sites was gained. (Wainwright, J., MAS 120)

LEOMINSTER, Industrial Estate Access Road (SW). (between SO 496 576 & SO 503 579)

The excavation of eight evaluation trenches along the proposed route uncovered a series of features that were cut into the natural soils, these were interpreted as ditches and pits and possibly post-holes. One sherd of Romano-British pottery was recovered from the fill of one of the ditches. The features excavated cannot be securely dated but it is possible that these ditches, pits and possible post-holes are contemporary and represent settlement or some sort of activity during the Romano-British period. However, with such scant evidence these features could date from another period. Above these features was the post-medieval subsoil and topsoil. (Wainwright, J., MAS 125)

LEOMINSTER, The Old Priory. (SO 499 593)

A programme of archaeological works revealed a sandstone foundation and a demolition or construction dump which may have been associated with the claustral buildings of the medieval Benedictine priory, perhaps the warming room. Quantities of medieval glazed floor tile excavated from across the site, particularly from the gas trench, indicate that high status medieval buildings existed on the site. The site was levelled, probably when the workhouse was built in the 19th century, and the ground was further disturbed for the construction of the hospital in the 20th century. Elements of the structure of the standing buildings were recorded when plaster was removed from the walls, enhancing the recording undertaken in 1979-80. (Wainwright, J. & Appleton-Fox, N., MAS 154)

MICHAELCHURCH, St. Michael's Church. (SO 522 255)

An area of collapse in the chancel of the church of St. Michael was excavated under faculty jurisdiction. This revealed ground that had been disturbed by earlier burials and the base of a narrow wall which is thought to be an earlier attempt at consolidation of the floor in the post-

medieval period. Disarticulated human bone, late medieval and post-medieval pottery were recovered. (Wainwright, J., MAS 112)

MUCH MARCLE, The Churchyard Cross of St. Bartholomew's Church. (SO 657 327)

A watching brief was associated with conservation work on dismantling the 15th-century churchyard cross and the re-bedding of the structure. An earlier course of stone which forms part of the base of the monument was uncovered. Two grave slabs, one of which probably dates from the 13th century, were reused within the build of the cross and the substantial core made up of worked stone was possibly surplus stone from the building of the church tower. Tradition has it that the tower was constructed from stone taken from Mortimer's Castle, which is 50 m. N. of the church. (Wainwright, J., MAS 142)

WEOBLEY, Weobley Primary School. (SO 405 512)

An evaluation excavation comprising four trenches was carried out. The area lies some 200 m. to the S.E. of Weobley Castle and the medieval town. In the 19th century the area was an enclosed field. The evaluation indicated that the area was probably once largely occupied by ridge and furrow which may indicate an earlier 'unenclosed' field system. There were no other traces of human activity. The ridge and furrow system produced no dating evidence but was probably created to aid drainage of the fairly heavy, silty clay soil. (Tavener, N., MAS 148)

WIGMORE, Land adjacent to Oakley House. (SO 414 690)

The excavation of foundations for two houses was watched and evidence was found for an earlier house, dating from at least the first half of the 16th century, having occupied the site. Several pits were also seen just to the N. of the early house. Only one of these produced material of medieval date. It is possible that these pits represent the backland activity associated with the house. (Appleton-Fox, N., MAS 129)

No features of archaeological significance were encountered during the following excavations and watching briefs:

HEREFORD, 2-3 Union Street. (SO 512 400) (Appleton-Fox, N., & Jeffery, S., MAS 147)

LEOMINSTER, 58 Dishley Street. (SO 494 589) MAS 149)

LEOMINSTER, Industrial Estate Eastern Access Road. (between SO 503 579 & 507 585) (Wainwright, J., MAS 134)

LEOMINSTER, The Old Prior Cupboardy. (SO 499 593) (Appleton-Fox, N., MAS 141)

MADLEY, Madley Primary School. (SO 419 388) (Appleton-Fox, N. & Wainwright, J., MAS 151)

PEMBRIDGE, Land adjacent to Suckley Lane and West Street. (SO 389 580) (Stone, R., MAS 116)

STRETFORD, The Church of St. Cosmos and St. Damian (SO 444 557) (Nash, A., MAS 155)

MONMOUTH ARCHAEOLOGY

ROSS-ON-WYE, 33 High Street (SO 599 241)

Mr. Ian Power commissioned Monmouth Archaeology to carry out a programme of recording during redevelopment and excavations for services in the lane to the High Street. Iron slag surfacing of the lane (post-medieval) sealed a humus believed to prove that this area of the town was agricultural or horticultural land during the Middle Ages and later. The only important discovery was a fine quartz-tempered sherd believed to be a fragment of a thumb crucible for precious metal working which matches 12th or early 13th-century examples from Monmouth.

No features of archaeological significance were encountered during the following excavations and watching briefs:

WHITCHURCH, Yew Tree Farm. (SO 457 176)

An evaluation was carried out for Mr. and Mrs. Hicks at Yew Tree Farm, Whitchurch during June 2000. Only a few sherds of post-medieval pottery were recovered.

WORCESTERSHIRE COUNTY COUNCIL ARCHAEOLOGICAL SERVICE

WELLINGTON, Medieval water-mill. (SO 510 480)

A team working at Wellington Quarry have uncovered the remains of one of the earliest medieval water-mills yet to have been identified in England (Pl. XI). The work was funded by Lafarge Redland Aggregates and formed part of the long term salvage recording project at the quarry which is being undertaken in close co-operation with Herefordshire Archaeology.

As part of the ongoing archaeological project, a constant watching brief is maintained during every phase of site stripping and it was during this work that the mill was uncovered in August 2001. With the co-operation of Lafarge, under a previously agreed contingency provision, operations were temporarily moved to another area of the quarry to allow excavation of this important find.

The remains of the mill comprised a well preserved, rectangular timber structure constructed from substantial oak beams and set into a large clay-lined pit. Fragments of several large millstones were also found and, although the upper elements of the structure had been robbed, sufficient evidence survived to indicate that the large beams probably formed the base of the frame for a vertical water-wheel.

Preliminary dating of a couple of the timbers, using the technique of dendrochronology (tree-ring dating), has indicated that the mill was probably built sometime during the first half of the 8th century A.D. Although charters and other documents indicate that mills were commonplace in the medieval landscape, only a handful of early water-mills have been excavated. Only two comparably early examples of vertical wheeled mills have been identified to date, these being the late-7th to early-8th-century mills found at Old Windsor in Berkshire and the mill recorded at Worgret, Dorset.

This discovery raises some interesting questions about early medieval water-mill technology. Although both horizontal and vertical wheeled mills have been found of an early date, it has often been assumed that initially horizontal mills were more common because they use a simpler technology which does not require complex gearing to transfer the power to the millstone. Now the discovery of a vertical wheeled water-mill of such an early date at Wellington, along with the similarly early examples from Old Windsor and Worgret, challenges this assumption and raises important questions about the character of the earliest medieval mills in England.

HEREFORDSHIRE ARCHAEOLOGY

The county archaeological service contributed to a number of field projects and initiatives in 2000, several of which continued programmes that had been started in 1999. For instance, Herefordshire Archaeology staff supported the Malvern Hills AONB Archaeological Survey, through surveys using Global Positioning by Satellite technology to map historic features in woodland. The Historic Landscape Characterisation project continued, with the completion of the initial mapping of character areas, and the beginning of documentation. The Sutton field project was continued with a further exploratory season of survey and excavation.

Partnership projects also maintained momentum, as with the Woolhope Club's Millennium Air Survey. Support from Herefordshire Archaeology for this project involved purchasing copies of prints for the county Sites and Monuments Record, and extended also to providing targets and interpreting discoveries.

Other initiatives included a rapid survey of early Christian activity in the county. This work was carried out by Keith Ray, assisted by Tim Hoverd, in the early months of 2000. The survey firstly reviewed the evidence for Romano-British Christianity. This traced two relevant finds from Kenchester and its environs: a strap-end bearing Christian motifs, and a fragment of a lead tank. The survey also identified as probably of Christian origin, a stone frieze depicting figures at prayer, which has become incorporated into the fabric of the church at Upton Bishop.

Next, evidence for early post-Roman British Christianity in the county was traced. The location of possible monastic sites at Llanveynoe and Bredwardine is of particular interest. The archaeology of later first millennium ecclesiastical sites remains remarkably elusive. To check previous records and suggestions, a total of thirty-two churches were closely examined. The presence of the Anglian church in the county is marked by Saxo-Norman building traditions, but traces of some earlier monuments do apparently survive. One example consists of the monastic cross fragments embedded in the walls of the church at Cradley.

A management review of the evidence for medieval towns in Herefordshire was also carried out in 2000. This aimed to assess in outline the current understanding of the nature and development of the mostly abandoned or shrunken medieval settlements that can in some way or at some time be regarded as having been urban in character. Seventeen of the places concerned were the subject of Assessment Reports in the Central Marches Historic Towns Survey carried out in the mid-1990s.

From among twenty-one documented medieval market centres, it was concluded that three settlements, Brampton Bryan, Lyonshall and Much Cowarne, had sufficient evidence to

indicate that they were long-lived urban settlements. At Lyonshall extensive intact earthworks of the former urban settlement have been noted. A further eight settlements have good claims to have been towns that failed soon after their foundation. The remaining ten places reviewed are best regarded as medieval market villages.

Herefordshire Archaeology also maintained its high profile in public events throughout 2000. The 'Search for Offa's Palace' arts and archaeology event was held at The Courtyard Theatre in March. Events were organised also for West Midlands Archaeology Week in June and the National Archaeology Days in July. Tours of the Sutton investigations took place in July, and the Annual Symposium on Archaeology in Herefordshire was held in November. The ongoing monthly historic landscape walks once again provided many new site discoveries, with those at Hamnish Clifford, Canon Pyon and Kilpeck proving the most productive in 2000.

(Ray, K., 'Archaeology and the Three Early Churches in Herefordshire', pp 99-148 in Malpas, A., *et al*, (eds), *The Early Church in Herefordshire*, Leominster Historical Society, 2001; Ray, K., *Medieval Towns in Herefordshire: a management review*. Herefordshire Archaeology Report henceforth HAR 20; Sites in Herefordshire 2000, HAR 28).

