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# WOOLHOPE NATURALISTS' FIELD CLUB

of

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# TABLE OF CONTENTS


| | *Page* |
|---|---|
| Obituaries: Rosamund Skelton and Gwilym Rees | 13 |
| List of Officers and sub-committees 2022/23 | 15 |
| Proceedings 2022 | 17 |
| Accounts 2022 | 33 |
| Editorial Message | 34 |
| Biographical Details of Contributors | 35 |

**The Mordiford Dragon** *by Janet Cooper*……. 37
A dragon painted on Mordiford Church was recorded several times from the later 17th century. Stories about it developed, from a simple version, in which a man called Garson killed the dragon, to the colourful tales of the mid-19th century. The dragon's appearance changed with its story, from a rather stiff, six- or eight-legged, and winged serpent in the 1680s to a curving, two-legged, and winged creature by about 1800.

**Dorstone Hill: An Early Neolithic Hilltop Complex in South-West Herefordshire** *by Keith Ray and Julian Thomas* …… 45
The authors summarise excavations over nine years. Discoveries included three timbered longhouses or halls that were deliberately burnt down, a linear burial chamber, and mounds raised over all these buildings. A causewayed enclosure was also investigated. The paper explores how Neolithic people might have used the site and the nature of kinship and commemoration suggested by the archaeology.

**From Moorcroft to Coddington Court: the Holder Family and the Origins of a Country Estate** *by Hannah Ingram*……. 64
This article traces the establishment and early development of Coddington Court, a prominent estate in the parish of Coddington, through the lens of its original owners, the Holder family. A thorough reconstruction has proved possible, whilst the rise and eventual fall of the Holders, a family of great local significance, is carefully charted.

**Herefordshire's Ice Age Ponds: Geology and Ecology** *by Will Watson, Giles King-Salter, and Beth Andrews*…… 73
The 'Conserving Herefordshire's Ice Age Ponds' project, completed in 2022, was the first multi-faceted investigation of these remarkable landscape features. The authors outline many discoveries about the associated geology, plants, and invertebrates. The knowledge generated has informed restoration, strengthened awareness, and created a sound basis for future conservation of ponds whose value is both local and national.

**Home Defence in Herefordshire in the French Revolutionary and Napoleonic Wars, Part 1: 1793-1802** *by John C. Eisel*……... 88
Volunteer units were not invented with the Home Guard in World War Two. Earlier organisations were associated with conflicts in the 18th century and rather more with

the French Revolutionary and Napoleonic Wars. This is the first part of a paper which explores the volunteer movement in Herefordshire during the period 1793–1815 and puts it into a wider context. Part two will appear in the 2023 *Transactions.*

**John Monkhouse**, **'That Devill of a Farmer at The Stow'** *by Peter Klein*……. 103
This paper was prompted by the chance finding of a *carte-de-visite* portrait from the mid-1860s. The subject, John Monkhouse, had been blind for over thirty years. The subtitle relates to his brief involvement in an historical incident, but in fact he was widely admired for achievements in sheep and cattle breeding, his family connections (he was Wordsworth's brother-in-law), and his stoicism in the face of great adversity.

**Church Chests in Herefordshire Revisited: New Perspectives on Their Dates and Construction** *by Rachel Anna Sycamore*…….... 112
The author revisits F. C. Morgan's inventory of church chests, made in 1947, to clarify the record, re-categorise the chests, and identify thirteen for the first time. Detailed evidence is used to show how and why the function of chests sometimes changed. An archaeological study, deploying new dendrochronological testing and leading analysis of saw marks and stylistic features, demonstrates that the 'dug-out' type of chest was not chronologically confined to the 'earliest' period as Morgan and others believed.

**Recorders**
Archaeology 2022 *by Keith Ray*……..... 136
Botany 2022 *by Stuart Hedley*……..... 141
Buildings 2022 *by Duncan James*…….. 147
Geology 2022 *by Moira Jenkins*……..... 164
Mycology 2022 *by Jo Weightman*…….. 169
Ornithology 2022 *by Rachel Jenkins*…… 173
Herefordshire Nest Box Recording Scheme Summary *by David Coker*……..... 180
Weather 2022 and Weather Summary 2013 to 2022, *by Ian Porter*…….. 185

**Book Reviews 2022**
*Miss Chave's Diary, 1897-1898* edited by Angela Hodges……... 186
*Constable John Richardson, Policing in Early Victorian Leintwardine* by Robert Cock……..... 187
*The First Stones, Penywyrlod, Gwernvale and the Black Mountains Neolithic Long Cairns of South-East Wales* edited by William Britnell and Alasdair Whittle…….. 189
*Offa's Dyke Journal, Volume 4, Borders in Early Medieval Britain* edited by Ben Guy, Howard Williams, and Liam Delaney……... 192
*Downton Gorge, The Matchless Valley* edited by Tom and Gisèle Wall…….. 194
*Downton Postcards* by Mark O'Hanlan……. 197
*The Making of England from Rome to the Reformation* by Toby Purser……... 198

**Index 2022**……. 200

# Transactions Extra, 2022

No new material was published in the Club's *Transactions Extra* format (online only) in the calendar year of 2022.

However, supporting research information, too extensive to include within this edition of the *Transactions*, will become available online to supplement Rachel Anna Sycamore's paper, 'Church Chests in Herefordshire Revisited: New Perspectives on Their Dates and Construction' (pp. 112-135 below). Online publication will be timed to coincide with the publication of this volume.

# LIST OF COLOURED PLATES

**The Mordiford Dragon** *by Janet Cooper*

Plate 1.1 Drawing from Thomas Dingley's *History from Marble*, v.2, p cclxv. Completed in *c*.1684 but not published until 1868

1.2 Notes about the Mordiford dragon included in the papers of the Herefordshire antiquary Thomas Blount (d.1679)

1.3 Arms of St Guthlac's priory from *Heraldry of Herefordshire*, 1848

1.4 Undated and unsigned picture of Mordiford Church from the north-west, before partial rebuilding, showing the dragon on the western gable

1.5 Detail from map of 1815 (BL OSD 204) showing key places including the rivers. Sources describe the line of Serpent's Lane in different ways

**Dorstone Hill: An Early Neolithic Hilltop Complex in South-West Herefordshire** *by Keith Ray and Julian Thomas*

Plate 2.1 Trench 1 (2011) under excavation, viewed at a distance from the south

2.2 Working shot of Trench 1 under excavation, seen from the north

2.3 Trench 3, sited across the centre of the middle long mound

2.4 L-shaped lengths of timber, thought to be the first such structural roofing timbers of Neolithic date discovered anywhere in Britain

2.5 Trench 3, early in the 2013 season, from the north-west

2.6 Trench over the western building in 2014, from the east

2.7 The eastern mound as exposed in 2015

2.8 Interior view of a reconstructed bark longhouse of the Seneca, an Iroquoian people

2.9 Eastern building: debris and remains of wooden flooring 'slabs'

2.10 Concentration of timbers, including traces of the horizontally laid slabs of the timber floor

2.11 Area of Plate 2.10 after removal of the timber flooring, showing the base of a wooden post which formed a fixed upright rising through the floor

2.12 The drum-shaped 'commemorative' pit, dug during the Neolithic period into the western end of the eastern long mound, directly beside the linear burial chamber

2.13 A finely polished flint axe, found in the pit (Plate 2.12), made from a type of flint (containing fossils) that is highly distinctive

2.14 Bifacially flaked flint knife, from the 'commemorative' pit of Plate 2.12

2.15 Cremated animal bone—mainly of cattle—laid on the stone slab paving lining the base of one of the shafts dug down into the east mound

2.16 The north-eastern line of ditch segments of the causewayed enclosure

2.17 A large, slab-like piece of a carinated bowl vessel, seen in a bowl-shaped recut of one of the ditch segments of the causewayed enclosure

2.18 The single largest piece of rock crystal from Dorstone Hill, deliberately placed in in an oval grave-pit close to the linear burial chamber

**Herefordshire's Ice Age Ponds: Geology and Ecology** *by Will Watson, Giles King-Salter, and Beth Andrews*


Plate 3.1 Map showing locations of 1,500 potential Ice Age Ponds
3.2 Map of the Hummocky Moraine
3.3 Linear Pool West at Moccas Park, possibly a glacial outwash channel
3.4 Aerial view of frozen Ice Age Ponds at The Sturts East HWT Nature Reserve, January 2023
3.5 Ice Age Pond at Norton Wood Orchard HWT Reserve, a shallow. saucer-shaped profile with zonation of marginal vegetation. May 2022
3.6 Warren Eastwood (left) taking a core sample from Medlands Pond
3.7 Tubular Water-dropwort *Oenanthe fistulosa* at Turner's Boat
3.8 *Agabus undulatus* from Mere Pool, Blakemere
3.9 Lesser Spangled Diving Beetle *Graphoderus cinereus* among Bladderwort *Utricularia australis*
3.10 Brandt's Bat *Myotis brandtii* trapped at Mere Pool, Blakemere, 4 May 2022
3.11 RAF aerial photograph of field taken in 1946 with lots of Ice Age Ponds. Digitised by David Lovelace, Herefordshire Water Meadow Survey
3.12 The same field in 2021 with dry Ice Age Pond depressions
3.13 Ice Age Ponds on The Sturts East HWT Reserve
3.14 Ice Age Pond on National Trust land near Kenchester, with dense Crack Willow trees and scrub
3.15 Lapsed Crack Willow pollard casting heavy shade at Mere Pool
3.16 The same tree re-pollarded and other willows felled
3.17 The eastern margin of the Mere Pool colonised by Water Forget-me-not and other macrophytes
3.18 Aerial view of Ice Age Ponds at The Sturts East and the restored ghost pond, March 2023
3.19 Ghost pond excavation at The Sturts East in August 2021


**Home Defence in Herefordshire in the French Revolutionary and Napoleonic Wars, Part 1: 1793-1802** *by John C. Eisel*


Plate 4.1 Contemporary satirical cartoon of the Supplementary Militia by James Gillray: scurrilous no doubt, but likely to reflect some public scepticism
4.2 Engraving of Moccas Court, published in 1789, based on James Wathen's watercolour of 1788. It was later hand tinted
4.3 The uniform of the 36th regiment of foot, associated with Herefordshire, as it was in 1792 just prior to the French Revolutionary Wars
4.4 A Brown Bess, a flintlock musket of the type that would have been used by the local volunteers, made in 1800 by Henry Nock
4.5 A fine lithograph of Sir John Geers Cotterell. He was the colonel of the Herefordshire Regular Militia


**John Monkhouse**, **'That Devill of a Farmer at The Stow'** *by Peter Klein*


Plate 5.1 *Carte-de-visite* portrait, shown at actual size, taken towards the end of John Monkhouse's life in the 1860s

5.2 The Stowe from the south, on the lane to Millhalf Farm
5.3 Brass memorial to John Monkhouse in Whitney-on-Wye parish church, on the north wall of the chancel
5.4 Enlarged image of John Monkhouse, taken from the *carte-de-visite* of Plate 6.1. (Original taken in the studio of Richard and Marion Bustin)

**Church Chests in Herefordshire Revisited: New Perspectives on Their Dates and Construction** *by Rachel Anna Sycamore*

Plate 6.1 Boarded-box chest at St James the Great, Cradley
6.2 Boarded-box chest at St James the Great, Cradley, with lid open and partition visible
6.3 Hinges and ring on the lid of the chest at St James the Great, Cradley
6.4 Boarded-hutch chest at St John the Baptist, Mathon
6.5 Cross and hinges with fleur-de-lis terminals on the chest lid at St John the Baptist, Mathon
6.6 Inscription on the chest lid at St John the Baptist, Mathon
6.7 Panelled chest at Holy Trinity, Bosbury
6.8 Clamped chest at All Saints, Hereford
6.9 Clamped chest at All Saints, Hereford, with lid open
6.10 The dug-out Chest II at St George's, Orleton
6.11 Chest II at St George's, Orleton: the left-hand end of the chest
6.12 Chest II at St George's, Orleton: the heraldic fleur-de-lis added to the split-curl terminal
6.13 Dug-out chest at St Michael's, Kingstone
6.14 Dug-out chest at St Bartholomew, Munsley
6.15 Dug-out chest at St John the Baptist, Lea
6.16 Interior of dug-out chest at Lea, showing saw marks, stock lock, and till. Red lines indicate the direction of the saw marks
6.17 Dug-out chest at St Weonard's, St Weonards
6.18 Dug-out chest at St Mary's, Foy
6.19 Saw marks on the underside of the chest lid at St Mary's, Foy

**Archaeology 2022** *by Keith Ray*

Plate 7.1 Snodhill Castle: the complex arrangement of walls at the eastern end of the chapel and the feature interpreted as an altar-base
7.2 Snodhill Castle: the remains of an otherwise undocumented postern gate
7.3 A drone-based, aerial photogrammetric image of the 2022 excavations at Arthur's Stone
7.4 Drystone walling, forming the southern hornwork of the south-east facing façade at Arthur's Stone, as exposed in 2022

**Botany 2022** *by Stuart Hedley*

Plate 8.1 Distribution of the threatened Heath Dog-violet at Ewyas Harold Common
8.2 True Fox-sedge *Carex vulpina* (left) photographed alongside False Fox-sedge *Carex otrubae.* The Sturts Nature Reserve, June 2022

8.3 Bullace (left) photographed alongside *Prunus x fruticans*
8.4 Hybrid vigour shown by the orchid *Dactylorhiza x hallii*
8.5 Henbane *Hyoscyamus niger* popped up at Brockhampton in 2022 after an earth-moving operation
8.6 Two-year-old scrape in peat in a basin mire near Kington, with two uncommon species, Bog Pondweed *Potamogeton polygonifolius* and Pond Water-crowfoot *Ranunculus peltatus*
8.7 Hairy Bindweed *Calystegia pulchra*, Downton-on-the-Rock, July 2022

**Geology 2022** *by Moira Jenkins*

Plate 9.1 From left to right: The Darens, the Olchon Valley, and the Cat's Back
9.2 Cat's Back on the edge of the Black Mountains, a narrow ridge or arête. Olchon Valley to the right and Herefordshire Plain to the left
9.3 Soft sediment deformation in the Senni Formation
9.4 Pronival rampart, a steep-sided ridge composed of large angular blocks of rock running parallel to the hillside
9.5 The landslip area at Black Darren
9.6 Kettle hole pond at Medlands, after clearance work. The pond is sited in an area of hummocky moraine
9.7 Upper Hall Quarry in 2017 when the rock faces were obscured
9.8 Upper Hall Quarry in 2017 when the rock faces were obscured (second view)
9.9 Upper Hall Quarry after site clearance work in 2022. The Wenlock / Ludlow boundary is clearly visible about halfway up the quarry face
9.10 About half of the long quarry face at Upper Hall Quarry. Much Wenlock Limestone at the base is overlain by more thinly bedded Lower Ludlow Shales
9.11 Postcard of the Knighton geological map, Sheet 180, produced by a team of volunteers, since as yet there is no British Geological Survey map for the area
9.12 View from the British Camp. The scenery is shaped by a plunging anticline, outlined by wooded ridges comprised of Much Wenlock Limestone and Aymestry Limestone
9.13 Huntsham Hill, entrance to former railway tunnel. Massive beds of Lower Dolomite above the tunnel arch overlie thinner-bedded Upper Ludlow Shales, seen on each side of the cutting
9.14 Crags of Upper Devonian Quartz Conglomerate Rock, laid down in a period of flash floods in the Upper Devonian. Occasional jasper pebbles are found and there are lenses of current-bedded sandstone

**Mycology 2022** *by Jo Weightman*

Plate 10.1 *Hygrophoropsis aurantiaca***,** a collection illustrating the main characters
10.2 *Hygrophoropsis aurantiaca*, in sheets in a conifer plantation
10.3 *Pluteus umbrosus*, several on an old log, Brockhampton Estate, Oct. 2022
10.4 *Pluteus umbrosus*, showing the dark-brown edge to the gills. Seen at Brockhampton Estate, October 2022

10.5 *Panus conchatus*, a good clump on a fallen beech, with fading violet tones. Moccas Hill Wood, July 2021

10.6 *Cyclocybe* (*Agrocybe*) *cylindracea*, a clump of this rather uncommon agaric growing on a poplar stump. Seen in Long Wood, Stockton, November 2022

10.7 *Fomitopsis pinicola* growing on a fallen beech, New House Wood, November 2022

10.8 *Pterula multifida*, part of a large colony growing in a polytunnel in Hereford, November 2022

10.9 *Auricularia mesenterica*, a fully dilated example growing on a poplar stump. Seen at Kentchurch Court, 2022

10.10 *Libertella faginea*, the imperfect state of the pyrenomycete *Quaternaria quaternata*, emerging through the bark of a fallen beech. Moccas Hill Wood, August 2022

10.11 *Spathularia flavida*, a fan-shaped Ascomycete growing in the litter in a conifer plantation. Seen on Cefn Common, October 2022

**Ornithology 2022** *by Rachel Jenkins*

Plate 11.1 Firecrest

11.2 Long-tailed Duck in winter plumage

11.3 Red-necked Phalarope in winter plumage

11.4 Snow Bunting

11.5 Osprey

# LIST OF FIGURES


*Page*

**Dorstone Hill: An Early Neolithic Hilltop Complex in South-West Herefordshire** *by Keith Ray and Julian Thomas*

Figure 1 Dorstone Hill, location plan 46
2 Site plan at the end of excavations in 2019 49
3 Plan of the mounds at Dorstone Hill 51
4 Outline plan of the causewayed enclosure at Dorstone Hill 56

**Herefordshire's Ice Age Ponds: Geology and Ecology** *by Will Watson, Giles King-Salter, and Beth Andrews*

Table 1 Aquatic invertebrate groups recorded during the Ice Age Ponds project 2019-22 79

**Home Defence in Herefordshire in the Napoleonic and French Revolutionary Wars, Part 1: 1793-1802** *by John C. Eisel*

Figure 1 Title page of Uvedale Price's *Thoughts on the Defence of Property* (1797) 92
2 Manual, prepared by Williams Allen, Esq., and issued in 1798, detailing formation and movements to be carried out by the troops of Yeomanry 95

**Church Chests in Herefordshire Revisited: New Perspectives on Their Dates and Construction** *by Rachel Anna Sycamore*

Figure 1 Types of church chest found in Herefordshire 113
2 Plan drawing of Cradley chest 118
3 Plan drawing of Mathon chest 119
4 Plan drawing of Orleton Chest II 122
5 Methods of timber conversion and the boards they produce 125
6 Methods used to attach a lid to dug-out chests in Herefordshire 127

Table 1 Survey summary: church chests in Herefordshire by type 116
2 Church chests in Herefordshire recorded for the first time in current research 117
3 Dug-out chests in Herefordshire with footprints in $m^2$ 121
4 Dug-out church chests dated by dendrochronology in England 123
5 Histogram of saw marks in 155 tree-ring-dated buildings across England 126
6 Herefordshire's dug-out chests: lid types and date ranges 128

**Buildings 2022** *by Duncan James*

Figure 1 Nine-panel, counter-change ceiling, Church House, Yarpole 147
2 Distribution map for counter-change ceilings in England and Wales 148
3 A plan of the hall and crosswings at Little Moreton Hall, showing the layout of the twelve-panel counter-change ceiling in the solar range 148

| | | | |
|---|---|---|---|
| | 4 | Angel House, Kingsland, showing timber framing behind the brick façade | 149 |
| | 5 | Kingsland, showing Angel House with the present Inn on the right and present shop & post office on the left. (O/S 25in., 1888) | 149 |
| | 6 | Ground plan sketch of Angel House | 150 |
| | 7 | Angel House. First-floor window on the east face of bay 3 | 150 |
| | 8 | Angel House. The oriel window under the east-end jetty of the crosswing | 151 |
| | 9 | Angel House. The counter-change ceiling in bay 4 | 152 |
| | 10 | Tudor House, Yarpole. The east elevation, with bays and trusses marked | 154 |
| | 11 | Western Lye Farmhouse. East elevation | 155 |
| | 12 | Western Lye Farmhouse, labelled as Upper Lye on the OS map of 1886 | 156 |
| | 13 | Sketch plan of Western Lye Farmhouse | 156 |
| | 14 | Cruck truss T2, north elevation. Western Lye Farmhouse | 157 |
| | 15 | Eaton Hall. South elevation | 160 |
| | 16 | Eaton Hall, OS 6-inch map 1902 | 161 |
| | 17 | Eaton Hall, ground plan. (RCHME 1934) | 161 |
| | 18 | Eaton Hall, the east crosswing. East elevation | 162 |
| | 19 | Eaton Hall, the east crosswing. North elevation | 162 |
| | 20 | Eaton Hall, the east crosswing. Sketch of north-elevation doorway | 162 |

**Ornithology 2022** *by Rachel Jenkins, with Herefordshire nestbox recording scheme summary by David Coker*

| | | | |
|---|---|---|---|
| Table | 1 | Rarities seen in Herefordshire, 2021 | 177 |

The following are included within the nestbox recording scheme summary:

| | | | |
|---|---|---|---|
| Table | 1 | Overall results for the last 10 years, 2013-2022 | 180 |
| | 2 | Species results for 2022 compared with 2021 & 2020 | 181 |
| | 3 | Numbers of Blue Tit (BT) and Great Tit (GT) nests at each site | 182 |
| | 4 | Comparative success rates in fledging for various species over the last four years | 183 |
| | 5 | Pied Flycatcher results summary, 2000-2022 | 184 |

**Weather 2022** *by Ian Porter*

| | | | |
|---|---|---|---|
| Tables | | Weather 2022 and Weather Summary 2013 to 2022 | 185 |

# Obituary: Rosamund Skelton



Rosamund Skelton's many friends were sad to hear of her death in January 2023. Despite battling against cancer for some years she remained cheerful, her curiosity and humour shining through.

Rosamund Skelton, *née* Hickling, was born in Argentina, the daughter of a well-travelled engineer. She grew up in Yorkshire and read geography at UCL before her career in town and country planning, mainly in Herefordshire. Whilst living in the county she married her husband, Les. Her interests included archaeology, local history, geology, rambling, and canoeing, all of which she pursued with characteristic energy. She was twice President of the Woolhope Club, in 2000 and 2010, and served several times as chair of the Club's Archaeological Research Section.

Rosamund was committed to practical research, spending a great deal of time in the field, trowel, ranging rod, or measuring tape in hand. She was an early member of the Offa's Dyke Association, and many will remember her work with the Herefordshire City and County Archaeological Trust. She participated in projects, surveys, and excavations in locations as diverse as Hereford, the Croft Ambrey hillfort, Bromfield, and the former Leominster canal, where she and Les shared a leading role over many years in surveying, measuring, and photographing the sites and structures.

As a prolific local historian, Rosamund often wrote for the Woolhope Club's *Transactions*, *Herefordshire Archaeological News*, and special publications. In the *Herefordshire Miscellany* of 2011, she contributed a fine piece on parish boundaries, with special reference to the Greytree Hundred. Her investigations of deserted medieval villages in Herefordshire were particularly important, giving rise to a succession of reports and papers; her presidential address, entitled 'Herefordshire: the evidence for and against medieval dispersed settlement' (*TWNFC* 59 (2011), pp. 27-55), was a substantial one.

Rosamund's contribution to geology was just as important. She was a member from the very beginning of the Herefordshire and Worcestershire Earth Heritage Trust (EHT), formerly called H&W RIGS Group, served on the Executive Committee and then, when the EHT became a charity, acted as a Trustee until 2015. Her advice and expertise in planning matters proved particularly valuable when she sat on the panel designating sites as Regionally Important Geological / Geomorphological Sites, now called Local Geological Sites. She played a major role in the site audits needed to develop the Geodiversity Action Plan Audit for Herefordshire, whilst her contribution to roadshows, trail guides, and initiatives to communicate about Herefordshire's geology was tireless.

Somehow Rosamund found time for other activities too, serving for two years as President of the Hereford County Canoe Club, singing with the Ross Choral Society, helping to raise funds for the Herefordshire Samaritans, and rambling whenever the opportunity arose; remarkably she walked up Scafell Pike in 2019 when her illness was already advanced.

Few people touch the lives of others with so much energy and such willingness to contribute. The Club extends its condolences to Sarah, Rosamund's daughter, and her family.

# Obituary: Gwilym Rees, 1929-2022



In October 2022, members of the Club were sorry to learn of the death of Gwilym Rees. Born in 1929 to a farming family in Garway, he went to school in Monmouth where he excelled in mathematics and science. The family farm was sold, so at sixteen years of age, Gwil went to Rugby as an engineering apprentice. He then joined the RAF and served in many parts of the world, both as an engineering officer and a qualified pilot, an unusual combination, reaching the rank of Group Captain. When he retired, he and his wife, Mary, settled in Leominster in a house with a large garden, his pride and joy.

Gwil joined the Woolhope Club in 1986 and was elected President for 1992-3. He served as the Club's lanternist for many years, but his greatest contribution was as an Honorary Librarian, in which capacity he served devotedly for twenty years.

The Club's collection of books, manuscripts, and memorabilia had been housed in the Woolhope Room since 1875, but, by 1995, the Woohope Room was also being used as a storeroom and the Club's library and collections were at serious risk. In January 1995 the Club sought to make an inventory of the collection. This served to demonstrate the scale of the task ahead, eventually grasped by Gwilym and Jackie Jonson, with help from Frank Pexton. Gwil and Frank set about repairing broken bookcases and collapsing shelves whilst Jackie started the long process of identifying and retrieving the Club's books and putting them in order. Over the next five years the team completed the work of cataloguing, organisation, and shelving, thus bringing the room back to a condition in which it could once again be used as a working research library.

At this stage, the Club formally appointed Gwilym Rees and Jackie Jonson as Honorary Librarians, with two crucial responsibilities: to maintain the restored library in good order; and to ensure that the collections of books and manuscripts could be accessed by anyone who wished to consult them, whether they were Club members or not.

Ever since, the Woolhope Club's collection of rare books and manuscripts has been available every Thursday to all who wish to see them. For twenty years Gwil was always in attendance to help visitors with their research. His unswerving commitment ensured that the Woolhope Room was lost neither to the Club nor to researchers, and that the Club's valuable and irreplaceable collection would not have to be dispersed. The Woolhope Club, researchers, and the wider community of people interested in Herefordshire owe him a tremendous debt of gratitude.

# List of Officers 2022/23

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Preliminary enquiries about proposed articles intended for inclusion in future issues of the Woolhope Club *Transactions* should be made to the editor via the website. Please request a copy of the *Notes for Contributors to the Transactions* or see the website: www.woolhopeclub.org.uk. Other officers can also be contacted via the website.

# List of sub-committees 2022/23

GEOFFREY WALTER SMITH FUND

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# Proceedings 2022

## SPRING MEETINGS

All spring meetings were held in the Town Hall, Hereford.

### First Spring Meeting

Saturday 8 January 2022; Prof. Rachel Jenkins, Vice-President, in the Chair. Mr Chris Robinson, the Herefordshire representative for the British Trust for Ornithology (BTO) and a member of the Hereford Ornithological Club (HOC) Committee, gave a talk on the Curlew Conservation Project.

An article in *British Birds* (issue for November 2015) had pointed out that between 1995 and 2013, the Curlew population in England had declined by 32% and in Scotland by over 50%. Between 1993 and 2006 the decline in Wales was 75% and in Northern Ireland 82%. The decline had been confirmed by the BTO's *Atlas of Breeding Birds.* A month later, in December 2015, when *Birds of Conservation Concern 4 (BOCC 4*) was published, the Curlew appeared on the Red List of most endangered species; its population had plummeted by 50% since *BOCC 1* had been published some twenty years previously.

To respond to this situation, in 2016 the Hereford Ornithological Club (HOC) had set up the Herefordshire Curlew Conservation Group, led by Mr Robinson. He explained its aims: to assess the initial situation; to work with landowners to minimise agricultural disturbance during nesting and post-hatch periods, until the birds had fledged; to understand the causes of nest failure; to adopt strategies to protect nests from predators and damage; and to work with other Curlew-related projects in the UK lowlands to share knowledge, conservation methods, and progress. In 2017, the Group had joined the Lowland Curlew Forum, a broad initiative across England and Wales.

Mr Robinson noted that Curlews could live for twenty-five years. The birds spent the winter on the coast, in estuaries, and sometimes on the continent, but returned in March to re-form their pair bonds, laying eggs at the end of April; hatching took place at the end of May and fledging in July. He explained that Curlews were faithful to sites known to them, returning to where they were born and where they first bred; in Herefordshire, around thirty Curlews could often be found on the Lugg meadows when they were still flooded, feeding and pairing up before they dispersed to breed. Mr Robinson outlined vulnerabilities inherent in the breeding habits of Curlews; they laid four eggs over about six days in a depression on the ground and began incubation once all eggs were laid, so that they all hatched together. Subsequently, for about five weeks when the young birds were unable to fly and vulnerable to predators, they were guarded and warned about potential danger by their parents.

The *Herefordshire Bird Atlas 2007-2012* had indicated that the Curlew was likely to breed in sixty tetrads (2km squares); this was confirmed to be the case in nineteen tetrads and deemed probable in thirty-one. By the end of 2017, the estimate had been revised downwards since the group found only thirty-seven sites worth investigating.

Mr Robinson believed that changes in land use and agricultural practice (including cutting for silage instead of hay, since young birds on the ground had no defence against farm machinery) was contributing to decline as was predation from foxes and Carrion Crows. Monitoring by the Shropshire Curlew Group had found that only 25% of eggs hatched; foxes were thought responsible for around 50% of this predation, while crows, badgers and others

accounted for the remainder. The three young birds that had been tagged had all been predated. These results led the Shropshire group to initiate work to place electric fences around Curlew nests.

Mr Robinson went on to describe similar action taken in 2018 to fence nests on the Hampton and Lugg meadows, where crows seemed to be the main predators. In the light of survey results—three nests had been predated, two had produced young, two chicks were known to have fledged, and several new sites had been identified where Curlew might have nested—the Herefordshire group had borrowed some electrical fencing from the Herefordshire Wildlife Trust and placed energisers in a 20 x 20m square around vertical posts. Caps were placed over the eggs to keep them warm during the twenty minutes required for fence installation; on completion of each fence, the bird returned to resume incubation.

Mr Robinson reported progress in 2020. Six birds were known to have fledged from three sites (with four more hatching but failing to survive), and a further five probable sites had been found. Work using drones with thermal-imaging cameras had not proved effective at finding nests but might yield results in future. Nearly all farmers had proved willing to delay cutting their meadows until birds had fledged. In 2021, the cold spring had dissuaded some birds from breeding and at least six pairs laid eggs again after the initial ones were predated. However, despite greater success in finding nests (seven were discovered), fewer birds appeared to have fledged than in 2020. Four had been colour ringed after reaching the minimum age of three weeks.

The main Curlew sites in the Wye flood plain and Black Mountains were outlined along with the requirement for each pair to produce 0.4 chicks to sustain the population; since the best year for fledging (in 2020) produced a recruitment rate of only 0.25 from (say) twenty-four nests, the results were far from satisfactory.

Finally, Mr Robinson reviewed methods to control predation and their potential to succeed. The Curlew Recovery Partnership was working with DEFRA to support farmers in helping the Curlew, and new legislation—e.g., Environmental Land Management Schemes (ELMS) 2024—might help. The principles of Headstart, a breeding programme previously applied to birds like Black-tailed Godwit, might buy time until habitats could be rendered safer for breeding; the method involved taking a clutch of eggs from a nest (prompting the adults to lay another clutch immediately), placing them in an incubator, putting the hatchlings into a pen until they fledged, and finally releasing them into the wild. Although the Shropshire Curlew Group were doing this in collaboration with the BTO and RSPB, the work was unlikely to be done in Herefordshire because it was too labour intensive.

An engaged audience asked many questions, including whether squirrels predated eggs or chicks (no); whether cattle and sheep grazing resulted in trampling of chicks (probably); and whether shortage of insects resulting from soil damage by animal antibiotics and antihelminthics could be a factor (possibly).

**Second Spring Meeting**

Saturday 29 January 2022; Mr David Whitehead, President, in the chair. Dr Colin Prosser, of Natural England, gave a talk entitled ‘Natural Foundations, the Role of Geology in Nature Conservation’. He began with a tribute to Dr Paul Olver, a tireless communicator about geology, a Council member of the Geologists’ Association, and three-time President of the Woolhope Club, who had died in 2021. He was sadly missed.

Dr Prosser outlined terms that were important to his theme, in particular geomorphology

and geodiversity, and how they so fundamentally underpinned different types of landscape. He reviewed the notion of geoheritage, that is elements of geodiversity whose particular geological value made them worthy of safeguard for the benefit of present and future generations. The phrase 'particular geological value' had caused debate; not only were scientific and educational factors important but also the recreational and wider cultural value arising.

He defined geoconservation as 'action taken with the intent of conserving and enhancing geological, geomorphological, and soil features, processes, sites, and specimens, including associated promotional and awareness-raising activities, and the recording and rescue of data or specimens from features and sites threatened with loss or damage'. A very simple formula—Value + Threat = Need—could help assess whether geoconservation was required. Value might derive from the diversity which the geology lent to the landscape or to its international scientific importance.

Early examples of geoconservation had been seen in Scotland, with work to prevent damage to Salisbury Crags in Edinburgh in the 1820s to 40s, and the remarkable committee, established in 1872, to identify boulders worthy of preservation and to work with landowners and tenants to protect them. The earliest example in England, dating from 1873, had protected carboniferous stigmarias in Sheffield. In 1945-7, government planning had progressed considerably, via the subcommittee on National Geological Reserves in England and Wales, chaired by Herbert Smith; as part of its work, several important sites in and around Herefordshire were identified. The National Parks and Access to the Countryside Act of 1949 included geoconservation for the first time, coincided with the establishment of an organisation to implement it (the Nature Conservancy), allowed for the designation of National Parks and Sites of Special Scientific Interest (SSSIs), and also the acquisition and declaration of National Nature Reserves (NNRs). This Act was pivotal.

Dr Prosser outlined the crucial role of SSSIs (e.g., Wayne Herbert Quarry in Herefordshire) and NNRs (e.g., in Dudley, the Wren's Nest and Saltwells, the latter from 2020) in geoconservation. He also stressed the contribution of local studies (Regionally Important Geological and Geomorphological Sites or RIGS). In the UK today the World Heritage Site of the Jurassic Coast and seven UNESCO Global Geoparks (the nearest to Herefordshire being the Black Country and Fforest Fawr Global Geoparks) were playing an increasing role: in helping people to understand geology, landscape, the environment, and climate change; in training and education; in planning sustainable use of natural resources; and in generating a sense of place.

The emphasis of Dr Prosser's talk now changed to explore, with fine illustrations, the particularly diverse geology of the UK and how that affected every aspect of the natural world. He reviewed upland, lowland, and coastal Britain, the range of soils, and the huge range of plant and animal life arising. Geology and geoconservation affected industrial and cultural heritage in many ways too, as seen in mining areas and terrain suitable for prehistoric or other monuments. It was often a driver in inspiring tourism and generating social and economic benefits. Among excellent photographs of well-known locations—such as the Giant's Causeway and the Malvern Hills—comparative pictures of the Saltwells NNR in 1921 and 2021 were some of the most dramatic. The contribution which geoconservation had made there, to protecting geology, wildlife, and industrial heritage, was impressive.

Dr Prosser concluded by reviewing the importance of geology and nature conservation in a world where populations were growing, demand for development land and resources was increasing, the climate was changing, and people had less engagement with, and understanding of, the natural world. There was a powerful case to argue, based around intrinsic value—for

instance in engaging with nature and deep time, whether in rural or urban settings, or in holistic understanding of the world—and around delivery of major practical benefits. These could include effective planning for the future, informed by knowledge of past extinction, change, and recovery; and provision of specific services, such as flood buffering on rivers and clean water. Annual funding linked to the World Heritage Site of the Jurassic Coast amounted to £111 million, associated with 2000 jobs, whilst UNESCO designations in the UK were generating £151 million. With the committed support of organisations such as Natural England and the Geologists' Association, the UNESCO International Geodiversity Day (IGD), planned for 6 October every year from 2022, was generating strong awareness and promoting successful local action.

In his concluding remarks, Dr Prosser reinforced key themes: that geology was an integral part of nature; that it provided the 'natural foundation' of landscape, nature, and society; that geological conservation underpinned nature in its widest sense; and that nature conservation was most effective when delivered in a holistic, integrated fashion. Finally, he stressed that the IGD initiative provided a wonderful new opportunity to promote geodiversity and conservation, whether in Herefordshire or globally.

A number of those who attended the meeting already played an active role in geological conservation and those who did not were hugely supportive. That was reflected in questions and the sincere thanks given to Dr Prosser.

**Third Spring Meeting**

Saturday 19 February 2022; David Whitehead, President, in the chair. Dr Toby Purser gave an illustrated talk on 'The Holme Lacy Charter, 1085'.

Dr Purser drew attention to V. H. Galbraith's article 'An Episcopal Land-Grant of 1085' in *English Historical Review* 44 (1929), pp. 353-72. He described the grant as 'an early and rare document'. It portrayed the relationship between King William; Robert, Bishop of Hereford; and the richest layman in the shire of Herefordshire, Walter de Lacy. With the patronage of William fitzOsbern, the de Lacys had enjoyed the favour of the Norman kings and became the dominant family in the southern Marches.

Dr Purser noted that the original document was beautifully written and relatively easy to read. It concerned the grant of the episcopal manor of Holme Lacy (and Onibury, in South Shropshire) from the Bishop of Hereford to Walter, via the King, in return for the Bishop's military service, which he owed as a feudal landowner. This would subsequently be carried out by Walter or one of his knights. Ironically, Walter had not enjoyed the manor for long since, in the same year, he died inspecting the work on the church of St Peter, which he had founded in the newly established 'high town' of Hereford. The land had passed to his son, Roger, who then was required to provide the military service.

The de Lacys had fulfilled duties for the bishop, probably by finding a substitute rather than enduring the burden themselves. Churchmen naturally found military service irksome albeit, even in this period, it was not unknown for them to don chainmail and serve the king in person. On this occasion the bishop had obtained the service of two knights, suggesting that the land exchanged was fairly extensive.

Dr Purser believed that three copies of the document had probably existed, but the surviving one had eventually made its way (via Gloucester Abbey, the mother house of the priory of St Guthlac in Hereford, founded by the de Lacys) into the Scudamore archive at Holme Lacy House, where, in a sense, it came home. The Domesday Book of 1086 confirmed the

arrangements made in the charter in 1085.

The speaker stressed that the bargain struck between the Bishop Robert and Walter de Lacy had to be seen in the context of the serious situation that developed soon after the Conquest, with rebellions throughout England, including one led by the William fitzOsbern's son, Roger of Breteuil, in 1075. Critics of William had condemned him for 'creating a desert and calling it peace'. A church headed by Norman bishops had been part of the solution, so that the charter reflects Bishop Robert's contribution to the Norman settlement. He came, of course, from Lorraine in northern France, close to Normandy. To contribute to the new order, Bishop Robert had embarked upon the building of a new cathedral.

So, the charter symbolised the establishment of the new order depicted in the Domesday Book, in which the king, the bishop, and Walter de Lacy were key players in Herefordshire, occupying the largest proportion of the land. Herefordshire, after Roger's revolt in 1075, never had a resident earl as a local figurehead, unlike Shropshire, where Roger of Montgomery held that role. Roger de Lacy would, no doubt, have been keen to hold the position but was never invited; hence, perhaps, his rebellions in 1088 and 1095, against William's son Rufus. Remarkably, through thick and thin the de Lacys survived and the zenith of their power came in the early 12th century. In the speaker's view the Holme Lacy charter was the key document in the political history of Herefordshire in the late 11th and early 12th century.

Dr Purser was generous with his time and answered many questions about Herefordshire in the early Middle Ages. The President proudly informed the audience that Dr Purser had once been one of his students at Hereford Sixth Form College, where, he implied, the Holme Lacy Charter must have been discussed regularly!

**Spring Annual Meeting**

Saturday 14 March 2022; David Whitehead, President, in the chair.

Ian Porter, Treasurer, presented the Club's accounts for 2021, explaining the entries in detail. The accounts were approved, with an appreciative vote of thanks from members present. The accounts are included on p. 33 in this 2022 volume of the *Transactions.* In his capacity as Membership Secretary, Mr Porter reported that, on 31 December 2021, there were 596 members, a net increase of 11 over the year.

The President reviewed events during a busy year, as the shadow of Covid-related restrictions receded, and thanked the Officers of the Club and those who had helped to make the Club's activities successful. He then gave his presidential address on 'Dark Age Herefordshire, 400 to 700 AD', a formative period in the history of Herefordshire and the Marches.

The President noted traditional views, current when he had begun teaching an 'A' level History syllabus which spanned European and British History from the end of the Roman Empire to the 11th century. Significant landmarks were marked in this 'Dark Age' course, but the early portion, after the end of Rome, seemed impenetrable and concentrated on the progress of the Christian church and the consolidation of the barbarian kingdoms—Merovingians, Carolingians, Ottonians etc.—and, in England, Northumbria, Wessex, and Mercia. Curious students had often wondered what was happening in Herefordshire. Although, even then, it had seemed unsatisfactory to him, he had been compelled to fall back upon clichés of Anglo-Saxon conquest and colonisation, based upon standard texts like Sir Frank Stenton's *Anglo-Saxon England* (Oxford, 1945).

The President reviewed the period up to and immediately following the final disengagement of Rome in *c.*410, when the basis of the economy, urban life, the life of villas,

and the accompanying material culture disintegrated quickly across the province of *Brittania*. A fine paper by F. G. Heys and M. J. Thomas, published in the *Transactions* of 1962, had offered a vignette of uncertainty at Kenchester; in the late 4th or early 5th century, sufficient authority had remained to replace an archway and to build a good-quality new road, but it had been little used, and expanded and contracted in width as it ran through the town. No coins dating from after 383 had been recovered. It appeared that bureaucracy and trade were moving elsewhere.

The President stressed that the Roman world in Herefordshire did not end in fire and the sword at the hands of Anglo-Saxon invaders. Instead, between *c*.400 and 700, Christianity, inherited from the Roman period, had continued in the Herefordshire area, represented for example by St Dyfrig or Dubricius (fl. 475-525); another fine paper by R. W. D. Fenn, in the 1968 *Transactions*, had introduced him to the topic, albeit that he had doubted some of Fenn's views about Anglo-Saxons. When new people arrived in or near the county, from the late 5th and early 6th century, they did so as settlers, not as violent mass colonists imposing themselves on the population. Archaeological evidence from graves and other sources offered no suggestion of widespread tension or racial conflict at that time, but rather every indication of co-existence and the emergence of a new society; in reality, both the British people of the west and newcomers, including those from northern Europe, had had no option but to survive and to find new lives, since the economic, political, and material dislocation caused by Roman disengagement had created new circumstances for them all. New arrivals were farmers, not the violent migrants proposed by earlier historians, and not people who had recently disembarked from their dragon-prowed boats on the East Coast.

Moreover, and crucially, the President demonstrated that, in the west, political and religious independence from the influence of developing Anglo-Saxon kingdoms had been maintained into the 7th century. He showed strong evidence, not least from the work of the 6th-century monk, Gildas, that contemporary rulers of much of the west and the Severn Valley had been people with Roman-sounding names. They were likely to have been descendants of those who had held estates in Roman times, albeit in entirely different circumstances; their lands might have helped self-sufficiency and survival, whilst the political void might have enabled some to assume the role of rulers or petty tyrants. Into the 7th century, it appeared that the area of the late Roman province of *Britannia Prima*, covering the region including Herefordshire and governed from Cirencester, had remained under the control of British people rather than that of developing Anglo-Saxon kingdoms. During the 7th century that situation had changed, a process that the President believed had been delayed for some decades by British success in resisting West Saxon incursions at the Battle of Fethanleag in 584. The President analysed what was known of the politics and military movements of the time and made an entirely new case for identifying Fethanleag with Hereford, rather than places in Oxfordshire or elsewhere.

The President took time too to review studies which had suggested that peoples whose names first appeared in later historical documents—for example the Hwicce and the Magonsaete—were Anglo-Saxon. He believed that there was no case for this; whatever their status in relation to Mercia and the Anglo-Saxon kingdoms in later times, he was convinced that their origins lay in earlier British communities.

He went on to explain the development of events in the 7th century. In the mid-7th century, during the time of Penda, King of Mercia, and especially of Merewalh, who was probably his son, north Herefordshire became part of the Mercian sphere of influence. It was possible to point to connections between Penda, Merewalh, and Welsh people, and interesting that Penda, an active military leader, never seemed to have campaigned against Welsh kingdoms.

The processes that led to change in north Herefordshire were connected with the defeat of Penda and the Welsh by the Northumbrians in 651, and essentially political in nature; they led to acceptance of what had by then become the Roman (Catholic) Christian orthodoxy of the Anglo-Saxon world.

This was not true of the south and west of the county, which remained outside Mercian political governance and had not accepted changes to Christian rite. Here, the kingdom of Ergyng, or Archenfield, originally based around Ariconium near Ross-on-Wye (from which Archenfield took its name), continued to exist for some time, even to the east of the Wye.

The President reviewed the evidence for the British church and its organisation, for which Sheila Waddington had assembled a surprising amount of evidence. There was a strong case that the organisation of the church had remained intact, east and west of the Wye, despite political developments. The later diocesan boundaries of Hereford were related to the political and territorial boundaries of an earlier age.

He made the case too for an important and early British church on Castle Green, Hereford, succeeded by the minster of St Guthlac, the Anglian hermit who had had an earlier military career on behalf of King Aethelred. The first cathedral had been built in *c.*800 in the precinct of the minster. He noted the carbon date of 700 +/- 70 years for a body discovered in the graveyard on Castle Green, excavated by Ron Shoesmith in 1973. This suggested that Christian burials had indeed been taking place there long before the establishment of the cathedral. The President had played a very active role at the time of that excavation, especially in work to provide historical context for the archaeology.

In the reigns of Aethelred (675-704) and Aethelbald (716-57), fighting in the area led to the integration of Greater Archenfield, including Herefordshire east of the Wye, into the Mercian polity, even though, as was clear in Offa's time and beyond, the area west of the Wye remained a different matter; there a border zone persisted. The President concluded by stressing that even in the area where Aethelred and Aethelbald had campaigned, annexation represented a political event rather than a mass migration of English settlers. The full process of assimilation into the English political and administrative system, and use of the English language, would take a long time.

## FIELD MEETINGS

### First Field Meeting

Tuesday 26 April 2022; a visit to geological features in the North Malvern area, led by Moira Jenkins, helped by Adrian Wyatt.

Twelve Woolhope Club members joined Moira Jenkins at Tank Quarry and viewed both the rock displays there and the clear example of a granite sill nearby. After walking past the clock tower to the back of the wooded area next to the North Quarry car park, the party observed a fine exposure of a fault line, which branches off the main East Malvern Fault. Movement took place during the Triassic and there is a fault breccia against the surface of the rocks of the Precambrian Malverns Complex. The breccia, whose surface is covered in moss, contains angular fragments of the Malverns Complex. On part of the surface slickensiding can be seen, with the grooves on the rock showing the direction of movement on the fault.

From here the party moved on Ivy Scar Rocks, where the curved surfaces are believed to show the lines of flow of the magma as this microdiorite was intruded. In a quarry overlooking Green Valley decomposing granite was observed, formed by a process known as kaolinization.

The deep, steep-sided valley is eroded along a fault line perpendicular to the line of the hills and is terminated by a fault trending north to south, which runs between North Hill and Table Hill, and then down Dingle Valley.

After climbing over the crest of the hills, the party descended to Dingle Valley, where Dingle Quarry has many interesting types of igneous rock, intruded in different episodes, including granite dykes intruded into dioritic rocks and cut off by a dolerite sill. The top of the sill could clearly be seen with granite above. A chilled margin of the dolerite shows that it was intruded against cold rock. Members of the party carefully examined the calcite crystals which have formed along the junction itself.

After a brief lunch stop, an unconformity between the Silurian and Precambrian rocks could be seen during the walk along the western side of the hills. There was a seashore here about 440 million years ago when beach deposits were laid down against the Precambrian rocks. Since that time, the Malvern Hills have been pushed up at the end of the Carboniferous and the rock layers, originally horizontal, have been tilted steeply to the west.

The party walked on up and over the top of the hills to descend Rocky Valley, where the valley floor consists of periglacial scree formed by frost shattering in the Ice Age. The members returned to Tank Quarry for refreshments and the journey home.

**Second Field Meeting**

Saturday 14 May 2022; 'In the footsteps of Alfred Watkins'. David Whitehead, President, continued his campaign to reinstate the reputation of Alfred Watkins as a serious antiquarian and field worker.

On a warm and close afternoon—which resulted in a thunderstorm the following night—twelve members gathered on Castle Green to admire the well-shorn grass where, in 1924, Watkins first noticed that the Green had once been a burial ground. This was confirmed after a particularly dry summer in 1933 when several buildings were also noticed, one of which Watkins conjectured was a small church. After some basic research, he identified it as the chapel of St Martin, dating, he thought, from the reign of Henry III.

Equally prescient was his sketch plan, published in the *Transactions* for 1933, of a complex building, shown, when excavated in 1973 by Ron Shoesmith, to be the early minster of St Guthlac. Watkins had hoped to carry out some excavations of his own and, in 1934, had obtained permission from the City Council to undertake them, but was delayed by a visit of the English Folk Dancing Society. Sadly, he died the following April. The President pointed out that, although by this time he was a nationally known figure, famous for his 'ley lines' etc., he still displayed a remarkable skill as a scholarly field worker.

The party moved away from the Green to the site of the lower ford below the Victoria Bridge. The President noted that, in 1923, Watkins had examined several trenches being dug in the Bishop's Meadows for sewers; the sections had revealed the profiles of metalled causeways leading to the ford, proof, Watkins believed, of its earlier significance. He also pointed out a large marker stone which he had photographed, on the east side of the river, up against Bartonsham Farm. The undergrowth made it difficult for the party to pinpoint the exact spot, but the general point was made about Watkins's acute observations, notwithstanding that he had made further connections between remote features in the landscape and this spot, linked by 'ley lines' or trackways.

The group walked up the footpath from the river to St James Road where the uncertain future of Bartonsham Farm was discussed. The President mentioned his futile attempt to

persuade Historic England to list it as a typical, and relatively unaltered, example of Hereford's late Georgian classicism. Comment was made too about the walled garden to the east of the house.

The group turned off the public road and into the Bartonsham Meadows where the President produced a LiDAR image, showing that in the past the meadows had been regularly ploughed; hence the 'barley-ham' recorded in the place-name. Watkins had paid close attention to the Row Ditch, a prominent bank which separates the 19th-century housing in Park Street from the meadows. In the *Transactions* for 1931 he noted that it was mentioned in the city records in the 12th century and was sceptical about its association, on successive Ordnance Survey maps, with the Scottish Army, besieging Hereford in 1645. In fact, he suggested that this notion had been the invention of John Webb, author of *The Memorials of the Civil War in Herefordshire* (1879). The President drew attention to the excavations of 2017, which appeared to confirm Watkins's scepticism.

At the eastern end of Row Ditch Watkins had commented on the place-name, 'Crozens', which he considered significant, suggesting, rather typically, that it marked the crossing place of trackways, aligned with the churches of St Owen and All Saints. The President pointed out that the survival of a large open space here probably resulted from its use for public assemblies in the Middle Ages. According to a 12th-century document, the Bartonsham assembly was held 'at a tree nigh to Rough Ditch' and the modern name suggests that it was perhaps marked by a wayside cross.

Following the road to Hampton Bishop under the railway bridge, the Eign Quay was noticed and the group paused at the bottom of Old Eign Hill, close to the Whalebone Inn, now a veterinary surgeon's premises. The President pointed out that there had been much speculation in the local newspapers in the late 19th century about secret passages in and around a feature called Scots' Hole or Mouse Castle. Speculation had been intensified by the engineering work in the last decades of the century, when the new Hampton Park Road was pushed through a small estate called The Vineyard; this had revealed caverns and openings, reputed to be secret passages built by the monks of St Guthlac's Priory. Watkins lived on the new road at Vineyard Croft but was instinctively a rationalist and rejected the folk tales. He consulted the City Engineer and Surveyor (and archaeologist), G. H. Jack, who confirmed that the 'caverns' were entirely natural and typical of an extensive glacial deposit.

After a tiring slog up on to Eign Hill, via Elgar's House at Plas Gwyn, and a view of Watkins's home further along the road, the company took tea in the President's wild garden, upon which apparently Alfred Watkins had no views.

**Third Field Meeting**

Thursday 16 June 2022; Croft Castle: archaeology revisited and a walk to the renewed Fishpool Valley, led by David Whitehead, President.

On one of the hottest days of the year, twenty-one members of the Club and two guests gathered in the car park at Croft Castle with the President. He explained that during the previous ten years he had regularly been involved, in an informal way, in various projects relating to Croft. Sometimes this had been in his capacity as local correspondent for the Garden Trust, but more recently he had been invited by the project manager for the Fishpool Valley Project, Imogen Sambrook, to collaborate with the Volunteer Research Group at Croft in investigating historical sources pertinent for the restoration of the valley *Elysium*. Between 2001 and 2003, he had also been involved, albeit remotely, with Herefordshire Archaeology's excavations on the south and

west fronts of the Castle.

The first stop was at the castellated screen which marks the entrance to the pleasure ground. Here, the President explained the complicated 18th-century history of the Castle, lost by the Croft family and purchased in 1746 by the iron-founder, Richard Knight of Downton, who passed it on to his heir and daughter, Elizabeth. She had married an obscure Welsh landowner, Thomas Johnes, and eventually sold Croft *c.*1790 after a dispute with her son, who had recently built The Hafod, near Aberystwyth in Cardiganshire. Croft was bought by Somerset Davies, a mercer in Ludlow and MP for the town. The President believed that the Gothic entrance screen was probably the last structure added to Croft by Elizabeth Johnes.

The group moved down to view the Castle itself. The President described how it had been deliberately demolished in 1645 by the Royalists, after the death of Sir William Croft at the battle of Stokesay. His youngest son Herbert (1603-91) inherited Croft in 1659, a year before he became Bishop of Hereford. Whilst supervising extensive renovations at Hereford Cathedral, he rebuilt Croft. Although recent tree-ring dating confirmed that virtually every timber in the castle dated from this period, some of the masonry in the body of the building was probably much earlier, including the bases of the four corner towers, which had been the subject of much debate. The guidebook, revised in 2009, reflected recent thinking in suggesting that they were products of the chivalric revivalism which permeated the last years of Elizabeth I's reign, epitomised by Lulworth Castle, Dorset and Ruperra in Glamorgan, both houses with slender token corner towers. According to this view, the builder of the castle would have been Sir James Croft (*c.*1518-90), an old gallant of the Elizabethan Court.

From the south and west terraces of the Castle, the President described the elaborate Renaissance parterres that had been constructed in the 16th century and subsequently, after 1660, in a more baroque manner by Bishop Herbert Croft. He produced the sketch, commissioned by Herefordshire Archaeology, which reconstructed the elaborate enclosures and terraces.

The group moved to the parish church to look at the fine monument of Sir Richard Croft (1487-1509) and his wife Eleanor. Here the President read out part of an unpublished article he had written, making the case for Sir Richard as the builder of Croft on the basis that he had accumulated huge wealth because of his support for the Yorkist kings Edward IV and Richard III. He seemed a more likely candidate that Sir James Croft, who had been almost bankrupt in the late 16th century and, for all intents and purposes, banished from the court of Elizabeth I because of a feud with the Earl of Leicester. The President pointed out other local parallels to Croft dating from the late 15th century, such as Treago Castle, St Weonards, and Bronsil Castle, Eastnor, also built by staunch Yorkists.

After a brief respite in the church the President led the group to the Fishpool Valley. He explained that restoration here had been accelerated by Ash die back, especially virulent at Croft; associated hauling of timber had damaged the paths. Whilst this work progressed, a decision had been taken to renew all the dams in the valley to improve water retention and conditions for the native freshwater crayfish. Archaeology undertaken as a prelude to the rebuilding had indicated that, in the mid-18th century, perhaps when the Knights took over the estate, a more elaborate, and in some places more formal, water garden had been developed, including an ashlar bath house. This was eventually swept away for a more informal and picturesque approach. Various recreational buildings from this period still survived including a domed stone summer house, grotto, and a later cold plunge in a side valley. There was also a 19th-century lime kiln set in its own quarry. The President suggested a deeper exploration on another day since the National Trust had opened up a higher level of footpaths which provided fine views of the valley.

Following the northern track back to the castle, the party became divided, and exploration ended with a scramble down a steep slope, ankle deep in beech leaves, to one of lower dams across the stream. The experience was probably closer to the sublime than the picturesque but there were no casualties, and all gathered for a well-earned cup of tea and energy-restoring cakes.

**Fourth Field Meeting**

Wednesday 20 July 2022; a visit to the excavations taking place at Arthur's Stone, with Prof. Keith Ray, and at Snodhill Castle, with Mr Tim Hoverd.

Thirty-two Woolhope Club members and guests assembled in the visitors' car park set up for this year's excavation at Arthur's Stone. What followed was a day of sustained interest, with access to discoveries as they were being uncovered and thinking as it developed.

The excavations at Arthur's Stone, co-directed by Prof. Julian Thomas of the University of Manchester and Prof. Keith Ray of Cardiff University, continued the 'Beneath Hay Bluff' prehistory project, whilst Tim Hoverd of Herefordshire Archaeology was again directing work at Snodhill Castle. All excavation teams were part of an archaeology field school that encompassed both excavations, staffed by professional supervisors and supported by a variety of specialists. Archaeology students from the British universities and the USA, along with experienced local volunteers, made up the workforce. A new departure was the presence of a Community Engagement Officer, Kate Potter-Farrant, employed by the University of Manchester as a research assistant to organise outreach events and to gauge the total impact upon the local community of July's field project season.

Substantial media interest had ensured that the work at Arthur's Stone was probably the highest-profile archaeological excavation in Herefordshire for several years. Prof. Ray explained that it would investigate a Neolithic monument that was little understood, despite its fame. English Heritage had given permission for excavation in the Scheduled Area, and the Secretary of State for Digital, Culture, Media and Sport had granted Consent for the work on the advice of Historic England professionals. The work would follow up on discoveries made in an adjoining field in 2021.

Prof. Ray noted that the original monument had comprised a turf mound, held in place by a fence of closely set, small wooden posts, perhaps subsequently topped with a cairn. The chamber with capstone and other stone-built features had most likely been erected later still, though apparently not all at the same time. Excavations sought to determine the order in which features had been built; their relationship, orientation, and possible purpose; and how much the monument had in common with Neolithic monuments elsewhere, including those previously discovered on nearby Dorstone Hill. There, mounds covered substantial buildings that had been deliberately burnt.

In a trench in the field to the south, members could see some of the large postholes that run downhill from the south-east corner of the monument, broadly in the direction of the distant Skirrid Hill near Abergavenny. It was likely that a similar row ran from the opposite side, though how far (and whether either line of posts continued past the monument) was yet to be established. An exposed stone might once have been a standing stone, potentially part of an impressive entrance, approached via an avenue of large wooden posts standing in the post-holes. Although work had barely begun in the Scheduled Area, it already appeared that the later monument, built within the area of the initial turf mound, had been surrounded by dry-stone walls, and that the visible chamber and so called 'passageway' were not the only stone-built features. Also, the orientation of the chamber and the likely entrance route were different. At this early stage, the

one certainty was that understanding of Arthur's Stone would soon change, probably radically!

In the afternoon, the party met with Mr Tim Hoverd, at Snodhill Castle, where work in five trenches was strengthening understanding of one of the first castles to be built in stone post-Conquest (by 1071) and its later development in the hands of the Chandos family. The tower, excavated in previous years, was believed to have been built in *c.*1406 in response to the campaigns of Owain Glyndwr. Firm dates were otherwise hard to come by. With his customary energy, Tim Hoverd pointed out that, if an uninvestigated area to the east of the keep proved to be another bailey, Snodhill would be among the largest castles in Herefordshire. Nonetheless, a history of poor building and repairs was evident. The stone keep had evidently proved problematic from the outset whilst later difficulties might have reflected the stretched funds of the Chandos family.

In 2022 members could see that the possible chapel, uncovered in 2021, was indeed such; it was not attached to the castle walls and included an apse-like structure with no apparent entrance. Storage and other features were characteristic of a free chapel. It was thought to have been in use by 1260. In addition, new excavation had not only uncovered a previously suspected entrance to the castle from the north, but also shown that a large defensive work had protected it, represented by a wall that had collapsed towards the entrance above. As often at Snodhill, the fact that stone had been sold on a massive scale in the 17th century—and found its way into many local buildings—made interpretation more difficult.

Members departed with warm thanks to Mr Hoverd, who, like Prof. Ray, had brought the campaign of 2022 alive.

**Fifth Field Meeting**

Saturday 10 September 2022; A visit to the Black Country UNESCO Global Geopark, led by Mr Andy Harrison of the Black Country Geological Society. The Global Geopark, internationally recognised to show landscapes over 430 million years of geological time, extends across the boroughs of Dudley, Sandwell, Walsall, and Wolverhampton. The Club's visit focused on Dudley.

On a fine day, twenty-three members were joined by five members of the Teme Valley Geological Society, for an extensive tour of an area renowned not only for the exceptional interest of the geology but also for its prominent historical role, in quarrying, mining, industry, and the development of geological thinking.

The day began at the Wren's Nest, declared a National Nature Reserve in 1956 and a Site of Special Scientific Interest in 1991, and featuring some forty-five important geological locations. Initially the party passed through trench cuttings where nodular beds of limestone (Silurian Lower Member of Much Wenlock Limestone) were exposed. Mr Harrison explained that, at Snake Pit Quarry, the Much Wenlock Limestone had been extensively quarried from medieval times, first for building stone, then to produce lime mortar and agricultural fertlisers, and later, during the Industrial Revolution, in very large volumes as flux for the numerous blast furnaces that developed nearby. Quarrying stopped in the 1920s, leaving a pock-marked landscape, recolonised by nature in significant part.

Mr Harrison reviewed the remarkable range of fossils found at the reserve—over 700 types, some unique including the famous 'Dudley Bug' (a trilobite), corals, and numerous brachiopods—and pointed out the extensive use that Sir Roderick Murchison had made of the fossils and rock formations found here in his work to define the Silurian Period. Club members noted the strong connection arising, between the Wren's Nest and the Woolhope Dome, the area

where Murchison engaged with the Woolhope Field Naturalists' Club in its early history. The group visited Murchison's View, overlooking Castle Hill at the southern end of the Wren's Nest, where an information panel explained his work and his interaction with the local community.

During the walk through the reserve other major points of interest were observed too, not least the exposures of bentonite layers. There was much discussion about their significance and the possible source of the volcanic activity which had created them.

Before leaving the Wren's Nest, the group visited the Seven Sisters, named after the seven rock columns which originally supported the roof of a huge cavern, from which Wenlock Limestone was extracted and loaded onto canal barges. Mr Harrison explained that extensive work had been carried out to make the area safe, whilst it had become home to several species of bat. The bats, along with some rare plants, meant that the reserve was nationally significant for wildlife as well as geological formations and fossils.

After lunch at the visitor centre of Dudley Canal and Caverns, in the restaurant splendidly named 'The Gongoozler' (a word of doubtful etymology, referring to people who observe activity on canals), the party donned protective helmets and embarked for a trip by barge along the tunnels and caverns through which the canal passes. Here, extensive evidence of the Silurian Period and Dudley's industrial history were observed. The party was impressed with the multi-media techniques deployed within the caverns to communicate with visitors; startling, enjoyable, and effective as means of education.

The final part of the day was spent at Saltwells, designated a National Nature Reserve in 2020, and including three geological SSSIs. Exposures from both the Silurian and Carboniferous Periods could be seen. The reserve originally contained warm, salt-water springs but these were largely destroyed by coal extraction beneath them. Among many other features, Mr Harrison pointed out the unconformity at Brewin's Tunnel, where the Old Red Sandstone has been eroded away, creating a gap of 100m between Silurian and Carboniferous strata. The last stop was made at the Doulton Clay Pit, a quarry of truly impressive scale where three deposition cycles (cyclotherms) were exposed from the Lower Coal Measures Formation of the Carboniferous Period. The fireclay deposit had been extracted for the Royal Doulton China factory at Burslem.

On behalf of the party, Janet Cooper thanked Mr Harrison, who had made a full day enjoyable throughout and who had communicated so much about the geology and the industrial context of the area.

## AUTUMN MEETINGS

All autumn meetings took place in the Town Hall, Hereford.

### First Autumn Meeting

Saturday 19 September 2022. The first meeting of the autumn programme had to be cancelled but has been rescheduled to take place in 2023.

### Second Autumn Meeting

Saturday 15 October 2022; Terry Morgan, Editor, in the chair. Professor David J. Siveter of Leicester University gave the F. C. Morgan lecture, entitled 'The Herefordshire Lagerstätte: Soft-Bodied Virtual Fossils from a Silurian Volcanic Ash'.

Prof. Siveter explained that, at a site in Herefordshire, fossils of numerous marine invertebrates (predominantly arthropods and sponges) dating from the Silurian Period 430 million years ago, were preserved, complete with their soft parts. The locality lay in a region

central to Sir Roderick Murchison's pioneering research which established the Silurian System in the 1830s. Such exceptional preservation (a 'Lagerstätte'), in extraordinary three-dimensional fidelity, was very rare indeed. It had been possible to identify many tens of species from several thousand separate specimens. The locality was of international importance, preserving one of the very few Silurian soft-bodied biotas known in the world.

He briefly described the formations in which the fossils had been found. The fossil-bearing concretions appeared in the context of marine volcanic ash, a layer of bentonite deposited within mudstones of the Wenlock Series Coalbrookdale Formation. In places the bentonite was more than a metre thick, in itself unique in the British geological record. At the time of the deposit, the latitude of the site had lain in the southern subtropics, within the microcontinent of Avalonia. The ash had proved chemically similar to that deriving from contemporary volcanic activity in the Mendips and Southern Ireland, also then in Avalonia, or from what is now the Czech Republic, which was much more distant. More could be done to understand the deposition of ash and the circumstances in which the fossils had formed; the process must have been a rapid one to form concretions that could preserve fossilised soft-bodied creatures.

Prof. Siveter next outlined the techniques used to produce detailed three-dimensional images of these creatures from their fossils. Individual specimens were serially ground to remove extremely thin layers. With each grinding the specimens were then photographed, so that each could be virtually reconstructed from the combined images, a form of tomography. Although in general terms it would be preferable to produce images via non-destructive methods, such as X-Ray computed tomography, the particular chemistry of preservation of the Herefordshire Lagerstätte meant that such alternatives had proved ineffective.

For many in the audience, it was astonishing to view images from so distant a past. For scientists, these virtual fossils offered a unique opportunity to study the palaeobiology, history, ecology, and evolution of the invertebrate groups represented. The majority of the creatures identified had lived on or near the seabed, some sessile (attached to the seabed) and some mobile. Since some of the animals lacked eyes, and given no evidence of algae, it was likely that they had inhabited deep water. Such detailed evidence from 430 million years ago offered entirely new information about the course of evolution for many of the groups and in some cases provided the earliest evidence for the origins of living species.

Prof. Siveter developed his theme by way of examples. The presence of eggs and juveniles in some of the arthropods had provided evidence about the sex of the animals and brooding strategies, suggesting that complexity in the latter had probably developed early in the history of the Arthropoda. A pentastomid pancrustacean was the only fossil of its kind that had been found as a parasite with its host; it might indicate that this group originated as ectoparasites, living on the outside of marine invertebrates. Extensive analysis of molluscs preserved here was strengthening knowledge of how Mollusca had evolved, demonstrating a course of events which could not have been deduced without the fossil evidence. Implications for the evolution of horseshoe crabs were just as remarkable whilst the earliest evidence for the origin of sea spiders had been elucidated. Overall, work based on the virtual fossils was enabling a number of clades (groups of organisms descended from a common ancestor) to be reassessed along with the range of time that applied to their existence and evolution; the cumulative contribution to biological classification and evolutionary science was considerable.

Towards the end of his talk, Prof. Siveter introduced the crustacean *Cascolus ravitis*, preserved as a specimen 8.9mm long and 1.9mm across at the widest point near the head shield. It illustrated themes typical of the Herefordshire Lagerstätte: it was a new discovery with

morphological characters unknown in any other arthropod; preservation down to fine 'micron' details was excellent; and it contributed fresh understanding of the evolution of appendages and possibly respiratory and circulatory function in a stem-group of the Malacostraca.

*Cascolus ravitis* was named after Sir David Attenborough in honour of his 90th birthday. Sir David had grown up on the Leicester University campus, with which Prof. Siveter had been associated for many years. With a hint of mischief, Prof. Siveter challenged the audience to explain how the reference to 'Attenborough' worked. In view of the general puzzlement, he explained as follows. The first word, '*Cascolus',* combined elements of the Latin *castrum* (stronghold) and *colus* (dwelling in), thus alluding to the Middle/Old English source for the surname 'Attenborough', derived from *atten* 'at the' and *burgh* 'a fortified place'. The second word, '*ravitis',* made use of *Ratae,* the Roman name for Leicester, *vita* 'life' and *commeatis* 'a messenger', thus alluding to Sir David's background and unique contribution to natural history.

Prof. Siveter took questions from an audience deeply engrossed in the implications of the discoveries and the technology used to bring them to life. The vote of thanks reflected that engagement and appreciation of the digital images, deriving from the tomography, many of which had been used to illustrate the talk. They constituted a powerful example of how technology could bring the past alive and create entirely new avenues for research, options simply unavailable to previous generations.

**Third Autumn Meeting**

Saturday 12 November 2022; David Whitehead, President, in the chair. Mr David Lovelace gave a presentation on the history and current status of veteran trees in Herefordshire, illustrated using Geographic Information System (GIS) software to overlay historic maps and aerial photographs, so that they aligned accurately with each other and the modern Ordnance Survey (OS) grid.

Mr Lovelace explained that GIS analysed geography and change over time, at any scale and resolution, from county-wide landscapes to the crowns of individual trees. Current aerial photography and data from Global Positioning System (GPS) devices were accurate to a few centimetres. Historic maps and early aerial photography, such as those taken by the RAF in the 1940s, could be 'geo-referenced' in GIS so they aligned with the Ordnance Survey (OS) grid at the level of individual pixels of the digitised originals. When combined, a single GIS file then consisted of individual 'layers' of all these different geographic data sets, providing a powerful and objective analytical tool for historians, archaeologists, geologists, ecologists, land surveyors, managers, or planners. The most advanced and widely used GIS software, QGIS (https://qgis.org/en/site/), was free for anyone to download and start using.

Mr Lovelace went on to explain that he was currently commissioned by Natural England and the Woodland Trust to update the Herefordshire Ancient Woodland Inventory (AWI) using GIS, including all parkland and wood pasture, which had been excluded from the previous AWI. For this he was using the sheets of the first edition Ordnance Survey 25" to mile map, published in 1886/7, but surveyed between 1883 and 1885. These were the first maps that accurately plotted significant trees, both within and outside woodlands. When geo-referenced, their tree symbols coincided with many surviving veteran trees today. He showed similar examples from the 1840 Tithe Maps including Yew trees in Kentchurch Park.

He illustrated many fine examples of Herefordshire's veteran trees from across the county including at Colwall, Brockhampton, Holme Lacy, Moccas, and Dorstone. He focussed on native Lime trees, an ancient woodland indicator species, including an ancient Lime pollard in Bayham

Wood, Canon Pyon, and a large Lime coppice stool in Ravenshot Wood, Vowchurch. A large hedgerow Lime, close to Arthur's Stone, might well be a descendant of the original Lime-tree population of the primary prehistoric woodland on that ridge. Some ancient Lime trees might thus themselves be considered as living archaeology.

However, GIS comparison of aerial photographs, from 1946, 1999, and 2021, had demonstrated some worrying trends, especially in the number of ancient Oak trees that had become unhealthy or died in recent years. Dramatic examples were shown for the oaks at Moccas Park, Holme Lacy Park and Brampton Bryan Park.

In conclusion, Mr Lovelace suggested that a conference to review the current status and future of veteran trees in the county's parkland would be particularly helpful.

The meeting was supportive of his work and a range of questions followed, about practical action that could be taken, and about the role of local authorities and other organisations in protecting veteran trees. The audience thanked Mr Lovelace for raising points that so directly affected the heritage and future landscape of the county, and for the insight he had provided into the technology available and the extensive use that could be made of it.

**WINTER ANNUAL MEETING**

Saturday 26 November 2022; David Whitehead, President, in the chair. The officers of the Club for 2022-23 were appointed, to take office after the Spring Annual Meeting 2023. Mr Philip Hume then gave a talk entitled '"The King's Writ does not run here": The Welsh Marcher Lordships.'

Philip Hume is a leading light in the Mortimer Society and the author of *The Welsh Marcher Lordships: Central and North* (Logaston, 2021). A second volume on the southern marches—and Herefordshire—will follow soon.

Mr Hume came to address the Club on the 'regal powers' exercised by the barons who colonised the debatable territory on the Welsh Border, generally known as the Marches. Fundamentally, the Marcher barons stood in the shoes of the king and could thus build castles, raise armies, and plunder at will. This sounds like anarchy, but quite quickly the region was managed in a fairly equitable way by 'the law of the March'. The system regulated taxation, justice, and trade. In many respects the Marches were better regulated than the kingdom of England, for the Norman kings were frequently diverted by affairs on the continent and thus depended on the border baronage. After William 1's acquisition of the earldom of Hereford, following Roger of Breteuil's rebellion in 1075, the kings made no further attempt to restrain the barons, who secured more territory in Wales.

However, the situation changed after King John lost Normandy in 1204. His heirs took a more serious interest in Wales, at a time in the 13th century when the Welsh began to cherish their own independence under the leadership of the princes of Gwynedd. This indirectly led to its conquest by Edward I and the Statute of Wales of 1284, which ended native rule but at the same time undermined the power of the marcher lordships. By the end of the Middle Ages only the Mortimers managed to hang on to a large area of Radnorshire and were given a new lordship in Cheshire. However, with the passing of this lordship to Richard, Duke of York, whose son Edward became King of England, the powers of the marcher lords were extinguished by the Act of Union in 1536 and authority passed in the name of the king to the Council for the Marches of Wales.

The audience much appreciated Mt Hume's address and its insights into a remarkable period in the history of the Marches and indeed of England and Wales.

## WOOLHOPE NATURALISTS' FIELD CLUB

### RECEIPTS AND PAYMENTS ACCOUNT
for the year ended 31st December 2022

| 2021 | | | | | |
|---|---|---|---|---|---|
| | | **RECEIPTS** | | | |
| 3 | | Interest on investments | Subs Reserve | 66 | |
| 1 | | | GW Smith Reserve | 28 | |
| 1916 | | | Charity Bonds | 1782 | |
| 6 | | | National Savings | 59 | |
| | 1927 | | | | 1936 |
| 6631 | | General Subscriptions | | 7011 | |
| 0 | | Sale of Transactions | | 60 | |
| 77 | | Publishers Licensing Society (Royalties) | | 91 | |
| 1215 | | Gift Aid Tax Reclaim | | 1297 | |
| 12 | | Field Meetings Account | Net surplus | | |
| | 7935 | | | | 8459 |
| | 9862 | | | | 10395 |
| | | **PAYMENTS** | | | |
| 37 | | Insurance | | 37 | |
| 5631 | | Stationery, Printing & Binding | | 7579 | |
| 172 | | Meeting Expenses | | 439 | |
| 1735 | | Postage | | 1820 | |
| 426 | | Subscriptions | | 429 | |
| 74 | | Materials | | 142 | |
| 491 | | Website | | 442 | |
| | | Grant for Downton Gorge Book (GW Smith Fund) | | 1500 | |
| | 8566 | | | | 12386 |
| | | Field Meetings Account | Net Deficit | 54 | |
| | | Library Account | Net Deficit | 3970 | |
| | | | | | 4025 |
| | | | | | 16411 |
| Surplus | 1296 | | Deficit | | 6017 |

### BALANCE SHEET AS AT 31st DECEMBER 2022

| 2021 | | | |
|---|---|---|---|
| | | **ASSETS** | |
| 63795 | | National Savings Investments | 63855 |
| 85000 | | United Trust Bank Charity Bond | 85000 |
| 33000 | | Cambridge & Counties Bank Charity Bond | 33000 |
| | | Bank accounts: | |
| 1662 | 424 | General | |
| 3013 | 1824 | Subscriptions | |
| 4189 | 4499 | GW Smith Account | |
| 30319 | 30385 | Subscriptions Reserve | |
| 13000 | 13000 | GW Smith Reserve | |
| 25000 | 21030 | Library Account | |
| 1173 | 1119 | Field Meetings Account | |
| 78356 | | | 72280 |
| 260152 | | | 254135 |

Note that the following assets of fluctuation or indeterminate value are not included in this balance sheet:
The contents of the library and stock of publications
Photographic and computer equipment etc.

| | | |
|---|---|---|
| | **CAPITAL** | |
| | General Funds | |
| 258856 | Balance brought forward | 260152 |
| 1296 | Add surplus in year | |
| | Deduct deficit in year | 6017 |
| 260152 | | 254135 |

# Editorial Message

Through the *Transactions*, the Club continues to share knowledge across the full range of topics within its scope. The natural sciences are always strongly represented in the Recorders' reports, but in the current edition, for the first time in some years, a specific paper focuses on geology and ecology, on this occasion in the context of Herefordshire's Ice Age Ponds. The topic is significant nationally as well as important in the county. Another paper of wide significance describes excavations on Dorstone Hill and demonstrates how the results are helping to strengthen understanding of the Neolithic period.