ALMELEY, Woonton, castle site. (SO 357 524)

The earthwork remains of a small castle were noted by Paul Wood, a local archaeologist, approximately 600 m. S.E. of Woonton. The site has been heavily ploughed in recent years and is currently under pasture. However, enough of the earthworks survive to ascertain the castle mound, possible moat and outworks (HSM 31114). (Hoverd, T., & Ray, K., HAR 28).

BIRLEY WITH UPPER HILL, Ramshill. (SO 475 537)

An aerial photograph by Chris Musson for the Woolhope Field Club's Millennium Air Survey indicates that a small hillfort may be located on the summit of Ramshill at Upper Hill. The photograph shows a single ditch following the 140 m. contour with an in-turned entrance in its south-western side. This conforms to a wider pattern of the location of such forts in Herefordshire, since its close proximity to Ivington Camp indicates that the two comprise an associated pair (HSM 31080). (Hoverd, T., & Ray, K. HAR 28).

BISHOPSTONE, Hoarstone. (SO 415 435)

During a site visit to the area, it was noted that the 1841 Tithe Map records two adjacent fields as 'East Hoarstone Field' and 'West Hoarstone Field.' This name is indicative of the presence either of a standing stone in the vicinity, or, perhaps more likely in reference to similar such named locations in Gloucestershire and Oxfordshire, the former presence of a chambered tomb here. (HSM 31081) (Hoverd, T. & Ray, K. HAR 28).

BREDWARDINE, St. Andrew's Church; enclosure. (SO 335 445)

The church at Bredwardine unusually encompasses three changes of orientation from its nave through to its 'extended' chancel. During survey work for the millennium study of 'early

church' sites, a visit was made to inspect the building. The changes are explicable when it is appreciated that the furthest E. of the series of structures, now the chancel 'extension', was once a separate building. The Taylors were the first observers who, during their study of the survival of Saxon fabric in early church buildings, noted the early fabric of this structure. What is now the nave was also once a separate structure. This possesses unequivocally Romanesque features. The two structures were apparently only later in the medieval period conjoined with a structure that also now encompasses the tower.

An earthwork enclosure has been noted comprising an earthen bank surrounding the crest of the ridge on which the church is located. The enclosure extends northwards from the church for approximately 150 m. and is approximately 50 m. wide. This feature appears to enclose the church and churchyard at its southern end suggesting some form of early monastic enclosure. The latter idea is supported by a reference to a site identified by Copplestone-Crow as Bredwardine in one of the earliest of the Llandaff charters. (HSM 1555; 31118) (Hoverd, T. & Ray, K HAR 28. See also, K. Ray, 2001, 'Archaeology and the Three Early Churches in Herefordshire', pp 99-148 in A. Malpas *et al*, *op.cit.*).

BRILLEY, Fernhall, deserted settlement. (SO 278 515)

This National Trust farm is adjacent to and north-eastwards from Cwmmau Farm, and is sited next to a previously recorded, scheduled motte, (HSM 5582, SAM 091). The deserted settlement comprises a series of well defined, and some less well defined, earthworks N. of the farm, and extending along a paddock towards the motte. This appears therefore to constitute the rare survival of a settlement in direct association with its earthwork and timber castle. (HSM 31082) (Hoverd, T. & Ray, K. HAR 28).

CANON PYON, circular enclosure. (SO 447 490)

A circular earthwork enclosure has been noted approximately 350 m. S.W. of the present church at Canon Pyon. The circular feature extends across a small stream and is defined on its southern side by a slight curving ditch visible in pasture in 2000. A feature marking the rest of a circular enclosure is only faintly traceable in arable to the N. of this stream. It is inferred that there was once an enclosure here approximately 50 m. in diameter that was subsequently bisected by the shifting course of the stream. It is possible that this represents an enclosure for an early church or 'Llan,' and place-name evidence recording the presence of a British community here, through to the 11th century, would seem to support this possibility. (HSM 31083) (Hoverd, T. & Ray, K. HAR 27).

CANON PYON, dyke. (SO 447 494)

A cross-valley dyke has been noted running E.-W. between Pyon Hill (SO 455 496) and Butthouse Knap (SO 439 491). This appears to be a continuous feature although it is masked by alluvium or obliterated by subsequent land uses, in the valley bottom. It has a ditch on its S. side, and survives best immediately N. of Court Farm. (HSM 31084) (Hoverd, T. & Ray, K. HAR 27).

CANON PYON, round barrow. (SO 4470 4965)

The circular earthwork remains of what is provisionally interpreted as a round barrow have been noted approximately 500 m. to the N.E. of Canon Pyon Church. The feature is located 40 m. to the E. of the parish boundary, and is approximately 0.5 m. high and 20 m. in diameter. Traces of field lynchets are visible up-slope and eastwards in the same field. (HSM 31085) (Hoverd, T. & Ray, K HAR 27).

CRADLEY, Ridgeway. (SO 714 479)

In 1991 aerial photography revealed a rectangular, ditched enclosure at Ridgeway, Cradley. The enclosure was orientated N.W. / S.E. and measured approximately 80 m. long and 60 m. wide. It was located on the crest of the ridge with open views to the Warwickshire Avon Valley in the E. and the mountains bordering the upper Wye Valley to the W. Its size, shape and location suggested that this feature was a Roman marching camp, similar to that at Tedstone Wafer. The site came to the attention of Herefordshire Archaeology staff during preliminary discussions concerning the erection of a telecommunications mast nearby. There was also concern about the preservation of the monument as the fields within which it lies are subject to regular ploughing and have been planted with potatoes in recent years. This may well have accelerated erosion of certain parts of the monument.

In February 2000 a 1.5 m. wide and 7 m. long trench was excavated by hand across the ditch, close to its northern corner, to establish its form, function, date and survival. No dating evidence was forthcoming, but this excavation revealed a steep sided 'V' profile ditch. The ditch as surviving was approximately 2 m. wide at its widest point and 1 m. deep. Later in the year, a geophysical survey was undertaken to locate the ditch accurately prior to excavation. This suggested that the S.E. and S.W. sides of the enclosure had suffered substantial erosion. In early November, two trenches were excavated, the first measuring 10 m. by 2 m. and sited to assess the survival of any internal features, and the second 5 m. by 2 m. designed to cross the ditch. Two truncated pits were encountered within the larger trench and a fragment of Iron Age pottery was recovered from one of these pits.

In the second trench the ditch was far better preserved than the geophysical survey had indicated was likely. It survived as a rock cut feature to a depth of 2 m. below the present ground surface (FIG 1). The ditch was 3 m. wide at its widest point and similarly of 'V'-shaped profile. Over seventy sherds of Iron Age pottery were recovered from the 2 m. wide section excavated, suggesting that there was intensive occupation nearby (pottery was present in all fill deposits). It appears that the ditch was purposefully backfilled, first of all with its bank material and then with local soil and domestic / industrial waste. The ditch was then sealed by a working surface (possibly for smelting metal), represented by a dense ash spread with clay lenses. Both of these kinds of context produced sherds of Iron Age pottery. A fragment of copper alloy and other pieces of copper working debris were recovered immediately beneath this working surface. (HSM 10470, 31076, 31077, 31078) (Hoverd, T. HAR 30).

CRADLEY, church: cross fragments. (SO 736 471)

Several fragments of an early Christian stone cross have been noted in the standing fabric of the parish church at Cradley. The piece that has received most notice in the past is what is

identified as a frieze with crockets in alternating directions built into the N. wall of the tower. However other fragments, built into the S. wall of the chancel, deserve closer inspection. The various Cradley fragments are similar to those from an 8th-century cross from St. Andrew's Church, Wroxeter, in Shropshire. (HSM 31119) (Hoverd, T. & Ray, K HAR 28)

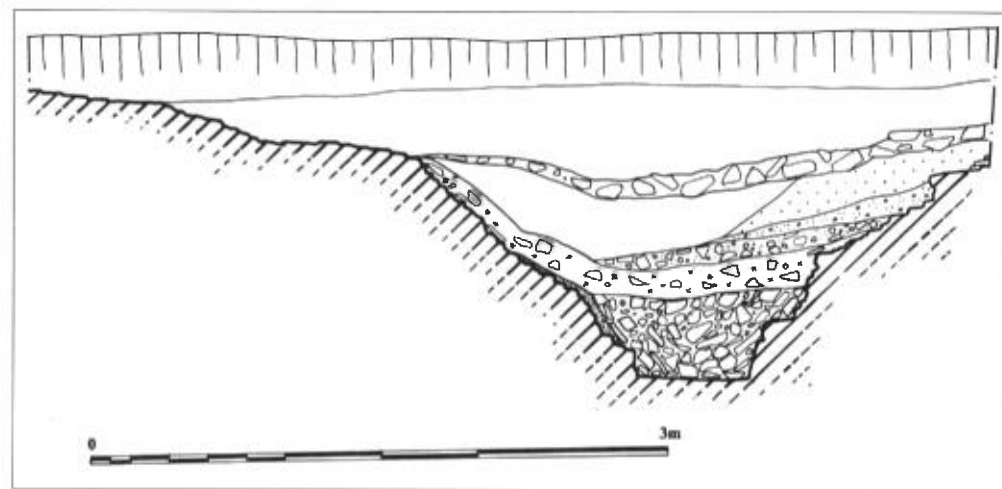


FIG. 1
Ridgeway, Cradley. Ditch section looking W.

FOWNHOPE, Cherry Hill Camp. (SO 577 353)

It has been noted that much of the rampart associated with the Iron Age hillfort has been subjected to vitrification. Large spreads of vitrified rock are visible particularly on the N.E., N.W. and (less so) along the S. ramparts. This provides a rare and significant insight into the considerable efforts employed to slight such a monument. Further work will involve the mapping of the extent of vitrified areas. (HSM 909, 31086, SAM 11) (Hoverd, T. HAR 48).