We are fortunate that experienced contributors continue to provide strong, original material, this year on historical and folklore topics, and that new authors—six in the current volume—are offering high-quality research for publication in the *Transactions.* The Club very much welcomes their contributions; new people reinforce the future of the Club, but most of all their efforts continue to strengthen understanding of Herefordshire and the surrounding areas. Whatever difficulties might be perceived in today's circumstances, original research and fresh thinking are ongoing. Book reviews, both this year and last, help demonstrate that; there is no shortage of relevant new books.

A development in the Club's publications, briefly mentioned in the 2021 volume, will shortly be implemented. For the first time, we will make research data, too extensive to publish in the *Transactions*, available on the website to supplement a paper. The intention is to solve a problem for authors, who might wish to publish in the *Transactions* yet might feel constrained if such information could not be included, whilst offering a new, publicly available source of information for researchers and anyone interested in the detail.

I would like to thank our Recorders, whose work provides a backbone for the *Transactions* and so effective a record of activity, observations, and change; Suzy Craddock for skilled proofreading and valuable comment; experts on specific topics, who have advised on queries and points of uncertainty; and the Publications Committee, whose work makes such a difference to how the Club handles and develops the *Transactions.*

Finally, although unusual in a message of this kind, may I draw attention to a personal favourite among many in the volume, that is Plate 5.4? This image, so haunting and so enigmatic, inspired a fine paper and its elegiac ending.

Terry Morgan

# Biographies of Contributors

Brief biographies of contributors new to the Transactions are given below, and also a biography of Prof. Keith Ray, whose details have not appeared previously even though he has long acted as Archaeology Recorder.

**Beth Andrews**
Beth Andrews is a geologist who, for the last fifteen years, has specialised in conservation and public engagement. After working in the north-east of England on geoheritage projects, she has spent the last ten years working with Herefordshire and Worcestershire Earth Heritage Trust on a variety of projects funded through the National Lottery Heritage Fund; for example, 'A Thousand Years of Building with Stone', and the development of mobile phone apps to support teachers with geology field trips. More recently she was project geologist in the 'Conserving Herefordshire's Ice Age Ponds' project, and is now closely engaged in another, entitled 'Birmingham's Erratic Boulders'. Beth is a keen advocate of the links between biodiversity and geodiversity, and of promoting greater links between them, especially with reference to site management.

**Hannah Ingram**
Dr Hannah Ingram completed her undergraduate, Masters, and PhD degrees at the University of Nottingham. Her PhD sought to reconstruct the lives and careers of 3,500 businesspeople living and working in late medieval England, between 1450 and 1550. She has also published research on land market dynamics; the reconstruction of 'yeomen businessmen' in Tudor England; and 15th-century disease and medicine. After completing her PhD in 2019, she worked as a postdoctoral research assistant for the University of Nottingham, in collaboration with Nottinghamshire Museums Trust, to deliver a project focusing on the medieval history of Newstead Abbey; and as a contract researcher for Victoria County History Northamptonshire, researching and writing the medieval history of Towcester town, followed by two parish histories (Tiffield and Pattishall) in 2020. Since 2021 she has taken on the role of contributory editor for Victoria County History Herefordshire, firstly to research and write the histories of Coddington and Donnington parishes, and then the much larger parish of Mathon in 2022-23.

**Giles King-Salter**
Giles King-Salter is an ecologist with a particular interest in ponds and aquatic species. He studied botany at the University of Reading before going on to complete a PhD on mycorrhizal fungi at University College, Dublin. He developed an interest in water beetles during his time in Ireland and continues to record this group as a member of the Balfour-Browne Club. During the Ice Age Ponds project, he identified most of the invertebrate species recorded. He has increasingly focused on terrestrial species as well and has carried out surveys of saproxylic beetles in England and Northern Ireland. He also has an interest in bats, which he has pursued as a member of the Herefordshire Mammal Group. He is an active member of a number of national and local wildlife groups.

**Keith Ray**
Keith Ray was County Archaeologist for Herefordshire from 1998 to 2014. He gained an MA (1977) and PhD (1988) in archaeology from Cambridge University. His archaeological work has encompassed projects and employment in France, Nigeria, and Norway (and, in the UK, in Cornwall, Devon, Dorset, Oxfordshire, Scotland, and Wales). He is the author of *The Archaeology of Herefordshire: An Exploration* (2015), lead author of *Offa's Dyke: Landscape and Hegemony in Eighth-Century Britain* (2016), and co-author (with Julian Thomas) of *Neolithic Britain: the Transformation of Social Worlds* (Oxford University Press, 2018; paperback 2020). He is a Fellow of the Society of Antiquaries of London, and a full Member of the Chartered Institute for Archaeologists. His MBE in 2007 was awarded for services to archaeology and local government in Herefordshire. He is currently Honorary Professor of Archaeology at Cardiff University.

**Rachel Anna Sycamore**
Rachel Anna Sycamore started her career in 1995 as a furniture maker and restorer, and also taught Furniture Design and Construction at Hereford College for four years. Between 2018 and 2021 she researched and recorded church chests in Herefordshire and Worcestershire, as part of a Masters by Research in Archaeology. She has worked on an extensive range of furniture, some of it very old, for both private clients and public organisations, and now focuses on restoration and conservation, with particular emphasis on church chests around the Midlands. Rachel is especially interested in the dug-out type of church chest and is building a database of these chests across Great Britain.

**Julian Thomas**
Julian Thomas is Professor of Archaeology at the University of Manchester. His research interests include the British Neolithic and the history and philosophy of archaeology. He has excavated extensively on Neolithic sites in England, Scotland, and Wales, and was one of the directors of the Stonehenge Riverside Project. His books include *Archaeology and Modernity* (2004), *The Birth of Neolithic Britain* (2013), and (with Keith Ray) *Neolithic Britain: The Transformation of Social Worlds* (2018).

**Will Watson**
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# The Mordiford Dragon

*By* JANET COOPER

*Tales of ferocious dragons slain by local heroes were relatively common in 17th- and 18th-century England. This article considers the development of the story of the dragon painted on Mordiford Church which, partly because it lay on the route of the later 18th-century Wye tourists, was recorded several times from the later 17th century onwards. A short statement that a dragon had been slain in a local wood by a man named Garson had become, by the mid-19th century, tales of a fight between the dragon and a criminal hidden in a barrel, and of a little girl who found and reared a baby dragon. The dragon's appearance changed with its story, from a rather stiff six or eight-legged and winged serpent in the 1680s to a curving, two-legged, and winged creature about 1800.*

## CONTEXT

Some seventy stories are known of dragons which inhabited and terrorised different places in Britain at unspecified times in the past. Perhaps the best known is the Dragon of Wantley (Wharncliffe Crags, Yorkshire) which was killed by a local knight, More of More Hall, after a two-day fight. The story was the subject of a popular ballad in 1685 and then, in 1737, of a burlesque opera. That dragon story may, however, have been atypical in reflecting a particularly violent local dispute over hunting rights and tithes.[1] At Deerhurst, Gloucestershire, it was said that a dragon so terrified people that a nearby estate was offered as a prize to anyone who could kill it. The successful man, a labourer called John Smith, cut off its head with an axe while it was basking in the sun; Smith founded a local gentry family. One or more of the carvings on Deerhurst Church was believed to be of the dragon.[2] E. M. Leather, in her book on Herefordshire folklore published in 1912, recorded two Herefordshire dragons, at Brinsop and Mordiford.[3] The Brinsop story, that St George slew the dragon in a field near the church, clearly derives from the tympanum of St George and the dragon which survives reset in the north aisle of the church. It does not seem to have been recorded before Leather's book, though that may be because Brinsop, unlike Mordiford, was not on the later 18th-century Wye tourist route. The dragon painted on Mordiford Church, on the other hand, was recorded from the 17th century.

## THE MORDIFORD DRAGON: 17th-CENTURY RECORDS

The dragon was first reported by the antiquary John Aubrey (1626-1697), who owned estates in Herefordshire until 1663 and visited the county regularly throughout his life. In notes sent to the Oxfordshire naturalist and antiquary Robert Plot in 1676, Aubrey noted: 'at Mordiford the serpent with six or eight wings, every age encreased a pair'. In another comment on the dragon, he remarked that he remembered the fourth pair of wings being added to the painting.[4] This description fits the drawing made about the 1680s by Thomas Dingley of Dilwyn (d. 1695) which shows a serpent-like monster with eight wings and eight legs (Plate 1.1). Dingley's work on 'History from Marble', in which the drawing was included, was completed *c*.1684 but not published until 1868, so the drawing cannot have influenced later accounts of the dragon. Dingley did not give a title or any description to the drawing, but in the published book it lies between a description of Dilwyn Church and a long account of the longevity of the inhabitants of Dilwyn.[5] The monster would thus appear to relate to a Herefordshire parish, and no other

Herefordshire dragon (apart from that on the Brinsop tympanum which lacks wings and legs) is now known.

The next record of the dragon is a note on a slip of paper bound into the collections of the 17th-century Herefordshire antiquary Thomas Blount (d.1679) but not written by him.[6] The heading on the paper reads: 'On the dragon painted on Mordiford Church.' Below, in a different hand is the verse:

> This is the true effigies of the strange
> Prodigious monster which our woods did range.
> In Eastwood it by Garson's hand was slain,
> A truth which old mythologists maintain.

Below the verse, the same hand wrote: 'In the time of King Athenstan (corrected to 'Athelstan') in Alinsed (corrected to 'Holinshed') The Monster at Mordivat'. Plate 1.2 provides a photograph of the slip of paper and its content.

This hand does not appear anywhere else in the volume; it is larger and less tidy than Blount's hand, and looks later, but the corrections to the final sentence are in a 17th-century hand so it cannot be much later. Charles John Bird, rector of Mordiford in the mid-19th century, identified the hand as that of William Brome (1664-1745), another Herefordshire antiquary who in 1718 had some of Blount's papers.[7] If so, the notes on the dragon are unlikely to have been made before the late 1680s and possibly a decade or so later. The rhyme appears to refer to a story like that of the Deerhurst dragon, a type common in British folklore, in which a marauding dragon is killed by a local hero.[8] The final sentence is mysterious, as there is no reference to a monster of Mordivat or Mordiford in Holinshed's *Chronicles*.[9] The rhyme may well be considerably older than the record of it. The Garsons were a long-established family in Mordiford, the usual spelling of whose name changed in the 16th century to Garston.[10]

## LATE 18th- AND 19th-CENTURY VERSIONS OF THE STORY

The next surviving report of the dragon was given by the writer and engraver Samuel Ireland who visited Mordiford on his journey down the Wye *c*.1794. He described an 'enormous dragon or serpent' depicted in plaster on the east end of the church, a beast which, he was told, 'some centuries ago' had devoured the cattle on 'Offwood, an adjoining hill'. No one was prepared to fight the 'terrific' beast until a condemned criminal agreed to do so, in return for a pardon. The man managed to kill the dragon while 'he' (presumably the dragon) was refreshing himself from a hogshead of cider. Ireland considered that the local people must have believed the story, or the strange monster would not have been represented in 'so terrific a form' or such a conspicuous place as the 'front' of the church.[11] This version of the story does not identify the place of the killing although it may be assumed to have been at or near 'Offwood'.

In 1799 the Buckinghamshire historian George Lipscomb recorded that the east end of the church was decorated with 'a painting of a large green dragon'.[12] 'Some enquiries' produced the information that a long time ago, on a wooded hill near Mordiford, lived 'a monstrous serpent with prodigious wings' which carried off people and cattle. It was accustomed to go the confluence of the Wye and the Lugg to drink. Despite the inhabitants of Mordiford offering great rewards to anyone who would rid them of the dragon, no one dared to undertake the task. Finally, a criminal who had been condemned to death agreed to do it, on condition of a pardon if he was successful. He ambushed the dragon by hiding in a barrel by the river, and after a long fight

killed it, only to be killed himself by its poisonous breath. Lipscomb was dubious about this story which, as he pointed out, bears a suspicious resemblance to other dragon tales from elsewhere in the country, and made further enquiries. As a result, he heard from 'a gentleman of Hereford' a variant of the story in which the 'dragon' was 'an amphibian' left on the bank of the Lugg after a great flood. A very similar story to Lipscomb's, including the suggestion that the dragon was 'an amphibian', was included in a *Hereford Guide* published in 1806. The only significant difference is that the writer of the *Guide* described the monster as a 'winged serpent' not a dragon.[13]

John Duncumb, in the introductory section of his work on *Collections towards the History and Antiquities of the County of Hereford*, published in 1804, discussed dragon symbols and stated that 'the supposed form of a dragon has been described and renewed on the west end of the church of Mordiford . . . from time immemorial'. He associated it with the legendary Uther Pendragon, believed to have been the father of King Arthur. In his account of Mordiford, based at last partly on Duncumb's notes, Duncumb's continuator, W. H. Cooke, repeated Lipscomb's story and suggested that the dragon might derive from the arms of St Guthlac's priory, patrons of Mordiford Church until the Dissolution.[14]

James Dacres Devlin, a London boot-maker and amateur historian who moved to Hereford in 1847, took a great interest in the dragon. In a booklet printed in 1848, which reprinted articles previously published in the *Hereford Times*, he told several variants of the dragon story,[15] which he believed to be a 'very ancient tradition' in the neighbourhood. The source of one version was someone who had heard it from a man called Wigley, then in his late 90s, who had lived in Hampton Bishop. The sources of Dacres Devlin's other stories are less clear. The pamphlet concludes with three poems whose relation to the accounts he quotes earlier is not clear.

Dacres Devlin's first version of the story, which apparently derived from the aged Wigley, tells of a little girl called Maud. At a time shortly after the original building of Mordiford Church and the development of the village around it, she was out blackberrying when she found a baby dragon. She took it home and, despite her parents' opposition, kept it as a pet. As it grew up it started to kill poultry, sheep and cattle, and finally to attack people, although it never harmed Maud. The dragon does not appear to have been killed in this story. Dacres Devlin's pamphlet is the first reference to the Maud story, a type of story which does not appear to occur elsewhere except for a Danish folk tale of a little girl who picked up a nut containing a worm which grew into a dragon. Eventually the girl and the dragon moved to a nearby island where the girl created a mound for them to live in. If they had any association with girls, British dragons were more inclined to eat them.[16]

Dacres Devlin next turned to discuss the versions of the 'battle of the barrel' form of the story as recorded by Ireland and Lipscomb, quoting Lipscomb at length. He appears to associate Lipscomb's story of the 'amphibian' with the verses about Garson having slain the monster, as he quotes at length the similar tale from Deerhurst in which killing a dragon is the foundation of the fortunes of the local Smith family. Dacres Devlin identified the criminal who hid in the barrel with Garson of the earlier poem. Although Lipscomb did not record by what weapon the dragon was killed, by Dacres Devlin's day it was believed that the criminal in the barrel used a gun which he poked out through the bung hole of the barrel. It was also believed that the barrel was armoured with long spikes of sharpened steel, which badly wounded the dragon as it attacked, enabling the criminal to emerge from the barrel and kill the dragon easily. Such spikes feature in several dragon stories.[17]

A third version of the story was told to Dacres Devlin by a fisherman from Fownhope. In this, the dragon was overcome when the Lugg was in flood and deep enough for the dragon to swim in it. Possibly this version is related to the tale of the amphibian left behind by a flood told to Lipscomb by the gentleman of Hereford. Both may be rationalisations of the story.

The three poems follow the tales. The second poem tells the story of the 'battle of the barrel'. The first and third tell versions of the story not recorded elsewhere, and which it seems possible that Dacres Devlin made up. In the first, the criminal goes into the dragon's den to fight it in single combat. After his victory he cuts out the creature's tongue as a symbol of his victory. Unlike the criminal in the 'battle of the barrel' version, he appears to have survived the encounter. The third poem locates the dragon at the Lugg, not on the nearby hills. After a bad flood it found a drowned bullock, ate it, and then fell asleep; while it slept the inhabitants of Mordiford fell on it and killed it.

Later writers advanced some curious theories on the origin of the story. In 1877 the Revd F. Merewether, who had lived in the Woolhope area since about 1840, whilst addressing a field trip of the Woolhope Club on the geology of the area referred to a tradition of a serpent coming down from Haugh Wood every night to drink at the Wye. When he himself first came to the area, Merewether said, many people remembered the effigy of a dragon or serpent painted on the wall inside [*sic*] Mordiford Church. He suspected that the origins of the tale were the activities of a notorious robber who, as he had read 'in some old book', had preyed on travellers on the road between Fownhope and Mordiford about the reign of Richard II.[18] C. J. Robinson, *c.*1872, was inclined to believe that the story of a dragon with poisonous breath arose from the 'fatal miasma' produced by a pond at the junction of the Lugg and the Wye.[19] G. H. Piper, addressing another Woolhope Club field trip in 1886, made the remarkable suggestion that the dragon was 'some lonely monster of the Saurian family', i.e., a dinosaur, which had somehow survived into a period within human memory.[20]

## AN APPEARANCE THAT CHANGED OVER TIME

It is clear that the dragon story was connected to a painting of a dragon or winged serpent somewhere on the church. A similar connexion between image and story was recorded in Saffron Walden, Essex, where a brass effigy of a cockatrice, which survived in the church until the Civil War, was associated with a story of a battle between the monster and a knight.[21] E. W. Tristram, apparently on the basis of Dingley's drawing and of the possible association with the arms of St Guthlac's priory as recorded in the 14th century, included the Mordiford painting in his book on 14th-century wall paintings, but did not discuss the dating.[22] Could it have been the remains of a painting of St George or St Michael killing their dragons? Or was it part of a wall painting in which a dragon or dragons represented evil or sin? It is unlikely to have been a coat of arms. The arms of St Guthlac's priory displayed a two-legged, two-winged wyvern (Plate 1.3),[23] not the eight-legged, eight-winged serpent drawn by Dingley. There is no record of any grant of arms to the Herefordshire Garston family.[24]

Whatever its origin, the appearance of the dragon and perhaps its size, undoubtedly changed over time. Over the course of his life John Aubrey saw versions with six and with eight wings. Dingley's drawing shows a serpent-like creature with a large mouth from which a tongue protrudes, eight wings and eight legs, and a long, straight tail.[25] Lipscomb described a large green dragon, its head very large with 'a terrible aspect', a red mouth and forked tongue. Its wings were 'elevated and expanded', and its feet were webbed. It was about 12 feet long.[26] This could have been the creature drawn by Dingley, or one like it. Duncumb, in unpublished notes,

described the dragon of his day as lizard-like with green and gold scales; it had four legs with webbed feet, two griffin-like wings and a long tail. It took up the whole of the west wall of the church.[27] The creature shown in the two surviving pictures of the church, before the partial rebuilding, completed in 1812,[28] has two wings and two legs and a long, twisted tail; it looks rather more like a heraldic wyvern than the earlier versions. The change may be due to Duncumb's suggestion that the painting was to be associated with the arms of St Guthlac's priory.

These two surviving pictures of the church show the dragon on the west gable. Among the collections of Charles John Bird is an undated and unsigned north-west view of the church with the dragon on the gable above the west window (Plate 1.4).[29] A version of this picture titled 'Mordiford Church, dragon on west end, *c.*1808', attributed to 'R. Clarke', was published by E. M. Leather in *The Folk-lore of Herefordshire* in 1912. It is possible that this picture, or a variant of it, was the 'sketch of 1780' showing the central tower, a north porch and the dragon on the west gable reported, without further details, in the Royal Commission inventory volume published in 1932.[30] That 'sketch' may even have been the copy of Leather's illustration which was still in the church in 2018. A watercolour of the church from the south-west by Thomas Hearne, now at Sufton Court and reproduced on Mordiford Parish Council's dragon website, is also apparently undated. Both pictures show a serpent-like creature with two wings and two legs and a long, twisted tail.

## LOCAL PLACES IN THE DRAGON STORIES

The different versions of the dragon story contain three minor place-names: Eastwood, Offwood and Serpent or Serpent's Lane. The poem in the Blount MS places the slaying of the dragon in Eastwood. About 1847 Dacres Devlin was told that the dragon could have drunk from the Pentaloe brook which ran down the 'nearside' of Eastwood.[31] This suggests that the wood was one of those on the south bank of the brook, which marked the boundary with Fownhope parish. Samuel Ireland's 'Offwood' is presumably Haugh (pronounced 'huff') Wood, which would fit the description of 'an adjoining hill'.

Serpent's Lane, down which the dragon was said to have come to drink in the river, is mentioned in 19th-century records but is hard to identify; the name may have been applied to different lanes at different times. The first surviving record of the lane dates from 1808 when land in the north of Fownhope parish, given to increase the income of the rector of Mordiford, was described as having the road from Fownhope to Mordiford on the south and Serpent's Lane and glebe lands on all other sides.[32] The land conveyed seems to be plot 160 on the Fownhope tithe award, an orchard then belonging to the churchwardens and overseers of Mordiford, which lay between a branch of the Fownhope road on the south and the Pentaloe brook, the parish boundary, on the north.[33] Assuming that in 1808 the land extended north of the brook, part of Serpent's Lane would have been on the line of the modern main road through Mordiford. In 1847 the lane began near the 'back', presumably the west end, of the church and wound up in a hollow between the hills, a description too vague to be very useful.[34] In 1868 the owner of Littlehope applied for the repair of Serpent's Lane, and the vestry agreed to ask the Highways Board to repair the road from Serpent's Lane to Barnetts Cottage 'leading out into the road from Mordiford to Woolhope'. Serpent's Lane was then clearly part of the route to Littlehope, with access to the Woolhope road by another lane.[35] When the Woolhope Club visited Mordiford in 1877, F. Merewether in a talk delivered near the Bell pub just across the Pentaloe brook in Fownhope parish, described an area of drift which extended from behind the Bell, beside the

Pentaloe brook and on both sides of the road 'towards Serpent's Lane on the left, about 200 yards from this spot'.[36] It is not entirely clear which way Merewether was looking when he gave the talk, but if he was facing south the lane would have run east from the Fownhope road. It may well have followed the route of the modern bridleway leading towards Littlehope, although18th-century deeds call that 'the lane from Littlehope towards thieving pit'.[37] In 2020 local people identified Serpent's Lane with part of that bridleway which was still roughly paved, as described by Dacres Devlin.[38] Earlier, the lane perhaps followed the modern road to Haugh Wood, then forked south, on the line of a path shown on a draft Ordnance Survey map of *c.*1815 (Plate 1.5), to run diagonally across fields to the surviving track.

## THE GARSON NAME AND FAMILY

In addition to the place-names, there is the personal name Garson, a surname, later spelt 'Garston' and eventually 'Garstone'. Apart from the Maud story, in which the dragon does not appear to have been killed, and Dacres Devlin's third poem, in which the whole village kill the dragon, the Mordiford stories conform to the dragon killed in single combat legend. These stories usually fall into two groups: those in which the slayer is a hero of noble birth and those in which he is of humble origin. Sometimes, as in the tale of the Smith family and the dragon of Deerhurst, the slaying is the foundation of the family fortunes. The Garson named in the 17th-century verse probably falls into the second category, being from a local yeoman family recorded in Mordiford from the early 14th century.

Adam le Garson appeared in the court of Sufton Manor (in Mordiford) several times from 1312; he died in 1349 in possession of a messuage and 9 acres of land on the manor and was succeeded by his son William.[39] William le Garson extended his holding, buying a messuage and an unspecified amount of land on the manor in 1358.[40] Two other members of the family, Walter and Richard, occur in the court roll for 1341.[41] In 1366 Richard Garson, presumably William's heir, held two messuages and several acres of land.[42] There is then a gap in the surviving court rolls until 1401 when Walter Garson, son of William Garson, held a messuage, 9 acres of arable and 1 perch of meadow of the manor.[43] In 1423 and 1426 a Roger Garson failed to attend the court, and in 1432 John Garson did not appear.[44] The Sufton land was not the Garsons' only land in Mordiford. About the mid-15th century John Garson, perhaps the John recorded in 1432, paid St Guthlac's priory rents of 3s. 4d. at Michaelmas and the Annunciation for land held of one of the priory's manors,[45] perhaps Prior's Frome in Mordiford. In the late 15th century Thomas Garson leased a watermill in Mordiford from Llanthony Secunda priory, in Gloucester.[46] Between 1524 and 1546 a Thomas Garston was regularly assessed for subsidy in Mordiford, on only £3 worth of goods in 1524 and 1525, but in 1543 and 1545 he was assessed on £14 worth, one of the highest assessments in the parish. In 1546 and 1547 the value of his goods dropped to £10 and then £8.[47]

The family next occur in 1612 when John Garston the elder bought four plots of land, among them 7 acres of land in Checkley (in Mordiford parish) which adjoined land he already held.[48] John Garston, who described himself as a gentleman, bought a 3-acre meadow in Fownhope in May 1649. It seems likely that he was the John Garston of Checkley in Mordiford who made his will that same month, devising land in Woolhope and Fownhope as well as Mordiford to his wife, to his father Thomas, his brother William, and to William's son, another Thomas. In addition to his lands, John had tithes from Withington. John also gave £5 as a stock from which loans could be made to the poor of Mordiford. His will was proved not in the Hereford diocesan court but in the Prerogative Court of Canterbury, a sign of his status. The

elder Thomas made no mention of his status or occupation in his will, made in 1654, but it too was proved in the Prerogative Court of Canterbury. By then both Thomas's sons, John and William, were dead. John had died childless; William left a son and four daughters (not named in their grandfather's will). To his two sons-in-law who were his executors, Thomas left a house, which was probably substantial as it was in the possession of a gentleman, John Hyde, as well as land in Fownhope. Other legacies, to his grandchildren, were in cash, totalling £36; and like his son John he gave £5 to the poor of Mordiford.[49]

In 1663 William Garston of Eldersfield and Thomas Garston were assessed for the Militia in Prior's Frome in Mordiford parish at £18 and £16 respectively, among the higher assessments in the parish, although neither was described as a gentleman.[50] In 1665 only one member of the family was assessed for hearth tax, Anne Garston on only one hearth. Any decline in the family fortunes was temporary: Thomas Garston of Checkley who made his will in 1717 described himself as a gentleman. He devised land in Checkley and elsewhere in Mordiford, in Fownhope and Woolhope to his son John. His cash and goods were valued at £85 6s. and he lived in a house with a parlour, kitchen, and at least three chambers on the upper floor. He was clearly a farmer as his most valuable possessions were his cattle worth £20 1s. 6d. and his growing grain worth £13; the clothes and the money in his pocket were valued at £5.[51]

The male line of the family, which by that time seems to have spelled the name 'Garstone', died out in Mordiford in the mid-18th century; in 1882 the latest Garstone memorial in the churchyard was to William Garstone who died in 1766.[52] The female line seems to have continued as in 1947 it was stated that the last descendant of the Garstons to live in Mordiford was a Mrs Went who died in June 1943.[53]

## THE GARSONS AND THE ORIGINS OF THE STORY

How did a Garson come to be credited with killing the dragon? As argued above, the spelling of the name in the Blount manuscript poem, suggests a 16th-century or earlier date, well before the family temporarily rose into the ranks of the gentry. Was Garson's victory, like that proposed for More of More Hall in the Dragon of Wantley,[54] in fact over an unpopular land-owner? Such a solution does not take into account the undoubted existence of the dragon painting. Could that have been the surviving part of a wall painting, perhaps of St George and the Dragon or perhaps of sins represented by dragons, to which the poem quoted by Blount was added later, perhaps after some now forgotten incident involving the Garson family?

## NOTES AND REFERENCES

[1] D. Hey, 'The Dragon of Wantley: Rural Popular Culture and Local Legend', *Rural History*, vol. 4, p. 23.
[2] Roy Palmer, *The Folklore of Gloucestershire* (1994), p. 91.
[3] Ella Mary Leather, *The Folk-lore of Herefordshire*, pp. 11, 24.
[4] John Buchanan-Brown, 'The Natural History of Herefordshire: John Aubrey's projected tract' *TWNFC* 1999, 392, 396; Michael Hunter, *John Aubrey and the Realm of Learning* (1975), p. 227.
[5] Thomas Dingley, *History from Marble* (Camden Soc, 1868), p. cclxv; on Dineley or Dingley see *Oxf DNB.* (accessed 25 Jan. 2022).
[6] HAS, CF50/248, f. 70.
[7] J[ames] Dacres Devlin, *The Mordiford Dragon* (1848), p. 14 https://babel.hathitrust.org/cgi/pt?id=hvd.32044050501873&view=1up&seq=102&q1=dragon, accessed 31 Jan 2022; Theo Bongaerts, *The Correspondence of Thomas Blount. A Recusant Antiquary* (1978), p. 207.
[8] Jacqueline Simpson, 'Fifty British Dragon Tales', *Folklore* vol. 89.1 (1978), pp. 79 – 80.
[9] The Holinshed Project http://www.cems.ox.ac.uk/holinshed/: accessed 11 Feb. 22. On the Garson family see below.

[10] M A Faraday, *Herefordshire Taxes in the Reign of Henry VIII*, pp. 58, 81, 83, 100,168, 258, 267, 324, 361.
[11] Samuel Ireland, *Picturesque Views of the River Wye* (1797), pp. 60 – 61: https://archive.org/details/picturesqueviews00irel/ accessed 3 February 2022.
[12] George Lipscomb, *Tour through Herefordshire and South Wales in 1799* (1802), p. 71: https://books.google.co.uk/books?id=maRbAAAAQAAJ&pg=PA62&source=gbs_toc_r&cad=3#v=onepage&q&f=false accessed 28 Feb. 2022.
[13] HAS, CF50/145, p. 83.
[14] John Duncumb, *Collections towards the History and Antiquities of the County of Hereford* (reprint Merton Priory Press 1996), vol. 1, p. 32; W H Cooke, *History and Antiquities of the County of Hereford*, vol. 3, p. 81; A T Bannister, 'The Possessions of St. Guthlac's Priory Hereford', *TWNFC* 1918, p. 34.
[15]Devlin, The Mordiford Dragon.
[16] https://en.wikipedia.org/wiki/The_dragon_and_daughter; Simpson, 'British Dragon Tales, *Folklore* vol. 89.1, pp. 79, 83.
[17] Simpson, 'Fifty British Dragon Tales, *Folklore* vol. 89.1, p. 81.
[18] *TWNFC* 1877, p. 19.
[19] C.J. Robinson, Mansions and Manors of Herefordshire (1872), p. 212.
[20] *TWNFC* 1886, p. 60.
[21] *The Flying Serpent or Strange News out of Essex*, at https://www.google.co.uk/books/edition/The_Flying_Serpent_Or_Strange_News_Out_o/5btjAAAAcAAJ?hl=en&gbpv=1&dq=The+Flying+Serpent+or+Strange+News+out+of+Essex&printsec=frontcover, accessed 18 April 2022.
[22] E.W. Tristram, English Wall Painting of the Fourteenth Century (1955), p. 15.
[23] George Strong, *The Heraldry of Herefordshire* (1848), no. 355.
[24] No Garston arms are recorded in Visitation of Herefordshire 1569 or Visitation of Herefordshire 1634, in George Strong, The Heraldry of Herefordshire (1848), or in Burke, General Armory (1864 edn.).
[25] Dingley, *History from Marble*, p. cclxv.
[26] Lipscomb, Tour through Herefordshire and South Wales in 1799 (1802), p. 73.
[27] Quoted in Devlin, *Mordiford Dragon*, p. 66.
[28] For date of re-opening see HAS, Mordiford parish register 1789–1812, last page. Dacres Devlin (*Hereford Times*, 25 Dec. 1847) states that the church was under repair from 25 March 1810 to 16 Sept. 1812; his source is unknown.
[29] HAS, CF50/145, p. 7. A drawing of the south doorway on the next page is dated 1808, but there is nothing to indicate that it was made at the same time.
[30] Royal Commission on Historical Monuments England, *Herefordshire* vol. 2, p. 147
[31] Devlin, *Mordiford Dragon*, p. 35.
[32] HAS, AW12/17/10 – 11.
[33] Ibid. Fownhope tithe award.
[34] Devlin, *Mordiford Dragon*, p. 22.
[35] HAS, AC18/20, meeting of 7 Aug. 1868
[36] *TWNFC* 1877, p. 19
[37] HAS, AA21/26/2; AA21/26/4;
[38] https://dormingtonmordifordgroup-pc.gov.uk/the-parish/the-mordiford-dragon-project/, accessed 16 April 2022.
[39] HAS, P82/I/2/i, iii, v, vi
[40] Ibid. P82/I/2/ii.
[41] Ibid. P82/I/3
[42] Ibid. P82/I/2, x
[43] Ibid. P82/I/3.
[44] Ibid. P82/I/viii, ix.
[45] Balliol College, MS 271 (St Guthlac's Cartulary), f. 128v.
[46] TNA, C 115/85.
[47] M. A. Faraday, *Herefordshire Taxes in the Reign of Henry VIII* (2005), pp. 58, 100, 168, 267, 324, 361.
[48] HAS, N53/1008
[49] TNA, PROB11/237/304. Will of Thomas Garston
[50] M.A. Faraday, *Herefordshire militia Assessments of 1663* (Camden Fourth Series vol. 10, 1972), p. 63.
[51] HAS, Will 22/07/1721.
[52] Cooke, History and Antiquities of the County of Hereford, vol. 3 (1882), p. 83.
[53] HAS, B70, f. 41.
[54] Hey, 'The Dragon of Wantley', *Rural History*, vol. 4, p. 23.

# Dorstone Hill: An Early Neolithic Hilltop Complex in South-West Herefordshire

*by* KEITH RAY AND JULIAN THOMAS

*Archaeological investigations at Dorstone Hill, near the northern end of Herefordshire's Golden Valley, were conducted between 2011 and 2019 within a long-term prehistoric research study, the 'Beneath Hay Bluff' prehistory project. This is a partnership between the University of Manchester's Department of Classics, Ancient History, Archaeology, and Egyptology and Herefordshire Archaeology, the county archaeology service at Herefordshire Council. The remains of three rectangular timbered longhouses (or 'halls'), dating from the (very) early 4th millenium BCE, represented the earliest activity on the site. These buildings had been built end-to-end in a line, which was interrupted, between the central and eastern halls, by a linear burial chamber on the same alignment. Following the dismantling of the burial chamber and the deliberate destruction of the halls by fire, mortuary-associated earthen and stone long mounds were raised over the footprint of each of the early structures. To the south of these mounds, a single circuit of segmented ditches, forming a causewayed enclosure, was discovered by geophysical survey on the summit of the hill, and was then extensively excavated. These repeatedly recut ditch segments contained bones of domesticated animals, worked flints, and stone items, and also potsherds from early vessels. Radiocarbon dates indicate that it is among the earliest such enclosure sites so far identified in western Britain. Nonetheless, Dorstone Hill is, for the authors, most remarkable for the extremely rare survival of traces of the timber superstructures of the early hall buildings and for the glimpses it has also provided of a consciousness of corporate history among the communities concerned.*

## INTRODUCTION

Details concerning the nature of settlement and ritual activity during the Neolithic period in Herefordshire have, until recently (with the exception of the information obtained from the long-term, development-linked investigations at Wellington Quarry, on the River Lugg between Leominster and Hereford), remained somewhat elusive.[1] Indeed, reviewing the lack of recorded Neolithic monuments in the Malvern Hills area twenty years ago, one prominent field archaeologist concluded that: 'It seems unlikely now that the absence of major Neolithic sites in this region can be put down simply to lack of research. It begins to look as though the Malverns, and indeed much of Herefordshire and Worcestershire, were little used at this time (the Neolithic period), and usage differed from some neighbouring regions—notably Gloucestershire and Warwickshire.'[2] The idea that during the fourth and third millennium BCE Herefordshire's landscape was 'under-utilised' is, however, difficult to sustain given the abundant evidence from casual surface finds for Neolithic occupation, including both characteristic worked flint implements and stone axe blades. And yet until recently there has been little evidence for the creation of major Neolithic structures. For the northern, central, southern, and eastern areas of the county, this has remained much the case.[3]

The south-west has nonetheless continued to produce traces of at least locally intensive

Neolithic activity, and, in the past decade, some remarkable discoveries. This article aims to illuminate something of the character of this activity, at least within the fourth millennium BCE, in reference to one part of the wider landscape, to the east of Hay Bluff and high above the River Dore at the head of the 'Golden Valley' (see Figure 1).