GARWAY, Broad Oak, gas pipeline. (SO 474 225)

During the construction of a pipeline, work undertaken by Network Archaeology recorded a Romano-British oven together with a spread of Romano-British pottery, indicating the presence of a farmstead or other settlement nearby. Three Bronze Age cremation burials were recorded, one burial was within a corded ware vessel, the other two were placed in shallow pits, one of which contained a thumbnail scraper. (HSM 31087, 31088, 31089, 31090, 31091) (Hoverd, T. & Ray, K. HAR 28).

HENTLAND, deserted settlement. (SO 543 265)

Well-defined earthworks have been noted to the N. of Hentland Church on the National Trust Pengethly Estate. These are located on the edge of a terrace overlooking a steep valley to

the E. The earthworks consist of a number of platforms interspersed by banks and ditches and a possible holloway, suggesting the presence of a now deserted settlement in close proximity to St. Dubricius' Church. (HSM 31120) (Hoverd, T. & Ray, K HAR 28).

HEREFORD, The Old Wye Bridge. (SO 507 397)

Resurfacing work and the construction of new pavements on the bridge entailed the complete stripping of the present road surface. Herefordshire Archaeology staff undertook archaeological recording during these works. All newly-exposed bridge fabric was recorded at a scale of 1:20 and it was noted that the key-stone in the tops of the arches had been truncated during strengthening work in the Second World War. Elements of an earlier bridge were seen to survive within the fabric of the current monument. (HSM 387, 31092, SAM 21) (Hoverd, T HAR 21).

HUNTSHAM, Queenstone. (SO 561 183)

Recent damage to this famous standing stone was recorded at its N.E. corner. It appears that farm machinery has collided with the stone and removed a large flake of Old Red Sandstone. The site and the stone were inspected, and their vulnerability to further damage noted. (HSM 824) (Hoverd, T. & Ray, K. HAR 28).

KILPECK, Dippersmoor Farm. (SO 447 297)

The earthworks of a deserted settlement have been noted to the S. and E. of Dippersmoor Farm. These comprise a number of building platforms and a holloway among old orchards. A walled rectangular enclosure marks the site of a large levelled platform, and this may represent the site of the earlier manorial complex. (HSM 31094) (Hoverd, T HAR 29).

KINGSLAND, Lawton Cross. (SO 439 592)

The place-name suggests the proximity of a barrow close to the crossroads. A subtle mound approximately 50 m. to the S.E. of the present crossroads is a possible site for this. This feature is approximately 30 m. in diameter and rises to a maximum height of 0.6 m. above the present ground surface. Its S. side has been truncated by the cutting of an artificial stream course. (HSM 31115) (Hoverd, T. & Ray, K HAR 28).

KING'S PYON, enclosure. (SO 443 499)

A heavily ploughed-down curving earthen bank has been noted enclosing the top of a low hill approximately 600 m. S.E. of King's Pyon Church. The enclosure appears to have possessed a single bank and external ditch and was approximately 300 m. in length and 150 m. wide aligned roughly N.-S. This feature is potentially of prehistoric date. (HSM 31121) (Hoverd, T. & Ray, K HAR 27).

LEDBURY, Frith Wood. (SO 715 395)

This area of Forestry Commission managed woodland is situated 1 km. to the N.E. of Ledbury and is approximately 2 km. long and 500 m. wide. It is located along a sharp limestone ridge on a roughly N.-S. axis. Early in 2000, a survey was carried out by walking transects approximately 50 m. apart and recording any surface features that were of archaeological significance.

Features noted include woodland boundaries (banks and ditches), compartment boundaries and charcoal burning platforms. However of greater significance was the discovery of features underlying the woodland management traces. These included field banks and ditches, a series of massive strip lynchets, a group of building platforms, some narrow field lynchets, and a possible round barrow.

A large bank meanders along the ridge top, and is over 3 m. wide, with a ditch on its E. side. All other features respect this bank and either run up to it or have been constructed over it. Two small banks and ditches extend westwards, down-slope of this main bank, to define an area of hillside containing a spring.

To the S. of the spring and also enclosed within these boundaries is a group of five triangular platforms. These were found to have been cut back into the hill-slope with a forward scarp extending out from the slope. They are not charcoal-burning platforms and are similar in form to some of the presumed hut platforms recorded within the hillfort at Midsummer Hill 4 km. to the E. Immediately to the N. of the enclosed area is a series of very small lynchets suggesting formation as a result of small scale hoe agriculture, and possibly therefore of prehistoric date. (HSM 31075) (Hoverd, T. HAR 18).

LLANGARRON, St. Deinst Church, carved stone figure. (SO 531 212)

A carved stone figure now attached to the S. wall of Llangarron Church has been previously recorded as the lid of a 15th-century child's coffin. However the treatment of the hair which is raised in pellets, the disproportionately-sized head with almond shaped eyes and the simple gown suggest a much earlier date for the carving. It is therefore possible that this represents a memorial stone to a priest of the early British Church dating to the mid-to-late first millennium A.D. It may have been re-used as a child's coffin lid at a later date. (HSM 6418, 31095) (Ray, K. HAR 24).

LLANVEYNOE, St. Peter's Church, carved stone cross. (SO 303 314)

Although it had previously been noted, the significance of this monument has not been widely recognised. The stone is an example of a classic form of short-armed cross, and is the only known example in the county. The short arm form is thought to have been designed to support a wooden superstructure. The lower part of the shaft of the cross tapers, suggesting that it could have been set into some form of cairn. It is believed that a monastery was founded here by Beuno in around 600 A.D. and it is possible that this stone (together with the cross-incised stones inside the church) date from shortly after this. (HSM 7178, 31096) (Ray, K. HAR 26).

LONGTOWN. (SO 325 283)

A geophysical survey was carried out on a prospective site for a new village hall towards the southern end of the village. The field concerned is currently under permanent pasture and contains a number of subtle earthworks. The survey was carried out on 23 and 24 August 2000 using a Geoscan RM15 Resistivity Meter with PA5 electrode array. Six 30 m. square grids were surveyed in an area 60 m. wide by 90 m. long.

Results confirmed that the subtle earthworks were not natural but related to the remains of possible structures and boundaries. The survey also detected significant features including a two-cell rectangular structure, that could not be related to the visible earthworks. (HSM 30545, 30546, 30547) (Hoverd, T. HAR 16).

MARDEN, Ashgrove quarry. (SO 537 496)

Further research on the former quarry site surveyed in 1999 has revealed that excavations were undertaken here in 1950-1 as part of a school project. This report and its author have been traced, as has a quantity of bone from these works. Approximately seventeen individuals were encountered immediately to the N., W. and E. of the quarry. A second visit to the quarry by Herefordshire Archaeology recovered a small quantity of skeletal remains confirming the report findings. Cranial fragments selected from the 1951 excavation finds were submitted for radiocarbon dating but were found to have insufficient collagen to make a determination of date. Further skeletal samples will be re-submitted in 2001. (HSM 6544, 31097) (Hoverd, T. HAR 34).

MARTINSTOW, Llanmartin. (SO 551 193)

During a field visit to the former site of Martinstow Church at Marstow it was noted that the ruin sits within a circular levelled area. This feature is approximately 50 m. in diameter and the church and churchyard are located in the N.E. portion. It is suggested that this could be the Llan enclosure for the early church at Llanmartin. (HSM 6399, 31122) (Hoverd, T. & Ray, K. HAR 28).

MONNINGTON STRADDLE, castle at Monnington Court Farm. (SO 383 369)

A geophysical survey has been carried out by Terradat (UK) Ltd. for the Owain Glyndwr Society in order to establish if this was the burial place of Owain Glyndwr. The motte was surveyed using an RM15 resistivity meter, a FM36 fluxgate magnetometer and a Mala Geosciences Ramac ground radar unit. The surveys failed to locate any features that could be interpreted as a grave, but they did record the buried traces of a large rectangular stone foundation on top of the motte. This suggests that an early timber tower had been re-built in stone. (HSM 890, 31123, SAM 225)

(Terradat (UK) Ltd. *Geophysical Surveys carried out to investigate a possible burial site, Monnington Court Farm, Herefordshire*).

MORDIFORD, Holy Rood Church. (SO 571 375)

Extensive drainage works within the churchyard and abutting the church walls revealed the presence of footings for a stone buttress on the S.W. corner of the tower. A number of human burials were also uncovered as a consequence of the drainage works. No notification of these works had been received. Herefordshire Archaeology staff rapidly recorded photographically any features of archaeological interest present within the trenches. (HSM 6837, 31098) (Hoverd, T. & Ray, K. HAR 28).

MUCH COWARNE, deserted medieval settlement. (SO 621 467)

A field visit to the village and its environs noted an area of very well preserved earthworks approximately 600 m. to the S.E. of the church and immediately N. of Cowarne mill. The earthworks consist of a planned series of platforms and plots, leading off a central holloway. In the centre of the site the holloway opens out to form a small triangular open area, perhaps the site of a market.

To the E. of these earthworks is a low linear bank aligned roughly N.-S., to the E. of which again, is a large area of ridge and furrow. The scale and nature of these earthworks, and their distance from the medieval church, suggest that the early settlement of Much Cowarne was much larger than hitherto suspected. With a grant of market and fair to Richard Pauncefoot in 1255, the settlement may have functioned as a town rather than a village during at least some of its medieval history. (HSM 31123) (Ray, K. and Hoverd, T. HAR 23; & Ray, K. HAR 20).

NORTON CANON, St. Nicholas' Church. (SO 392 581)

A large stone supporting part of the S. transept of the church of St. Nicholas, was reported in the 1930s as possibly being part of a Roman column base. However, during a site inspection visit in 2000, Dr. Paul Stamper of English Heritage suggested that it might instead be interpreted as part of a Norman tympanum from the earlier church when substantially rebuilt in 1716. (HSM 31099) (Hoverd, T. & Ray, K. HAR 28; see also, Ray, K. 2001, *op.cit.*).

PENTWYN, Middle Ridway Farm. (SO 443 283)

Earthworks indicating the presence here of a deserted settlement have been noted approximately 350 m. S. of Middle Ridway Farm. These comprise a number of small platforms immediately to the N. of a spring-fed pool. (HSM 31100) (Hoverd, T. HAR 29).