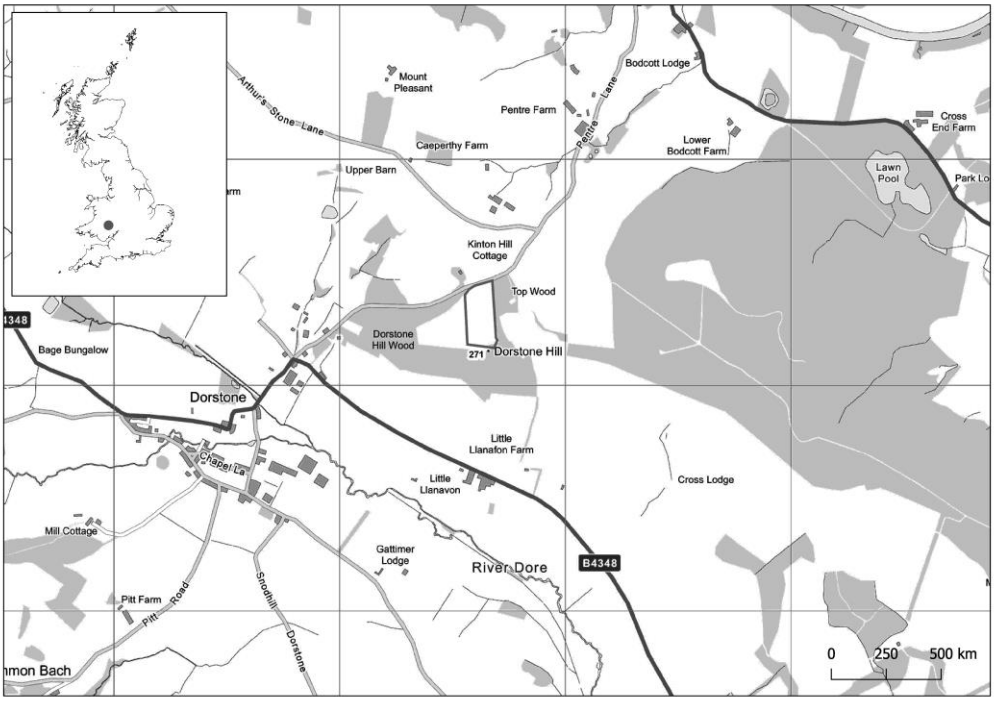



Figure 1. Dorstone Hill, Location Plan

The site at Dorstone Hill is located at SO 3260 4230 (at the centre of the map in Figure 1) close to the renowned Neolithic chambered tomb known as Arthur's Stone, at SO 3185 4315. While the latter site is one among several Neolithic long barrows thought to have existed in or near the valley, Dorstone Hill was, before 2011, identified as the sole 'probable' example in Herefordshire of a type of early Neolithic site known as a causewayed enclosure.[4]

## INVESTIGATIVE BACKGROUND

Dorstone Hill is a locally prominent spur of land, rising to 270m OD. The hilltop area is almost level. It protrudes south-eastwards from the 14km-long ridge of high ground that overlooks the Wye valley south-west of Hereford. This ridge extends from Merbach Hill in the north-west to Wormbridge Common, near Kilpeck, in the south-east, and separates the Dore valley to its west from the valley of the River Wye to its north and east. Until eighty years ago, the ridge was mostly an upland rough grazing area with pasture fields containing much furze. However, in the middle decades of the twentieth century, areas of these fields, and of the adjacent pastures at lower elevation in the vicinity of Dorstone and Peterchurch villages, were ploughed periodically, mostly to improve the grazing but also for arable purposes (see below); this ploughing produced

scatters of worked flint. As might be expected, members of the Woolhope Club walked these fields, collected the worked flints, and reported upon their discoveries.[5]

A particularly marked concentration of finds was located at Dorstone Hill, and, in the early 1960s, Roger Pye, a local prehistorian, built up a personal collection of worked flints including from the two Dorstone Hill fields. By 1965, so convinced was he that the concentration of such finds there pointed to a centre of early Neolithic activity that he persuaded Christopher Houlder, a professional archaeologist then working with the Royal Commission on the Ancient and Historical Monuments of Wales and based at Aberystwyth (and with a strong interest in the Neolithic period) to join him in some exploratory excavations at the site in that year.[6] The fieldwork, supported by volunteer excavators from the Woolhope Club, took place over several weekends in 1965-66, and sporadically thereafter through to 1969. Brief interim reports mentioned the discovery of walling and stratified deposits in individual trenches, and, in at least one place, in conjoining trenches. Trenches were often dug under less-than-optimal weather conditions, as for example in November 1965. Finds recovered included characteristic Neolithic flint scrapers and leaf-shaped arrowheads, and at least pieces of stone axe heads.[7]

This rather limited field investigation was nonetheless sufficient to suggest that the linear mounds (or near-continuous earthwork mound) that, by the late 20th century, could only be distinguished with difficulty, represented the remains of a causewayed enclosure. It was supposed that there was formerly a bank and associated ditch here, facing northwards and crossing the neck of the promontory from north-west to south-east. This bank was surveyed by staff of English Heritage in 2001 as part of an England-wide reappraisal of the field evidence for causewayed enclosures, in which both earthwork and cropmark evidence were included.[8] The bank was found to be some 110m in length with what was interpreted as a former entrance towards its eastern end. The plan accompanying the detailed survey report showed the line of roughly rectangular mounds, oriented north-west to south-east, with an accompanying ditch to the north. However, during the work of 2011-19, both geophysics and excavation definitively demonstrated that there had never been a ditch on the northern (or indeed any) side of the mounds.

## INVESTIGATION AND DISCOVERIES FROM 2011 TO 2019

It was decided to investigate at least one of the mound features, towards the northern end of the eastern of the two fields which occupy the almost level, farmed area of Dorstone Hill; this was part of a prospection season of excavations for the ‘Beneath Hay Bluff’ project during the summer of 2011.[9] The 2011 trench measured 30m x 2.5m and as such was an elongated transect sited towards the eastern end of the linear mound. This long trench was oriented north-east to south-west and was extended northwards to examine the presumed associated ditch on the northern side of the bank (Plates 2.1 and 2.2). Towards its centre, this trench encountered deposits with a similar character to those that had been described in the interim reportage on the 1960s work, with traces of collapsed walling. However, it seemed odd that the reports on that work, which must have encountered unmistakable burnt debris (orange-yellow friable clay containing streaks of carbonised wood), had nonetheless made no mention of it. What was initially assumed in 2011 to be the rock-cut ditch as it approached the eastern edge of the hill was instead found to be a modern (post-medieval) quarry for building or walling stone (the remnant quarry faces bore clear strike marks from metal-bladed tools and angle irons used to prize out the rock) dug into the side of the hill from the north-east.

In 2012, a further trench was opened across the highest surviving part of the central

mound (to the south-west and parallel with the 2011 trench). It was deliberately extended considerably beyond the bank, both northwards and southwards, to try again to locate the ditch presumed to be associated with the bank; at this stage of the fieldwork (2011-12) these features were still thought to be part of the circuit of an embanked and ditched causewayed enclosure. In the centre of the mound along its axis the stratigraphy was found to be better preserved than it had been further east. A 'core' area along the axis of what, in the 2013 season, was revealed to be a definable and separate central linear mound, comprised a covering of small stones and some larger blocks set in a humic matrix (resulting from relatively recent ploughing). When this deposit was removed, a coherent deposit of burnt (yellowed) clay was found, in a band down the central spine of the mound. This burnt deposit also contained streaks of carbonised wood. Beyond this axial burning deposit, to north-east and south-west, was a parallel deposit of fine pinkish soil, interpreted as the erosion product from former turves that had been brought in to cover the fragile burnt daub and timbers. And beyond this, again in each direction, to the north and to the south, was a denser concentration of stones that was especially evident along the northern edge and was found to be surviving only patchily along the southern side (Plate 2.3).[10]

In 2013 this trench was subject to more intensive investigation, and the true character of the timber traces became more evident. The carbonised 'streaks' formed coherent shapes representing structural timber members (or fragments thereof) that had become almost entirely mineralised. They mostly comprised the scorched outer edges of timbers, the core of each of which had remained unburnt and had rotted away in the acidic conditions of the hilltop. However, the shapes of the timbers had been preserved; there were straight pieces comprising pole-rafters and angled timbers, thought to represent former arch braces that had probably supported tie-beams, with tenons for keying at each end (Plate 2.4). A fragment of what looked very like a wall-plate with an extraordinary detail, a precisely carpentered mortise-hole made with a flint tool, was also revealed among the burnt daub debris.[11] At this point it became clear that what was being revealed was the debris of a free-standing *building* that had been burnt down, and that its collapsed roofing timbers were embedded among the remains of the clay cob from its walls. As this deposit was carefully recorded and removed, the former 'floor level' of the building was revealed, along with postholes forming structural load-bearing roof supports in parallel lines. These postholes defined a narrow central aisle and flanking aisles. Beyond each of these side aisles there were linear slots, oriented east to west, representing clearly defined trenches into which posts had been placed as part of the construction of the walls. Again, these survived well only on the northern side (Plate 2.5).

Two details were especially revealing in this area: first, a line of stake-holes within the northern 'outer aisle' was aligned perpendicular to the principal axis of the building; and secondly, a fully carbonised tree limb was found in the central aisle that was apparently not a structural timber from the building. The former detail indicated that there had been side bays leading from the narrow central aisle, probably used for storage or sleeping, and thus confirming the architectural sophistication of the structure when standing. The latter detail showed that a large timber had been placed upon the floor at the centre of the central aisle but had apparently not been placed on a hearth. Rather, the most plausible explanation for its presence is that it was brought in, among other wood fuel, for the deliberate firing and destruction of the building, but had survived in its naturally sinuous shape because of its relative density.

In 2014, it was decided to open the entire recognisable ground area of the westernmost mound. This extended the excavation almost to the western edge of the neck of the promontory, close to the north-facing scarp edge overlooking the Dore valley. It immediately became evident

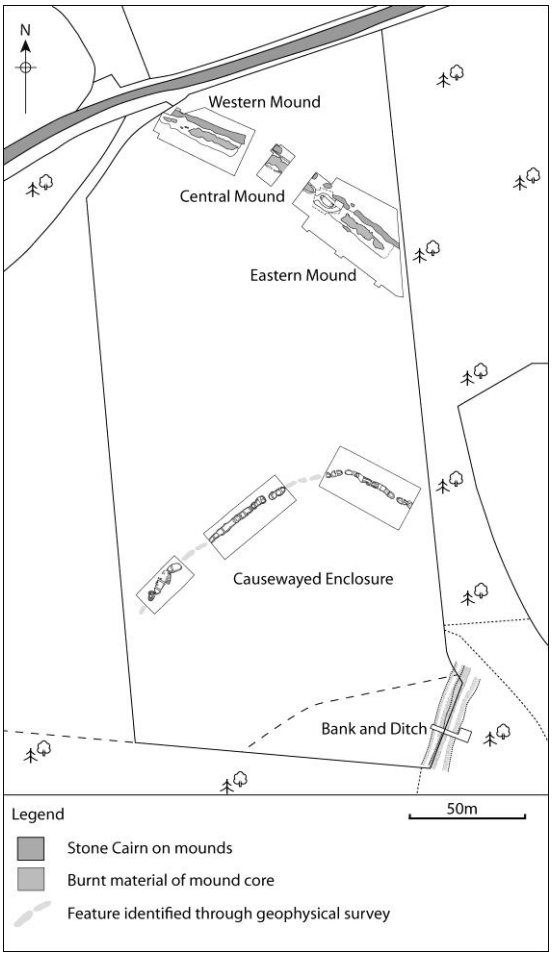



Figure 2. Site plan at the end of excavations in 2019, showing the position of the three mounds and the causewayed enclosure. The bank and ditch are much later features of Iron Age date

that wartime (1939-45) bulldozing to create upland arable fields had produced two major effects on the Neolithic remains. Firstly, much of the former stonework or encasing walling along the southern side of the mound had been removed by the forward-facing toothed bucket of the tracked bulldozer. Secondly, much of the mound material had been damaged or displaced by the movement of the bulldozer in a series of broad, south-to-north bucket scoops (the strike of the teeth was clear in the affected deposits). Notwithstanding this damage, it was possible to examine the entirety of the north-facing walling, to trace the extent of the burnt deposit, to map the full extent of the former turf-capping of the mound, and eventually also to reveal and examine the northern line of postholes and other features of the timber structure that had preceded the creation of the mound (Plate 2.6).

In 2015, attention moved to the easternmost mound. Here, damage and destruction equivalent to that which had occurred at the westernmost mound was recorded. The location of the trench of 1965-9, which had transected this area, was recorded within the footprint of the 2015 trench, and the very long and narrow trench of 2011 was uncovered again. At the same time, a much larger area was exposed: at 55m x 35m it was equivalent in size to the westernmost building and mound area examined in 2014. Plate 2.7 shows the footprint of the eastern mound as exposed in 2015. In 2016, part of the area between the trenches excavated in 2013 and 2015 was re-opened to better understand the environs of the ‘linear burial chamber’ and its association with the easternmost mound. In the process, the ditch around that chamber was revealed and the cremated bone deposit buried in the southern arc of the ditch was identified.

Following a systematic magnetometry survey (by Martin and Anne Roseveare of ArchaeoPhysica, now TigerGeo) of the southern end of the hill in 2015, three areas, each covering several lengths of the identified causewayed enclosure ditch, were examined, in 2017, 2018, and 2019. The ditch segments were found to have been recut on several occasions, and it

was noted that deliberately placed deposits (including large sherds from carinated bowls, groups of animal bones, and large stones that had fronted the bank segments or had framed entrances) had been inserted. Figure 2 above shows the site plan at the close of excavations. In 2019, a trench dug across an elongated mound near the end of a south-eastern spur demonstrated conclusively that this was an Iron Age feature. To its immediate east, however, the return of the circuit of the Neolithic causewayed enclosure was located and investigated, albeit minimally.[12]

## IDENTIFYING (THREE DIFFERENT) 'HOUSES FOUNDATIONAL' AT DORSTONE HILL

The character of each of the elongated timber houses (or longhouses, or halls, given their dimensions) at Dorstone Hill differed to a pronounced degree. The individual buildings are described here from west to east.

The most westerly building was at least 25m long and, extrapolating from its northern-side configuration, some 16m broad. The nature of its central apex support is uncertain, and it cannot be ruled out that here it was open to the sky. A single entrance, facing east in the centre of the east-facing gable end, is suggested by a shallow linear depression possibly caused by the passage of feet.

Along its northern side, this building had a series of principal uprights (some 1m, others 1.5m in diameter) running east to west and spaced a metre apart. They were flanked by a parallel row of smaller uprights that had stood only 1.5m beyond them along the northern (and presumably also the southern) side of the building. No clear trace of a wall line (such as might have been represented by a post-in-slot foundation trench) was noted beyond the lines of posts, although it is possible that the smaller posts represent the location of such a wall (see detail in the caption to Plate 2.6). The central area between the rows of larger uprights did feature one or two small-diameter upright posts, set along what would have been the apical line of the roof, but as supports for a roof-ridge they would have been rather light in character. The eastern gable end appears to have possessed a shallow concave arc of posts defining its east-facing elevation. The trapezoidal configuration of the mound that covered the remains of this western building, and the angle at which the nine main postholes excavated were set, suggest the possibility that the hall or longhouse itself had been trapezoidal in plan.

The remains of the central building were structurally the most coherent, although the excavations did not uncover its entire ground plan. It was a long and narrow-aisled building, approximately 35m long and some 8m wide, with a narrow (2m wide) central aisle and paired side-aisles with lateral divisions formed by upright stakes. To gain some impression of the proportions and spatial organisation of such a structure, comparison can be made with historically documented, excavated, and reconstructed Iroquoian longhouses of North America. The latter were lightly built bark-walled structures, well suited to northern temperate forests; the one illustrated (Plate 2.8) is based on the excavation of a longhouse (in today's New York State) which French troops razed to the ground in 1687 during the colonial conflicts of the period.[13] The internal layout of the central hall at Dorstone Hill would probably have been similar, but its side walls were of more substantial wattle and daub construction and the structural timbering was heavier, with carpentered uprights, tie-beams, arch-braces, and purlins; the poles for the rafters and struts however were light.[14]

The eastern building produced no evidence for the former presence of substantial earth-fast timber uprights. Instead, the remains that survived at ground level comprised traces of a massive wooden-slab floor that ran the 30-metre length of the building (Plate 2.9). A whole

coherent layer of large slabs (which could be described as planks or boards, but they were not of course sawn and had clearly been thick) was revealed where they had burned and mineralised *in situ*, along with copious amounts of ash from the burning event. Tellingly, all the timber-grain of the planks ran in the same direction (along the long axis of the building), indicating that it had been laid in a single event. Some of these planking slabs had wooden pegs inserted in them to keep them in place; and in one case a double post, set upright, had been inserted through a slab, perhaps to create the frame for an internal division of the space (Plates 2.10 and 2.11).

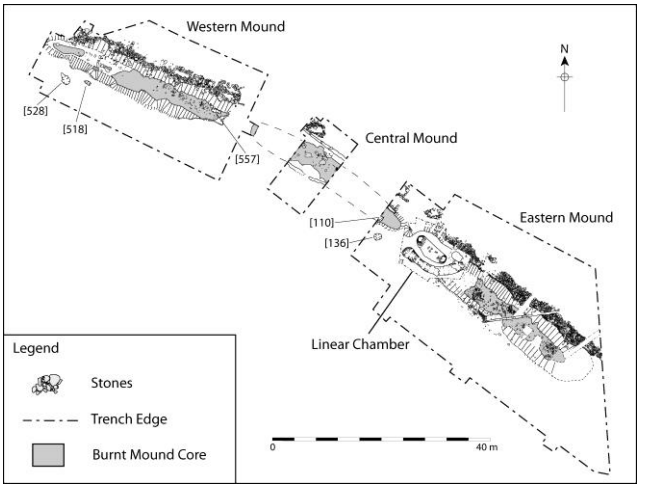



Figure 3. Plan of the mounds at Dorstone Hill

Although the practice of creating long mounds over the sites of former Neolithic activity, including houses, was first observed at sites other than Dorstone Hill, we would suggest that the exact significance of those mounds has not been fully recognised until now. Mounds previously discussed in this context have included long barrows that were built fully within the 'Cotswold-Severn' tradition.

Two such long-barrow sites that have been prominent in published, more general discussions of Neolithic Britain were excavated in the 1960s and 1970s. The first, at Ascott-under-Wychwood, was one of a pair located in the Oxfordshire Cotswolds along the road from Charlbury to Burford (B4437). Completely excavated between 1965 and 1969 by Don Benson of Oxfordshire Museums (in advance of a road scheme that never eventualised), it involved the discovery, in the lowest levels examined in the excavation, of former timber structures, hearths, and pits associated with a spread of debris of presumed domestic origin (termed 'midden' material) extending over much of the pre-barrow surface.[15]

Meanwhile, the second site, Hazleton North, was again one of a pair, in this case located 23km due west of Ascott and closer to the Cotswold Scarp that overlooks the Severn valley. Beneath the later 'Cotswold-Severn' tradition cairn here, very closely similar features ('an agglomeration of postholes and stake-holes in association with a hearth, and a midden-like spread of occupation debris') were recorded beneath the elaborate stone structures of the chambered Neolithic long barrow.[16] Intriguingly, two observations that were accorded little significance at the time of excavation (and of its reporting in 1990) are pertinent to the Dorstone Hill circumstance. These were 'a possible decayed burnt timber (437)' and 'a small piece of daub with a withy impression which was the only indication of the nature of a possible superstructure'.[17] The presence of burnt timbers and a layer of charcoal that was interpreted as a hearth, along with the daub, raises the possibility that, despite the absence of extensive burnt daub deposits such as were encountered at Dorstone Hill, a proximal timber building may once

have stood at Hazleton North, which was then burnt down and covered over by a Neolithic mound with mortuary associations.

## THE 'LINEAR MORTUARY CHAMBER'

The existence of traces of a definite sub-rectangular feature beyond the eastern end of the central building at Dorstone Hill had been signalled by the emergence, after initial soil removal, of a well-defined patch of burnt soil in the shape of an elongated oval, featuring a spread of charcoal-stained soil containing small lumps of burnt daub. Following careful trowelling to define its edges, this feature was excavated in opposing segments. Three of these were initially emptied to reveal, at both rounded ends, the former presence of (presumed) uprights made from the trunks of oak trees. Between them were traces of a former stone-flagged 'floor' forming the base of what was immediately recognised, from similar features excavated elsewhere, as an Early Neolithic linear burial chamber. One stone flag remained *in situ*, while two others were found where they had been pitched back into the chamber void, after the chamber itself had been dismantled.

The presence of three halls/longhouses that had been built end to end in a close-set line (with very little space between the ends) was an unfamiliar occurrence, since it was unclear how, in such a configuration, they could readily have been used in a conventional way. However, even more odd, in a number of respects, was the co-presence of a structure that would normally be spatially segregated and assumed to have had an entirely 'mortuary' purpose; and yet the form of this post-framed structure is identical with those found elsewhere, and so its mortuary purpose cannot be doubted.[18] The presence of cremated human remains in a subsequent phase of the structure, after its dismantling, reinforces this interpretation of a clear mortuary purpose.

## THE TIMBER 'HALLS' AND THE LINEAR BURIAL CHAMBER: SEQUENCE, PURPOSE AND INTER-RELATION

The questions raised by the highly unusual proximity, varied form, and linear arrangement of the three halls along with the (erstwhile paved) linear burial chamber are manifold, but some of the most pressing to resolve have related to the chronology of their construction and their destruction, and their possible longevity of use. The available dating evidence from the processed samples and Bayesian analysis (see below) suggests that, although there may have been no great interval between their construction, the central hall is likely to have been built first, followed by the western and ending with the eastern.

The heterogeneity of the forms of the built structures at Dorstone Hill, both when the 'halls' were constructed and used at Dorstone Hill, and during the phase when the 'long barrow/cairn' was in use, may provide a clue to the character of the assemblage as a whole. The close chronologies preclude 'changing fashions' as one possible explanation, and functionally at least the three halls are surely almost identical. There could be no reasonable suggestion, for example, that one or more were lived in, but that the third was used as a store, stable, or barn: the buildings are of broadly equivalent size and shape, and none occupies a clearly 'subsidiary' location. However, despite their variable preservation, the halls were drawn from strongly contrasting constructional traditions and practices. In the 'hall' phase, the trapezoidally configured end of the westernmost building and its curving façade were almost tent-like in inspiration. The central hall was of an aisled form that has continued down to the present day (and since the late Roman period has been used for both secular and sacred 'assembly' buildings). The easternmost hall can only have had a box-framed construction, held in place by

its mass and its heavy wood-slab floor.

We have argued elsewhere that the construction of the Dorstone Hill buildings marked the point at which a major lineage may have been formed (or re-formed) very early on in the Neolithic period.[19] As such, each building could have been erected and 'owned' by one of three constituent lineages and occupied for only brief periods of time. No traces of hearths were found in any of the buildings, although raised or 'contained' hearths (possibly featuring stone elements around the fire even where there was planking in the easternmost building) may have existed. It is nonetheless difficult to see why the stone uprights from such hearths might not have survived *in situ* (unless they were also deliberately dismantled).

**Recognising the impact and consequences of firing the halls**

The two most frequently asked questions regarding our suggestion that the halls were purposely set on fire have been: 'How do you know that the fire was deliberate?' and 'Why would you do that to *one* such elaborate and costly structure, let alone three of them?'

The evidence for deliberate destruction by fire partly derives from the thermal characteristics of the heated daub (or cob); it would have been very difficult to reach the temperatures required within the building to achieve the firing of the daub, the incineration of the superstructure, and the collapse or compromise of all timber elements, without the deliberate addition of brushwood and timber.[20] The results of experimental reconstruction and burning of Neolithic longhouses in northern Germany and the Balkans lend further support, since characteristics of their rapid destruction included the scorching of the exterior surfaces on upright posts, just as is in evidence in the central building at Dorstone Hill.

The pattern of firing of each hall was also found to have differed, and this suggests that each was burned down as a separate event, rather than being the product of a conflagration affecting all three as they stood together. The central hall/longhouse appears to have burned as a single event that did not affect its surroundings. In contrast, the pattern of movement of ashy deposits where the eastern building had stood was compatible with an entirely timber-framed, free-standing structure (probably with daub and wattle panels) having burned when there was a westerly airstream; this seems to have resulted in the spread of ash south-eastwards and instances in which the ash fanned out as the superstructure collapsed.

**Making (three different) mounds from, and covering the remains of, the halls/chamber**

What had remained after the firing of the halls had been three distinct heaps of charred timbers and structural daub, fired to varying temperatures. Some pieces were brick-like red chunks, while others comprised ochre and yellow-ochre lumps (including burnt and powdered stones): and all these, together with pieces of charred or fully carbonised (and mineralised) timber, were embedded in a (predominantly yellow-orange) clay matrix. In each case, the very survival of the deposit could only have been achieved if the debris had been scraped together into sausage-shaped mounds and swiftly covered over with turves. The deliberate nature of this operation is demonstrable from the way that each of the long sides of each of these mounds of burnt debris had been carefully cut to a vertical edge. In this way, each mound of debris served as a semi-permanent 'record' of the location (if not necessarily the exact footprint) of each of the three halls/longhouses.

The turves themselves had been carefully placed to cover (and perhaps to 'enshrine') the burnt traces, but just as the form of each hall/longhouse had contrasted starkly with that of its neighbours, so too had the mounds raised over their remains. These long mounds/cairns were,

like the halls, built in contrasting ways to produce constructions that, visually, were strikingly different from one another. The westernmost mound, with its seemingly elaborated (higher and buttressed) eastern end and chambers integral with the side-walling, echoed certain aspects of the 'Cotswold-Severn' tradition of chambered tombs, while managing to stand quite apart from it; for example, there were no passages or associated chambers, and, unlike at Arthur's Stone nearby, no finely coursed facing walls.[21]

The central long mound, with its encasing by upright timber posts set in a palisade slot, closely echoes earthen-mound-building traditions from the east and the south of Britain, associated with timber mortuary chambers. So, the physical juxtaposition of this mound and the 'linear burial chamber' at Dorstone Hill may not simply be a coincidence, in that there seems to have been a deliberate admixture of traditions from both eastern and western Britain at this site. The eastern mound at Dorstone Hill was, it appears, simpler in construction than the other two mounds, with the turves simply bounded by a linear dump of stone.

**Continuing 'mortuary' associations of the mounds**

The covering over and containment of the burnt remains beneath a turf stack (in each case), and retention of each mound within either a timber palisade or rough stone walls, did not constitute the end of Neolithic activity at the mound sites. At some point (and after the placement of the pit containing a dense deposit of worked rock crystal, sealed by erosion product of the turf stack on the southern side of the westernmost mound), further stone structures were inserted on and around the mounds. These comprised a series of at least seven stone-lined cists and the extension of the stone walling that stood on either side of the westernmost and easternmost mounds; two of the stone-lined cists were built on the north-facing side outside the former footprint of any of the individual long cairns. The whole of this northern side of the mounds was then encased within a continuous piled-stone wall before the entire agglomeration was covered over with a continuous linking heap of stone. The result was, in effect, the creation of a single stone façade over 110m long, facing north-eastwards towards the upper Wye valley. This lends itself to the suggestion that the act served not only to unify the individual lineages and their ancestral monuments symbolically, but also to 'seal' their history, something then emphasised *as* historical by the subsequent acts of commemoration noted below.

So, a clear case for continuity in burial associations can be made with reference to these (then) newly inserted cists. More striking still, however, was the total remodelling of the burial chamber. There was no suggestion from the evidence recorded in either 2013 or 2015 that the linear burial chamber was set alight. Rather, it appeared upon excavation that it had been deliberately dismantled, with the two massive, upright oak stems, that had created a 'framing' effect, having been carefully withdrawn. That operation nevertheless seems to have entirely disturbed the former stone paving; this is a further piece of evidence for the purposeful dismantling of the chamber. It can be deduced from sites such as the Wayland's Smithy I barrow, found underneath the Cotswold-Severn barrow outlier on the Ridgeway above the Vale of the White Horse (Oxfordshire, formerly Berkshire), that the flagstones at Dorstone Hill once formed a pavement upon which were laid the defleshed bones of at least some of the deceased of the Neolithic community. At Dorstone Hill, however, it must be presumed that the bones were removed—perhaps for re-interment elsewhere—when the chamber was dismantled. Removal and re-incorporation of such remains is widely documented in 4th-millennium BCE (Early Neolithic) Britain.

However, in the case of the linear chamber at Dorstone Hill, an altogether simpler

explanation was found during the excavation, when the surroundings of the chamber were re-examined in 2018. As noted above, a mound was built over the remains of the linear burial chamber once it had been dismantled. The mound was created by digging a horseshoe-shaped ditch around the chamber and piling up the soil inwards. The ditch was then carefully infilled, first by placing a cremated mass of material into the ditch on its southern side; and then by levelling up the ditch fills with stones. The cremated material included human bone. The simplest explanation for this succession is that the defleshed and gathered-together bone from the burials was stored when the chamber was dismantled, and was then removed for a second mortuary process, namely cremation on a pyre. The skeletal material, rendered down to cremated bone in this way, was then re-interred in the southern arc of the ditch, which, by this time, surrounded the linear chamber, and was finally covered over.

**From burial to commemoration at the mounds**

A pivotal moment of the entire excavation project at Dorstone Hill occurred in 2013, with the discovery of the basal deposits of the truncated, small, drum-shaped pit containing 'rich' deposits, close to the western end of the easternmost mound (Plate 2.12). The pit turned out to have been dug into the top of the mound covering the formerly paved (and tree-trunk framed) linear burial chamber that itself was located to the immediate west of the former eastern building. The presence of exotic flint artefacts— a completely polished flint axe featuring a prominent included fossil (Plate 2.13) and a bifacially flaked flint knife (Plate 2.14)—immediately pointed to a highly significant deposit. And the 'votive' character of the deposit was emphasised, first by the deliberate inclusion of some of the flaking debitage in the pit-base (showing that the final knapping was both performative and dedicative); and then by the realisation that what appears to be a completely polished Group VII stone axe head (from the quarries at Graig Lwyd, Penmeanmawr), that had been retrieved during excavations from a former land drain, found to have been cut across the site in recent years, most likely derived from the same deposit.[22]

This was the richest votive/commemorative deposit found during the nine years of excavations at Dorstone Hill, and it must be significant that it was inserted into the top of the eastern end of the mound that had been raised over the, by-then dismantled, linear burial chamber. The inclusion into the base of the pit (and before other items were placed into it) of freshly knapped soft percussion flakes from the bifacially worked flint knife is also surely significant; for some now unknowable reason it was deemed appropriate to have included this material in such a clearly dedicatory fashion.

But that was not all. Along the former central spine of the eastern mound a series of shaft-like pits had been dug through the mound deposits to receive offerings. The bases of the pits had deliberately been floored, each with a bowl-shaped cluster of stone flags. Upon these flags, in two instances, a deposit of cremated bone had been placed. In one case, the bones were mostly of cattle; in another they were cremated human bones.[23] Of especial interest is the depth of the pits concerned. Although it is not possible to determine how high the mound was when they were dug through its upper levels, what was consistent was the fact that they were dug down until the deposit of burnt daub and timbers was reached: and no further (Plate 2.15).

## NEW PRACTICES AND ANCESTRAL CROSS-REFERENCES: THE CAUSEWAYED ENCLOSURE

The causewayed enclosure was found to have occupied the crest of Dorstone Hill, located at the southern extremity of the eminence, the most prominent location on the hill overlooking the

Golden Valley southwards. A single circuit of ditch segments defined an enclosed area of around 150 x 120m. The shape of the causewayed enclosure is intriguing, since spatially it appears to have deliberately referenced the line of earlier earthen and stone monuments. On the northern side, there is a straight line of ten ditch segments, that originally had several small gaps (the 'causeways') left undug between them. Several of these causeways were subsequently cut through to leave only two broader 'entrance' ways. The orientation of this north-eastern stretch of causewayed ditches mirrored the same north-west to south-east alignment of the long mounds across the neck of the promontory. The continuation of this string of segments forming the enclosure boundary turned south-westwards and then southwards as it approached the south-facing scarp of the hill. The southern return of this circuit is presumed to have continued along the south-facing scarp of the hill but has been lost to stone quarrying in historically recent times. It is evident that the line of segmented ditch returned northwards along the east-facing flank of the summit; a short length was revealed and investigated just to the east of the later, west-facing Iron Age bank and ditch, which run across the furthest south-eastern spur of the hill.

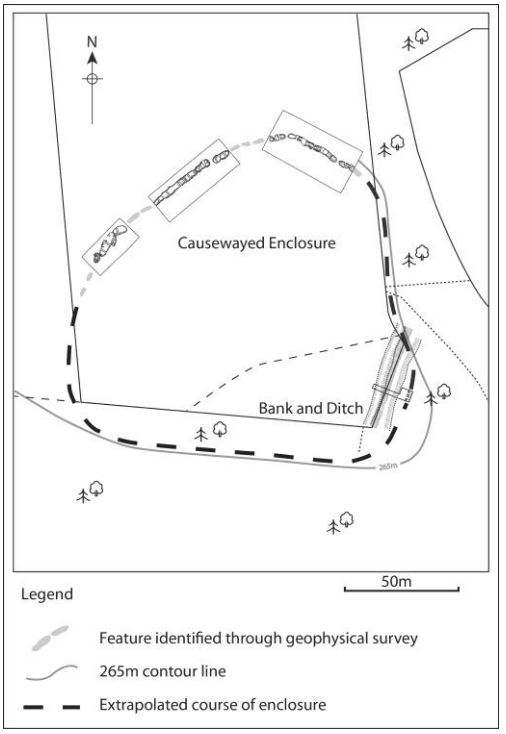



Figure 4. Outline plan of the causewayed enclosure at Dorstone Hill

The pattern of re-cutting and deposition within the ditch segments largely conforms to practice attested at proximal sites across southern Britain, yet with some notable differences. So, there was evidence in all three excavations of the area (in 2017, 2018, and 2019) of multiple, successive, pit-like intrusions into formerly back-filled deposits within each segment; these did not always fully respect the presence of causeways of undug material.[24] The character of ditch-cutting also varied to a greater extent than has often been recorded at causewayed enclosure sites; for example, as well as the initial digging and re-digging of the individual segments, there were slot-like recuts, bowl-shaped recuts, more massive and much smaller recuts, and deliberate placement as well as casual collapse of stones of various shapes and sizes into the cuts (Plate 2.16). The slippage of smaller stones affected the inner sides of some segments, perhaps indicating the former existence of informal revetments designed to hold back spoil rather than to create a wall-like façade. Adjacent to at least one former entrance, more massive, pillar-like stones had been carefully and vertically inserted into shaft-like pits. This perhaps indicates that more substantial built structures had been raised adjacent to such entrances.

There had been a concentration of carefully placed deposits especially around the north-western entrance. These deposits had included slabs of pottery (especially in the bowl-shaped recuts), and near-whole and fragmentary stone axe heads. The pottery was of the early carinated-

bowl type, and the pieces had in some cases been laid carefully within the cuts or recuts (Plate 2.17). The dates obtained from the pottery residues and from the animal bones are consistent with one another and overlap with the later part of the sequence.

In one area there had been a grouping of animal bones that had survived probably due to locally less acidic soil conditions. Predominant among this material were cow bones from meat-rich parts of the animal, while sheep and goats were represented by bones from what were probably whole carcasses. Tentatively, this suggests that the cattle meat was brought into the enclosure already dismembered while the smaller domesticates were brought in on the hoof. Additionally, red deer bones and at least one antler fragment had been buried in the segments.

## DATING THE DORSTONE HILL SEQUENCE

The start of Neolithic activity at Dorstone occurred in 3910–3760 cal BC (95% probability), according to the preferred Bayesian model. The first activity beneath the western mound occurred in 3850–3710 cal BC (95% probability). Based on a single radiocarbon measurement, activity in the central building can be dated to the thirty-ninth or thirty-eighth centuries cal BC, in 3870–3760 cal BC (95% probability; SUERC-62311). Activity beneath the eastern mound began in 3805–3730 cal BC (95% probability). The pre-mound activity beneath the central mound (SUERC-62311) could be slightly earlier than that beneath the western and eastern mounds. The single radiocarbon measurement available, however, cannot provide a definitive estimate for the chronology of this part of the complex. It is most probable (68% probability) that the pre-mound activity beneath the western mound occurred before the first activity beneath the eastern mound.[25]

## DORSTONE HILL AND ITS NEOLITHIC MATERIAL CULTURES

### The rock crystal

A total of 337 pieces of knapped rock crystal was recovered from multiple contexts across both the mounds and the causewayed enclosure. Rock crystal is a rare form of water-clear quartz, in that it is fully translucent rather than partially opaque, and fractures in a subtly different way to either flint or quartz. Arguably, the finds of rock crystal at Dorstone Hill made during the excavations described here, and subsequent painstaking analysis of the assemblages by Nick Overton and colleagues, are transformative of how we appreciate the presence and role of this glassy substance in Neolithic Britain.[26]

During the 2013 season, an entirely unexpected discovery was a 40mm long flake with secondary retouch along two edges (Plate 2.18).[27] It came from near the top of a large oval pit, interpreted as a cremation pit from the fragments of cremated bone found within it. The contained deposit had been sealed beneath a charred wooden plank or board, with the largest reworked (edge-trimmed) rock-crystal flake left (or placed) on the top of the fill of the pit. Other contents of the deposit included another four rock-crystal flakes,

Careful sampling and whole-context sieving of features demonstrated the co-occurrence of both flint and rock-crystal fragments. Yet the fragments of rock crystal were predominantly recovered from contexts associated with the dead.

### Worked flint and stone

A very substantial assemblage of flint artefacts had, as noted above, been collected historically (in the twentieth century) from the surface of the ploughed fields at Dorstone Hill, and more

came from the Houlder/Pye collections and investigations of the 1960s. A further 1328 worked flints were recovered during the excavations, and of these 604 were from primary phase contexts. There were few cores present, but there were pieces that had been used for core preparation and maintenance. This suggests that knapping was taking place on site or nearby, although the relative lack of debitage (flint spalls from knapping) suggests that much of the assemblage arrived on site already worked, or at least prepared.

A notable feature of this assemblage (including both groups of finds from previous work and the excavations of 2011-19) was the relatively large number of leaf-shaped arrowheads present.[28] These sharply pointed projectile tips were especially effective at penetrating flesh and would have been used to injure a variety of game animals. They are also occasionally associated with inter-personal violence, with several Early Neolithic sites featuring arrowheads embedded in bones as peri-mortem wounds.[29]

One probable such case was encountered during the excavations of 2011-19 at Dorstone Hill. A stone-lined cist had been added to the turf of the central mound when that turf had degraded and spilled beyond the former wall-slot. The cist had in turn been enveloped within the final-state continuous stone façade linking the four mounds and had been damaged by the bulldozing. Any human bone contained within the cist had disappeared in the acidic soil, but a leaf-shaped arrowhead found by the cist had a hinge-fracture of its tip, suggesting that it had penetrated soft tissue but had broken on impact with dense bone.[30]

Fully finished flint artefacts were disproportionately recovered from pits, while fragments were distributed widely in contexts such as postholes and mound (including turf) deposits. The only complete axe heads recovered from the 2011-19 excavations at the site were the all-over-polished flint axe head from the drum-shaped pit dug down above the linear burial chamber, and the axe head (noted above and thought to have come from the same pit) putatively deriving from Graig Lwyd in north Wales although this is yet to be confirmed. The flint axe head (Plate 2.13) had suffered a flake fracture while being prepared for polishing, but perhaps due to the prominence of a fossil embedded in the flint matrix the all-over polishing had nonetheless been painstakingly completed.

The sixteen retrieved axe-head flakes include specimens probably deriving from quarried outcrops in Cumbria and north Wales and occur chiefly in ‘placed’ deposits along with pottery sherds, especially from various of the causewayed-enclosure ditches.

**Broken pottery vessels**

The Neolithic vessels that were recovered in broken sherds in various contexts at Dorstone Hill all clearly belong in the early stages of ceramic use across Britain. By far the majority of the sherds are from the distinctive ‘carinated bowls’—vessels with outward flanging, plain rims, and a marked carination (abrupt change of angle of the vessel profile) at the shoulder. Laboratory analysis of the fatty lipids that had been absorbed into the internal surfaces of the bowls indicates that they were used for cooking meat, presumably for stews, but also for containing cow’s milk. The care with which ‘slabs’ of these bowls were deposited within the recuts of the causewayed enclosure ditches is impressive. They were not simply discarded as so much rubbish to be disposed of in a convenient location. Rather they were placed carefully, usually with the convex internal surface placed facing upwards. As such they may have continued to be used as ‘vessels’, but perhaps for liquid offerings poured into or across them rather than for cooking and serving, the purpose for which they would have been used as whole, unbroken vessels.