PEMBRIDGE, service station. (SO 392 581)

The vehicle service station sited to the N. of the A44 in the centre of the village closed at the end of 1999. Before the working areas were dismantled a photographic record was made of internal arrangements and interviews were conducted concerning usage. (HSM 31101) (Ray, K. HAR 17).

PUTLEY, church. (SO 646 377)

A roughly square, levelled area has been noted to the S. and E. of the church. This has been constructed on a small, S.-facing hill spur; the N. portion of which is under the church. 19th-century excavations associated with building works to the church revealed evidence of Roman occupation. It is therefore possible that this levelled area represents a villa site. (HSM 31102) (Hoverd, T. & Ray, K. HAR 28).

STRETTON GRANDISON, Iron Age fort and Bronze Age barrow. (SO 635 443)

The existence of a prehistoric 'camp' was noted hereabouts in the *Victoria County History* (1908). Traces of the curving bank of this former enclosure can still be traced as an earthwork at the western end of the wood (formerly the W. end of the defences), and also within the wood (forming the E. arc). The N. and S. (long) sides are obscured by ploughing and by woodland management, respectively.

On the highest point of the hill there is a roughly circular mound some 20 m. in diameter. This stands within the N.E. corner of a former field and appears most likely to comprise the remains of a round barrow. (HSM 31103, 31104) (Hoverd, T. & Ray, K. HAR 28).

STANFORD BISHOP, St. James' Church. (SO 682 516)

A possible standing stone has been noted to the W. of the gateway into Stanford Bishop churchyard. The stone is approximately 1 m. wide and stands to a height of approximately 1.5 m. above the present ground surface. It is presumed that the stone is not in its original location, but the churchyard perimeter upon which it now stands was a former circular, and apparently ditched, enclosure. (HSM 31105) (Hoverd, T. & Ray, K. HAR 28).

STAUNTON-ON-ARROW, Milton Cross, barrow cemetery. (SO 385 603)

During a field visit to the site in 2000, it was noted that there are at least two more earthwork barrows visible within the same field as stand a series of three scheduled barrows. To the S. of the site is a linear earthwork feature which appears to curve to the W. suggesting that it is part of some form of enclosure. (HSM 1027, 1028, 1029, 31116; SAM 27490, 27505, 27506) (Hoverd, T. & Ray, K. HAR 28).

STAUNTON-ON-ARROW, Stockley Cross. (SO 375 607)

Aerial photographs have revealed an elliptical ditch in a field to the S.E. of Stockley Cross. This ditch may have formed part of a pallisaded boundary or enclosure, possibly of prehistoric origin. (HSM 31117) (Hoverd, T. & Ray, K. HAR 28).

SUTTON ST. MICHAEL, Freens Court. (SO 520 459)

Excavations continued in three trenches on the site during 2000. One trench was located to the W. of the multi-celled building sampled in 1999, in an area identified then as having sig-

nificant quantities of rubble which may have pre-dated the 12th century. A series of rubble layers and surfaces were encountered. Spot dating has so far indicated that the rubble and associated surfaces may date from the 12th to 14th centuries.

A second trench was excavated near to the supposed E. end of the aisled building in an attempt to ascertain the extent and survival of this structure at a point where a post-medieval pond had been created. Large fragments of masonry were apparent, but in the time available this trench was not fully excavated. The third trench was located to the W. of the aisled building and to the N. of the multi-celled building in an area identified by the 1991 geophysical survey as containing structural remains. This trench revealed that under post-medieval rubble lay substantial foundation trenches that had been comprehensively robbed and were filled with late-12th or early-13th-century material. (HSM 314, 10000, 10162, 10163, 24560, 31106; SAM 13693)

SUTTON ST. MICHAEL, 'Downs East'. (SO 528 458)

The three trenches excavated in this area in 2000 were intended to provide information concerning the date, construction methods and use of the apparent rectangular earthwork enclosure noted in the 1999 works. The earthwork was sectioned and was found to encompass five main phases. Its primary phase appears to have been a palisade with internal turf rampart, the palisade being two timbers thick, (similar to that excavated on 'Downfield Knoll' in 1999).

The second phase saw the replacement of this first work with a single thickness palisade with gravel packing. The third phase witnessed the complete removal of the palisade and its replacement with a 2 m. wide ditch. In a fourth phase this ditch was re-cut and widened to 5 m. The final phase comprised a second re-cut. This then formed a flat bottomed ditch approximately 1 m. deep and 4 m. wide. Pottery recovered from within the enclosure indicates that the phase of maximum activity dated from the late 11th or early 12th century. Pottery from the ditch fill of phase 3 is dated to the 13th century. Animal bones from a deposit associated with the removal of the phase 1 palisade have been radiocarbon dated (OxA-10310). The highest-probability date range is 1010-1130 A.D., which is taken to indicate a likely early post-Conquest date for this event.

Two implications follow from this. The first is that a strong palisade had been built to enclose an area here in the late Saxon period. The second is that the line and something of the form of this presumed enclosure was followed when the palisade was rebuilt as a single-post width structure, probably in the late 11th or early 12th century. (HSM 1026, 6902, 31107)

SUTTON, Land west of St. Michael's Church. (SO 526 458)

Three trenches were excavated within the area scheduled as a deserted medieval village. A series of level platforms survive as earthworks and geophysical survey identified evidence of buried structural remains. A trench on the north-western-most platform contained a dense metallised surface spot dated to the 13th century. A second trench was located to transect a linear bank close to the E. end of Sutton St. Michael Church. This revealed that the earthwork bank is late medieval in origin and overlies a metallised surface cut by a drain. The surface was dated to

the late 13th or early 14th century by the presence of ceramics and a short cross penny of Edward I (1272 – 1307).

The third trench was located in the southern portion of the site in an area devoid of earthworks and at a point where the geophysical data was inconclusive. This trench identified a truncated ditched feature, apparently circular in form within which was an oval pit. No dating evidence was forthcoming from these features. The excavations indicate that the settlement was deserted, or had moved, by the mid-14th century. (HSM 1026, 31108; SAM 223) (Hoverd, T. & Ray, K. HAR 19).

SUTTON, Franklands Gate, cemetery. (SO 539 466)

A reference has been found to a possible cemetery site to the N.E. of Sutton St. Nicholas. In the *Hereford Journal* for 22 August 1795 it is stated that :

A fortnight ago some men were digging gravel in a large entrenchment at the top of Sutton Upper Field – they discovered at the side thereof – near the surface a human skeleton entire; Supposed to have lain there a great length of time. Several skeletons have of late years been dug up at this place...

This sounds remarkably similar to the cemetery at Ashgrove Quarry, Marden, 3 km. to the N. Both sites are located on flat-topped hills on the parish boundaries. (HSM 31109) (Hoverd, T. & Ray, K. HAR 28).

TITLEY, standing stone. (SO 328 587)

A standing stone has been noted approximately 350 m. N. of Titley Mill. The stone is near to the top of a drumlin. The stone appears to be a glacial erratic approximately 1.6 m. long and 1 m. wide and 0.6 m. thick. It has a groove carved across one face possibly for sighting. (HSM 2365 31110) (Hoverd, T. & Ray, K. HAR 28).

TITLEY, barrow. (SO 326 589)

A round barrow has been noted in a small wood, approximately 0.5 km. E. of Flintsham Farm. The barrow is marked on the 1st Edition Ordnance Survey map and on the 1964 Edition. This feature has not yet been inspected on the ground. (HSM 31111) (Hoverd, T. & Ray, K. HAR 28).

TITLEY, Flintsham, settlement earthworks. (SO 322 589)

An area of well preserved earthworks has been noted approximately 250 m. to the E. of Flintsham Farm. The earthworks comprise a small number of platforms with banks and ditches, possibly indicating the presence of a farmstead or small settlement. They appear to overlie, or to have been built into, the bank of a section of Offa's Dyke at a point just before it enters the grounds of Eywood and makes an abrupt turn westwards to begin the long ascent of Rushock Hill. (HSM 31112) (Hoverd, T. & Ray, K. HAR 28).

UPTON BISHOP, carved stone. (SO 650 272)

A carved fragment of finely tooled red sandstone now set into the S. wall of Upton Bishop Church, depicting a toga-wearing male figure set in a niche, has in the past been regarded as part of a pagan tombstone. However the way in which the toga hangs, the treatment of the raised right hand and the presence of a similarly poised figure in the adjoining niche suggests that this was part of a panel or frieze (201).

The formal banding treatment of the hair and the swept lines of the toga imply a 4th-century date for the sculpture. It is remarkably similar in style and pose to figures depicted in the wall paintings at Lullingstone Roman Villa in Kent, wherein the figures are standing in the open handed 'orans' position adopted in early Christian prayer. While a non-Christian votive function cannot be ruled out, a Christian frieze of this kind might after all have been a piece of funerary sculpture, or even part of a stone sarcophagus. (HSM 6630, 31113) (Ray, K. HAR 25).

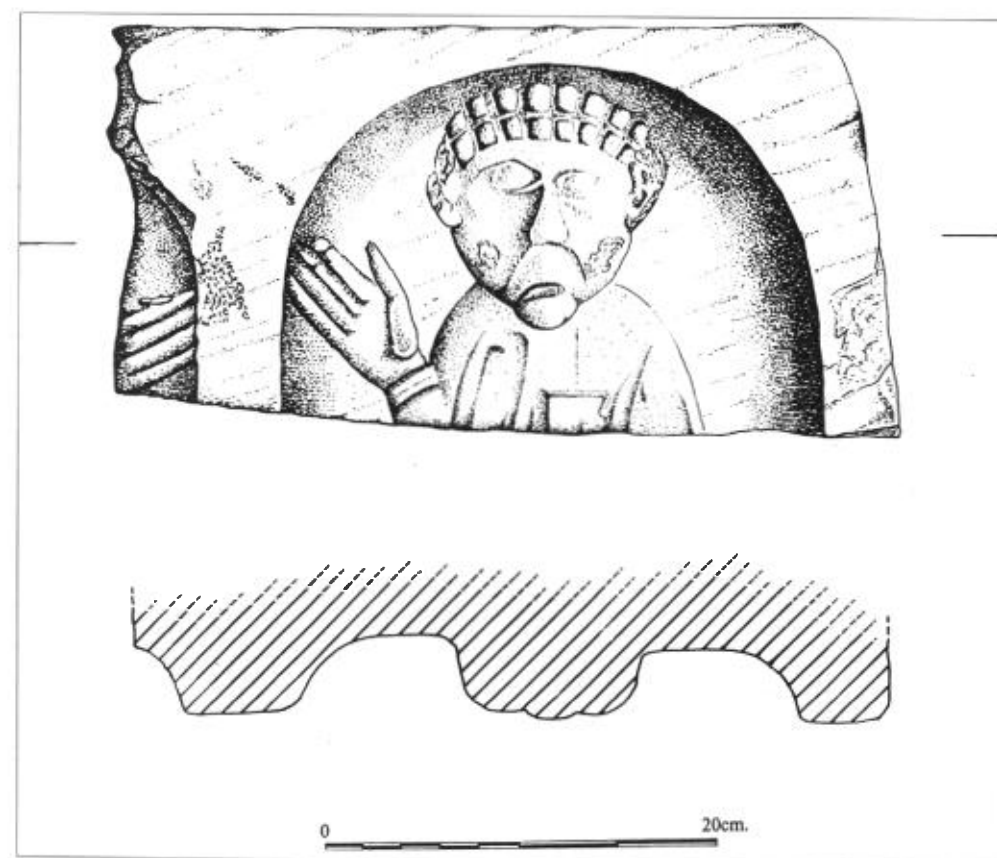


FIG. 2
Carving in S. wall of Upton Bishop Church.

Botany, 2000

By PETER THOMSON

Using records held by the B.S.B.I. Recorder.

I am indebted to the following for records supplied during the year.

John Davies (J.D.), Trevor Evans B.S.B.I. recorder for Gwent and Colin Titcombe (T.E.), Peter Garner (P.G.), Jill Hardiman (J.H.), Stephanie Thomson B.S.B.I. recorder for Herefordshire, (S.E.T.), David Williams (D.W.), Ron Shoubridge (R.S.), Jean Wynne-Jones (J.W-J).

This year saw the completion of checking plant records for the national "Atlas 2000" and as a result fewer fresh records have been made. The following are records of particular interest.

Eranthis hymenalis. Winter Aconite. Reported by D.W. from damp woods in the Cage Brook Valley near Clehonger. This introduced species escapes from gardens and naturalises well in suitable surroundings.

Urtica urens. Small Nettle. Reported by S.E.T. from Haffield. Sometimes referred to as the Annual Nettle this plant is not often reported and may be overlooked. The growing plant may be recognised but definitive identification can be made by looking at the roots which are white in contrast to those of the Common Nettle which are yellow.

Potentilla recta. Sulphur Cinqufoil. T.E. Shucknall Hill. This is an introduced plant which has naturalised effectively in some places. In the 1950s, as shown in the Atlas of British Flora, the plant was found in scattered localities in S. and E. England but was not at that time recorded in Herefordshire.

Mercurialis annua. Annual Mercury. S.E.T. Holme Lacy area. First recorded in England in 1548 as a plant of gentlemen's gardens which could be used as a powerful emetic. In Herefordshire it was first recorded in a garden at Ross in 1849. As the garden had formerly belonged to a doctor the plant may have been grown as a medicinal herb.

Cucusta campestris. Yellow Dodder. Reported by J.W-J. from Rushall. This alien dodder turned up on petunias in a garden at Rushall. There has been no previous record for it in the county. Infact the native dodder, *Cucuta epithymum* is very rare in Herefordshire and has not been reported for many years.

Symphytum orientale. White Comfrey. Reported by T.E. from the surrounds of the reservoir at Shucknall Hill. This is a new site for this introduced species. It was noted by Purchas and Ley (1889) as growing on a road verge at How Caple. It is now present and increasing on a roadside on Common Hill, Fownhope and beside a hedge in a neighbouring field.

Orobancha rapum-genistae. Greater Broomrape. Recorded by R.S. on Tatteridge Hill. Rare in the county this plant was parasitic on broom.

Centaurea x monktonii. Hybrid Knapweed. Reported by T.E. from Ridge Hill near Fownhope. This is a hybrid between *C. jacea*, Brown Knapweed and *C. nigra*, Common Knapweed but *C. jacea* is probably now extinct in the country its characteristics probably now only surviving in the hybrid which has not previously been recognised in Herefordshire.

Crepis setosa. Bristly Hawkes-beard. Reported by T.E. from the Orleton area. *C. setosa* was reported by Purchas and Ley as a very rare casual in grass fields. It was first recorded in 1882 and by the time the Flora of Herefordshire was written in 1889 it had been found in St. Weonards and Llanwarne growing in lattermath (aftermath) clover. Clapham, Tutin and Warburg in 'Flora of the British Isles' 1962 describe it as 'A casual in arable fields, especially clover' originating in S. and S.E. Europe from S. France to the Crimea.

Pilosella prealta. Tall Mouse-eared Hawkweed. Reported by T.E. from Burghill reservoir. Originally introduced as a garden plant has escaped and naturalised in many areas but this appears to be the first record for it in Herefordshire. In the 'Critical Supplement to the Atlas of the British Flora', Perring F.H. 1968 *P. prealta* is shown to be present in a few localities in S. Devon and at only two other sites elsewhere in England.

Carex distans. Distant Sedge. Reported on a Herefordshire Botanical Society outing to The Flits, Preston-on-Wye. Determined by A.O. Chater. According to Purchas and Ley the earliest record for this plant in Herefordshire was in 1853 when a specimen was found by Mr Blashill in marshy ground near Ploughfield. (Flits?) It is particularly interesting that this species has been re-discovered this year as the Flits have usually been grazed but this practice has recently been in abeyance and this may have allowed flowering heads to develop. Normally regarded as a plant of coastal areas *C. distans* has a number of inland sites in southern England.

Helictotrichon pubescens. Downy Oat-grass. Reported by S.E.T. from the side of the track along the southern edge of Haugh Wood. There are few modern records for this grass in Herefordshire but Purchas and Ley describe it from a number of sites in the centre and south of the county.

Listera ovata Common Twayblade. Reported by J.D. from Sutton Walls. *L. ovata* is widespread in the county but this is the first record from this locality.

Ophrys apifera. Bee Orchid. The year 2000 seems to have favoured the Bee Orchid as it has been reported several times. P.G. counted over 200 flowering spikes at the Stretton Sugwas gravel pits, T.E. found over 90 beside the reservoir at Burghill while J.D. reported a small colony on Sutton Walls growing in soil tipped to cover a former rubbish dump some 10 to 15 years ago.

Many of the contributors to this report are not members of the Woolhope Club but I would be very happy if members would send me records of any plants which they find of interest. It is always interesting to report rarities or new records for the county but these reports are best when they can reflect the interests of members as well as some of the more dramatic finds made by others.

Buildings, 2000

By J. W. TONKIN

This year the Old Buildings Recording Group had talks on the buildings of central and western Europe and the U.S.A.

A week-end school with the writer as tutor was based on Ewyas Harold.

LINGEN

DAMSON COTTAGE (LAURELS). SO 365671 Tithe No. 186

This house is on the W. side of the Lingen-Kinsham road just N. of the Lime Brook almost opposite the Royal George. It faces E., is of two-room plan with a lean-to at the S. end projecting slightly to the W., rear, of the house. There is a well 14 ft. deep N.W. of the back door. At the time of the tithe apportionment in 1840 it seems to have been the house of a smallholder.

Dating the house is not easy, but there are certain features which help to tie-down a period during which it must have been built. There are no carpenters' assembly marks, neither scribed nor punched, as far as I could see, but, whilst I have found these as late as the 1830s, they tend to disappear after c. 1720-30.

The sitting-room beam has a 3 in. chamfer which is usually a sign of the period c. 1600-40, but if so it must have been re-used from an earlier building, perhaps on the spot.

The roof is usually the best guide to dating a house and to tracing the cultural influence at work on it. In this case the main truss is of a king-post type, the sort of roof found in Cumbria and other areas influenced by Viking builders, and it does not seem to have come into use in this area until the late 17th century, post-1680. The fact that there are no carpenters' assembly marks puts them later than that. The purlins are trenched into the principals and are placed just above the struts which are tenoned into the tie-beam in the case of the outer ones and into the king-post in the case of the inner ones, carrying the lower and upper purlins respectively. These are morticed and tenoned with single pegs usually a sign of slightly cheaper building.

The walls are about 20 ins. thick, just about the minimum thickness for a stone wall in a building of more than one storey.

In the N. bay of the roof there are ten rafters, in the S. bay nine. The purlins overlap in behind joists close to the central truss, a common way of roof construction when timbers which would cover the full length of the roof were too expensive or not available.

The banister has a nice feel for the hand and is of a type common in the period 1680-1730.

The window lintels are very slightly arched a feature I would expect from c. 1720 onwards.

Thus taking all the various features together it seems probable that this house dates from the period c. 1750 or a little later, the third quarter of the 18th century.

DIDDLEBURY, SHROPSHIRE

BOULDEN HOUSE. SO 545851

This house seems to consist of a two-room plan building of the earlier part of the 16th century with a slightly later house of similar size linked by a much more recent structure with a modern porch and another recent addition on the N.W.

The dating evidence is from the very long carpenters' assembly marks, the depth of the chamfers, the chamfer stops and the way the joists are laid.

At first sight the house appears to be 17th century in date, but the internal evidence is of a house built probably very soon after the Reformation. The southern part seems originally to have consisted of a hall/living room with a parlour to the E.

The former about 10 ft. by 16 ft. has a central N./S. beam with 3 in. chamfers running from a post in the N. wall to a beam above the fireplace in the S. wall. This with its outbuilt chimney has a bake-oven on the E. side. The beam has a 3 in. chamfer with Wern Hir stops, a stepped run-off stop named after a house in Gwent where it was recorded by Fox and Raglan in *Monmouthshire Houses* (3 volumes 1951-4). They had recorded them during the 1939-45 War. There are twelve joists laid flat. There are two windows on the W. and there had been one in the N. wall.