Given the similarities between the carinated-bowl sherds from the mounds and those

placed in recuts of the causewayed enclosure segments, it seems likely that the fragments of vessels found in the causewayed enclosure ditch recuts had originally been deposited elsewhere (perhaps in a midden?) but were then brought to the ditch segments as a deliberate means of referencing the antiquity of the mounds and vessels. In any case, the pottery-using activity signalled by this material clearly continued after the tradition of local carinated-bowl manufacturing had passed, since simpler bag-shaped vessels were also present in secondary contexts in the causewayed enclosure.

## CONCLUSION: EARLY NEOLITHIC FOUNDATIONS AND COMMEMORATION AT DORSTONE HILL

There remain many unanswered (or at least not fully answered) questions from the 2011-19 investigations at Dorstone Hill, among them, as we have seen, the exact reason for the large-scale and prominent presence of the halls/longhouses on the hilltop; why they were so different in character; and the precise reasons for which they were deliberately fired. For the latter, the explanation we have fixed upon so far is that they were thereby both memorialised and commemorated; the drastic nature of their burning itself ensured their continuing presence in memory and oral traditions.[31]

This article began with an account of the progress of the archaeological project across nine consecutive summer seasons of investigation at Dorstone Hill. Across that time-span perceptions of the nature of the archaeology at the site changed markedly, and along the way some paradoxes emerged. So, for instance, the mounds across the neck of the spur were definitively proven not to have formed the line of a bank and ditch of an original causewayed enclosure. And yet, when the three mounds had been melded into one, the resulting linear embankment did serve to inhibit passage into and from the promontory, whilst also forming a solid and continuous 'wall' facing outwards and across the Wye valley. A bounded 'precinct' was thus created, marking out Dorstone Hill as a special location in the way that many hilltops were also so defined in the 4th millennium BCE: we need only to think of Crickley Hill, on the Cotswold Scarp above Gloucester, or Hambledon Hill, near Blandford Forum in Dorset, as parallels.

Within western Britain, the construction events recorded at Dorstone Hill were precocious, not only in respect to the halls and the mounds, but also the causewayed enclosure that was created on the hill as the mounds were becoming 'ancestral'. The halls, the mounds, and the enclosure can each be seen as the focus for meetings, for what has been termed 'assembly'. Yet this would not have been only for practical exchanges of things, whether of pots, axe heads, worked flints, or rock crystal. *People* were also the subject of exchanges: especially in the sphere of alliances through marriages or martial rehearsals (or 'sports'). Kinship was enacted at Dorstone Hill, and its centrality was emphasised by the rituals of remembrance and commemoration so vividly evident across a variety of depositional contexts at the site.

The gatherings themselves, as we have suggested elsewhere, were 'foundational'.[32] By this, we have meant that they marked the coming together—close to the very beginning of the Neolithic in this part of the world—of at least three different social groups (or lineages) to construct three longhouses and a (shared?) mortuary structure. Doing so was an act of inception of a new ordering of society, and potentially also the conscious foundation of new 'houses' in the kinship/lineage sense. Yet the building of the halls was not the only innovation (or process) enacted at Dorstone Hill in the first half of the 4th millennium. Others included the dismantling of the linear burial chamber, the burning down of the halls, the encapsulation of the burnt remains

within three separate turf mounds, and the *de novo* creation of a causewayed enclosure: all of which provided something else again. This is the creation of what have been termed 'arenas of value'—locations not only where assembly and exchanges occur, but where there is a public acknowledgement that the acts of assembly and construction lend especial significance to the place concerned.[33] It is surely in this light that we need to view the deliberate historical referencing that took place in the acts of commemoration, focused upon the sites of the eastern mound and the linear mortuary chamber.

## ACKNOWLEDGEMENTS

Our thanks firstly go to the Hughes family of The Pentre, Bredwardine, who permitted our interference with their hay and upland sheep-stocking meadow for so many summer months across the nine years concerned. The sustained interest and enthusiasm of elder son, David Hughes, was especially warmly appreciated (and in particular his regular visits to observe the progress of the work), as was the patience and good humour of head of the family, Mr. John Hughes.

We also pay tribute to our field staff, graduate assistants, and post-doctoral researchers for their commitment and sheer hard work. Many of those in senior positions have gone on to contribute substantially to the success of its follow-up project, at and around the chambered tomb at Arthur's Stone, a kilometre to the north-west. Longer-term contributions from Irene Garcia Rovira, John Piprani, and Adam Stanford have been particularly vital. The specialist reporting on the artefacts and samples by Seren Griffiths (dating samples and Bayesian analysis); Martin and Anne Roseveare (geophysics); Alistair Barclay (pottery); Julie Birchenall, Elizabeth Healey, and Tom Elliot (lithics); Dana Challinor (archaeobotany); and Isabel Wiltshire (ceramic lipids) has enabled us to begin to extract a further range of fascinating insights into the lives and legacy of the inhabitants of this remarkable hilltop, 'beneath Hay Bluff', five and a half thousand years ago. Finally, special thanks are due to Tim Hoverd of Herefordshire Archaeology, who has steadfastly supported this project through turbulent and often frustrating times in local government; to Karen Usher, for so kindly assisting in finding the project a congenial 'domestic harbour' at Dorstone village; and to our project Associate Director, Dr Nick Overton. Nick has worked tirelessly to keep students enthused and engaged, to ensure that rigorous recording and training standards have been met, and to spearhead our post-excavation programme of specialist analyses, leading on faunal analysis and the innovative rock-crystal studies.

## NOTES AND REFERENCES

[1] P. Garwood, 'The earlier prehistory of the west midlands', in S. Watt (ed), *The Archaeology of the West Midlands* (Oxford, Oxbow Books, 2011) pp. 9-99; R. Jackson and D. Miller, *Wellington Quarry, Herefordshire (1986-96) Investigations of a landscape in the Lower Lugg Valley* (Oxford, Oxbow Books, 2011), pp. 44-102; K. Ray, *The Archaeology of Herefordshire: An Exploration* (Almeley, Logaston Books, 2015) pp. 33-68.

[2] M. Bowden, *The Malvern Hills: An Ancient Landscape* (London, English Heritage, 2015), pp. 13-14.

[3] Although again, there exists a prominent exception: in this case it comprises the various Neolithic traces that preceded the creation in *c.*2100BCE of a stone and burnt-stone 'paved way' at Rotherwas, south of Hereford, (Ray, *Archaeology of Herefordshire*, pp. 83-8).

[4] The Dore valley is the so-called 'Golden Valley', extending from Dorstone in the north to (and beyond) Abbey Dore in the south. Six possible sites additional to Arthur's Stone were identified in G. Nash, 'A Neolithic Monument in Interpretative Transition: A Re-evaluation of Arthur's Stone, Dorstone, Herefordshire (SO 3189 4312)', *Transactions of the Woolhope Naturalists' Field Club (*hereafter *TWNFC)* 50, 2000, pp. 37-50. For the 'probable' verdict on the status of the putative Neolithic enclosure at Dorstone Hill, see A. Oswald, C. Dyer, and M. Barber, *The Creation of*

*Monuments: Neolithic Causewayed Enclosures in the British Isles* (London, English Heritage, 2001) p. 152 (cat. 42). The dearth of new discoveries is due also to a large extent to the modest scale of modern development in the county and the related relative infrequency of archaeological interventions. By 2011, the early Neolithic enclosure site at Hill Croft Field, Bodenham, on the river Lugg not far from Wellington Quarry, had been found, sample excavated, and at least provisionally dated (see below), but had not yet entered the wider literature (P. Dorling, 2007, *The Lugg Valley: Archaeology, Landscape Change and Conservation*, Herefordshire Studies in Archaeology, 4, 2010, pp. 20-5; see also Ray, *Archaeology of Herefordshire*, pp. 49-51.

[5] See, for example, R. S. Gavin Robinson, 'Flint workers and flint users of the Golden Valley', *TWNFC* 20, 1934, pp. 54-63; A. E. Brown, 'Records of surface finds made in Herefordshire, 1951-60', *TWNFC* 37, 1963, pp. 76-91.

[6] W. R. Pye, 'Dorstone Hill', *TWNFC* 39, 1967, p. 157; *Ibid*., p. 362; *Ibid.*, p. 475. C. Houlder and W. R. Pye, Unpublished notes on excavations at Dorstone Hill, Houlder archive (MSS), National Monuments Record (Wales): personal observation in Aberystwyth (KR) in 2015.

[7] Houlder and Pye, Unpublished notes.

[8] Oswald, Dyer and Barber, *Neolithic Causewayed Enclosures*, pp. 43, 64, 107 (outline plan), 152 (inventory entry).

[9] Three sites were examined on the ridge between Bredwardine and Dorstone, at The Knapp (overlooking Bredwardine), at Dorstone Hill, and at Windy Ridge (both overlooking Dorstone). See Reports of Sectional Recorders, Archaeology, *TWNFC* 59, 2011, pp. 168-9.

[10] The burnt clay was examined with a hand lens on site by Dr Michael Allen of Bournemouth University and AEA Ltd (Allen Environmental Archaeology) and was thought to contain clay and cow's dung that had been mixed to make a firm daub, used (presumably with wattle) for the side-walling of the building. The 'fine pinkish clay' was distinctively silty and pinkish buff in character/colour. It had originally been confined within the mound by the redefined post-in-trench palisade but had spread outwards as the palisade decayed. It was distinguishable from the darker pink clay matrix forming the natural subsoil by being distinctively lighter in colour and finer (and relatively stone-free) in texture. The stone was deduced not only to have capped the sides but originally also the top of the mound (without this capping, the mound would have entirely eroded away).

[11] See Ray, *Archaeology of Herefordshire*, p. 40, Figure 2.4. Exactly how the braces contributed to the roof structure cannot be known with certainty. However, the braces could have been placed in pairs to create a highly secure roofing, as with historically recent 'Arch-Braced Collar-Rafter' roofs (cf, Type 1f in R. A. Cordingley, 'British Historical Roof-Types and Their Members: A Classification' (*Transactions of the Ancient Monuments Society*, N.S. 9, 1961, pp. 73-135, at p.84).

[12] Albeit re-used as a Roman military entrenchment. An exploratory excavation of a feature noted from the geophysical survey halfway between the enclosure and the mounds was undertaken in 2017, as were (in 2018) features defined in the same way from an extension of the geophysical survey southwards into the adjacent field (but still atop Dorstone Hill). In none of these trenches were there found definite traces of Neolithic activity.

[13] The longhouse illustrated in plate 2.8 is a bark longhouse of the Seneca people, reconstructed in 1998 at the Ganondagan State Historic Site, New York, USA. The Seneca were part of the Haudenosaunee (Iroquois) confederacy that, during the period of expansion in the area by France and English settlers, brought together warring peoples—Seneca, Cayuga, Onodaga, Oneida, Mohawk, and Tuscarora—to resist invasion of their territories. The reconstruction is based on an excavated building within a Seneca settlement that French troops, led by the Marquis de Denonville, razed to the ground in 1687.

[14]It is of course impossible to fully reconstruct the elevations of the building, and the way that it was used: but it does seem likely that both communal living and storage space were accommodated. The sophistication of the carpentry can best be appreciated with reference to the Iroquois structures. The latter had upright posts and purlin poles lashed together with heavy rope or twine, rather than elaborately carpentered and jointed members apparently supported by arch-braces. The north American structures, although lacking in 'display' sophistication, may have been better at resisting high winds; they also tended to be clustered together in settlements protected by a high wall (see D. R. Snow, *The Iroquois*, The Peoples of America, 9; Oxford, Blackwell, 1996).

[15] D. Benson and A. Whittle (eds), Building Memories: The Neolithic Cotswold Long Barrow at Ascott-under-Wychwood, Oxfordshire (Oxford, Oxbow Books, 2007).

[16] A. Saville, *Hazleton North, Gloucestershire, 1979-82: The excavation of a Neolithic long cairn of the Cotswold-Severn group* (Historic Buildings & Monuments Commission for England, English Heritage Archaeological Report no 13, 1990). Quoted statement at p. 240.

[17] *Ibid*., pp. 16 and 240. It is possible that the presumption that the spread of burnt material also encountered at Hazleton North was a 'hearth' may have led to a misidentification of the deposit. In fact, several patches of burnt timber were also noted under context 437: 'A concentration of charcoal fragments and charcoal staining on the surface of the buried soil (1.8x1.2m; *c*.10mm thick).' It was further noted that 'Other patches of discoloured soil and charcoal flecks occurred generally across the buried soil but exhibited no pattern,' and that '(this) phenomenon could in most

cases be the result of the decay of pieces of burnt wood (*see especially* arch(ive) photo 1982/36/23), but there was no sign of *in situ* burning' (*ibid*). The work reported here at Dorstone Hill (see below) would put these three sets of traces together and would explain why a 'hearth' (burning deposit, but not the 'midden' deposit—see below) was also associated with postholes and stake-holes: these traces were, rather, possibly all that remained of the debris from a building destroyed—as at Dorstone Hill—by fire.

[18] Such sites, with an elongated rectangular chamber 'framed' by upright tree-trunks (or longitudinally split trunks with the 'flat' side facing inwards to the chamber) have been found at several earthen long barrow sites in north-eastern, eastern, east-midland and south-central England. Among them are Streethouse Farm (near Staithes in North Yorkshire), Haddenham (in the Cambridgeshire fenlands), Kilham and Giant's Hills (two long barrows in East Yorkshire), Fussell's Lodge and Cold Kitchen Hill in Wiltshire, Nutbane in Hampshire, Worbarrow in Dorset, Aldwinkle in Northamptonshire, and New Wintles in the Thames valley in Oxfordshire: see J. Thomas, *Understanding the Neolithic* (London, Routledge) pp. 131-9 for a full discussion of their various configurations. They have more rarely been found in west and west-central Britain beneath earthen and stone monuments, such as Lochill and Slewcairn in Dumfries: and most conspicuously, the earliest structure at Wayland's Smithy, Oxfordshire (formerly Berkshire) known as 'Wayland's Smithy I', the chamber of which featured a similar stone slab floor upon which were found the disarticulated bones of several people.

[19] See K. Ray and J. Thomas, 'Houses foundational: Gathering histories at Dorstone Hill, Herefordshire', in A. Barclay, D. Field and J. Leary (eds) *Houses of the Dead?* (Oxford, Oxbow: Neolithic Studies Group Seminar Papers 17), pp. 107-19.

[20] Survey of magnetic intensity by TigerGeo revealed strong magnetic anomalies associated with these mounds. Spot-sampled magnetic susceptibility measurements yielded values in excess of 100 × 10-5 SI units, well within the range for soils exposed to strong heating and subsequent cooling. Total magnetic intensity anomalies were uniformly high within the footprint of each mound, exceeding 50nT positive amplitude against a natural background that varied less than 0.5nT across 10m. In contrast, likely non-heated soils, accumulated within the ditch segments of the causewayed enclosure, contributed no more than 3nT to the ambient field. The difference in amplitude between these anomalies and those from the mounds is again consistent with the strong heating of soils. The accumulation of heated clay within a rectangular area distinct to each mound may be indicative of daub walls, the wooden structure of which provided the necessary reducing environment, as well as heat, for the conversion of natural soil iron compounds into more magnetic forms (the 'Le Borgne effect'). See K. Ray, J. Thomas, N. Overton, S. Griffiths, T. Hoverd, M. J. Allen, A. Barclay, J. Birchenall, D. Challinor, C. French, E. Healey, R. Ixer, A. Roseveare, M. Roseveare, I. Rovira Garcia, A. Stanford, and I/.Wiltshire, 'Dorstone Hill: A Neolithic timescape', *Antiquity* 97, 394, August 2023, pp 869-86. Open access: https://doi.org/10.15184/aqy.2023.93.

[21] Such drystone walling has been discovered in recent (2021-23) excavations at Arthur's Stone, undertaken as a further element of the 'Beneath Hay Bluff' project.

[22] This all-over polished axe head with a light grey-green surface is *possibly* made from microdiorite of the type that occurs at the quarries on Graig Lwyd near Conwy in north Wales. However, this axe head has not yet been closely studied by Dr R. Ixer of University College, London, the project petrologist, and the source could easily be confused with closely similar looking axe heads from the English Lake District (See P. Ixer, O. Williams-Thorpe, R. E. Bevins and A.D. Chambers, 'A comparison between 'total petrography' and geochemistry using X-ray fluorescence as provenancing tools for some Midlands axe-heads', in E.A. Walker, F. Wenban-Smith, and F. Healey (eds), *Lithics in Action* (Oxford, Lithic Studies Society and Oxbow Books, 2004, pp. 105-15).

[23] For dating of the bones, see K. Ray, J. Thomas, N. Overton, S. Griffiths, *et al* 'Dorstone Hill: a Neolithic timescape' *Antiquity* 97, 394, August 2023, pp 869-86. https://doi.org/10.15184/aqy.2023.93

[24] See N. Overton, K. Ray, and J. Thomas, 'Structural and sequential complexity in causewayed enclosures: Implications from Dorstone Hill, Herefordshire' in J. Last (ed), *Marking Place: New perspectives on Early Neolithic enclosures.* (Oxford, Oxbow: Neolithic Studies Group Papers 18, 2022), pp. 43-60.

[25] Modern Bayesian models have made a major contribution to Neolithic studies. In the case of Dorstone Hill, they are crucial to assessment and levels of confidence in dating and sequences of events. For technical explanation see K. Ray, J. Thomas, N. Overton, S. Griffiths, *et al*. 'Dorstone Hill: A Neolithic timescape', *Antiquity* 97, 394, August 2023, pp 869-86. https://doi.org/10.15184/aqy.2023.93.

[26] N. J. Overton, E. Healey, I. Garcia Rovira, *et al*, 'Not All That Glitters is Gold? Rock Crystal in the Early British Neolithic at Dorstone Hill, Herefordshire, and the Wider British and Irish Context', *Cambridge Archaeological Journal* 33, 1 (2023), pp. 55-74. Open access: DOI: https://doi.org/10.1017/S0959774322000142. The article concerned has represented the first analysis in a British context of a methodology developed in continental Europe for the close analysis of reduction sequences of rock crystal.

[27] This was so translucent that the student who found it not unreasonably initially entertained the possibility that it was a fragment of clear modern vessel glass.

[28] A total of 14 pressure-flaked leaf-shaped arrowheads were found during the excavations. Flakes used for cutting and trimming and a variety of other purposes were the commonest type of flint artefact present (70% of the total of finished artefacts). Analysis conducted by Dr Nick Overton, Dr Irene Garcia Rovira, and Julie Birchenall in 2021-2, and reported upon in K. Ray, J. Thomas, N. Overton, S. Griffiths, *et al* 'Dorstone Hill: a Neolithic timescape' *Antiquity* 97, 394, August 2023, pp 869-86. https://doi.org/10.15184/aqy.2023.93.

[29] See R. Schulting and M. Wysock, 'In this chambered tomb were found cleft skulls…' an assessment of the evidence for cranial trauma in the British Neolithic, *Proceedings of the Prehistoric Society* 71, 2005, pp. 107-38. Also, M. Wysocki, and A. Whittle, 'Diversity, lifestyles and rites: new biological and archaeological evidence from British earlier Neolithic mortuary assemblages', *Antiquity* 74 (2000), pp. 591-601.

[30] The arrowhead was also interesting for having been made from a fragment of a highly polished flint axe-head. The opaque milk-white character of this material suggests to us that the 'raw' flint may have been quarried from one of the (very early) Neolithic flint mines on the South Downs chalklands of Sussex.

[31] The case in support of this interpretation is set out in Ray and Thomas, *op. cit.* (cf note 18, above): 'Houses foundational…'.

[32] Ray and Thomas, 'Houses foundational'.

[33] The term, 'arenas of value' was first used in reference to causewayed enclosures by our colleague Professor Mark Edmonds in the chapter of that name (Chapter 11) in his book *Ancestral Geographies of the Neolithic: Landscapes, monuments and memory* (London, Routledge, 1999). By this term, he referred to how the symbolic enclosures that these segmented ditches defined created a kind of forum within which, set apart from the world of the mundane, it became appropriate to undertake a variety of 'transactions'. These could include gift-exchange, the making of dedicatory offerings and libations, and the 'transitioning' of the remains of the dead into ancestors, and were made possible after the causewayed 'thresholds' had been crossed and the participants had entered into a world apart.

# From Moorcroft to Coddington Court: The Holder Family and the Origins of a Country Estate

*By* DR HANNAH INGRAM

*This article traces the establishment and early development of Coddington Court, a prominent estate in the parish of Coddington, Herefordshire, through the lens of its original owners, the Holder family. Whilst the history of present-day Coddington Court is well-known, particularly its later uses as a school for children with autism and its more recent conversion to a Buddhist centre and retreat, the estate's early history is under-explored. Indeed, this estate had modest beginnings, originating as a farmhouse and land held by the Holders, a prominent local family who are traceable in Coddington from at least the late 15th century onwards. The expansion and development of this estate, first known as Moorcroft and then Moorfields, was inextricably linked with the rise of the Holders on the parochial stage, providing a useful and detailed case study. As such this short article will produce a comprehensive and thorough examination of the premodern origins of an important Herefordshire estate, and, in doing so, chart the rise and eventual fall of a local family of great significance.*

## METHODOLOGY

The paper has been conceived as a broadly prosopographical case study, thus reconstructing a great deal about the Holders of Coddington, even if detailed biographies of individuals were not possible. A wide range of materials were used. Property records, including deeds, estate surveys and sales, were especially important and enabled reconstruction of the family's propertied assets from the 15th century onwards. Lay subsidies and tax records provided snapshots of familial wealth over time, and effectively placed family members within the wider socio-economic context of the parish. Surviving wills and inventories of family members introduced much-needed humanising detail to the account. Finally, much of the history of the family after 1800 and the estate of Coddington Court itself was reconstructed through careful examination of newspapers, parish documentation and surviving property records.

## THE PARISH CONTEXT

The small parish of Coddington lies about 3 miles (4.8 km) north of Ledbury. Nestled between the larger parishes of Colwall and Bosbury, it comprised 1076 acres by 1801.[1] In terms of demography, the parish was similarly modest, and was unlikely to have had more than 200 residents prior to the 19th century.[2] As a result, for much of the parish's early history the hamlet of Coddington, surrounding the parish church of All Saints, formed the main settlement, with a handful of scattered cottages and small farmsteads. However, during the early modern period, several substantial outlying farmsteads were established in Coddington, one of which was Moorfields, located in the north-west of the parish. Presumably taking its name from the once marshy quality of the land in this locale, Moorfields itself was sited between the village of Coddington and an ancient crossroads, Coddington Cross, in the far north of the parish, around which a later, subsidiary settlement had formed by the early 19th century.[3] The construction of such farmsteads, several of which had become sizeable holdings by the 18th century, took place within the wider context of yeoman expansion. Indeed, at Coddington, as elsewhere, the parish's

prosperous yeomen farmers of the 16th and 17th centuries were beginning to cultivate not only the land, but also their own personal fortunes, eventually building for themselves substantial estates. Moorfields is of particular significance therefore, given that the estate's original occupiers, the Holders of Coddington, were one of the parish's foremost yeoman families. The family were already defining themselves as yeomen by the 17th century; eventually, their wealth, largely generated from shrewd property investment and agricultural success, enabled later members of the family to apply the descriptor of gentleman instead. In the 18th century, Moorfields was renovated to match the Holder family's newfound social status and, although it continued to lie somewhat geographically removed from village life, the estate's prominence and local significance were unrivalled.

## EARLY HOLDERS: THE ORIGINS OF A PROMINENT PAROCHIAL FAMILY

The Holders were certainly one of the most important families in premodern Coddington. The name 'Holder' is first traceable in the parish in 1486,[4] from which point the family assumed an ever more important role in communal life. The Holders seem to have started out as middling farmers, given that one of the earliest Holders identified at Coddington, Roger, was described as 'husbandman' in the late 15th century.[5] This agricultural affiliation persisted, and several Holders of the 16th century were also counted amongst the parish's husbandmen, including John Holder of Coddington, described as 'husbandman' in his will of 1569.[6] These early Holders already held propertied assets, occupying various parcels of land in the parish of Coddington. For example, in the late 15th century, Roger Holder held a messuage called 'Hillande', along with half a virgate (a virgate equates to *c.*30 acres) in Coddington,[7] a farming estate of fairly typical size for the time. Similarly, in 1485-6, Richard Holder and William Holder were admitted to lands called 'Woodland' and 'Churchland'. By 1555-6, Richard Holder the younger also held a messuage known as 'Combehouse',[8] indicating that, even in this early period, the family was systematically acquiring various smallholdings and farmsteads in the parish. By the time of the Bishop of Hereford's survey of 1578, five members of the Holder family held distinct properties in the parish, all of which comprised a messuage with between half a virgate and a virgate of adjoining land. This included previously mentioned Holder properties, such as Combehouse, now held by John Holder; Hillande, now in the possession of Mary Massye, the remarried widow of Richard Holder;[9] and several apparently recent familial acquisitions. For example, Hugh Holder held a property known as 'Sherewalde' with a virgate of land; Richard Holder held a similar messuage called 'Pyttland', which had half a virgate of adjoining land; and Edmund Holder held 'Margeries', along with a half virgate of farmland.[10]

The family's actual cultivation and exploitation of these lands is harder to gauge in this period, although surviving wills and inventories provide some clues, often mentioning arable and pastoral products. For example, when Richard Holder of Coddington made his will in 1582, many of his bequests involved small monetary sums to his immediate family members, but he also left sheep and lambs to his daughter Margaret, suggesting that he reared these animals on his holdings.[11] Other Holders were seemingly engaged in arable farming, such as Hugh Holder who was bound to provide twelve bushels of muncorn to Richard Taylor, husbandman of Coddington, in 1577.[12] This same Hugh Holder once held a messuage in the parish, but by 1578 the site had been cleared, leaving behind a 'plain close' of land,[13] suggesting that he had actively cleared certain land for such cultivation.

Even at this early stage, members of the Holder family were counted amongst the parish's wealthier residents. In the lay subsidy of 1524-5, of the eight residents qualifying for

taxation in Coddington, two members of the Holder family are recorded. Both Richard and Reginald Holder were assessed on their goods at £5 and £3 respectively.[14] In 1546, of a total of just twelve people assessed for taxation, no less than four members of the Holder family occur in subsidy records for Coddington; Reynold (£7), Richard (£5), Agnes (£5) and Hugh Holder (£1) were all assessed, indicating the family's growing wealth.[15] As a result of this, members of the Holder family are more regularly discernible in positions of parochial responsibility by the later 16th century. For example, in 1589 John Holder was appointed as churchwarden for Coddington, whilst in 1596 William Holder was elected constable of the parish. By 1606, John Holder was sufficiently well-thought of to be made a trustee for the charity poor lands in the north of the parish, placing him in charge, along with others, of administrating the lands to the best benefit of the parish poor.[16]

## SEVENTEENTH-CENTURY DEVELOPMENTS: THE FAMILY PROSPERS

It is in the early 17th century that the Holder family begin to define themselves more readily as yeomen. For instance, John Holder the younger noticeably described himself as 'yeoman' during chancery depositions taken in 1606, something at odds with his own father, John Holder the elder, now aged 74, who was listed as a husbandman in the same depositions. There is much discussion on the fluidity and interchangeability of these particular labels, which is not the focus of this article. Nonetheless, it can be inferred that the socio-economic status of the Holder family was certainly changing. In fact, by the mid-17th century, the Holders of Coddington were both numerous and comparatively wealthy, as indicated in the Hearth Tax records of 1665. No fewer than five members of the family are assessed, out of just twenty-four residents listed. Thomas Holder and Richard Holder both had properties with only a single hearth, whilst Edward Holder and Robert Holder had two hearths apiece. Finally, Peter Holder was assessed on three hearths, indicating that he was both wealthy and presumably the current patriarch of the family, given the comparative size of his residence.[17]

Unsurprisingly therefore, the family becomes increasingly prominent in parochial life throughout the 17th century. Several members of the family appear in the wills of Coddington residents, often having lent the testator substantial sums of money. For example, John Holder and Peter Holder lent £15 and £6 respectively to William Braye of Coddington prior to 1615.[18] Holders also routinely occur as witnesses for 17th-century wills, as in 1634, when both Edward and Peter Holder witnessed the will of Henry Knight, yeoman of Coddington,[19] and in 1671, when Thomas Holder was overseer of the will of Thomas Butler of Coddington.[20] Similarly, in 1677 the inventory of William Ricketts of Coddington was approved by Joseph Holder.[21] Family patriarchs were also consistently appointed as representatives of the township of Coddington and Colwall at the Bosbury view of frankpledge, or else empanelled as jurors at the same court.[22] Parochial office was naturally attractive to the socially ambitious Holders of the 17th century. Members of the family were appointed parish churchwarden fourteen times between 1674 and 1722 alone.[23] Parish constables were also often Holders, with members of the family holding this office twelve times between the years 1670 and 1717.[24] Furthermore, Robert Holder was one of the appointed raters for the militia assessment of 1663, indicating his trusted parochial status.[25] Not all Holders were diligent in their parochial duties, however. Prime examples include William Holder, the parish constable in 1605, who routinely carried out his 'peace-keeping' duties with a cudgel in hand; and Richard Holder, who was churchwarden for the parish in 1689, when he was reprimanded for mixing cider into the church communion wine, much to the disgruntlement of the parishioners.[26]

During this time the Holders' landed assets remained significant, and family property interests can be identified in connection with Hillande, Pitthouse, Combehouse, Sherewalde and Margeries, all of which had originally been acquired in preceding centuries and were now becoming substantial farmsteads. Of particular note to this narrative is the addition of a comparatively newer possession, known as Moorcroft, and acquired sometime prior to 1589, when it was held by Thomas Holder.[27] It would seem that some kind of dwelling had been built upon the property by the time of its first mention, as Thomas Holder was described as 'Thomas Holder of Morecroft'. However, this land, which would subsequently become Moorfields, does not seem to have been a significant Holder asset at this time. Indeed, it is mentioned only sporadically in the 17th century, occurring alongside other properties in the family's extensive portfolio. For instance, Moorcroft is mentioned in court rolls of 1615, when it was now held by John Holder, presumably a descendant of Thomas Holder.[28] Regardless, it is evident that the propertied interests of the Holders in Coddington were extensive, and that the family was actively developing farming estates across the parish. Perhaps most tellingly of all, by the mid-17th century multiple members of the family appear in the 1663 militia assessments, which assessed the value of an individual's landed assets; Robert, Peter and Thomas Holder each had estates in the parish, assessed at £16, £12, and £8 respectively.[29] To put this into perspective, a total of sixteen estates are listed in these returns, ranging in value from £4 to £43. The mean average value of these estates is £14 15*s*., suggesting that the Holders were among the middling wealthy in the parish in terms of landed property. However, it should be noted that not all Holders were wealthy or prosperous at this point. Some branches of the family were poor and in receipt of parish relief, such as Mary Holder, who was listed amongst six poor persons receiving weekly relief payments in 1694-6.[30] Similarly, before this, in the early 17th century, certain members of the family were still part of the labouring, and therefore presumably landless, cohort of the parish. For example, a John Holder of Coddington was described as a labourer when he made his will in 1625.[31]

## EIGHTEENTH-CENTURY HOLDERS AND THE ESTABLISHMENT OF THE MOORFIELDS ESTATE

The 18th century brought significant changes for the Holders. For the first time, the wider family's grasp on certain farming estates within the parish, some of which had now been held by the family for several centuries, apparently without interruption, began to wane. A prime example of this is the Margeries estate, first recorded in 1578 when it was held by Edmund Holder.[32] This particular estate comprised a farmhouse and approximately half a virgate of land for much of its history as a Holder farm, although it would seem that sometime between 1695 and 1730 an additional messuage, known as the White House, was absorbed into the estate.[33] By the early 18th century, Margeries was held by Edward Holder as a copyhold estate of the manor of Bosbury, Colwall and Coddington, descending from him firstly to his son, also called Edward, and then to his grandson, John Holder, in 1743. John seemingly found himself in financial difficulties and unable to cover the costs of the estate, so that, in 1743, some 165 years after it was first recorded in Holder hands, John Holder relinquished Margeries, surrendering it to Edward Roberts.[34] John Holder seems to have gone bankrupt shortly afterwards, and a comprehensive and revealing inventory of his possessions was made in 1749. John's inventory recorded a long list of items along with the rooms where they were found, indicating that his residence in Coddington at that time, although unfortunately unnamed, comprised a kitchen, parlour, dairy, bakehouse, washhouse, dining room, and cellar, three other rooms, a garret, a

cider mill with a room above it, a barn, and a stable, along with attached fields and orchards.[35] This house was clearly substantial, something further indicated by the five featherbeds listed in the inventory, and was presumably a testament to the prosperity of his predecessors rather than his own wealth. Indeed, other possessions are either typically mundane, day-to-day household items, such as a cheese press, a pair of shears, and a churn, or else agricultural products. The latter include quantities of hay, hops, oats and wheat; cattle, horses and sheep; and items of husbandry, such as a dung cart and a wagon.[36] Aside from the size of his dwelling therefore, John Holder's possessions are ultimately suggestive of his declining fortunes, as well his continued agrarian connections.[37]

Although the story of John Holder of Margeries reveals the misfortune which befell certain 18th-century Holders, others continued to prosper in the parish. In fact, it is during this period that patriarchs of the Holder family, apparently acutely conscious of their elevated position, established for themselves a principal estate within the parish. The site in the north-west of the parish upon which Moorfields would subsequently be built is first mentioned in the late 16th century. As outlined previously, it was then referred to as Moorcroft,[38] and probably comprised merely a dwelling with farmland. By the early 18th century however, the Holders had turned their attention to this property, seemingly deciding to develop it further. The property underwent the first of many name changes in its long history, now recorded as Moor*fields* by the early 1700s,[39] an alteration possibly indicative of an expansion in the farm's acreages. By 1709, Moorfields was evidently at least partially wooded, as its owner, John Holder, sought permission in that year to cut down eighty oak trees growing on the site.[40] John was evidently clearing the land, although whether to expand the property's farming capabilities or for building is unclear. However, the latter seems more likely since by 1736 John Holder was now described as 'John Holder of Moorfields in Coddington', suggesting that a new residence, named Moorfields, had now been built upon the land.[41] Presumably standing as a substantial farmhouse, Moorfields was the principal farming residence of John Holder for much of the early 18th century. Following its establishment, Holder himself, evidently an important member of the family already, played an increasingly prominent role in parish life, as many of his predecessors had done before him. For example, in the same year that John sought to deforest Moorfields, he was appointed constable of Coddington parish,[42] whilst in 1712 he acted as a court representative, reporting to the manor court which lands in the parish had been surrendered into the lord's hands in the previous year.[43]

Lamentably little is discernible concerning Moorfields for much of the 18th century, although it was continuously occupied by the Holder family and presumably, given the family's agrarian connections, remained a substantial farmhouse. Moorfields seems to have passed through a number of descendants, many of whom were, unhelpfully, named John Holder, until the property reached one Thomas Holder, in *c.*1786. Approximately a decade later Thomas Holder, as the then patriarch of the family, decided to transform Moorfields into a sumptuous residence befitting his family's elevated wealth and status. At considerable expense, he rebuilt Moorfields in *c.*1796 as a five-bay, red-brick house in Georgian style, using bricks made within the parish. It comprised two-and-a-half storeys and featured a low-hipped roof.[44] This transformation of Moorfields, from large farmhouse to genteel residence, perfectly illustrates the family's ascent to true gentility, particularly as, by the later 18th century, family patriarchs were now consistently styled 'gentleman' rather than 'yeoman'. A prime example of the family's new-found genteel status is displayed by the tomb of Thomas's father, John Holder, located outside the south-east wall of the nave of the parish church of All Saints. John Holder and his wife were both interred in chest tombs there, an honour which no doubt reflected his wealth and social

prominence when he died in 1786.[45] However, although the Holders had successfully risen to gentility through their agricultural endeavours, that success proved short-lived. Rather unfortunately for Thomas Holder, he died, aged only 44, in the same year that his renovations at Moorfields were completed,[46] never living to enjoy his creation. Instead, the estate passed to a relative, Thomas Hales of Cradley.[47] More poignantly still, the passing of the estate coincided with the decline of the family in parish life, perhaps owing to impoverishment or simply a lack of heirs. By the first half of the 19th century, the Holder surname is rare in Coddington, and the Holders who were still living here seem to have fallen on hard times; in 1827, 5*s*. was expended by the poor overseers of the parish to pay for the funeral of John Holder, presumably owing to his poverty.[48] Alternatively it could be surmised that these remaining Holders descended from the branch of the family which had always been impoverished. Regardless, by the time of the census of 1841, no Holders were recorded as resident in the parish of Coddington.[49] Thus came to an end a family which had resided in Coddington for over 300 years.

## AFTER THE HOLDERS: THE FATE OF CODDINGTON COURT

Despite the family's somewhat sudden disappearance from parish prominence, the legacy of the Holder family lived on at Moorfields and the estate continued to grow in significance with each new possessor. Following the death of the last Holder owner, Thomas Holder, the Moorfields estate passed to a relative, Thomas Hales of Cradley, who resided there until his death in 1835.[50] In 1832 the mansion house of Moorfields had ten bedrooms, servants' quarters, stables, a coach house and a garden.[51] Moorfields remained in this branch of the family, passing from Hales to his nephew John Holmes, Esq., who lived at Moorfields until at least 1838.[52] The situation had changed by the 1840s however, when the estate's lands were consistently leased out. Lessees were typically agricultural labourers and their families, who were presumably cultivating the estate's ample farmland. For example, Thomas Payne and John Minett, both agricultural labourers, lived on the Moorfields estate with their families in 1841 and 1851 respectively.[53] Despite this, the Moorfields house and estate remained parochially important, particularly as parish meetings were often held at Moorfields during the 1840s, attended by the churchwardens, poor overseers and other notable persons.[54] In addition to this, the trustees of the parish charity lands also often met at Moorfields, where they audited accounts and discussed issues relating to administration.[55]

By 1856, Moorfields had been purchased by Henry Edward Martindale-Vale, whose preference for grandeur led him to rename it 'Coddington House',[56] effectively ending one of the last vestiges of a Holder connection with the estate. Between 1856 and 1861, Martindale-Vale significantly expanded the estate by purchasing land from the Hewitts of Hope End in Colwall, with the result that he, as the owner of Coddington House, became one of the principal landowners in the parish.[57] By 1885, the property had undergone yet another name change, now known as the even more grandiose 'Coddington Court'.[58] Indeed, upon Henry Martindale-Vale's death in 1914, Coddington Court estate comprised the mansion house of Coddington Court with Mayfields Farm (*c*.113 acres), along with several tenanted farms and cottages across the parish, including Church Farm, Pound Farm, Plough Cottage and Rose Cottages for example, with a total combined acreage of approximately 190 acres.[59] In 1914, the estate was purchased by a Mrs Buck,[60] but was described as being in a poor state of repair in 1915.[61] Despite this, in 1914 the then new tenant, Mrs Gladys Marsham, established a private school at Coddington Court, originally to educate children whose parents were serving in the armed forces in India. This proved short-lived however, and the school was subsequently moved to Coddington Rectory in

1921.[62] By 1921, the estate had a new owner, Brigadier-General Hamilton, who, following his purchase of Coddington Court, resided there for nineteen years before moving to Ledbury in 1939.[63] It was while he dwelt at Coddington Court that Hamilton took it upon himself to research and write a history of Coddington parish, briefly acknowledging the contribution of the Holders, and also remarking upon an old water pipe at the property, which was still in use and bore the initials of Thomas Holder with a date of 1796.[64] During the latter half of the 20th century, Coddington Court continued to change hands frequently. In the 1940s, it was owned by Richard Speiker Brander,[65] although it was put up for sale in 1950 for £8,500, at which time the house comprised six bedrooms with garage and modern offices, along with 3.5 acres of paddock land.[66] From at least 1957, Coddington Court was owned by Robert Poore,[67] who died in 1973. His son, Edward Poore, became life tenant and offered the property to Herefordshire Council, which was unable to purchase Coddington Court due to lack of funds.[68] Instead, it was purchased by Clyde Petroleum, an independent oil exploration company chaired by Colin Barry Phipps of Mathon Court. Clyde Petroleum had established its administrative base there by 1981;[69] a detached library and offices were added in 1986.[70] Coddington Court became a special needs school in 2001, at which time accommodation blocks and an indoor swimming pool were added, and then finally a Buddhist centre and retreat in 2013, which it remains in 2022.