There had been a wattle-and-daub panelled screen with a door at the N. end between the two rooms, removed to make one room.

The original parlour to the E. was about 10 ft. by 16 ft. with a central N./S. beam with a 5 in. chamfer and again Wern Hir stops. There are sixteen joists laid flat to the E. of this central beam and eight to the W. It looks as though there were stairs going up from the N.W. of the room, hence the fewer joists. There is a window in the S. wall and another in the N. wall.

This block appears to have been completely timber-framed with quite heavy timbers some of the posts being as much as 11 ins. wide whereas normally 8 ins. is a good width. If it had been pre-Reformation the beams would almost certainly have been moulded, but as they are chamfered I feel they must be post-1536. However, the 5 ins. depth of the chamfer and the very long carpenters' assembly marks, about 9 ins., indicate a date soon after. I feel any time after about 1540 is a possibility and certainly within a generation of the Reformation; so 1540-60 is probably about right. The upper floor is lit by a window in the E. gable.

To the N. of this is what I think is best described as a 'link' building which incorporates the modern porch. It has two windows either side of a doorway on the W. wall and the porch is on the E. wall with a doorway at the N. end.

Beyond this is the northern part of the house with a three-light window in the W. wall and a smaller one in the E. wall. There is a fireplace on the E. wall and from above the lintel a beam runs E./W. across the room and has 5 in. chamfers with thirteen joists laid flat on either side.

The smaller window lights a room at the N. end approached by a doorway in the W. end of the partition. This room has two further windows on the N. wall, one being opposite the doorway, the other towards the E. end of the wall.

To the W. of this room approached through a doorway in the W. wall is a small room with a modern beam running across it E./W. immediately to the N. of the doorway. Above this N. end is an attic room lit by a dormer window.

The roof of the southern house has 9 in. long carpenters' assembly marks in a sequence X, XI, XII, IX. These are on the tie-beam which is carried on the wall posts which have enlarged heads to carry both the wall-plate and the tie-beam, and on the raking struts from the tie-beam to the principals on each side, and on the principals themselves.

The barn which appears to have been built as a cattle shed has eight trusses with late 17th-century punched carpenters' assembly marks. On the third and fourth trusses these are short and run from I to IIII on the tie-beam the principals and the raking struts. Each truss has a trenched through-purlin on either side and a raking strut from the tie-beam to the principals. On the end truss there are punched crescent-shaped marks instead of the short, straight ones. These marks, both types, are typical of the last twenty years of the 17th century. The tiles on this roof have two lugs at one end to hook over the laths and help keep them in place. It is not unique, but nevertheless a comparatively unusual type.

Thus here we have a house which was quite probably two small separate houses when first built. The southern part is probably the original house and the northern part followed as a separate house within a generation.

The 9 in. carpenters' assembly marks are a sign of early building, the longest I know are about 11 ins. in a house, Upper Limebrook in Wigmore parish, which can be dated to c. 1400. If the house had been built pre-Reformation its main beams and posts would almost certainly have been moulded, but after the Reformation the influence of the Puritans led to straight, plain chamfers. Those at the White House at Aston Munslow are 7 ins. and probably date from c. 1570. By 1600 they are 3 or 4 ins. A further early feature is the fact that the joists are laid flat, whereas later in the century they are vertical. Thus a fair date for these would seem to be soon after the Reformation.

The wider chamfer in the eastern room of the earlier block probably shows a superior social status and thus the parlour as opposed to the hall/living room.

To sum up we appear to have a house of c. 1540-60 now linked by a later room with what was probably a second house built a short time later, perhaps c. 1570-80. The barn is over a hundred years later in construction, probably from c. 1680-1700.

During the year thirty-five planning applications concerning listed buildings were received. All were for comparatively minor alterations and none warranted objection.

As in the past my thanks are due to a number of people and especially those who have drawn my attention to buildings and those who have invited me into and allowed me to wander around and look at their houses and buildings.

Ornithology, 2000

By BERYL HARDING

January started with colder winds and clear, dry skies but with only a few frosts. The winds were strong and did much damage to the nests of stick-nesting species such as Grey Heron, Cormorant, Rook, Buzzard and Red Kite. It was a fairly mild month with temperature topping 10°C so prompting vigorous song by many birds and nest-claiming by tits. There were fewer birds in the garden as they could find plenty of food elsewhere. But freezing conditions returned by the end of the month.

February was mild again and by 20 February blossom was out and many National Trust properties had opened their gardens in S.W. England. Forsythia had bloomed by 1 March. It continued mild and sunny under the influence of a stable high-pressure system with flowers well ahead and brimstone, painted lady and tortoiseshell butterflies on the wing and bats and hedgehogs became active. The Chiffchaff was heard by 18 March and Sand Martins had returned.

After 21 March raw easterly winds took over for a few days but the month finally 'went out like a lamb' with most birds heavily engaged in nest-building. Brambling and Fieldfare, that had overwintered in large numbers, lingered so that there was hope that they may remain to breed. On the 3-4 April a brief northerly wind brought snow to high ground which was followed by one of the wettest Aprils since 1818 which brought widespread flooding. This led to brood losses among ducks, Grey Herons, Rooks and thrushes but spring migrants had flooded back by May Day and early clutches of Swallows and Chiffchaffs got under way.

May started with two weeks dry but it was mostly cool and overall the wettest May for seventeen years. June and the beginning of July were dry and cool then a period of warmth extending into August with some rain towards the end of the month. By now it was obvious that the berry, acorn and beechmast crops would be heavy.

The recent mild winters have enabled many of our resident species to survive in reasonable numbers. The Wren has increased so too has the Long-tailed Tit which now comes to feed in gardens. But the cold, wet weather after an early spring and nesting has affected food supplies so that the first broods of early-nesting species do not survive.

A five-year project has been running at Titley Court Farm to try to balance environmental and agricultural needs. Birds have increased by 70% while land management has improved with good husbandry, technological advances, biological control - so reducing pesticides by 33% - combined with restricted use of flail hedge trimming. A scientist at Rosemaund said that it was the first integrated arable and livestock project of its kind in the country, if not in Europe. Brown hares, Lapwings, Grey Partridges, bats and other species had all increased in numbers and during the first three years breeding territories had increased by 72%.

Two familiar urban species - the House Sparrow and the Starling continue to decrease by 50%. The reasons are unclear, for the Starling it may be due to changes in

land use, for the once-ubiquitous Sparrow investigations are under way. The House Sparrow feeding-flock size has fallen by over half in the suburbs and by one-third in open country gardens. Certainly loss of nesting sites could be a contributory factor as modern houses lack the nooks and crannies so favoured by them.

Redpolls, a bird of scrub and conifer woods, is seldom seen nowadays. But at Bringsty Common nearly 700 were ringed by the Hereford Ornithological Club (H.O.C.) during last winter. Scrub habitats appear as woodland encroaches on to grassland as seen in the commonlands of Bringsty, Bircher and Ewyas Harold. A study carried out by the British Ornithological Society (B.T.O.) shows that many birds prefer scrub to woodland in summer including three declining migrant species - the Nightingale, Turtle Dove and Grasshopper Warbler - and so do butterflies. But in winter there are more birds in woodland in daytime with the scrub important in the evening as a safe roosting site. Management is important, however, to retain these habitats which are of great value.

By the Wye the ox-bow lakes at Letton, called Staunton Common in the 19th century, were referred to by Dr. Bull as a wetland 'regularly attracting Bittern (two being shot in 1801)! Since then the lowland has been drained and no Bittern visit any longer but surveys there show four Lapwing and three Curlew territories. Wintering wildfowl, Snipe, wintering thrushes and Skylark, Song Thrush, Bullfinch and Reed Bunting use the area. The April Survey by H.O.C. showed that Lapwings and Curlew had returned and a flock of fifty Teal were seen plus a rare Common Crane. Fifty-five Lapwing were recorded at Wellington Gravel Pits in June.

The numbers of Lapwing, with its familiar call of 'pee-wit' in early February and March have fallen in the county by 60% since 1987. The situation in Wales is worse having been reduced there by 77%. It is supposed that this is due to drainage of wet farmland coupled with the switch from spring to autumn-grown crops combined with the use of pesticides. Studies by the B.T.O. showed the benefits of set-aside farmland which can also benefit Lapwing as well as farmland birds. The latter showed universal avoidance of winter cereals and intensively managed areas of cereals, probably due to the lack of seed and invertebrate food in these habitats. Rotational set-aside with its natural regenerated green cover was selected by five out of six declining farmland species. It is hoped that the new Arable Stewardship Scheme, which includes options for winter stubbles, will help to reverse the fortunes of these birds.

After a moderately warm and sunny summer with no further flooding September was again mild and warm but with a stark contrast between the first two dry weeks followed by a wet latter half giving the wettest September for twenty years. November was the wettest since 1852 bringing to a close the wettest autumn since records began in 1766 - 457 mm. during the year.

Intelligent and versatile, various members of the crow family have benefited from reduced persecution from game-pursuing interests in the last fifty years. Seven members of the family breed in Britain but of the four most regular monitored by the B.T.O. show:-

The smallest of the family, the Jackdaw population has surged from the 1970s and again following the mild winters of the 1990s. Carrion Crow numbers showed a steady increase

as they spread into open and even treeless countryside, rising by 12% last year. They are ideally suited to exploiting road casualties. The omnivorous Magpie has increased strongly in numbers in farm, woodland and urban habitats alike although population levels have stabilised in the 1990s - they are often blamed for the decline in small birds by predation of eggs and young although B.T.O. research can find no link. This corvid trio along with the Rook are willing to exploit foods provided in gardens or on rubbish tips in times of stress, especially in severe winters or when feeding young. The arboreal Jay has also diversified spilling over increasingly into farmland and into some gardens especially when breeding but being of a cautious nature has maintained a stable population.

Latterly in the winter Great and Blue Tits seems fewer in many gardens. Siskins also seem much fewer in number - perhaps the mild winter gave sufficient feeding in the countryside. Early in the year Bramblings came to gardens to feed. With the decline in numbers of the Starlings it is no longer in the top ten of birds coming to gardens to feed in Herefordshire. These are now Blue Tit, Blackbird, Robin, Greenfinch, House Sparrow, Dunnock, Great Tit, Chaffinch, Collared Dove and Wren.