## CONCLUSION

This brief analysis has reconstructed the history of the Holder family in Coddington and the development of their principal estate, Coddington Court, once known as Moorfields. It has explored in detail the family's wealth, property and parochial activities from the 15th century onwards, revealing how a family of middling farmers rose to become an integral part of premodern Coddington's parish elite. The wider context of yeoman prosperity and estate building has also been acknowledged, correlating with the rise of this particular family within the parish and the establishment of the Moorfields estate. Later estate developments have been charted for the sake of completeness, thus providing a contextualised narrative of modest farmhouse through to grandiose mansion house. Although the family's significance had waned by the early 19th century, that does not diminish the role they played within the parish. Their legacy lived on through the Coddington Court estate, which survives to the present day.

## NOTES AND REFERENCES

[1] TNA, IR 30/14/50; J. P. Bowen and A. Craven (eds.), *VCH Colwall* (2020), 3; Census, 1801-1881.
[2] For in depth account of parish population see H. Ingram, 'Coddington', in VCH Herefordshire (forthcoming, 2022).
[3] TNA, IR 30/14/50.
[4] TNA, CP 40/895.
[5] TNA, CP 40/895.
[6] HAS, 23/1/42.
[7] HAS, AM33/13.
[8] HAS, AM33/6.
[9] HAS, AA59/A/2, pp. 66-67.
[10] HAS, AA59/A/2, pp. 66-67.
[11] HAS, 23/1/69.
[12] HAS, 40/2/25.
[13] HAS, AA59/A/2, p. 85.
[14] TNA, E 179/117/91;
[15] TNA, E 179/117/170.

[16] *Report of the Commissioners Appointed in Pursuance of an Act of Parliament Made and Passed in The 5th and 6th Years of King William the 4th. c. 71, Intituled, "An Act for appointing Commissioners to continue the Inquiries concerning Charities in England and Wales, until the first day of March one thousand eight hundred and thirty-seven."* (Parl. Papers (HL) 1837-8, xxxix).
[17] TNA, E 179/119/487.
[18] TNA, PROB 11/129/76; HAS, 29/2/7.
[19] TNA, PROB 11/174/143.
[20] HAS, 29/2/26.
[21] TNA, PROB 4/2072.
[22] HAS, AA59/71/1/2; HAS, AA63/1-6.
[23] HAS, BP98/1.
[24] HAS, BP98/1; HAS, AA63/2; HAS, AA63/6; HAS, AA63/7; HAS, AA63/8.
[25] M. A. Faraday, *Herefordshire Militia Assessments of 1663*, Vol X (London, 1972), p. 93.
[26] M. Tavinor, *Saints & Sinners of the Marches* (Almeley, 2012), p. 6.
[27] HAS, AA59/71/1/2.
[28] TNA, PROB 11/129/76.
[29] M. A. Faraday, *Herefordshire Militia Assessments of 1663*, Vol X (London, 1972), p. 93.
[30] HAS, BP98/1.
[31] HAS, 35/4/49.
[32] See above.
[33] HAS, AA63/4; HAS, O44/2.
[34] HAS, O44/2.
[35] HAS, O44/2.
[36] HAS, O44/2.
[37] HAS, O44/2.
[38] HAS, AA59/71/1/2.
[39] HAS, AA63/7.
[40] HAS, AA63/7.
[41] HAS, AA63/11, p. 127.
[42] HAS, AA63/7.
[43] HAS, AA63/7.
[44] D. Whitehead, *A Survey of Historic Parks and Gardens in Herefordshire* (Guildford, 2001), p. 108; N. Pevsner, *The Buildings of England: Herefordshire* (2012), p. 104; W. G. Hamilton, *A History of Coddington* (1924), p. 32.
[45] NHLE, no. 1157241, Holder and Gardiner Monuments South East of Nave of Church of All Saints (accessed 5 May 2021).
[46] W. G. Hamilton, 'Field and Place Names of Coddington: A Local Study', *Transactions of the Woolhope Naturalists' Field Club* (1924), p. 138; W. G. Hamilton, *A History of Coddington* (1924), p. 32.
[47] *Berrows Worcester Journal*, 6 Dec. 1832, 6778.
[48] HAS, BW53/13.
[49] TNA, HO 107/1975.
[50] *Berrows Worcester Journal*, 9 July 1835, 6919.
[51] *Berrows Worcester Journal*, 6 Dec. 1832, 6778.
[52] TNA, IR 29/14/50.
[53] TNA, HO 107/1975; TNA, HO 107/424/8.
[54] HAS, BK4/10-11.
[55] HAS, BK4/11.
[56] TNA, RG 9/1808.
[57] HAS, J33/2; D. Whitehead, *A Survey of Historic Parks and Gardens in Herefordshire* (Guildford, 2001), p. 108.
[58] *Kelly's Directory of Herefordshire and Shropshire* (1885), p. 1135.
[59] HAS, J33/2; GA, D2299/1392.
[60] This was presumably Marian Buck, who founded the Evendine Court School of Domestic Economy in Colwall, see: J. P. Bowen and A. Craven (eds.), *VCH Colwall* (2020), p. 89.
[61] GA, D2299/1392.
[62] HAS, BT72/2.
[63] *The Ledbury Reporter*, 7 Sept. 1940.
[64] W. G. Hamilton, *A History of Coddington* (1924), p. 32.
[65] HAS, AA63/38, p. 433; *Kelly's Dir.* (1947), p. 43.

[66] *The Times*, 18 Oct. 1950, 51825, p. 9.
[67] *The Times*, 17 Apr. 1958, 54127, p. 14.
[68] Information from D. Hodgson, Coddington resident.
[69] *Tilley's Ledbury Almanack*, 1981, p. 113; *Who's Who 2009: An Annual Biographical Dictionary* (2008), p. 1847; *Who's Who 1993: An Annual Biographical Dictionary* (1992), p. 1487.
[70] N. Pevsner, *The Buildings of England: Herefordshire* (2012), p. 104.

# Herefordshire's Ice Age Ponds: Geology and Ecology

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*Ice Age Ponds are nationally rare. Although it had long been recognised that the Ice Age Ponds of north-west Herefordshire existed and were likely to be important, the 'Conserving Herefordshire's Ice Age Ponds' project, launched in 2019 and completed in 2022, was the first detailed, multi-faceted investigation. The project was operated as a partnership between the Herefordshire Wildlife Trust (HWT), the Herefordshire & Worcestershire Earth Heritage Trust (EHT), and Herefordshire Amphibian & Reptile Team (HART). There were two objectives: first to strengthen knowledge and understanding of the Ice Age landscape of Herefordshire and to share that information with local communities, visitors, and stakeholders; and secondly to conserve and enhance the heritage of the Ice Age landscape, through restoration management of selected Ice Age Ponds, and by generating a real desire among landowners and the public to care for them and to extend that care to further sites in the longer term. This paper outlines the considerable knowledge generated by the project and the new discoveries that arose. A range of scientific and surveying techniques were deployed to investigate how Herefordshire's Ice Age Ponds were formed, demonstrating that their geology is more diverse than previously suspected. The extensive ecological information gathered shows that these ponds support distinctive assemblages of aquatic plants and invertebrates, some of them rare. Substantial new understanding has informed initial restoration work and created a base from which both awareness and future conservation efforts can be refined and strengthened.*

## INTRODUCTION

Near the end of the last Ice Age, the landscape of Wales and the Marches was abruptly and dramatically changed. At a time when Woolly Mammoth (*Mammuthus primigenius*) and other megafauna roamed the land, retreating glaciers created distinctive landforms. Between 115,000 and 11,700 years ago during the Devensian Glaciation, the last glaciation in Britain and Ireland, large numbers of depressions in glacial or periglacial areas filled with water to form 'Ice Age Ponds'. Some of these depressions, known as 'kettle holes', were formed by the melting of huge chunks of buried glacial ice, and others as the core of ice-filled mounds melted to leave hollows. Ice Age Ponds are known to support a wide range of UK Biodiversity Action Plan (BAP) species and European Protected Species, plus many other aquatic plants and animals including rare and threatened species. For example, the Ice Age Ponds of the Breckland on the Norfolk/Suffolk border support a diverse range of plants and invertebrates,[1] including a unique assemblage of water beetles,[2] while the meres of Cheshire and Shropshire support distinctive plant communities.[3]

Between 2004 and 2006, the Herefordshire Ponds & Newts Project identified that, in north-west Herefordshire, many of these ponds of natural origin were more biodiverse than man-made field and farm ponds.[4] This paved the way for the development of another project focusing specifically on the county's Ice Age Ponds, although it took a further thirteen years to secure funding from the National Lottery Heritage Fund and other sources for an initial Development

Stage Project during 2019 (see Acknowledgements). This was followed by a successful bid for a Delivery Stage Project, which ran from 2020 to 2022.

The project resulted in several significant discoveries, including the identification of previously unknown ponds and the finding of several rare species, a few of which had not been recorded in the county before. Some of these are described below. Detailed surveys of forty-five ponds were carried out by ecologists and geologists and twenty-three individual Pond Management Plans were written, with practical management carried out at nineteen. An Ice Age Pond Conservation Strategy was also written.

Over 1500 actual or potential Ice Age Ponds were located and mapped during the project (Plate 3.1). These were identified by a combination of methods including the examination of aerial images, Ordnance Survey maps—such as the County Series (25 inches to the mile), published in the 1880s, and the current 1:25,000 Explorer Series—LiDAR data, and field visits. The figure includes some sites marked on historical maps or visible as crop marks which may no longer exist as actual ponds, so the true number of surviving Ice Age Ponds may be considerably lower. Sites can only be definitively labelled as Ice Age Ponds through detailed investigation of their geology.

## WHAT IS AN ICE AGE POND?

Ice Age Ponds are very variable, can be complex to identify, and can appear superficially similar to man-made ponds. It is not always possible to be completely certain about an individual pond's origin. Through the project, a set of criteria was developed to identify Ice Age Ponds and formed the basis of the following checklist:

1. Is the pond found within the area of glacial deposits as defined by the British Geological Survey (BGS)?
2. Is the pond in a discrete depression, not connected to a stream or outlet? This can be hard to establish, as later drains and ditches may have been added. Using LiDAR data to view the pond contours at 10cm intervals proved invaluable in spotting alterations, especially for overgrown sites.
3. Are there other similar ponds located nearby? Ice Age Ponds are often found in groups, with densities varying from 10 ponds per $km^2$ in the southern part of the project area to over 70 ponds per $km^2$ in parts of the area of Letton Lakes.
4. Does the pond contain peat deposits? Several depressions and ponds have been mapped by the BGS as containing peat, and others were found to contain peat deposits when augered. One metre of peat may take over 1000 years to form, so its presence indicates that the pond must have existed for a long time.

When identifying an Ice Age Pond, experience reinforced the requirement for a geological site visit to assess the glacial geomorphology, and for detailed biological survey if the pond still supported aquatic habitats. The more information available on the geology and associated habitats, the more secure identification became. Absolute proof, through radiocarbon dating of peat cores, is expensive and can only be applied to a small minority of sites.

Biologically, Ice Age Ponds conform to the standard definition of a pond by the Freshwater Habitats Trust as 'a body of water (normally fresh water, but occasionally brackish),

which can vary in size between 1 square metre and 2 hectares, and which holds water for four months of the year or more'.[5]

Since all of Herefordshire's Ice Age Ponds have been modified to various degrees by farming and other human activities, they cannot be considered to be in a truly natural state. Such modifications have caused physical changes to their profiles, typically due to drainage, partial infilling, deepening, and enlargement. This can make identifying and surveying them difficult, especially in summer when they may just appear as a damp hollow or a lush area of grassland within a field.

## HOW DID ICE AGE PONDS FORM?

Herefordshire was ice-free for the majority of the Devensian Glaciation,[6] and at this time would have been largely covered by mammoth steppe, also known as steppe-tundra. This was a treeless habitat dominated by grasses, also including other herbaceous species and dwarf shrubs. Towards the end of this period, a reduction in temperature caused ice to advance from the Welsh massif and flow down across a large swathe of north-west Herefordshire. The glacier extended as far as Orleton in the north and Allensmore in the south. In the east, it reached approximately the line of the A49 between Hereford and Leominster (Plate 3.2). [7]

The Herefordshire glacier is thought to have reached its maximum extent at around 23,000 years before present, with deglaciation taking place over the following 3,000 years.[8] This left behind distinctive, ice-marginal landscapes of hummocky moraine, glacial lakes, and terminal and recessional moraines. Across the area were also left large numbers of depressions, many of which held water. The Ice Age Ponds thus created are often described by their mode of formation—e.g., kettle hole, caused by the melting of huge chunks of ice as glaciers retreated; or lithalsa, palsa, and pingo, referring to different forms of ice-filled mound which left hollows when their cores melted. These features are discussed in more detail below with reference to ponds in different areas of north-west Herefordshire. Although the various types of depression have been recognised for many years, usually they have all been described as 'kettle holes' or 'kettle-hole ponds', despite the differing landscapes in which they are found and the fact that few studies have been undertaken on their modes of formation. The project has demonstrated that their origins in Herefordshire are indeed more diverse. Ice Age Ponds can hold water either permanently or seasonally, with levels that often change substantially through the year. They are also likely to retain geological deposits dating back thousands of years.

## NEW GEOLOGICAL RESEARCH

Included within the project funding from the National Lottery Heritage Fund was a student bursary to support an MSc thesis based on the geology or geomorphology of Herefordshire's Ice Age Ponds. The resulting research studied the possible modes of formation of ponds in different landscapes through near-surface geophysical techniques and comparison with modern ice-marginal landscapes.[9]

Representative ponds were chosen for study from each of the three types of landscape which contain Ice Age Ponds in north-west Herefordshire. These comprise hummocky moraine, found in the north and east of the area; flat glacial-lake beds, concentrated around Letton; and the land around the foot of the hillslope in the very south-west, between Bredwardine and Blakemere.

For each area, LiDAR data was used to compare the pond density, size, and shape with modern landscapes in Iceland and Canada. For each pond, a single survey line was laid. This

was used to undertake a Ground Penetrating Radar (GPR) survey and an Electrical Resistivity Imaging (ERI) survey, from which a cross-section of buried structural features within each pond was created. Results for each area surveyed are summarised below.

**Kenchester Area**

The area around Kenchester is geologically mapped as 'hummocky moraine' and shows the typical random humps and hollows associated with this landform. The survey work showed that the ponds here were clearly similar to those in modern kettle-hole landscapes. Kettle holes are formed by large chunks of ice buried within the moraine left behind by a retreating glacier. As the buried ice slowly melts, the ground above gradually subsides to create depressions. When these hold water, they become 'kettle-hole ponds'.

**Letton Area**

The depressions in the Letton area have previously been described as 'kettle holes',[10] but comparisons of pond morphology found no modern kettle-hole analogues for them. The most closely related were ponds of periglacial origin. Density analysis showed that these features could be 'palsas' or 'lithalsas'. These are ice-cored mounds that form in permafrost areas and are particularly associated with drained glacial lakebeds. When the ice melts, it leaves behind a hollow which may subsequently fill with water and form a pond. The records of geophysical and borehole surveys held by the BGS confirmed that this area has a thick sequence of glacial lake sediments. An alternative theory was that these ponds might have been formed by icebergs within the glacial lake itself, but the absence of any scour marks on the base of the lake suggested that this was unlikely.

**Southern Area**

For sites within the southern area, at the foot of Dorstone Hill, the results of the GPR and ERI surveys and the shape analysis suggested that the smaller of these ponds were also of periglacial origin and might be fossil 'pingos'. Pingos are also mounds consisting of an ice-core and overlying sediment. As the ice melts, sediment is sloughed off towards the edges of the mound, leaving a hollow surrounded by 'ramparts'. The presence of possible buried ramparts within the pond studied supports the view that these ponds were formed by a pingo; this is consistent with the sand and gravel substrate and the location at the edge of the glacier, constrained by the north-facing hillslope. It is possible that these ponds, and the larger ponds within the area, are the result of the melt-out of large masses of stagnant ice left on the lateral margin of the glacier as it retreated back towards Wales. For example, the Linear Ponds at Moccas Park may be glacial outwash channels (Plate 3.3).

**Conclusions**

This new research has shown that there are likely to have been several different modes of formation for these depressions within north-west Herefordshire. Particularly important is the finding that permafrost may have played a more significant role than previously believed—this also raises the possibility of finding more Ice Age Ponds outside the area directly underneath the Herefordshire glacier.

## WHY ARE ICE AGE PONDS IMPORTANT?

Ice Age Ponds are a nationally rare habitat; it has been estimated that less than 2% of lowland ponds are of natural origin, and that only a small percentage of these are likely to be of Ice Age origin. There has been a huge decrease in the number of all types of ponds throughout the 20th century, with losses thought to be over 50%.[11] Losses of Ice Age Ponds are of particular significance, because their unique historical value can never be replaced by a newly created pond.

Despite being individually small, ponds in general are of high importance for biodiversity and provide habitat for around two thirds of Britain's freshwater plants and animals. Compared to rivers, they support at least as many species of aquatic invertebrates and more rare species.[12]

Ice Age Ponds have a range of characteristics that make them particularly valuable for wildlife. These are as follows:

1. **Age**. These ponds have existed for thousands of years, providing continuity of habitat and sufficient time to allow colonisation by slowly dispersing species.
2. **Clustering**. Ice Age Ponds rarely occur singly but are found in groups (Plate 3.4). This provides habitat variation and allows species to move between ponds, so that clusters support larger and more robust populations of plants and animals than isolated ponds.
3. **Saucer-shaped profile.** In contrast to steep-sided, man-made ponds, Ice Age Ponds are saucer-shaped with a wide, gently sloping drawdown zone (Plate 3.5). This provides extensive shallow water and exposed margins in the summer, both extremely rich habitats for aquatic and wetland species. A large percentage of a pond's plant and animal species can be found in this zone.
4. **Natural hydrology.** Water levels fluctuate naturally, providing a diverse and dynamic habitat. In combination with a gently sloping profile, this means that the water area can expand and contract over a large area across the year.
5. **Variation between ponds.** The existence of seasonal, semi-permanent, and permanent ponds, often in close proximity, provides habitat for a wide range of species with different ecological requirements.

It is difficult to rank these characteristics in order of importance, but collectively they allow these special ponds to provide good quality habitat and to sustain species that are much less common in other types of pond.

Ice Age Ponds are also important because they may contain significant deposits of organic sediments. Pollen and other plant remains can inform us of past climate, habitats, and plant distribution. For example, in 2019, coring of Medlands Pond, Staunton-on-Arrow, discovered sediments which were radiocarbon dated to the Mesolithic Age, 8000–4000 years ago (Plate 3.6). This timespan covers a dry period and deposits of this age are rare. The pollen from this site yielded information about the habitat and plant species then present in the vicinity. Undisturbed peat and other sediments also function as important stores of organic carbon.

## WILDLIFE OF ICE AGE PONDS

### Aquatic Plants

The project generated 1282 vascular plant records of 192 species. Of these, there were 871 records of 103 species listed on the Freshwater Habitats Trust list of aquatic species. Ice Age Ponds support a number of species which are much less commonly found in other ponds in Herefordshire. One well-known example is Bladderwort *Utricularia australis*, a rootless carnivorous plant which typically floats just under the surface. The Lawn Pool in Moccas Park is the county's only site for this species; its population here appears stable, and it was seen flowering on a number of visits during the project.

Tubular Water-dropwort *Oenanthe fistulosa* is a conservation priority species with a status of Nationally Threatened (Plate 3.7). In Herefordshire, it is uncommon outside the glaciated area but can be found forming substantial stands where it occurs. It was recorded at five sites during the project, all of which were ponds thought to be of Ice Age origin. At one semi-permanent pond in Canon Bridge, it was observed forming an almost complete ring around the drawdown zone. This same pond was also a site for Golden Dock *Rumex maritimus*, an uncommon annual to short-lived perennial associated with seasonally wet areas such as pond drawdown zones. It was recorded here in 2011 but was not found again during the project despite a number of visits. However, it may reappear in future from the soil seedbank. This is a species that is likely to benefit from a degree of grazing and poaching, by heavier livestock such as cattle or horses, to create areas of bare ground around the pond margins. Golden Dock was not seen during the project but has previously been recorded from other Ice Age Ponds in the area, including one of the Kenchester Pools, also known as a site for the related but rarer species Marsh Dock *Rumex palustris*.

Bogbean *Menyanthes trifoliata* is a highly distinctive species, with large trifoliate leaves held above the water. It is uncommon in Herefordshire although it is frequently planted, making it difficult to be certain whether populations are truly wild. During the project it was recorded in the Leech Pool at Clifford and was also seen at an unsurveyed Ice Age Pond at Rushock.

Orange Foxtail *Alopecurus aequalis* is a semi-aquatic annual grass with a scattered distribution in England and eastern Wales. Most Herefordshire records are from the glaciated area in the north-west of the county. It can be seen flowering both in shallow water and on exposed mud as the ponds dry out in summer. It was recorded from five ponds during the project.

Slender Spike-rush *Eleocharis uniglumis* is a small sedge known only from five sites in the county. Two of these are at the Kenchester Pools; one pond where it was discovered in 2008[13] and a second where it was recorded during the project in 2019. Its national distribution is largely coastal, with scattered inland records across England.

### Aquatic invertebrates

The project generated a total of 2462 records of 387 invertebrate species. This comprised 2020 records of 210 aquatic species, 338 records of 110 wetland species associated with damp ground, and 104 records of 67 terrestrial species with no particular relationship to ponds or wet habitats.

**Table 1: Aquatic invertebrate groups recorded during the Ice Age Ponds project 2019-22**

| Invertebrate Group | No. of Species | Invertebrate Group | No. of Species |
|---|---|---|---|
| Water Beetles | 92 | Flatworms | 6 |
| Water Bugs | 34 | Crustaceans | 5 |
| Molluscs | 28 | Alder Flies | 1 |
| Caddisflies | 10 | Annelid worms | 1 |
| Dragonflies | 10 | Mayflies | 1 |
| Damselflies | 8 | Sponges | 1 |
| Leeches | 8 | Stoneflies | 1 |

Herefordshire's Ice Age Ponds support a rich water-beetle fauna, with ninety-two species having been recorded during the project (Table 1). One particularly exciting new species for the county was discovered in the form of *Agabus undulatus*, a diving beetle 7-8 mm long, found in the Mere Pool at Blakemere (Plate 3.8). This species has 'Near Threatened' status nationally, with the nearest known population over 150 km to the east in Cambridgeshire. *A. undulatus* appears to be one of a small number of water-beetle species that is either flightless or has very limited flight capability, so the isolated population at Blakemere may have occupied this site for a considerable length of time.

Two species of water beetle with a conservation status of 'Vulnerable' were refound during the project. The rarest of these locally is the Lesser Spangled Diving Beetle *Graphoderus cinereus*, a strikingly coloured diving beetle, 14-15mm long, which, in Herefordshire, is known only from the Lawn Pool at Moccas Park (Plate 3.9). The last 20th-century record from Moccas was in 1973, but it was not seen there again until Will Watson rediscovered it in 2016.[14] When the Lawn Pool was surveyed during the project in June 2019, two individuals were netted, photographed, and returned to the water. The population of this species at Moccas Park is completely isolated from the rest of its national distribution, with the handful of other known sites all being south-east of a line from the Dorset coast to The Wash.

Surveys also discovered two new sites for *Helochares obscurus*, a species of water-scavenger beetle with a conservation status of 'Vulnerable'. This species was already known from Ice Age Ponds at The Sturts and Moccas Park, but in 2022 it was found at ponds in Canon Bridge and Kenchester. It has been described as an 'also ran' glacial-relict species—it is primarily associated with Ice Age Ponds, but also occurs in other high-quality wetland sites such as Wicken Fen in Cambridgeshire and the Norfolk Broads.

*Enochrus nigritus*, a 'Near Threatened' species of water-scavenger beetle, was recorded in a total of twelve ponds at seven sites during the project. All of these are Ice Age sites in the southern part of the project area, along the Wye Valley west of Hereford. Although nationally scarce, it appears to be locally common in this part of the county and is present in good numbers in the ponds where it occurs. The species had previously been found in a pond of recent origin that had developed in the former silt lagoon at Brockhall Quarry. This shows that *E. nigritus* must be capable of colonising new sites, but Ice Age Ponds are clearly the core habitat for the species in Herefordshire.

The Mud Pond Snail *Omphiscola glabra* is a 'Vulnerable' species with a high conservation priority. It requires seasonal ponds with good water quality, a habitat which is particularly at risk from threats including drainage, pollution, and over-shading. It occurs in Ice

Age Ponds at the HWT's reserves at The Sturts, where it was re-found during the project. It was also discovered in two ponds in Mowley Wood, Staunton-on-Arrow, although this site was subsequently assessed as not being of Ice Age origin.

*Sigara iactans*, a species of lesser water boatman (Corixidae), was recorded at three widely separated Ice Age Ponds during 2019–2021. This species has only colonised Britain recently, with the first records from Norfolk in 2004, so these are almost certainly new county records for Herefordshire. The arrival of this species is a good example of how invertebrate communities in ponds can be quite dynamic, with species composition changing rapidly over time.

A species which was searched for unsuccessfully during the project is the legally protected Medicinal Leech *Hirudo medicinalis*. This species is threatened by a range of factors including historical overcollection for medicinal use, and deterioration and loss of habitat, arising from wetland drainage, declines in amphibian populations, and changes in livestock grazing regimes.[15] The widespread use of anthelmintic drugs such as ivermectin may also be a factor.

The last record for this species in Herefordshire was a cocoon found by Will Watson at a recently infilled Ice Age Pond near Madley in 2014. Earlier records are from ponds at Heineken's Lower House Orchard in Staunton on Wye, last recorded in 2006, and from the Lawn Pool at Moccas Park, last recorded in 2000. In 2021, a large volunteer group searched unsuccessfully for Medicinal Leeches in the Lawn Pool by splashing at multiple locations around the pond. This technique aims to attract hungry leeches by replicating the water disturbance caused by large mammals entering the pond. Recent searches at Lower House Orchard have also proved fruitless; habitat quality at this site has declined in recent years as the ponds have become more shaded. The Medicinal Leech is the only widespread species of native leech that feeds on mammalian blood. Amphibians are also an important food source, especially for juveniles which are unable to penetrate mammalian skin. The ideal habitat for this species thus consists of extensive, unshaded ponds with high populations of amphibians and large herbivores.

While invertebrate surveys during the project focused primarily on aquatic species, there are many species, not usually classified as aquatic, which are nonetheless strongly linked to the ponds. This applies to species associated with the margins and drawdown zones of ponds and the damp ground around them, herbivorous insects feeding on wetland vegetation, and some species with aquatic larvae recorded in their adult stages.

The largest group of wetland invertebrates recorded were rove beetles (Coleoptera family Staphylinidae), with sixty-six records from twenty-six species. Many of these were in the genus Stenus, which has many species adapted to living around water. They are sometimes called Water Skater Beetles as they are able to release an alkaloid chemical called stenusin from glands in their abdomen; this lowers the surface tension and allows the beetles to skate rapidly over the water surface.

## Vertebrates

Herefordshire has five native species of amphibian,[16] all of which can be found breeding in Ice Age Ponds. A total of eighty-seven amphibian records were collected during the project, although the pond surveys carried out were not specifically targeted at amphibians. Common Frog *Rana temporaria* was the most frequently recorded species, mostly as larvae with tadpoles recorded in twenty-one ponds. Common Toads *Bufo bufo* were widespread with records from eleven different Ice Age sites, but in much lower numbers. The exception was Linear Pond West at Moccas Park, with tens of thousands of tadpoles seen in April 2022.

Great Crested Newts *Triturus cristatus* were recorded in ten Ice Age Ponds during the project, plus two other ponds not of Ice Age origin. The species was most commonly recorded as eggs, with adults seen at only five ponds. This number was low compared to those reported in previous surveys, such as the Herefordshire Ponds and Newts Project, which found the species in 46% of ponds surveyed.[17] The low number of Great Crested Newts recorded during the project is in part a reflection of the fact that many of the ponds surveyed were either small and seasonal, or large with fish present, rather than the mid-sized, semi-permanent ponds favoured by this species. The pond surveys were also aimed more at plants and invertebrates than amphibians, being mostly conducted outside the peak spring breeding season and not including nocturnal torching.

Torch surveys of some of the Kenchester Pools in 2018, prior to the start of the project, found very high numbers of Great Crested Newts present. 273 adults were counted in one pond and over 100 in another, with over 400 individuals recorded in total. It is likely that the newts seen represent only a fraction of the total adult population present, so collectively these ponds must hold one of the largest populations of this species in the county.

Smooth Newt *Lissotriton vulgaris* and Palmate Newt *L. helvetica* were both recorded frequently and are widespread in the county. Many of the *Lissotriton* records during the project were of larvae netted during the summer months which cannot be confidently assigned to either species.

The Grass Snake *Natrix helvetica* occurs widely in Herefordshire and would be expected to be a frequent visitor to Ice Age Ponds, in search of amphibians, fish, and other prey. However, this species was only recorded twice during the project, both times in ponds of more recent origin.

Ponds are of considerable value for birds, including both terrestrial and aquatic species. Recent research in Norfolk has demonstrated the importance of pond management to reduce shading trees, with unshaded ponds producing significantly greater biomass of insects with aquatic larvae.[18] This makes them an important source of food for insectivorous birds, including many farmland species which are in widespread decline. The Kenchester Pools are well known as a special ornithological site attracting large numbers of wading birds and waterfowl. They are regularly visited by members of the Herefordshire Ornithological Club.

Ponds are also of high importance to bats, providing important foraging habitat. The Herefordshire Bat Research Group carried out a survey of the Mere Pool at Blakemere on 4 May 2022, recording a total of ten to eleven species, including a male Brandt's Bat *Myotis brandtii*, an uncommon species in the county (Plate 3.10).[19] A maternity colony of thirty Lesser Horseshoe Bats *Rhinolophus hipposideros* was also seen in one of the barns near the pond. Very high numbers of bat calls were recorded on static detectors placed near the pond during the survey, indicating that bats make abundant use of the pond.

As with birds, appropriate pond management can benefit bats by ensuring high productivity of flies and other insects with aquatic larvae. Bats may also roost in trees around the ponds, so trees are checked for potential roost sites before management takes place. The majority of tree management around ponds involves the removal of younger trees and recent growth, plus the re-pollarding of mature Hybrid Crack Willow *Salix x fragilis* trees. This increases light to the ponds, but also retains trunks and larger boughs which may contain roosting and nesting sites for bats and birds.

Most Ice Age Ponds are fish-free, and the only native fish species encountered during the project was the Three-spined Stickleback *Gasterosteus aculeatus*. This species was present in a small number of the larger ponds. In most cases it was likely to have colonised the ponds

naturally through flooding of adjacent watercourses. Common Carp *Cyprinus carpio* have also been introduced to some ponds for fishing; this is discussed in the section below.

## THREATS TO ICE AGE PONDS

The mapping exercise identified over 1500 potential Ice Age Ponds across north-west Herefordshire, but there must once have been many thousands more and pond losses have been extensive throughout the region. This decline has occurred over centuries as a consequence of agricultural improvements, primarily drainage and infilling of ponds, aimed at increasing agricultural production. As well as damaging individual ponds, land drainage results in a general lowering of the water table. This leads to permanent ponds becoming more seasonal and seasonal ponds either disappearing altogether or drying up earlier in the year. An example of a drainage scheme having a direct impact on Ice Age Ponds can be seen from an aerial photo of the Letton Lakes area taken in 1946 (Plate 3.11). It shows recently cut ditches connecting and draining a dense network of ponds. Plate 3.12 features the same area photographed in 2021, showing that most of these ponds are now ephemeral dry hollows or have been completely filled in. Remnants of the drainage system remain.

HWT's reserve at The Sturts East at Letton illustrates just how numerous Ice Age Ponds can be. During the project, nineteen small ponds were mapped in three fields with a total area of just 6.2ha, a density of 300 ponds per $km^2$ (Plate 3.13). This number may be exceptional, but it is clear that this site is just a surviving remnant of what must have been a very wet landscape in the past. Another example of high pond density is at Kenchester, with fifteen ponds per $km^2$. This sounds far lower, but these ponds are much larger than those at The Sturts with the biggest approaching 1ha in size.

Surviving Ice Age Ponds have all been modified to some degree. In many cases, losses are simply due to them not being recognised as ponds, and certainly not as irreplaceable natural features thousands of years old. Such losses are exacerbated by their seasonal nature, with many Ice Age Ponds drying up for several months each year. As a result, smaller ponds on arable land can easily be ploughed over, and shallow ephemeral Ice Age Ponds in pasture filled in. Lost pond sites and dry Ice Age depressions are often apparent on aerial images; typically they show up as seasonally damp areas, crop marks, or areas of different vegetation. Many overgrown ponds also appear as small patches of trees or scrub. It is helpful to compare images taken in different years as their appearance can alter considerably depending on the weather.

Pond losses continue today, with many ponds marked on the 1880s Ordnance Survey maps no longer in existence. In 2014, a pair of large Ice Age Ponds in Madley Parish were filled in by illegal deposition of over 5000 tonnes of waste.[20] This site is not known to have had any previous survey. Subsequent visits found evidence of Great Crested Newts and a cocoon of the Medicinal Leech *Hirudo medicinalis*, both species fully protected under the Wildlife and Countryside Act, 1981. The loss of a Medicinal Leech site is particularly significant because this species is declining nationally and appears to be on the brink of extinction in Herefordshire.

Management for angling is a major threat to the larger Ice Age Ponds. Dredging and enlarging fishing ponds results in the loss of geologically valuable sediments and severely degrades the habitat by removing vegetation and deepening areas of biologically rich shallow water around the pond margins. Introduction of non-native Common Carp *Cyprinus carpio* is also highly damaging to plants, aquatic invertebrates, and amphibians.

All ponds are subject to the natural processes of ecological succession, whereby they gradually silt up and the aquatic vegetation becomes replaced by scrub. Whereas ponds were

often valued in the past for watering stock and horses, in recent times many have been fenced off and neglected with the result that they rapidly become overgrown (Plate 3.14).

Crack Willow *Salix x fragilis* requires particular mention as this species is one of the major contributors to ponds becoming overgrown and shaded. Crack Willow is a non-native natural hybrid, thought to have been introduced to Britain in pre-Roman times. It often appears to have been deliberately planted around ponds and managed by pollarding, but in recent years many former pollards have been neglected and allowed to grow large, so that their branches collapse into the ponds. Fallen twigs and branches readily root and regrow, forming dense willow scrub in a short space of time.

Other threats include direct and diffuse nutrient pollution, invasive plant species such as New Zealand Pigmyweed *Crassula helmsii*, rearing of domestic Mallards *Anas platyrhynchos* for shooting, and disturbance by high numbers of non-native Canada Geese *Branta canadensis*. These threats are not unique to Ice Age Ponds and have been widely covered in other literature such as *The Pond Book: A Guide to Management and Creation of Ponds* by The Freshwater Habitats Trust.[21]

Inappropriate pond management is also a threat, so potential Ice Age Pond sites should be investigated thoroughly through site visits, survey, and evaluation to establish their origins, as described previously. Reprofiling and desilting in particular may cause major damage to the geological and ecological value of a pond. Engaging landowners and introducing appropriate management techniques is the best defence.

## CONSERVATION AND ENHANCEMENT OF ICE AGE PONDS

The two case studies below describe the approach taken to restoring two very different Ice Age Ponds during the project. They serve to highlight some of the threats and how they were dealt with through practical management solutions.

### The Mere Pool, Blakemere[22]

This pond is registered common land under the control of Herefordshire Council, although it is surrounded by private farmland and is not publicly accessible. Measuring 206 x 90m, with an approximate area of 1.48ha, the pond is one of the larger waterbodies surveyed during the Ice Age Ponds project; previously, no biological survey or conservation management had been undertaken there. It is heavily wooded with trees covering 85 % of its surface area. The majority are Crack Willow *Salix x fragilis*, with some Alder *Alnus glutinosa* and a few Rusty Willow *Salix cinerea* subsp. *oleifolia* (Plate 3.15). The dense tree coverage shades the pond and its margins, restricting the growth of aquatic plants, although there are some large stands of Bladder Sedge *Carex vesicaria* especially along the south and west sides. To the south of the pond is a damp, flower-rich rush pasture, supporting a diverse flora including the rare Tubular Water-dropwort *Oenanthe fistulosa*. This area is likely to have been part of the pond historically. As with other ponds in this area, it is thought that Mere Pool may have been formed through the melting of stagnant ice on the lateral margin of the retreating glacier.

Consent of the neighbouring landowners had to be gained before work could commence. Management work carried out in November 2019 restored about 75 metres of valuable marginal habitat on the east side of the Mere where ten Crack Willow trees were removed, opening up the margin to sunlight (Plate 3.16). The stumps of these trees were treated with herbicide. Four veteran Crack Willow pollards were also re-pollarded.

This stretch of margin has subsequently been colonised by a wide range of aquatic plants established from the seed bank, including Water Forget-me-not *Myosotis scorpioides* and Water Mint *Mentha aquatica* (Plate 3.17). In October 2021, a volunteer work party removed willow branches and twigs of willows which had been left on the ground after the felling operation, a worthwhile task, as even the smallest of willow branches can take root if left.