More migrants come into the country in winter than in summer. They come in their thousands - almost 5,000 ringing recoveries with Blackbirds show that they come from Norway, Sweden, Denmark, Germany, the Baltic States and eastward from Russia. The same applies to Starlings and, in fewer numbers, their predatory Sparrowhawks. We tend not to notice these extra numbers among our residents but last February enormous flocks of Starlings from 8-10,000 amassed for several evenings in aerial displays over different parts of Hereford city and then disappeared. Why there were so many on these occasions seems to be a mystery but they were mostly winter migrants. The flocks of Redwings, Fieldfares and Bramblings that come to us in winter are more noticeable - although they were rather later this year not reaching us until about the second week of November having good feeding still further N.

A Great Grey Shrike was noted on Bircher Common in February, March and April by the time the warblers had arrived. It departed for Scandinavia to breed and returned in late winter. A Wryneck was noted in the county at the end of April-early May also a Hoopoe at Brimfield in May. Singles of Knot, Dunlin, Snipe, Green Sandpiper were seen at Wellington Gravel Pits in April and June and an Arctic Tern in the Lugg Meadows in April. Hobby, Merlin, Goshawk and Red Kite have been sighted in the county but mostly single sightings of the Barn Owl and Little Owl. Some sixty Lesser Black-backed Gulls still nested on the roof of Inco Ltd. during May. Tufted Ducks are seen in varying numbers during the winter but in December 432 were recorded at Wellington Gravel Pits. This is believed to be a new county record. Pied Wagtails continue to flock in large numbers to roost at Hereford's Safeways each evening.

December was comparatively mild with up to 15 mm. of rain in the first half of the month but it closed after several days of damaging frost followed by snowfall.

The Hereford Conservation Area Advisory Committee Report of the Club's Representative, 2000-2001

By JEAN O'DONNELL

This year there were three schemes put forward which will affect the Conservation Area if they are implemented. None have planning permission at the time of writing but they generate controversy.

The first affects the Woolhope Club for it is the proposal for a new library where the club would be expected to take up residence with its books thus vacating the Woolhope Room for the museum. The site was the first consideration and after a scanty appraisal of the Butter Market, Gaol Street car park and Kemble House in Broad Street, the latter was chosen to present for outline planning permission. The C.A.A.C. committee agreed with this decision but the club representative registered her opposition. The Library Users' Group thought the building inadequate and expensive, and as a member, she concurred with them. She also felt it would not be in the best interests of the club. The plans have not been put forward yet and funding has to be obtained to buy this commercial site.

The proposal for another supermarket was greeted with scepticism about both the site and the need for it. A presentation from Asda showed the scale of the development on the old Wyeland Caravan ground near Belmont roundabout. This had houses, flats, bowling green and community centre within it and next to the river. It was felt that the design for the flat-roofed store was a missed opportunity for a building of architectural merit and that the view of a vast car park from the bridge was not desirable. Doubts about building on the flood plain were also expressed. The scheme is being assessed by the National Environment Agency who are looking at flood alleviation proposals. The Greyhound public house is to be demolished as no suitable use could be found for it. A search is on for the enormous lamp that hung in the front and which could adorn the Town Hall.

The Cathedral Junior School have put forward a plan to demolish their unsightly prefabricated building behind 28-30 Castle Street and rebuild with additional classrooms in two units of timber, glass and with metal-clad curved roofs which would largely obscure the Georgian backs and the gazebos which lend such interest to Castle Hill and the gardens. The impact on The Fosse (1823) by Sir Robert Smirke, is wholly detrimental as it is almost adjacent. C.A.A.C. members decided by a majority to oppose this scheme on the grounds that it broke all the guide lines in the Hereford Plan agreed by the Council. The planning decision has not yet been taken but a petition against the scheme had 2,000 signatures.

A new housing development in Barr's Court Road has received planning approval but the design of the estate with car places in front of each of sixty-four small houses was thought deplorable. C.A.A.C. also voiced misgivings about the extra traffic that would be using Barr's Court Road and either the narrow bridge or the exit on to Aylestone Hill with all its congestion.

The committee kept asking for information on Churchill House throughout the year but met with a discrete silence. The anxiety felt about the condition of the fabric and its future use has not diminished and probing will continue. Another cause for concern was the Saxon wall behind St. Owen's Court. The land had been purchased by the City Council years ago so that it could be rebuilt and on show to the public. It received money from the government for this purpose. Today it has become neglected and overgrown with a tree growing out of the masonry. By pressure on the officers by the committee and members of the club some of the greenery was removed but the necessary funds were not available to do the work properly. At the beginning of 2000 the medieval Wye Bridge was refurbished and the pavement widened. C.A.A.C. members were disappointed with the surface materials used and the height of the kerb that was thought dangerous. The installation of traffic lights was also thought detrimental to the aspect of the bridge.

The state of High Town gave cause for concern. Some of the planters were altered and badly rebuilt with bricks which did not match. The seats were moved and the whole area appeared neglected. It reached its lowest point during Three Choirs when there were displays of tawdry posters and other clutter. The absence of hanging baskets was noted unlike the rest of town. In the autumn a radical tree removal was done in both Eign Gate and High Town. It is hoped that more suitable species will replace those that have vanished. In Commercial Road there have been applications to turn empty premises into bars and pubs. Brown's Antiques, once Greenlands Depository, and Kwik Save have had this treatment. This has resulted in a street that is overburdened by food and drink with its consequent litter and bad behaviour late at night.

The Conservation Area awards were given to Castle House Hotel for the restoration of the building that has so enhanced Castle Street, and to Pritchards in King Street. It was felt that this new shop front provided a model for other retailers who were looking to improve their premises. Stewart's Bikes in Whitecross Road, opposite the Eye Hospital, was highly commended for their improvements in a difficult area. The club contributes to the cost of the plaques that are awarded every year.

Natural History Section, 2000

By BERYL HARDING

March 20. The Annual General Meeting was held at the Friends' Meeting House in Hereford, followed by refreshments and a Members' Evening with slides and objects of interest.

April 12. A visit to the H.N.T. Reserves of Coughton Marsh and Poor Man's Field and led by Roger Beck had to be cancelled due to heavy rain.

May 25. A visit was made to the Plantlife Reserve at Joan's Hill Farm, Checkley, adjacent to Haugh Wood.

The 46-acres reserve incorporates a diverse range of habitats including a species-rich grassland, an ancient woodland, old hedges, an old orchard and a pond. It is divided into a 6-acre orchard to the E. joined by a footpath to the 40-acre area to the W.

The woodland to the far W. contains small-leaved lime, a tree associated with ancient woodland in England. The corner of the field nearby gives the richest diversity of plants including dyer's greenweed, black knapweed, meadow sweet, betony, devil's bit scabious, cowslips, pepper saxifrage, yellow archangel, woodruff and pignut. The bluebells in the woods were just over but the orchid species include green-winged, common spotted and early purple. These orchids are also to be found alongside the public woodland path joining the field and the orchard. Violet helleborine has been found but we found no traces of it on the visit.

The apple orchard is at least 150 years old with fine old trees, some of which have been replanted but are still very old by modern standards. They carried many mistletoes and an abundant lichen covering which provides food and shelter for invertebrates. It is the most interesting part of the reserve with Poa grass varieties and containing more plant species than the main pasture. Thirty-four different plant species were found plus three varieties of sedge in the damper patches - wood sedge (*Carex sylvaticus*), hairy sedge (*C. hirta*) and glaucous or carnation sedge (*C. flacca*). The grass in the orchard is well cropped by rabbits but the ant hills no longer seem to be populated. The adder's tongue fern, known to be there, could not be found amid the grass.

The main grassland which had been ploughed in the past is now recovering with predominantly sweet vernal grass and is managed also as a hare-grazing regime. In one corner is a pond but with cultivated yellow flag iris rather than the small-leaved natural variety.

Fallow deer are regularly seen on the reserve and badgers are known residents in the area. Sparrow-hawk, tawny owl and buzzard have been recorded. Approximately seventy species of invertebrates have been identified to date although there are undoubtedly more yet to be recorded. Among the butterfly species are the Nationally Scarce wood white and the declining silver-washed fritillary. Other species include speckled wood, meadow brown and gatekeeper. More than sixty species of moth have been noted including the Nationally Scarce red-belted clearwing and the beautiful carpet moth.

June 27. A visit was made to Batchley Farm, Grendon Bishop by kind permission of Mr. & Mrs. Wakefield Jones.

The farm and its elegant farm-house built in 1779 lies at approximately 800 ft. altitude becoming an organic farm in 1983. It no longer has any set-aside land but is part of the Countryside Stewardship scheme which encourages farmers and landowners to actively work parts of their land in an environmentally positive manner with better hedges, pockets of woodland and ponds.

Of the 200 acres some six acres are used for arable crops. These are used for milling and supplying organic feed to their own stock and to other farmers for sheep, goat, pig and cattle feed. Other organically grown crops are bought in and milled for re-sale. As the farm is organic no artificial fertilisers are used, only their own farm manure, seaweed and occasional lime to lighten the clay soils.

There are 260 sheep and some 60 cattle (including two longhorns kept for sentimental reasons) many of which spend the summer on the other farm at Tillington. The crops are grown on a 5-year rotation with grass, peas or beans, and wheat, oats or barley - which also gives straw for bedding. The grasslands are used for hay or silage and are entirely for their own livestock. Four to five brown hares are regularly seen.

The tall, abundant hedgerows are maintained on a 15-year cycle with coppicing or hedge-laying at the end of that period. This becomes necessary as the base can thin out by the end of that time. Despite heavy hazel crops each year little reaches the family due to the ravages by grey squirrels. Tree seeds are collected by a local girl and used for replanting to maintain English varieties. Some of the hawthorn seeds used for planting in roadside hedges and along verges are, unfortunately, not indigenous today but come from Holland. These can be detected by their earlier flowering.

There is a 7-acre woodland rich in bluebells in addition to several shelter belts and pockets of woodland that have been planted in recent years. The farm is bounded to the N. by two small streams and adjacent to one is an area of alder woodland of some age and many have been pollarded in the past. Very few alder woods are to be found in the county today. Amid these woods are also banks and bumpy areas which could be house platforms from a deserted settlement. Were the alders planted for clog-making? Also revealed after ploughing in an upper field was Romano-British pottery.

The stream bed below the alders has worn down to flat sheets of bedrock with one or two small waterfalls which are actively laying down small deposits of tufa. Along the steep-wooded banks woodruff and wood-sorrel grow and the common spotted orchid was appearing.

In the alder woods buzzards have nested and also a lesser-spotted woodpecker pair which are few in number in the county. A single barn owl has reappeared and a pair nest on a nearby farm. There is also badger sett in the woods. The badgers seem to have caused T.B. in some of the cattle in the past so the lower end of the field where they roam has been fenced off and after the grass is cut sheep only graze that field. At present all the cattle are clear of T.B. which shows that with appropriate management badger-culling can be avoided.

As part of a millenium project half a timber-framed barn has been restored with new oak timbers, rafters, windows and doors. Part has wattle and daub infill using willows from the farm and their own cow manure and straw.

July 11. A survey was made of two churchyards in the vicinity of the Bishopstone area to record the habitat varieties to be found

The 'Best Kept Churchyard' competitions ceased some ten years ago. During the period of these competitions some churchyards maintained manicured lawns round the graves but were not really orientated towards conservation. Many changed their attitude since the competitions tended to award commendations for environmentally-friendly churchyards - especially as these do provide an oasis for wildlife when surrounded by arable farmland.

The churchyard at Bishopstone was visited and also that at Mansell Lacy. Both received the same procedure of assessment, i.e. the number of trees and shrubs (native and other), the maintenance of grassy areas and whether herb-rich, the maintenance of paths, gravestones, boundaries, compost re-cycling and the presence or absence of streams or ponds. Also the aspect and surroundings of the churchyard and the number of plants and animals seen at the time.

Bishopstone had five large yews plus eight other tree species and five of shrubs. Much of the grass was cut regularly but not too close with the N. side left uncut till August to allow seeding. Both areas were herb-rich and forty-eight species were recorded that day with another eleven species listed in the porch that had flowered earlier. Both the E. and S. sides were flanked by a ditch-stream. The other boundaries varied with a fence to the N., a hedge to the W. and stone walls flanking the stream. The latter had abundant pennywort and navelwort growth. The gravestones were mostly of Old Red Sandstone and well covered with several lichen species.

Despite the chilly, windy day meadow brown and comma butterflies were seen, two species of bumble bee and a tree-wasp on the figwort. Moles were in evidence and bats have been recorded. Four species of bird were heard.

It is a remote churchyard amid fields and the authorities are conservation-minded with a plan of the churchyard in the porch and its areas of different habitats.

Mansell Lacy churchyard had two small yews, four conifers plus a sequoia, a very large oak, three young holly, a hazel and a prunus with three shrubs and a flower bed. The turf is mowed regularly and closely so it is not herb-rich with altogether thirty-one species of plant. The compost heap is better maintained here. The gravestones are of varied rock types and some have a good lichen cover, especially on their S. side. There were no conservation notices in the porch. Three species of bird were heard and there was evidence of moles and hedgehog.

The boundaries varied with drystone retaining walls to the W. and N., partly-walled and hedged to the E. with a laurel hedge to the S. There are no streams. The surroundings were the few pretty houses of the village and much of the church itself had been sensitively converted into the village hall.

August 12. A field trip was made to the Red Daren rocks to look at the geology and botany - it was led by Peter Thomson. After lunch the group moved on to the Cat's Back ridge and the Olchon Valley.

This was a repeat of the expedition made in 1997 and consequently details are already in print in the *Transactions* for that year.

Two keen naturalists, John Davies and Ann Warne accompanied us and located many birds by sight or call. These were as follows:

A.M. Green Woodpecker: many callings.

Buzzard: 5 and a juvenile calling with high-pitched gull-like sounds.

Goldcrest: family party of adults and juveniles amongst the branches of small alders along the lane.

Wren: 3. Robin, 1:

Swallow: several flying above.

Meadow Pipit: calling and good views of 2 adults plus 2 juveniles with light grey fluffy plumage.

Bullfinch: several calls.

Nuthatch: callings and 1 elongated hole in alder tree with entrance rounded by a mud-moulded rim.

Wood Pigeon: 2 plus feathered remains of maybe Peregrine kill.

House Martins: 60, plus flock feeding high above rocks.

Willow Warbler: 3, and song heard.

Hedge Sparrow calling from the bracken.

Marsh Tit: calling from hawthorn, then adult seen (smart black cap and bib) taking white pappus-seed from thistle to hawthorn nest.

Song Thrush: 2 calling.

Chaffinch calls with 2 males and 1 female.

Raven: several croak calls, 2 flying and 1 perched on outcrop edge.

Spotted Flycatcher: 1, amid hawthorns uphill.

Linnet: several flying about and calling.

Redstart: 2 chasing each other.

Wheatear: adult pair on rocky outcrop.

Carion Crow: 1.

Blue Tit: 3 among hawthorn.

P.M. Linnets: feeding on spear thistle seeds, also 18 in flight.

Kestrel: 1 male hovering with distinguishing blue-grey tail.

Raven: 3.

Bullfinch: 2 in flight. - Total 25 species.

October 3. A visit was made to Southstone Rock to see the tufa cliff formation near Shelsley Walsh and Clifton-on-Teme. This was proposed as follow-on to the Presidential address on tufa formation in March 1998.

Access to the site was made by footpaths across Sapey Common, N. of Clifton-on-Teme, following a route taken by Woolhope members on 30 June, 1892. At that time it was considered that the 'north-eastern extremity of Herefordshire would probably have to remain *terra incognita* to the Club had not the President drawn out a well-conceived plan which the Club successfully executed.' This involved a drive of thirty-nine miles plus a train journey from and to Hereford via Great Malvern. Today the car came to our aid giving journey of some fifteen miles from Bromyard across attractive rolling countryside.

The footpath dropped steeply for half-a-mile down the valley of a stream flowing to the Teme. Southstone Rock itself is a large cliff of calc-tufa. Measurements made in 1993 show that the rock covers 3 ha./7½ acres and is 15m./45ft. high and extends 100m./300ft. The present size is despite many years of quarrying in the past for building stone in churches and other uses. Its present structure is a precipice with large overhanging botryoidal columns. It has winding clefts and passages from base to summit and many small man-made caves. Some of these were cut into the rock to make cells for hermits as it was regarded as a place of pilgrimage with healing waters. A small chapel dedicated to St. John, and part of the abbey of Evesham, was built on top. Although rather a gloomy day, a photo was taken at the foot of the cliff to commemorate a second Woolhope visit after 108 years!

Bands of cornstone, or Bishop Frome limestone, occur in the Old Red Sandstone-flanking both sides of the Teme. Where springs emerge after flowing through these they are rich in calcium bicarbonate. With changes in pressure and temperature after emergence and changes in carbon dioxide and water content calcium carbonate is precipitated out. This is accelerated by the photosynthetic activities of the associated streamside mosses. For such a large deposit many centuries of deposition was required. Modern researchers attribute the deposition to the post-Atlantic period after the last ice-age when the temperature and rainfall was greater than today and the landscape was more heavily forested, i.e. some 7,500-4,500 years ago. Since then the climate has changed and the land greatly deforested so deposition today in Britain is minimal and will continue to be so, having been affected by our changes to the landscape and our water management regimes, and despite any future effects brought about by global warming.

The whole site is wooded and with no extraction today. The stream still flows with some tufa build-up on the stones and leaves in its bed but erosion really exceeds deposition.

After a picnic lunch a short visit was made to an area of Bromyard Downs which at present is semi-natural grassland. Crops are no longer grown and there has been a reduction in sheep numbers. This reduced grazing and the past effect of myxomatosis has led to an increase of scrub and bracken. The rabbit population has since risen but sheep numbers remain low.

Dr. David Boddington who led the group showed us around and discussed the pros and cons of the ecological management over the last ten years. Sheep farming gives very low return at present and the numbers grazing are subject to traffic mortality so there is little likelihood of increased grazing.

The Commoners are involved in the management plans and are pleased when an increase in the number of 'flag-species' such as Barn Owls, Kestrels and Common Spotted Orchids are noted.

Management at present recognises that slopes, rocky areas and wet ground do not need to be tidy and can be allowed to form scrub or have tree-planting. In areas that have been allowed to recreate themselves plant and animal diversity has increased. Heather patches have returned also some Male Fern (*Dryopteris felix-mas*) and also the Adder's Tongue fern scrub areas and gorse patches are encouraging Linnets and may bring about the return of the Nightingale which bred there in the late 1980s. Reed Bunting occur in the wetter areas.

Weather Statistics, 2000

Month	Max. temp. shade °C	Min. temp. shade °C	Nights air frost	Rainfall mm.	Max. rainfall in one day mm.	Days with rainfall
January	15.0	-6.0	15	24.9	8.0 (3rd)	14
February	14.0	-4.0	6	70.3	15.2 (27th)	21
March	17.5	0	0	23.3	9.4 (23rd)	11
April	17.0	0	0	167.0	23.4 (11th)	20
May	24.5	6.0	0	51.9	16.0 (26th)	16(est)
June	29.0	7.0	0	22.1	8.4 (8th)	10
July	25.5	9.0	0	51.4	18.4 (5th)	12
August	26.0	6.0	0	54.8	19.0 (18th)	15(est)
September	25.5	7.0	0	89.2	21.6 (25th)	15
October	18.0	4.0	0	126.7	38.8 (29th)	24
November	14.5	0	0	134.2	34.1 (5th)	22
December	14.5	-7.0	6	153.0	29.8 (7th)	24

Highest temperature 19 June 29.0°C
 Lowest temperature 28 December -7.0°C
 Total rain in year 968.8mm (1999 - 877.5mm)
 Number of days with rainfall 204 (1999 - 194 days)

Recorded at Woodpeckers, Much Marcle, by E. H. Ward.