### Ghost Ponds and a Case Study at The Sturts East

A 'ghost pond' is one that has been lost, whether it has been filled in for agricultural land reclamation or has disappeared through the process of ecological succession. Hints of the former presence of ghost ponds, and the continued existence of glacial deposits below ground, can sometimes be seen on aerial photographs or suggested by features of landform or vegetation on the ground. Pond restoration work undertaken by the Norfolk Pond Project has demonstrated that dormant seedbanks in pond sediment can remain viable even after 150 years of burial, with diverse communities of aquatic plants appearing soon after restoration.[23] For example, six plants of Grass-poly *Lythrum hyssopifolia* were found at a restored Norfolk ghost pond in 2020.[24] This species is extremely rare in Britain and had not been recorded in the county for over a century.

Herefordshire's ghost ponds may also retain latent plant populations in the form of buried seedbanks, potentially including species that have otherwise been lost to the area. Habitat restoration of these ponds may therefore bring back elements of the plant communities that were present historically. The Sturts East nature reserve, owned by HWT, has many Ice Age Ponds in good condition, but also includes fields where ponds are thought to have been filled in by ploughing during World War II. A ghost-pond site in this area was identified as suitable for an initial attempt at restoration (Plate 3.18) and was excavated in August 2021.[25] Since the vegetation here was classified as 'improved pasture', pond restoration had no impact on other significant habitats.

The restoration work was supervised by Will Watson. The site was first marked out and topsoil stripped. An inner, deeper area was marked out and dug, with shallower margins. Spoil was placed in two locations alongside the hedges, with subsoil spread over the top to create a level surface (Plate 3.19). Hay with wildflower seeds was spread over the spoil heaps to accelerate plant recolonisation, while the pond itself was left to recolonise naturally.

Augering revealed the same sediment profile as found within many of the surrounding natural ponds, confirming that this was indeed likely to have been a ghost-pond site. Initial colonisation of the restored pond by aquatic plants and animals has so far been slow, but one success was the recording, in April 2022, of a small, wetland ground beetle *Bembidion quadripustulatum*, a relatively uncommon species with few Herefordshire records, on the bare margins of the pond.

The hope is that learnings from this initial restoration attempt will inform and encourage restoration work on many more ghost ponds across the region. It will take at least two years before aquatic vegetation colonises the site and meaningful changes occur in the range of aquatic plants and aquatic invertebrates present, a lapse of time that should also allow perennial species to become established. It is hoped that monitoring in 2023 will see a great increase in species composition.

## RECOGNITION AND FUNDING FOR ICE AGE PONDS

In contrast to other habitats such as flower-rich meadows and ancient woodland, which benefit from official recognition and protection, Ice Age Ponds have been largely unrecognised and lack

formal protection despite their high environmental value. However, the evidence arising from the project enables a much stronger case for their conservation to be presented. Under the Environment Act 2021 and the Government's 25 Year Environment Plan, DEFRA is currently identifying 'irreplaceable habitats', defined as 'habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity'.[26] This classification provides habitats with a level of protection against future development. With the Freshwater Habitats Trust, the project team has drawn up a draft list of important sites and asked the UK Government to recognise England's Ice Age Ponds, together with some other pond types, as irreplaceable habitats.[27] The team also received assurances from DEFRA that all ponds have priority status as habitats under the existing Countryside Stewardship scheme.

The knowledge and expertise are now available to advise landowners how to manage Ice Age Ponds sympathetically. However, the point has yet to be reached where they are managed routinely, with many ponds suffering from neglect and lack of appropriate attention. A contributing factor is that the majority of Ice Age Ponds are on privately owned farmland and the maximum payment of just £200 per pond under the existing Countryside Stewardship scheme is inadequate to cover the costs of a survey, management plan, and practical management. With the imminent launch of the Environmental Land Management (ELM) scheme, we are hopeful that increased payments can be made towards management costs.

The district-level licensing scheme for Great Crested Newts is another potential source of funding. It aims to compensate for the loss of habitat during development by creating or improving habitat elsewhere. Although not yet extended to Herefordshire, it could perhaps provide sufficient money to restore ghost Ice Age Ponds by removing encroaching scrub vegetation and excavating recent infill, to create something approaching their original profile. The work would need to be done sensitively to protect the historically valuable sediment layers below the surface. Other funding options may arise through the forthcoming requirement under the Environment Act 2021 that development results in 'biodiversity net gain'.

## CONCLUSION

Ice Age Ponds are unique and irreplaceable habitats, formed towards the end of the last Ice Age and surviving for 12,000 years or more. Over this time, the ponds have been colonised by distinctive plant communities, typically creating semi-natural wetland habitats in and around them. This has attracted a rich and varied range of aquatic invertebrates including rare and threatened species, some of which are rarely found in ponds of more recent origin. Ice Age Ponds are also of high geological importance, informing us of the origins and formation of the Ice Age landscape and containing valuable deposits, which can tell us about the climate and environment of the past.

Until recently, the importance of these sites had been largely overlooked and underappreciated, both by landowners and conservation agencies. It took the 'Conserving Herefordshire's Ice Age Ponds' project, a multi-disciplinary research programme with community involvement, to generate far better understanding of the origins, distribution, geology, and ecology of these special ponds. Developing a close working relationship with pond owners and managers was crucial to raising awareness, with the twin aims of preventing further losses and ensuring that the remaining ponds will be managed to enhance their ecological value and conserve their geological features.

The project has created a far stronger base for protection and enhancement, although not yet a position in which these ponds are being managed and preserved as a matter of course. For the future, the task is to make full use of the foundations and evidence now in place to drive public awareness and enthusiasm, to influence regulators, to seek funding and, above all, to restore and preserve these wonderful habitats for future generations.

## ACKNOWLEDGEMENTS

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## NOTES AND REFERENCES

[1] A. Walmsley, *The Norfolk 'Pingo' Mapping Project (*Norfolk Wildlife Trust, 2008).
[2] G.N. Foster, 'Pingo fens, water-beetles and site evaluation', *Antenna,* 11 (4) (1993).
[3] C. A. Sinker, The North Shropshire Meres and Mosses: A Background for Ecologists (Field Studies Council, Preston Montford, 1962).
[4] W.R.C. Watson and. G.N. Foster, 'Some modern records of wetland Coleoptera in Herefordshire', *The Coleopterist*, 15 (3) (Dec 2006), pp. 107-114.
[5] Freshwater Habitats Trust website, 2023.
[6] A.E. Richards, 'Herefordshire', in C. A. Lewis, and A. E. Richards (eds.), *The Glaciations of Wales and Adjacent Areas* (Logaston Press, 2005), pp. 129-144.
[7] *Ibid*.
[8] H. Patton., A. Hubbard, N. F. Glasser, T. Bradwell, & N. R. Golledge, 'The last Welsh Ice Cap: Part 1 – Modelling its evolution, sensitivity and associated climate', *Boreas*, 42 (3) (2013), pp. 471-90.
[9] O. Verplancke, 'The origin and palaeoglaciological significance of Herefordshire's Ice Age ponds' (unpublished MSc thesis, Keele University, 2022).
[10] S. D. Gurney, T. R. Astin, & G. H. Griffiths, 'Origin and structure of Devensian depressions at Letton, Herefordshire'. *Mercian Geologist*, 17(3) (2010), pp. 181-4.
[11] Freshwater Habitats Trust website 2023.
[12] P. Williams, J. Biggs, M. Whitfield, A. Thorne, S. Bryant, G. Fox. and P, Nicolet, *The Pond Book: A guide to the management and creation of ponds*, 3rd Ed, (Freshwater Habitats Trust, Oxford, 2020).
[13] L. Smith, P. Garner, and M. Jannick, *The Rare Plants of Herefordshire* (2019).
[14] W. R. C. Watson, '*Graphoderus cinereus* re-found at Moccas Park, England', *Latissimus*, 38 (2016), pp. 23–4.
[15] J. M. Elliott. U. Kutschera, 'Medicinal leeches: historical use, ecology, genetics and conservation' *Freshwater Reviews*, 4 (2011), pp. 21-41.
[16] N. Hand, W .R. C. Watson, P. King, *Amphibians and Reptiles of Herefordshire* (Herefordshire Biological Records Centre, Hereford, 2006).
[17] W. R. C. Watson, (2008, unpublished). Herefordshire Ponds and Newts Project Final Report.
[18] J. Lewis-Phillips, S. J. Brooks, C. D. Sayer, I. R. Patmore, G. M. Hilton, A. Harrison, H. Robson. and J. C. Axmacher, 'Ponds as insect chimneys: Restoring overgrown farmland ponds benefits birds through elevated productivity of emerging aquatic insects', *Biological Conservation*, 241 (2020), article No. 108253.
[19] Herefordshire Bat Research Group, unpublished report, 'Bat Activity and Trapping Survey at Mere Pool 4th May 2022.
[20] 'Firm fined for dumping waste at newts' habitat', *Hereford Times*, 6 July 2018.
[21] P. Williams *et al*. (2010).
[22] W. R. C. Watson, G. E. King-Salter. and B. A. Andrews, 'Management Plan Revision and Survey; Mere Pool, Blakemere', unpublished report, Conserving Herefordshire's Ice Age Ponds, Herefordshire Wildlife Trust, Herefordshire Amphibian & Reptile Team and Herefordshire & Worcestershire Earth Heritage Trust, 2022.

[23] E. Alderton., C. D. Sayer, R. Davies., S. J. Lambert. & J. C. Axmacher, 'Buried alive: Aquatic plants survive in 'ghost ponds' under agricultural fields', *Biological Conservation*, 212 (2017), pp. 105-10.
[24] C. Sayer & J. Parmenter, 'Resurrection of a Norfolk pond gem: Grass-poly *Lythrum hyssopifolia*.', *BSBI News* 146 (2021), pp. 11–14
[25] W. R. C. Watson, G. E. King-Salter, & B. A. Andrews, 'Pond Survey and Management Plan; Ghost Pond, The Sturts East, Herefordshire Wildlife Trust Reserve' (unpublished report, Conserving Herefordshire's Ice Age Ponds, Herefordshire Wildlife Trust, Herefordshire Amphibian & Reptile Team and Herefordshire & Worcestershire Earth Heritage Trust, 2022).
[26] National Planning Policy Framework (2021).
[27] P. Williams, W. R. C. Watson, G. King-Salter & M. Hammond. 'Defining and Mapping Pond Irreplaceable Habitats' (First Draft, Freshwater Habitats Trust, Oxford, 2022).

# Home Defence in Herefordshire in the French Revolutionary and Napoleonic Wars: Part 1, 1793-1802

By JOHN C. EISEL

*On 14 May 1940, during the battle for France, amid fears of a German invasion, the establishment of a force of Local Defence Volunteers was announced, the idea being that they could perhaps delay any invading force and thus enable the regular army to deploy and regroup. Volunteers, who wished to take part in the defence of the country in this capacity, would be aged between 17 and 65, and not in military service. The force later became the Home Guard, which was finally wound up on 31 December 1945. However, the idea of volunteer units was not new. A number were established in earlier conflicts in the 18th century and rather more in the French Revolutionary and Napoleonic Wars; the later of these units were, in Herefordshire, subsumed into the local militia in 1808. This paper is written to explore the volunteer movement in Herefordshire during the period 1793–1815, and to put it into the context of a period when the threat of invasion often seemed real, and when a perceived threat to property was of great concern to the wealthier classes. Because of its length, the paper is divided into two parts. The second part will be published in the 2023 volume of the Transactions.*

## INTRODUCTION

At the period under consideration there was already a force of militia in existence, which, to save confusion, I will call the Regular Militia. While its origins were much earlier, this was organised under an Act of 1757, which provided that each county should have a militia and that the personnel would be chosen by ballot in the different parishes of the county. Herefordshire was expected to raise a force of 480 'Private Men', the cost of which was to be met from central government. The Herefordshire Militia was issued with arms in 1763, but not embodied until 1778, as part of the general crisis that engulfed the country.[1] Because the Regular Militia could serve anywhere in England and Wales, the Herefordshire Militia, when embodied during the wars under consideration, served as a garrison at many places, including the prisoner-of-war camp at Norman's Cross. Thus, the Regular Militia were used to release the regular troops for operational duties and were not used for local defence.

## THE DEVELOPMENT OF THE YEOMANRY CAVALRY

When the war began in 1793 things were not going well, and it was felt necessary to reinforce arrangements for local defence. In 1794, with a possible threat of invasion, Parliament legislated to provide local volunteer forces, of different types, and on 14 March 1794 a circular outlining the possible types of forces was sent out to the Lords Lieutenant of all the counties. The Lord Lieutenant for Herefordshire, Viscount Bateman, forwarded the letter to the foreman of the Grand Jury (Thomas Harley), and it was published in the *Hereford Journal* on 26 March. A Committee for Internal Defence was appointed, and a fund to pay for this augmentation of the Militia was put in hand. At a meeting of the committee at the New Inn, in Widemarsh Street, Hereford, it was decided:

> That, for the better Security of the County, Two or more Volunteer Troops, of not less than Thirty men per Troop, be raised, to consist of the Gentlemen, Yeomanry, and substantial Inhabitants of the county, and that they be invited to enroll themselves for that purpose; …[2]

Immediately after the meeting it was announced that the Right Hon. Thomas Harley and Sir George Cornewall, Bart. had 'inrolled' their names for the proposed corps of Hereford Armed Yeomanry.[3] These were the two members of Parliament for Herefordshire.

At the next meeting of the committee, held at the New Inn on 16 July 1794, it was resolved that two voluntary troops of yeomanry would be raised, to consist of forty men per troop, exclusive of officers, under the command of the Right Hon. Thomas Harley and Sir George Cornewall, Bart. In the report that appeared in the *Hereford Journal* on 23 July 1794 the articles of 'inrollment' were listed. The members of the troops had to provide their own horse, times of exercise were to be decided by the commanding offer, to least interfere with the employment of the members, the troops could be embodied when there was a threat of invasion and could be marched out of the county to any part of the kingdom in case of actual invasion. Under the fifth article the civil authorities had powers to call out the volunteer cavalry to aid in keeping order within the county, but fortunately this power only needed to be used in a very limited way, discussed below:

> To be liable to be called upon, by order from his Majesty, or by the Lord Lieutenant, or by the Deputy Lieutenants commissioned to act in his absence, or by the Sheriff of the County, for the suppression of Riots and Tumults within the county.

No pay was to be received unless the troops were embodied, and then pay would be as for Light Dragoons, when the soldiers would be under regular military discipline. Arms and accoutrements would be furnished by Government, and cloth for uniforms and other necessary articles would be paid for out of the subscriptions. It was ordered that 500 copies of the articles of enrolment should be printed and distributed, presumably to aid recruitment.

At the next meeting of the committee, which took place on 2 August 1794, it was resolved that the names of the officers of the two troops of cavalry be forwarded to the secretary of state at the Home Office, and that the subscribers who had already paid a fifth of their subscriptions be asked to pay another fifth, and that those who had not already done so be asked to pay two fifths. It was reported that, at this meeting, more than thirty 'respectable Farmers and others offered their personal service in the Corps…'[4] The names of forty-two persons who had enrolled were published in the *Hereford Journal* on 20 August 1794, and recruitment was such that at a meeting of the committee at the New Inn on 29 October 1794 it was resolved that arms and accoutrements should be immediately provided for one troop of the Yeomanry Cavalry, as the muster roll was complete.[5] That troop was the one commanded by Thomas Harley, as it was not until a meeting of the committee on 31 January 1795 that it was ordered that the troop commanded by Sir George Cornewall be armed, clothed and accoutred. A list of names of members of the company appeared in the *Hereford Journal* on 4 February 1795. Two weeks later it was reported that this troop was now complete and had mustered at the Portway on 17 February, and that, although notice was short, there were only three absentees. The report went on to say: 'They will soon be cloathed and accoutred; and are to go out every succeeding Tuesday, until they are perfect in their exercise.'

It was not to be too long before the Yeomanry Cavalry was used to help keep the peace.

On 25 July 1795 a circular letter from the Duke of Portland was sent to the Lords Lieutenant of the counties regarding the problems with the supply of corn. There had been a poor harvest the previous year and supplies of corn were running out until they could be replenished by the forthcoming harvest. The Government had procured supplies of corn and flour from abroad, and there had been disturbances and interference with the distribution. The Lords Lieutenant were warned to prevent all unlawful activities. Lord Bateman, in his reply, stated that only a small quantity of corn had been sent to Herefordshire by the Government, even though the scarcity was very great, and he could not help expressing his surprise 'at this extraordinary partiality'. The magistrates had, with the aid of subscriptions, been able to keep the poor from want, and he went on to say:

> The Magistrates of the county have done every thing to prevent any riots, and have in a great measure succeeded by their well-timed authority, and the assistance of our two troops of Volunteer Yeomanry Cavalry.

I cannot trace what the Yeomanry Cavalry did to keep order as there was little reported on their activities at this time.[6] Evidently, they continued to train, and on 16 November 1796 the *Hereford Journal* reported:

> Yesterday the Troop of Yeomanry Cavalry, commanded by Sir George Cornewall, Bart. had a field-day, at their usual place of exercise; when this active and very respectable corps, in the most spirited manner, unanimously signified to their leader, their resolution and readiness to obey his Majesty's orders, should he think it necessary (from the appearance of invasion) to call for their services out of the country.

With the threat of invasion, in the same month an Act to raise further infantry in the form of a supplementary militia received the Royal Assent, with the aim of increasing the pool of those trained in arms, these to be raised by ballot in the various parishes. As with the Regular Militia, substitutes were allowed for those whose name came up in the ballot, and insurance could be taken out to cover the necessary cost. Just as the Regular Militia was seen as a recruiting ground for the Regular Army, so the Supplementary Militia was considered a feeder to the Regular Militia, even if a contemporary cartoon suggests that it could be viewed sceptically (Plate 4.1). As will be seen, the Supplementary Militia for Herefordshire, raised under this Act, soon came into being, but its history lies outside the volunteer movement, the main subject of this paper.

There was felt to be a need of further cavalry, on top of the Yeomanry, and an Act was passed on 11 November 1796, which enabled a provisional force of cavalry to be raised, to be embodied should there be a need to defend the kingdom. As with the other regular militias, this was to be raised by ballot, and there was subsequent provision for registering and accepting volunteers.[7] As part of the regular forces, this short-lived body of troops, disbanded in 1799, is strictly outside our remit, but there is information on how this body of cavalry was equipped, which must be relevant to the uniform and accoutrements of the Yeomanry Cavalry. The cost was to be borne by those who were selected by the ballot, and included jacket, waistcoat, and surtout, breeches, boots, gloves, cravat and helmet, totalling £9 7s. 6d., while the horse equipment, including a cartouche box and holsters, totalled £4 17s. 8d.[8] However, these were figures produced by central Government, and amended figures were agreed at a meeting of the Lieutenancy that was held at the New Inn, Hereford, on 11 March, where a new pattern of jacket,

also of leather cap and feather, was produced. Mr. Newell, salesman, of Hereford, had agreed to make the jackets and also pantaloons, and Edward James and James Maddy, saddlers, in Hereford, had agreed to find the equipment, including bridle, holsters, spurs, and leathers, and also [neck] stock and clasp, at the prices quoted. Since the stock was to be supplied by a saddler, it is clear that it was made of leather, as was usual at this period.[9]

## A STIMULUS FROM UVEDALE PRICE'S PUBLICATION

On the night of 22-23 February 1797, a force of French soldiers was landed on the coast of Pembrokeshire. Rather more interested in looting and drinking than fighting, many became drunk and on 25 February the entire force surrendered. From our later perspective, we know that this was the last invasion of the mainland of the United Kingdom, but that would not have been the view at the time. Various reports on the invasion and its failure were published in the *Hereford Journal* on 1 March 1797. However, there was a heightened awareness that this could happen again, and within a very short time of the invasion taking place a rumour of another spread rapidly, expresses being sent to most places within South Wales, causing wide-spread alarm. An express reached Brecon on 1 March, ordering the Brecon Volunteers to march to Haverfordwest, and within two hours that corps had mustered and was on its way, covering the twenty miles to Llandovery in five hours. The next morning the corps received orders to return to Brecon, which it did, to an ecstatic welcome. The news reached Bristol on 2 March, and within a short time the Buckinghamshire Militia, on garrison duty there, the 13th (1st Somersetshire) Regiment of Foot, and some cavalry, were ready to march. After they had set out at about noon, an express was received that the whole report was without foundation, and the troops were ordered back. Meanwhile, the Bristol Volunteers undertook to cover duties that otherwise would have been neglected, including guarding prisoners. There was an immediate reaction in the parts of Wales likely to be affected by an invasion, and a crowd of about five thousand met in the vicinity of Carmarthen, the men armed with scythe blades which had been straightened and fixed to poles, and the women with pitchforks. While the spirit can be admired, such an undisciplined body would not have fared well against a body of properly trained soldiers, so it is fortunate that the rumour was incorrect.

As for Herefordshire, nothing was reported, except the following meeting which took place on 3 March 1797:

> On Friday last, between thirty and forty of the principal Yeomen and Farmers in the neighbouring parishes, met at Foxley, and agreed to equip and accoutre themselves, in order to be ready to assist the Civil Magistrates in suppressing any commotions, that might arise from the designs of needy and profligate men. By this simple plan, a force is prepared without any difficulty, which almost insures the district where it is established, against the dangers of an attack.[10]

It is most likely that this meeting was organised by Uvedale Price, of Foxley, and it was probably the stimulus which caused him to write a short book entitled *Thoughts on the Defence of Property* (Figure 1), in which he advocated local yeoman and farmers to band together to assist the civil magistrates in suppressing riots and disturbances. He envisaged these being caused by those in society who had no property, and that they would be carried out consequent to an invasion by a foreign power. He cited the fact that the Yeomanry Cavalry, whilst a 'most respectable body' had agreed to serve out of the county should it be necessary, leaving the county vulnerable. This

little book, of some twenty-eight pages, was clearly written very quickly, as it was published by John Allen, the Hereford bookseller 'and all other Booksellers' on 22 March 1797, less than a month after the collapse of the invasion; it cost 1s.[11]

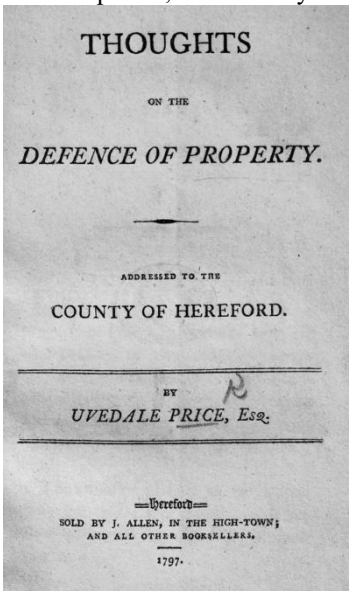
On 15 March 1797 the *Hereford Journal* reported a field meeting of Sir George Cornewall's troop of yeomanry that was held at Moccas Court on the previous day. Plate 4.2 shows the area at the time, much more open than it later became after landscaping and thus a location suitable for such an event. Although no mention was made of the background, the inference must be that, like Uvedale Price's book, this was in response to the invasion, and rumours of invasion.

> Yesterday Sir George Cornewall's Troop of Yeomanry had a grand field-day. About one o'clock, Lady Cornewall came upon the ground, and, in the presence of a vast concourse of people, presented the Troop with a standard, which she delivered to the Commanding Officer with an elegant and concise address. The ceremony of consecration being performed by the Rev. Mr Lewis of Dorstone, who delivered a solemn exhortation upon the occasion. Sir George presented the standard to Cornet Parry, at the same time addressing the Corps in an appropriate speech, which was received with loud and repeated huzzas. The Troop then went through their evolutions and firings, with a degree of steadiness highly creditable, and afterwards marched to Moccas Court where they dined with their Commander. Lady Cornewall did them the honour of presiding at the head of the table.

This has a feeling of preparing for war!

## FORMATION OF THE HEREFORD VOLUNTEERS

As a consequence of the French invasion, a body of Hereford Volunteers (an infantry body) was immediately formed, but whether this coincided with the preparation of Price's book or whether it was stimulated by the publication of that book is not clear. Permission was obtained to form two companies, each of fifty men, 'for the Protection of Property, and the Preservation of good Order, under the direction of the Civil Magistrates, in the City of Hereford, and within eight miles thereof'. The volunteers served without pay, and provided their own uniforms, while the Government provided the arms and contributed towards the necessary accoutrements, but this not proving enough a subscription was raised to cover the shortfall: that also not proving sufficient, the members of the corps raised a subscription among themselves.[12] Although dating from slightly earlier (1792), the drawing in Plate 4.3 is likely to represent most elements of their uniform accurately, whilst the flintlock musket, photographed in Plate 4.4, is of the type that the local volunteers would have used. The announcement of the appointment of [Dr] John Matthews, Esq. and William Symonds, Esq. to be captains in the Hereford Volunteers was made in the *London Gazette* on 29 April 1797, and the *Hereford Journal* four days later.


THOUGHTS

ON THE

*DEFENCE OF PROPERTY.*

ADDRESSED TO THE

COUNTY OF HEREFORD.

BY

*UVEDALE PRICE, Esq.*

Hereford

SOLD BY J. ALLEN, IN THE HIGH-TOWN;
AND ALL OTHER BOOKSELLERS.

1797.

Figure 1. Title page of Uvedale Price's *Thoughts on the Defence of Property* (1797)

The Hereford Volunteers were organised quickly, so much so that on Sunday 4 June 1797, the anniversary of the King's birthday, the corps assembled dressed in their uniforms, and marched to the cathedral in Hereford to hear divine service. On the following day some of the officers of the Volunteers, together with some of those of the Yeomanry Cavalry and the Supplementary Militia, dined together, and in the evening the Volunteers fired three volleys in High Town. The whole corps eventually finished the day with an 'elegant supper' at Preece's Coffee House. The Supplementary Militia, which had been exercising on Widemarsh Common, also fired three volleys at noon on the same day, while Sir George Cornewall's troop of Yeomanry Cavalry, which had met at the usual place of exercise near Hereford (unspecified, but probably at Stretton Sugwas) fired three volleys at one o'clock.[13]

At this period there had been a serious mutiny in the fleet at the Nore, and a letter was sent to the Lords Lieutenant of the various counties, with special instructions that the Yeomanry Cavalry and Volunteer Infantry should assist the civil authorities in apprehending anyone concerned in 'the said treasonable and rebellious proceedings, their aiders and abettors'. The members of the Supplementary Militia had already expressed their view on the matter: the text of a letter from the non-commissioned officers and men of the Herefordshire Regular Militia, then at Deal Barracks, sent to J. G. Cotterell, Esq., colonel of the regiment, was read out to the Supplementary Militia after their exercises on Widemarsh Common on Monday 5 June 1797. This letter deplored the mutinies in the fleet and offered a subscription towards a reward for the conviction of those spreading sedition. On being read out, the letter was met with three cheers and a request that the names of the Supplementary Militia be added to the subscription list, this to be communicated to the regiment at Deal. The incident emphasises the connection between the Supplementary Militia and the Regular Militia. The following day this division of the Supplementary Militia was discharged, the men having served the obligatory twenty days of training and exercise.[14]

To ensure that the volunteers were being properly trained, there was an annual review. On 13 June 1797 Mr Harley's troop of Yeomanry Cavalry arrived in the city of Hereford from Leominster, were met at Widemarsh by Sir George Cornewall's troop and went through a number of evolutions, preparatory to being reviewed. The review took place at Stretton [Sugwas] the following day, when the troops were joined by the Hereford Volunteers, who were reviewed after the Yeomanry Cavalry had demonstrated their skills. This was evidently considered a social event as it was reported that there were several thousand spectators. Afterwards both bodies dined together at the Town Hall in Hereford, with other notables, including Colonel Hugonin, the reviewing officer, who made flattering remarks as he left the dinner to proceed to other official duties.[15]

The Hereford Volunteers had wider interests than just in protecting the immediate locality. On 11 October 1797 a fleet under Admiral Duncan defeated a Dutch fleet at the battle of Camperdown, ending fears of an imminent invasion. This was naturally celebrated nationally, and on 14 October, as part of the celebrations, the Hereford Volunteers assembled round a large bonfire in High Town and fired 'three excellent vollies'. There was little provision for injured servicemen, and a national fund was set up for the relief of sailors wounded in the battle, to which the officers, non-commissioned officers and privates of the Hereford Volunteers subscribed £21.[16]

## THE EVENTS OF 1798

Although the battle of Camperdown had reduced the immediate threat of invasion, there was nonetheless still a major threat, and in January 1798 the government found it necessary to issue a circular to reassure the public that steps were being taken to guard against the 'threatened vengeance of the French'. Plans were being made for the defence of the country, and instructions being prepared for the commanders of the Regular Militia and volunteer forces, telling them where they should take their troops and the means to be adopted to delay the progress of the invading forces. This appeared in the *Hereford Journal* on 10 January 1798, and a week later a summary of the forces available nationally was published. The total of effectives was 227,450, which included 69 regiments of (regular) militia (45,000 men), 252 troops of Yeomanry Cavalry (15,120) and 856 companies of volunteers (51,360). In addition, the Supplementary Militia comprised some 60,000 men. The round figures may be a little suspect.

Efforts were evidently made to reinforce the Regular Militia, and on 25 and 26 March 1798 half of the Supplementary Militia of Herefordshire set out from Hereford to march to Canterbury, where the regular Herefordshire Militia was quartered, to be incorporated into that body.[17]

As part of the planning, a circular letter was sent from Government to the volunteers, asking to be informed of their disposition to actual service, in case of necessity. This was read out to Sir George Cornewall's troop of Yeomanry Cavalry at a field day on 27 March 1798, and it was reported that the members of the troop were happy to serve in any part of the district to which they belonged. In the case of volunteer forces in Herefordshire, that was the Severn district, which, certainly by 1803, comprised Hereford, Gloucester, the vicinity of Bristol, Worcester, Monmouth and South Wales. The report was quickly corrected, when it was stated that their services were not limited to the Severn district, but that they would march to any part of the kingdom where their services might be deemed necessary.[18]

In view of the close co-operation between the Yeomanry and the Hereford Volunteers, it seems likely that the latter would also have extended the limit of their service, but nothing was reported in the *Hereford Journal*.

## INCREASE IN THE ESTABLISHMENT

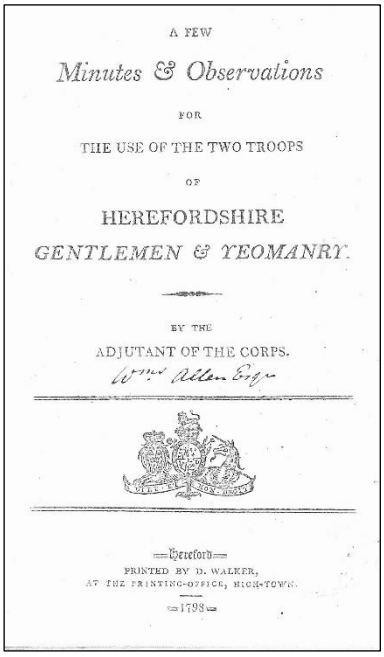
As we have seen, up to this time the volunteers consisted of two troops of yeomanry cavalry, and the Hereford Volunteers. With the deteriorating military position and unrest in Ireland, where a full-scale rebellion eventually began on 23 May 1798, it is not surprising that efforts were made to increase the number of volunteers. On 3 May 1798 a meeting of the inhabitants of Hereford was held, when it was resolved that a third company should be raised to augment the Hereford Volunteers, of which John Jones was appointed captain.[19] Then on 30 May 1798 the *Hereford Journal* announced that the two troops of the Herefordshire Yeomanry were to be augmented to sixty men each, and that this number would be reached in the next few days. This was part of a wide-scale reaction to the unfolding events in Ireland, best told in a news report that appeared in the *Hereford Journal* on 16 May 1798:

> On Thursday last, Mr. Price of Foxley, Mr. Jones of Mansel, and many of the most respectable Yeomen and Farmers in the neighbourhood, met at Yazor, and agreed to offer their services to Government, to act as Cavalry, in aid of the Civil Magistrate, within the Hundred of Grimsworth, and to provide themselves with horses, arms, and accoutrements, at their own expence. As the above Hundred includes the city of Hereford, and extends

> beyond it, a body of cavalry, added to the Volunteers in that city, would form a very powerful defence in the centre of the county.
>
> The Gentlemen and Yeomanry of the Hundred of Broxash, are also raising a Troop of Cavalry, for the defence of that district.
>
> Sir Henry Tempest, Bart., of Hope End, is forming a Company of Infantry in the parish of Colwall. At Ledbury, Leominster, Fownhope, Madley, Moccas, and in almost every town and village, in this county, Volunteers are enrolling themselves with the greatest spirit and alacrity.
>
> We sincerely hope, that this easy, cheap, and secure plan of defence, may spread rapidly throughout the kingdom, as it will totally deprive our enemies of their great and only hope of success—that of instigating the needy and profligate to attack property.

The final paragraph shows that the main concern was the protection of property should those at the bottom of the economic pile revolt: it also indicates the attitude of the ruling classes.

Despite all this hype, there is little evidence of more than a few extra units being formed. A company of volunteer infantry was formed at Moccas, subsequently captained by William Higgins, Esq.[20] Also a Leominster Volunteer Association was formed, which raised a company each of cavalry and infantry, the former captained by Charles Berrington, Esq. and the latter by Nicholas Geary, Esq.: the commissions of all the officers were signed by the King on 28 June 1798.[21] Except for the Leominster Volunteers, none of these seem to have lasted long, and nothing further was heard of the proposed Colwall company, nor of the Yeomanry of the Hundred of Broxash.


A FEW

*Minutes & Observations*

FOR

THE USE OF THE TWO TROOPS

OF

HEREFORDSHIRE

*GENTLEMEN & YEOMANRY.*

BY THE

ADJUTANT OF THE CORPS.

*Wm. Allen Esqr.*

Hereford

PRINTED BY D. WALKER,

AT THE PRINTING-OFFICE, HIGH-TOWN.

1798

Figure 2. This manual, prepared by Williams Allen, Esq., and issued in 1798, contains a detailed list of formation and movements to be carried out by the two troops of Yeomanry. (Herefordshire Local Collection, H/AB Herefordshire Tracts, Vol. 11, item 3)

Meanwhile, the suggestion of the volunteer forces being prepared for war was reinforced by colours being presented to the Hereford Volunteers. These were designed by Captain Matthews and presented to the volunteers, and to him as commanding officer, by Miss Matthews, his daughter, at a ceremony on Widemarsh on 4 June 1798, the King's birthday. He in turn presented the colours to the Ensign, and delivered a rousing speech. The two troops of Yeomanry were also present on this occasion, and the ceremony was followed by the inevitable dinner at the Town Hall.[22]

With the increase in the volunteer force, the government directed that a general return should be made of the numbers, and the several Lords Lieutenant required commanding officers to prepare:

> returns of all the corps of Volunteer Cavalry and Infantry, specifying the dates of their respective offers, the strength of the corps, allowance received from Government, and extent of service they are willing to undertake, and to transmit to the Adjutant-General and Secretary of State's Offices a regular monthly return of the effective strength of their corps, that Government may be informed of every change which may take place with respect to this description of force.

This report in the *Hereford Journal* of 12 September 1798 went on to say that it was intended to attach two field pieces to each regiment of militia, and that it was understood that the corps of yeomanry and volunteer infantry were also to be furnished with cannon. Nothing seems to have come of that proposal. Nor were itemised figures of the make-up of the armed forces published, only that the total of the military forces of the country, which included yeomanry and volunteer corps, was calculated as 600,000.[23]

Later in the year came the news of Nelson's victory in the battle of the Nile, celebrated in Hereford on 4 October with illuminations and a bonfire in High Town, over which the Hereford Volunteers fired three volleys. A day of General Thanksgiving was declared for 29 November 1798, when the shops closed, and in the morning the Hereford Volunteers were mustered on parade in full uniforms, complete with side-arms. Preceded by the Mayor and Corporation and a few of the Yeomanry Cavalry who resided in Hereford, they marched to the cathedral for divine service. In the afternoon a party of upwards of sixty of the Yeomanry and Volunteers sat down to a dinner at the Bowling Green, presided over by Captain Matthews, followed by plenty of toasts and convivial songs. It seems the Volunteers took advantage of every opportunity to have a celebration![24]

## RETRENCHMENT

With the French army busy on the expedition to Egypt, the likelihood of invasion decreased, and hence the pressure on the Militia was reduced. Accordingly, in 1799 a decision was made to disband the short-lived Provisional Cavalry, established as a Regular Militia as previously described, and an Act of Parliament to this effect was passed. This was notified in a circular sent to the various Lords Lieutenant by Henry Dundas, Secretary of State. After a meeting of the Deputy Lieutenants of the county at the New Inn, on 1 June 1799, the Provisional Cavalry for the county of Hereford was disbanded, and a notice to that effect was placed in the *Hereford Journal*.[25]

The relation between the volunteers and the Supplementary Militia also came under scrutiny. At the beginning of 1799 the position was that anyone enrolled in either the Volunteer Infantry or the Yeomanry Cavalry could be balloted to serve in the Supplementary Militia, part of the regular forces. This was changed so that if, in the case of invasion, such volunteer troops consented to be placed under the command of the General Officer in the district where the unit belonged (the Severn district in the case of volunteer troops in Herefordshire), they would be exempt from serving in the Supplementary Militia or providing a substitute. This exemption could be proved by a suitable certificate.[26] The change did not entirely achieve the result intended. In March 1799 Mr Secretary Dundas reported to the House of Commons that the numbers of volunteers who extended their services from being purely local to the military district in which they served, amounted to 16,000 cavalry and 61,000 infantry. However, there were still 6,000 cavalry and 35,000 infantry who had not extended their area of service, and these were still liable

to serve in the Supplementary Militia. A bill to extend the exemption to all volunteers, whatever their terms of service, was brought into the House of Commons, and this seems to have been the bill which received the Royal Assent by Commission on 10 May 1799.[27] The introduction of this bill was welcomed in the pages of the *Hereford Journal* on 13 March 1799, although no comment was made when it finally became law.

> The Bill which Mr. Secretary Dundas has brought into the House of Commons, for exempting from the Militia all Volunteer Corps, under whatever stipulations they may have enrolled themselves, is a boon justly due to the public spirit of the nation; and we doubt not, that the policy, as well as the propriety of the measure, would be clearly established by the zeal and alacrity of the Provincial Corps throughout the kingdom, should the exigency of public affairs at any time require the aid of their united services.

In all this there is no clear statement as to the position of the volunteer forces in Herefordshire and whether they had voted to serve in the wider area of the Severn military district, in which they were located, or continued to serve locally. There is, however, a clue that the Herefordshire Yeomanry Cavalry at least had offered its services more widely. On 24 July 1799 the two troops met in Hereford, where they proceeded to their exercising-ground at Bartonsham. Here they spent four days in exercises, leaving on the evening of 26 July 1799. A long report appeared in the *Hereford Journal* on 3 July 1799, praising the standard of the troops, going on to say:

> This corps was one of the first in the kingdom that came forward; and they have not been outdone by any other body, in their liberal offer of services to Government.

While all this was going on, there was internal dissension in the troop of Leominster Volunteer Cavalry. At a meeting held on 3 May 1799 the company passed two resolutions, the first stating that while a very dangerous and unprincipled enemy was carrying on war in Europe 'no Member of the Troops, who has any regard for his character or the welfare of his country, can quit it without dishonour to himself and injury to the service unless he can assign a sufficient reason to the Commanding Officer for his resignation'. This resolution was published in the *Hereford Journal* on 8 May 1799, over the name of C. Berrington, captain, together with a second one, that two of the serjeants should call on William Bedford and John Davis, to ask for their swords. A week later a long advert appeared, over the name of William Bedford, justifying himself and disputing the state of affairs. Captain Berrington was then defended against 'the mean and personal reflections upon the conduct of their Captain' by the members of the troop in an advert that appeared on 29 May 1799. There was no further publicity on this matter, so we do not know the final outcome. However, on 4 June 1799 the Leominster troop of Loyal Volunteer Cavalry was presented with a standard by Miss Berrington, so it seemed to be business as usual.[28]

Later in the year came the news of the surrender of the Dutch fleet in the Texel, and the report in the *Hereford Journal* on Wednesday 11 September 1799, went on to say:

> On Thursday the Hereford Volunteers had a field day, when they went through their evolutions with exemplary credit, and concluded the whole by firing three vollies in commemoration of the above news, with as much precision and exactness as could have been expected from a corps of regulars.

Since such successes had reduced tension, a decision was made to reduce the number of militia,

and a warrant was issued on 13 November 1799. This was publicised in the *Hereford Journal* on 25 December, together with a long list of militia men who were disembodied. However, the local volunteers still remained, and in March 1800 John Matthews, Esq. was appointed Major Commandant of the two troops.[29] Although not mentioned, he must have been in command when the Hereford Volunteers and Sir George Cornewall's troop of Yeomanry Cavalry met at Widemarsh on 4 June 1800, in unfavourable weather, to celebrate the King's birthday. Some evolutions were gone through, and then each corps fired three volleys. This was followed by the inevitable dinner, prepared for the occasion, after which 'the afternoon was spent amidst effusions of loyalty, mirth, and good humour.'[30]

While most of the exercises of the local volunteers took place in the locality in which they were based, the Yeomanry Cavalry had a somewhat wider remit, and, pursuant to orders, the two troops, under the command of Major Sir George Cornewall, assembled at Leominster on Monday 29 September 1800, and set out for Ludlow, where four days of exercises were carried out conjointly with the Yeomanry Cavalry of that place.[31] The report in the *Hereford Journal* was complimentary, even though it was stated that the ground was rather slippery; as a consequence several of the horses fell, but without severe results. The only casualty was the son of a local farmer, a spectator, whose horse took fright at the firing of the skirmishers and bolted, throwing the rider, who was dragged along by the stirrup for nearly half a mile, but fortunately only sustained bruising. On the Friday evening the united corps gave what was described as an 'elegant Ball' to the ladies and gentlemen of Ludlow and its vicinity, the report in the *Hereford Journal* on 8 October 1800 concluding: 'The greatest festivity pervaded the whole company; and it was six o'clock next morning before the rooms were entirely cleared.' Despite this, on Saturday morning the Herefordshire Yeomanry returned to Herefordshire, where they were dismissed.

As noted above, in order to ensure that the volunteers were of a worthwhile standard, it was customary for inspections to be made by a field officer, although these inspections were not always reported. On 27 October 1800 Lieutenant-Colonel Wood made an inspection of the Leominster Cavalry and Infantry, the report in the *Hereford Journal* two days later concluding as follows: 'They made a very respectable appearance, and went through their evolutions much to the satisfaction of the Inspecting Field Officer, by whom they were severally complimented on the occasion.'

The following morning the inspecting officer reviewed the Hereford Volunteers on Castle Green and then proceeded to inspect the Yeomanry on Lugg Meadows, the former under the command of Captain Symonds (Major Matthews being indisposed), and the latter under Major Sir George Cornewall, going on to express 'the highest approbation of the military skill and appearance of both corps'.

1801 was a year of mixed fortunes. In June a letter from the War Office contained orders that all the Volunteer Corps throughout England should have two regular field days each week. Then, on 26 June 1801, Lieutenant-General Rooke, who commanded the Severn district, issued orders that the arms of the Yeoman Cavalry and Volunteer Infantry of the county should be inspected by an artillery officer. Orders to the various units were issued by Lord Bateman, stating the times, dates and places that the inspections should take place: units so ordered were the two troops of the Herefordshire Yeoman Cavalry, the Hereford Volunteers, the Moccas Volunteers, the Leominster Volunteer Cavalry and the Leominster Volunteer Infantry. However, these orders were put on hold until an artillery officer could be appointed, but the various units were ordered to hold themselves in readiness for such an inspection.[32] Nothing was reported about any inspection, and this seems to have been overtaken by events. At the end of July 1801, a letter

was circulated by Lord Hobart to the Lords Lieutenant of the various counties, warning that naval and military preparations in the ports and on the coasts of France and Holland had increased, and that these were apparently directed towards an attack on some part of the UK. Consequently the various Volunteer Corps should be kept in in a state of constant and complete readiness to march.[33] As a result, the two troops of Yeomanry Cavalry, commanded by Major Sir George Cornewall, were ordered to meet on 7 September and to continue together for a week 'for such service as may be conformable to their engagements, and as the exigency of affairs may require'.[34] Nothing further was heard of this, nor was there any publicity about what happened about the other volunteer corps in the county. However, this threat was being taken extremely seriously, and in August 1801 an order was given for the re-embodiment of the part of the Regular Militia that had been disembodied late in 1799.[35]

## THE PEACE OF AMIENS

All the preparations for defence, made from August 1801 onwards, proved to be unnecessary, as on 30 September 1801 a preliminary agreement was signed between Great Britain and France, effectively ending the revolutionary wars between the two countries. This good news was received in Hereford on 2 October, the Hereford Volunteers mustered in High Town at very short notice and fired a '*feu de joye'* and the bells of the city were rung until midnight in celebration.[36] On 10 October 1801 a letter to the Herefordshire cavalry and infantry from Lord Hobart, one of the secretaries of state, was sent to Lord Viscount Bateman, as Lord Lieutenant of the county of Hereford, on behalf of the King. This notified Lord Bateman that, in consequence of the ratification of the preliminary articles of agreement, the provisions of an Act of 'the 38th of the King' (1798) about provisions in case of an invasion, would no longer be proceeded with. Lord Hobart expressed his Majesty's gratitude for the support of the yeomanry and infantry of the county, and it was directed that the letter be read out to the different units in the county. The letter concluded by saying that, while there was every hope that the preliminaries would lead to a definitive peace, until that happened the various units should continue to hold themselves ready for immediate service. The full text of Lord Hobart's letter appeared in the *Hereford Journal* on 14 October 1801, together with a direction from Lord Bateman that it be read out to the various units by the commanding officers.

On 27 October 1801 the Leominster Volunteer Infantry assembled on parade, when the letter was read out to them by Captain Geary, followed by a speech, after which the corps gave three cheers and agreed to continue their service during the peace. A letter was written to Lord Hobart, to which a reply was received.[37] The two troops of Yeomanry Cavalry also volunteered to continue their service 'so long as Government shall think them useful to the country', again communicated to Lord Hobart by letter.[38] Although not reported, it is most likely that the Hereford Volunteers also offered to continue their service.

The final agreement between the two governments, called the Treaty of Amiens, was signed on 27 March 1802, and was publicised in the *Hereford Journal* four days later; the full text was published in the *Hereford Journal* on 7 April 1802. What happened to the Hereford Volunteers was publicised in the same paper on 19 May 1802:

> The Major-Commandant of the Hereford Volunteers has communicated to each individual of that corps, by circular letter, his Majesty's most gracious acknowledgement of, and the thanks of Parliament for, their services during the late war. The Major has at the same time directed, that the arms of the corps be delivered in; and that such of the members as may be

> inclined to form a new Association (the enrolling of which for 14 days in the year will exempt them from service in the Militia) will apprize him of the same in writing on the 24th instant.

Nothing further was heard of the suggested new association, so it seems that there was not enough interest.

The position was rather different for the Yeoman Cavalry, reported in passing in the *Hereford Journal* on Wednesday 9 June 1802:

> The anniversary of our beloved Sovereign's Birth, who, on Friday entered his 65th year, was observed in this city with the usual demonstrations of joy.—Major Sir George Cornewall's troop of Herefordshire Yeomanry Cavalry (who, having been among the first to volunteer their valuable services, are, we understand, to continue embodied) assembled in the morning in Widemarsh, and went through their various manœuvres with veteran accuracy. Then they adjourned to the Green Dragon, where they dined, and spent the remainder of the day in harmonious conviviality.'

After dinner the health of the adjutant, Williams Allen, Esq. was drunk, and it was resolved that a piece of silver plate, of not less than 20 guineas value, be presented to him.

What happened to the Moccas Volunteers and the Leominster Volunteer Cavalry and Infantry was not reported, but they may well have disbanded at this time.

Finally, having begun with a discussion of the Regular Militia, it is appropriate to finish with the story of what happened to them. Firstly, the magistrates of the county sent a letter via James Kinnersley, Clerk of the Peace, to Sir John Geers Cotterell (Plate 4.5), as colonel of the regiment, expressing their appreciation of his 'unremitted attention to the discipline of the Militia Regiment of the County'. The letter went on to express their respect for the conduct of the regiment, recalling 'that period of imminent danger, when, activated by sentiments of ardent zeal and unshaken loyalty, the Regiment volunteered its services in any part of Europe against the Enemies of its Country; and [was] One of the first Militia Regiments that actually advanced against the Invaders and Rebels of Ireland'. The regiment paraded on Castle Green on 22 April 1802, when Lieutenant-Colonel Smith read an address of thanks from his Majesty, then 'commending their very orderly conduct, during the years, in a military capacity; and advising them to adopt a similar behaviour in their civil occupations, disembodied them'.[39]

## NOTE ON SOURCES

As no contemporary records of the volunteer units are known to have survived, this paper has been constructed mostly from newspaper references, identified using the British Newspaper Archive website. However, during the research for this paper, it was found that the digitised run of the *Hereford Journal* on that website, the source of most of the newspaper references, has an almost a complete gap for the years 1802-1805, a critical period covering the Peace of Amiens. This period has been covered by using a microfilm of those years, now in HARC, and while it is hoped that all relevant references in that period have been picked up, the poor quality of the microfilm is such that it cannot be guaranteed.

## NOTES AND REFERENCES

[1] Summarised from Hopkinson Charles, *Herefordshire under Arms* (1985), pp.100-1.

[2] *Hereford Journal* (henceforth *HJ*), 2 July 1794.
[3] *Ibid.*
[4] *HJ*, 6 August 1794.
[5] *HJ*, 12 November 1794.
[6] Thomas Harley was born on 24 August 1730, and so would have been somewhat old to pursue an active role with a troop of cavalry, particularly as most of his life he had been involved in business. He had bought an estate at Berrington in the latter part of the eighteenth century, where he built Berrington Hall, and probably raised his troop from his tenants. Details from www.HARLEY, Hon. Thomas (1730-1804), of Berrington, Herefs. | History of Parliament Online, accessed 25 Nov. 2021. He resigned his captaincy in March 1798, and the appointment of his successor, Samuel Peploe, Esq. was announced in the *London Gazette* on 20 March 1798.
[7] G.R. Mellor, 'Provisional Cavalry, 1797-1800,' *Journal of the Society for Army Historical Research*, Vol. 31, No. 128 (Winter 1953), pp. 175-177.
[8] *HJ*, 1 February 1797.
[9] *HJ*, 15 March 1797. James Maddy was in business in High Street, while Edward James had premises adjoining the Redstreak Tree on the north side of High Town. The entrance to the Redstreak Tree is now the entrance to the Butter Market, but it is uncertain on which side of the entrance Edward James had his premises. At this period a stock was worn to improve military bearing, the necessary stiffness being caused by the use of leather. The wearing of stocks on campaign did nothing for the comfort of the troops.
[10] Summary and quote from HJ, 8 March 1797.
[11] *HJ*, 22 March 1797.
[12] *HJ*, 21 Feb. & 28 March 1798.
[13] Summarised from *HJ*, 7 June 1797.
[14] *Ibid.*
[15] *HJ*, 14 & 21 June 1797.
[16] *HJ*, 18 Oct. & 20 Dec. 1797, 3 Jan. 1798.
[17] *HJ*, 28 March 1798.
[18] *HJ*, 28 March & 18 April 1798. At this time Thomas Harley had just resigned as captain of the first troop of Yeomanry Cavalry, to be replaced by Samuel Peploe, Esq. *London Gazette*, 20 March 1798. In *HJ* 20 July 1803 it was stated that 'Hereford, Glocester, and the vicinity of Bristol in Somerset, Worcester, Monmouth and South Wales, is again comprized in the Severn District, …'
[19] *HJ*, 9 May 1798.
[20] *Kentish Gazette*, 16 April 1799.
[21] *London Gazette*, 14 July 1798; *HJ*, 18 July 1798.
[22] *HJ*, 6 June 1798. The standard had been designed by Captain Matthews, and made by Messrs Hill and Vick of Hereford, both of whom were painters. The first was almost certainly the 'Mr. Hill, painter', who rented a house in Church Street, Hereford, from at least March 1797, which he gave up in 1798 when he moved to St. Owen's street 'two doors below the Fleece.' He was described as a house, sign, and fancy painter, Japan and varnish maker, and it was stated that he had come from London. *HJ* 8 March 1797, 9, 16 & 30 May 1798, 6 June 1798. He seems to have been the Walter Hill, painter, of Hereford, who died in 1801. *HJ* 8 July 1801. 'Vick' was John Vick, of Hereford, who painted a benefactions board for Preston Wynne church in 1803. He died on 29 March 1826 'for many years a most respectable painter and sculptor, in this city.' *HJ* 5 April 1826. The timing suggests that Hill and Vick were in a working partnership, which broke up at about the time that commission to paint the colours was executed. However, if this was so, this partnership does not seem to have been publicised in the *Hereford Journal*.
The colours still survive in the Herefordshire Light Infantry museum at the TA Centre , but are very faded, and displayed in a situation where they are difficult to photograph.
[23] *HJ*, 3 Oct. 1798.
[24] *HJ*, 5 Dec. 1798. The report does not mention whether the parade was preceded by the Colours of the Hereford Volunteers.
[25] *HJ*, 27 February, 17 April, 1 & 8 May, 5 & 19 June 1799.
[26] *HJ*, 9 Jan. 1799.
[27] *HJ*, 9 & 16 Jan., 27 Feb., 13 March 1799. The report of the Royal Assent being given, published in the *London Gazette*, 7 – 11 May 1799, and repeated in *HJ* Wed. 15 May 1799, states that it was 'An Act for exempting, during the present War, Persons serving in Volunteer Corps and Associations from being balloted for the Militia, under certain Conditions'. The 'certain Conditions' are not specified.
[28] HJ, 12 June 1799.
[29] *London Gazette*, 22 – 25 March 1800; *HJ*, 2 April 1800, and *Gloucester Journal*, 7 April 1800.
[30] *HJ*, 1 June 1800. At that period dinner was taken somewhere about the middle of the day.

[31] Sir George Cornewall had been promoted to Major by 13 April 1798, when the Yeomanry Cavalry and Hereford Volunteers had been inspected at Stretton. No official notice of the promotion has yet been traced. *HJ*, 18 April 1798.
[32] *HJ*, 24 June, 8, 15 & 29 July 1801.
[33] *HJ*, Wed. 5 Aug. 1801.
[34] *HJ*, 12 Aug. 1801.
[35] *HJ*, 19 Aug. 1801.
[36] *HJ*, 7 Oct. 1801.
[37] *HJ*, 11 Nov. 1801.
[38] *HJ*, 25 Nov. 1801.
[39] *HJ*, 28 April 1802. It was also reported that during that same week a number of other regiments of regular militia were disembodied, including those for the 'Counties of Gloster, North Gloster, the Worcester, the Oxford, Salop, Denbigh, Montgomery, Radnor, Carmarthen, Brecon, Monmouth … &c. &c.'.

# John Monkhouse
# ‘That Devill of a Farmer at The Stow’

*By* PETER KLEIN

*The author being a collector of early Herefordshire photographic views and portraits, this paper is prompted by the recent chance finding of a carte-de-visite portrait from the mid-1860s, the image itself measuring barely 9 by 6 cm (Plate 5.1). It is of an old man taken towards the end of his life by the Hereford photographers Richard and Marion Bustin at their studio in Victoria Street. Written across the bottom edge of the mount in faint blue crayon are the words ‘Mr Monkhouse’. This may well have been the only photograph for which he ever sat, and he most certainly will never have seen it because it is evident that the old man is blind; indeed he had been blind for over thirty years. The subtitle of this paper scarcely does him justice, for it was occasioned only by an historical incident in which he became briefly embroiled during the earlier part of his fifty-three years spent at Whitney-on-Wye. He was to become widely respected and admired among his peers in Herefordshire and elsewhere, not only for his agricultural judgment and achievements, especially in the breeding of cattle and sheep, but also for his remarkable family connections and friendships—he was William Wordsworth’s brother-in-law—and his stoicism in the face of great adversity.*

## EARLY LIFE, FAMILY, AND LITERARY CONNECTIONS

John Monkhouse was baptised at Carlisle in Cumberland on 18 October 1781, the son of George Monkhouse and Mary née Hall, coming from a family of lawyers, successful business owners, and employers. In 1730 his grandfather, John Monkhouse (born 1713), son of yet another John Monkhouse of Penrith, had become apprenticed to Thomas Simpson, a local lawyer. Grandfather Monkhouse, who later became an attorney-at-law, died in June 1796, and lies buried with other members of his family under a raised ledger monument in St. Andrew’s churchyard at Penrith.[1] He had at least seven children by Margaret his wife, née Richardson, only two of whom need concern us here. Their eldest child Mary Monkhouse (1744-1783) married John Hutchinson, and they had a daughter Mary who, in 1802, became the wife of William Wordsworth, the poet. John and Margaret’s seventh child was George Monkhouse (1756-1802), who became ‘an eminent mercer and draper’ in Carlisle, and George was the father of John Monkhouse of Whitney-on-Wye.[2]

Little is known of John’s early life, but it is probable that he would have attended Carlisle Grammar School, or just possibly Hawkshead Grammar School where some of his known associates, in particular the Wordsworth brothers, were educated. By 1806 he appears to have become a spirit merchant, and on 14 June that year he married Isabella, daughter of Henry Addison, an attorney-at-law in Penrith. At this point it might be useful to provide some overview of the social background from which John Monkhouse sprang. While his father George’s household and business were based in Carlisle, their family roots lay 18 miles to the south in Penrith, on the Westmorland border. Within this milieu the names of four families predominated: Addison, Hutchinson, Monkhouse and Wordsworth. These became in part linked by professional partnerships, principally in the law: for instance, by 1809 Richard Wordsworth, the poet’s elder brother, was in partnership with Isabella Addison’s brother, also named Richard, at Staple Inn in

High Holborn, London. There were also inter-marriages between Monkhouses and Hutchinsons over two generations, producing a number of cousins, between two of whom there was a further marriage in 1812.[3] Several early deaths of parents resulted in orphaned children being circulated around their relatives, and thus they all grew up knowing one another. William Wordsworth, being married to Monkhouse's first cousin, drew some distinguished literary figures into this circle of acquaintance, including Robert Southey and, notably, Samuel Taylor Coleridge, who in 1801 had addressed a verse letter jointly to Isabella Addison and Johanna Hutchinson.[4] However, the first great blow in Monkhouse's life occurred when, just eleven months after his marriage to Isabella, on 12 May 1807, she and their infant daughter died not long after childbirth.[5] She was only 23, and Monkhouse was never to marry again.

## EARLY YEARS OF FARMING: FROM RADNORSHIRE TO THE STOWE

Not long after this Monkhouse's life took a very different course, when he entered into partnership with another first cousin, his future brother-in-law Thomas Hutchinson (1773-1849), the elder of Mary Wordsworth's two younger brothers. Thomas had been farming since at least 1800 when we find him at Gallow Hill near Brompton, in the Vale of Pickering, North Yorkshire.[6] Early in 1809 the cousins took the tenancy of a farm in Radnorshire, Hindwell near Walton, which has a fine Georgian house standing immediately next to the site of the Roman fort. There they began to build up a herd of Hereford cattle, and Monkhouse also developed an interest in the raising of improved Leicester sheep. At a tup-letting (a fair for hiring prize rams for breeding), at Normanton-on-Soar near Loughborough, it has been suggested that he met John Price of Ryall, in Worcestershire, who was not only a breeder of Leicester sheep but also a noted early breeder of Hereford cattle; if so, this was to have significance for the future.[7]

While the cousins farmed at Hindwell they received a number of family guests, including Wordsworth who visited during the summer of 1810. At least two letters from him are dated from there during July and August, in which he described the house as being 'comfortable, and its situation beside a pool, and the pool itself quite charming, and far beyond my expectation'.[8] The situation at Hindwell however proved to be temporary, for in November 1812 Thomas Hutchinson married Mary, John's sister, at Grasmere. The two cousins now agreed to separate, with Thomas and Mary staying on to farm at Hindwell where they remained until the beginning of 1825, whereupon they took the lease of Brinsop Court. Monkhouse meanwhile considered taking the tenancy at one of two other farms: at Monaughty near Llangunllo, or at The Stowe at Whitney-on-Wye. He preferred The Stowe, and this he appears to have taken up during 1813.[9] Here he found himself the principal tenant of Tomkyns Dew (1791-1853), lord of the manor of Whitney, and by 1851 was farming over 400 acres there. Dew's family also had a background in the law, his eldest son, heir, and namesake being a barrister, and the two men appear to have become closely allied from the start. For his first thirteen years at The Stowe, then considered essentially as a feeding farm, Monkhouse merely bought and sold cattle as a grazier.[10]

## ECONOMIC DEPRESSION, AGRICULTURAL CHANGE, AND 'THAT DEVILL'

In August 1819 Monkhouse's name appeared in a list of local farmers supporting the adoption of the 'Winchester bushel' in Herefordshire, the volume measure used for dry goods, which nationally had long been decreed by statute the equivalent of 8 gallons in volume, although corn had been exempted almost immediately afterwards.[11] In Herefordshire, however, the traditional local bushel of 10 gallons was still in use, possibly causing some confusion in the markets, although it is curious to note that in Winchester itself their local bushel evidently still contained

nine![12] Monkhouse was one of the five committee members appointed to persuade the market towns to adopt the Winchester bushel and to follow the lead of Hereford, who had prohibited use of the old bushel in the city from 1 October onwards.[13] They were evidently successful, for the market towns of Kington, Leominster, and Ross quickly followed suit, but some buyers who were still using the old bushel in 1820 found themselves heavily fined and their goods forfeited.[14] However, the background to the start of Monkhouse's life at Whitney was also one of severe economic depression at the end of the Napoleonic Wars following Waterloo. The resulting widespread rural unemployment caused great poverty, not least exacerbated by the growing adoption of labour-saving machines by landowners to increase the efficiency of agriculture, thus depriving labourers of many skilled seasonal jobs that had enabled them just to make ends meet. Amid this deprivation, rural crime was high in an age when the law was dedicated to the protection of property, and in the summer of 1817 Tomkyns Dew of Whitney Court and other local landowners and farmers set up what became the 'Wye Side Association for the Prosecution of Felons' at a meeting at the Boat Inn, Whitney, on 7 July.[15] Dew's name was at the head of the list, with Monkhouse's very near the top, and the results of this meeting were published in the *Hereford Journal* of 6 August, with Monkhouse appointed as one of the treasurers. Funded by annual subscriptions from its members, substantial rewards were offered for information leading to successful prosecutions. In June 1822 Monkhouse himself advertised the theft of six lambs 'of the long-wooled Leicester breed' from Stowe Farm, offering a reward of 30 guineas for information leading to a conviction.[16] We find another example of the Wye Side Association's activities during October 1826, when an advertisement was placed jointly by Joseph Blissett of Letton and John Monkhouse of The Stowe. This offered a reward of £20 for information leading to the arrest of a probable 'gang' stealing poultry, informing readers that Monkhouse himself had lost seventeen birds from a hen roost on the night of Friday the 20th.[17] Nothing further seems to have been mentioned about either of these incidents.

Foremost among the newly adopted mechanical devices was the threshing machine, initially developed in Scotland to improve efficiency and save on labour costs. By November 1830 Monkhouse had acquired one, although its form is never mentioned.[18] This might either have been stationary, operated around a vertical shaft driven by horse-power, or alternatively a similar mobile unit on wheels that could be drawn out into the fields. The seasonal use of the flail, a crude home-made implement of surprising sensitivity and accuracy, had occupied skilled hands for generations, and would keep a team, ideally of four, occupied for weeks processing a crop of wheat, or grain for cattle feed, although at considerable labour cost. This practice would have been rendered virtually obsolete with the acquisition of a threshing machine, although the flail was to continue in use for threshing more delicate seed crops and barley for another century.[19] Whichever type Monkhouse's machine might have been, it had attracted the attention of local radicals headed by a Henry Williams, a 20-year-old journeyman tailor, who was clearly inspired by the contemporary Swing Riots in Kent and the South-East.

Already known to the authorities, Henry Williams was apprehended, and was brought before the Herefordshire Sessions in January 1831 where John Monkhouse gave evidence in person:[20]

> I am a farmer, residing at the Stow, in the parish of Whitney, in the county of Hereford. My premises consist of a dwelling-house, outhouses, and barns. I have also a thrashing-machine, and on the 25th of November last had stacks of corn, grain, and hay. On the 25th of November last I received the letter now produced from Matthew Ion:

> Nov. 17, 1830. Mr. John Monkhouse.
> SIR. – We, as you call Rebells determine if you dont pull down your machine witch you do thatch your grain with, whe shall come that way and will set you and all that you have with fire: remember in Kent they have set all that would not submit and you we will serve the same, for we are determined to mak you support the poor better than they have been soppored yet, for they are starving at present so pull down your Thrashing Maschine or els Bread or Fire without delay: for we are 5 thousand men and will not be stopt.
>
> (DIRECTION.) – *Leave thiss where it Lies for John Monkhouse that Devill of a farmer of the Stow, Herefordshire: more papers about for you to look at.*

Subsequent testimony showed that the letter had been dropped on the Hereford to Brecknock turnpike road, about 150 yards from a field gate onto Monkhouse's property, and left for someone else to pick up and deliver to him. It was found by Edward Butler, an employee of Monkhouse's, who gave it to a visitor at The Stowe. After a thorough search, corroborating evidence was produced that included the finding of the source of the paper and identifying the handwriting. Henry Williams was duly found guilty and sentenced to fourteen years transportation. The letter, although written in Herefordshire, directly refers to the contemporary Swing Riots in Kent and the South-East, though threatening 'Bread or Fire' rather than 'Bread or Blood'. The *Hereford Journal* gleefully reported the trial, describing Williams as 'by profession an *eminent preacher* amongst the extraordinary sect called the RANTERS, who abound in the vicinity of the Welsh mountains, and whose nightly meetings are said to have often been marked by various depredations of property in the immediate vicinity'. The reference to 'Ranters' in fact came from an off-the-cuff response made in court by Tomkyns Dew from the witness box, but it drew irate responses from readers. One wrote a facetious letter in what passed for border dialect, duly published the following week, protesting about the slur on Welsh character, while others including two ministers indignantly rejected any implication that local Primitive Methodists might have been involved, and denied that Williams was ever a preacher.[21]

Monkhouse had meanwhile been drawn into the local social hierarchy and had 'long been the perpetual Surveyor of the highways of the parish', when in late March 1835 he and Dew were jointly found guilty at the Hereford Lent Assizes of 'grossly neglecting 374 yards of highway between Eardisley and Gravesend', although 'the roads in that part of the parish which was situate near the residence of the surveyor were particularly good!' The fact that Dew was included in this prosecution may perhaps be significant, in that Monkhouse's eyesight by this time will have already been seriously compromised, making it difficult to see how he could have carried out his role as surveyor effectively.[22] Despite this, from 1836 he also sat for the parish of Whitney on the Board of Guardians of the Hay Union, and was still doing so in 1846 and 1852.[23]

## A GLIMPSE OF HOME LIFE, FRIENDS, AND VISITORS

It was at around this time, in the early autumn of 1837, that Monkhouse received a short pre-arranged visit from Henry Crabb Robinson (1775-1867), lawyer, diarist, a friend of Wordsworth and the Hutchinsons, and one of the founders of University College, London. Robinson wrote in his diary around 9 September: [24]

> On our arrival at Hereford, young Mr. Hutchinson took his uncle and cousin to his father's house at Brinsop. And John Monkhouse, hearing of my arrival, came for me, and took me to his farmhouse at Witney, sixteen miles from Hereford. I spent three days with this

> excellent man, and had an opportunity of observing how native good, moral, and practical sense can enable a man to extract comfort, if not happiness, in a condition seemingly affording few sources of enjoyment. He was blind: he had no educated neighbours, and was forced to bear the reading aloud of uneducated persons. His sister, Mrs. Hutchinson, lived fourteen miles off. He found occupation in the management of his farm, and in books. He had the consolations of religion, and was interested in theological controversies. We had too much matter for talk to feel in the least tired of each other's society.

We get just a glimpse here of Monkhouse's home life at The Stowe—a capable man impeded by his blindness, now dependent upon others, and yet pursuing a very active life about his estate and the local community. Plate 5.2 shows the house today. After his death, a long obituary in the *Illustrated London News* described how he would spend 'a great part of his day in riding his pony about his farm, to which, although it was some distance from his house, he could find his way on foot unaided'.[25] His dining room was hung with portraits including that of Wordsworth, who had visited him there three times, along with others of prominent cattle breeders and of The Stowe's prize bulls.[26] There was also his own likeness, of which he would later say that 'though he had seen his own face in the glass clearly enough for forty years, he had utterly forgotten what he was like'.[27] It's possible that this picture has survived, for a portrait of him in oils was presented to the Royal Agricultural Society of England in 1902 by Miss Emily Mary Dew, the eldest child of the Reverend Henry Dew, Rector of Whitney, and daughter of Monkhouse's niece.[28] It was also said that Monkhouse would 'beguile many a solitary hour by repeating passages' from both Wordsworth and Southey[29]; and George T. Forester, a Hereford cattle breeder from High Ercall, in Shropshire, who was an occasional visitor to The Stowe, commented that when he tried to discuss cattle with Monkhouse 'he was more inclined to amuse him by reciting passages from Burns than to talk of pedigrees!'[30]

Despite the isolation of his blindness, Monkhouse's life was still a full one, with frequent visitors, and his household often seems to have included one or more relatives, in addition to his domestic servants, and on the farm estate he employed at least fifteen. The Census returns reflect this, for in 1841 in the house there was a living-in farm bailiff, and in 1851 his sister Mary Hutchinson, by then a widow, and her daughter Sarah were staying with him.[31] In 1861 it was a nephew, Henry Hutchinson aged 23, who was living with him as farm bailiff, and thus the contacts with his family were always close, including up until 1846 sharing regular visitors to Brinsop including Wordsworth and his wife. John and Mary had another brother, Thomas Monkhouse, who though living in London had died in Bristol in February 1825, and John was left his sole executor. Under this will, John's niece, Thomas's only daughter, Mary Elizabeth Monkhouse, then a child of four, eventually received a substantial inheritance. In September 1845 she was married at Preston to the Reverend Henry Dew, rector of Whitney and the second son of Tomkyns Dew, and thus Monkhouse was drawn into his landlord's extended family as well.

## OUTSTANDING ACHIEVEMENTS: CATTLE AND SHEEP

Monkhouse's greatest fame in his own lifetime and after, however, lay in his achievements in the show ring, both with his sheep and his Hereford cattle. He and Tom Hutchinson had already taken an interest in Herefords while at Hindwell, and Monkhouse had recalled a visit to Benjamin Tomkins, breeder and developer of the cattle at Wellington Court, presumably not long before the time of Tomkins's retirement in 1812:

> We young fellows thought we should like to lay in a stock from Mr. Ben Tomkins, and so we drove over to see him. He asked us a hundred guineas – not pounds, mind you – for an in-calf heifer, to calve at Christmas, and that was all the satisfaction *we* had.[32]

Of his fellow breeders, he singled out for mention John Price of Ryall, and the Reverend J. R. Smythies of Lynch Court, Eardisland, calling them 'the great mottle-faced men',[33] there being several different colour strains at this time, before the white-faced cattle became ubiquitous. Early on he bought stock from both and also from William Hayton of Moreton Court. Thomas Tully of Clyro Court Farm and Thomas Andrew Knight F.R.S. of Downton Castle had the best light greys; and Walker of Burton Court, Clifton-on-Teme, John Hewer of Hampton Lodge, Yeomans, and John Weyman of Stockton Bury, Kimbolton, bred cattle that 'were the most noted of the white faces'.[34] By the end of his life Monkhouse had achieved considerable distinction in the show ring, including 6 firsts at the Royal Show: 3 for bulls and 3 for heifers. His name figures prominently in the first ten volumes of the *Hereford Herd Book*, first published by the breeder T. C. Eyton in 1846, the idea for which is said to have been stimulated by a conversation with Monkhouse at The Stowe, who had already published his own private herd book which was 'to be had from Mr. Vale, bookseller, at Hereford'.[35] In the early editions of Eyton's *Herd Book* we get a very clear idea of Monkhouse's prominence in the development of the Hereford breed, and his name was still appearing in pedigrees as late as 1879.

Less well known, because there is much less in print, is his association with the New Leicester long-wooled sheep, in particular the strain bred by John Buckley of Normanton-on-Soar, Loughborough, in the promotion of which Monkhouse had played a major part in Herefordshire during the 1830s. His association with Buckley certainly goes back rather earlier, but it was in 1829 that he first staged 'Mr Monkhouse's Annual Show of Rams for Letting' at The Stowe, latterly held on the first Tuesday in June each year until 1840. Prizes were offered in the three sections; the first, sponsored by Monkhouse, was for the best pen of five long-woolled yearling Leicester wethers (castrated rams), bred by the exhibitor, and fed on green vegetables, hay, and clover only.[36] The second section was for five long-woolled ewes and lambs, sponsored by Tomkyns Dew, but this time all bred from rams hired from Monkhouse; and the third, sponsored by Buckley, was for five yearling long-woolled wethers, but again bred only from Monkhouse's rams. The show staged in June 1840, however, was to be the last, for Monkhouse then put his entire flock of over forty 'Pure-bred New Leicester Rams' up for auction on 8 September following.[37] The auction announcement also mentioned that Monkhouse had 'for the last 17 years been in the habit of hiring his Rams from Mr. Buckley, whose established fame as a sheep breeder renders comment superfluous'. While this final comment gives the impression that Monkhouse and Buckley remained on the best of terms, the reason for the sale was not given, but given the increasing adoption of Shropshire Down sheep in northern Herefordshire at this time it seems most likely that Monkhouse had abandoned the New Leicester breed for one he felt was better suited to his needs and matched demand for the quality of wool and mutton.[38] In September 1855 he sold seven young Shropshire Down rams in Hereford by auction; and at the sale in September 1866 at The Stowe after his death, there was a fine breeding flock of nearly 400 Shropshires, including seven rams and 200 ewes.[39] He had also exhibited a pen of black-face wethers fed by him, at the Christmas Show at Brecon, in December 1863, but these are more likely to reflect his role as a grazier.[40]

The close association between Monkhouse and John Buckley is an interesting one. Buckley was the breeder of one of the two strains of New Leicester sheep, the other being bred

by Robert Burgess of nearby Hugglescote, which were both descended from the same stock bred by the famous agriculturalist Robert Bakewell (d. 1795) of Dishley Grange, a mere two miles south of Buckley's farm.[41] The two strains, separate and selectively inbred for fifty years, according to the predilection of their owners, had remained 'pure', without outside interbreeding, and yet came to look completely different. This example of the rapid and spectacular effects of artificial selection was famously referred to by Charles Darwin in his *Origin of Species*, where he cited William Youatt, the influential veterinary surgeon, who had commented on this in his book on sheep breeding and management in 1837.[42] Whether Monkhouse would have become aware of Darwin's work on natural selection and its implications regarding human evolution is unknown, although the religious Monkhouse might well have been more inclined to espouse 'Soapy Sam' Wilberforce's opposing views.

Perhaps the most impressive aspect of Monkhouse's sustained success as a breeder was his ability to exercise his judgement of livestock despite his blindness, and to continue to do so well into his eighties. We are also told how he 'was an unfailing judge of a calf or a sheep—anything he could stand over and handle, but his unfortunate blindness of course militated against his judgement as to size and character in cattle'. Despite this, the writer of his lengthy obituary in the *Illustrated London News* related that:[43]

> His touch was so good and guided him so well to a conception of form that he could say with truth of nearly every leading bull, for many years past, "I saw him," and he never wearied of describing their peculiar merits and shortcomings. "Put your hand on him, Mr. Monkhouse," owners would say to him when they met him in the Royal, or the Hereford, or Leominster show yards, leaning on the arm of his nephew, the Rev. Mr. Hutchinson, or his faithful Sam [presumably Samuel Jones his herdsman], alias "The Counsellor."[44] Whenever he appeared at the Royal, so many craved an introduction to him that "might have filled a visiting book".

In his old age he continued to show his cattle, including entering a show and winning a prize at Poissy in northern France in April 1862. In the same year, visiting the Hereford October Fair, the journalist Henry Hall Dixon described the breeders and Hereford cattle filling the streets, including some in Broad Street,

> so as to flank the Cathedral and the Green Dragon. There, too, stood Sam of Stow...and there are many to press the hand of their fine old breeder (as with sightless eyes he wends his way among the lots, and touches them with the sagacity of a wizard), and to bid him joy on having topped the market for sixty-two.

He had had his eighty-first birthday only the day before and just taken the prize for the best pair of heifers at the show calved after 1 July 1861.[45] He was subsequently to take a first prize at the Royal Shows at Worcester in July 1863, at Newcastle in 1864, and again at Plymouth in 1865.

References to him entering shows cease at this point, and the end came in 1866 when, after several months of deteriorating health, Monkhouse died peacefully at The Stowe on 18 August, aged 84. His brass memorial plate in the parish church of Whitney-on-Wye (Plate 5.3) confirms that he had lived at The Stowe for fifty-three years.

Apart from a brief death notice, it's curious that the *Hereford Journal* seems scarcely to have noticed his passing, only reprinting a belated obituary that had appeared in the London-based *Leisure Hour* for 2 February 1867: [46]

> A BLIND CATTLE BREEDER. ... One of the most remarkable facts in the history of cattle-breeding is the formation of the Stow herd by the late Mr. Monkhouse, who was totally blind for upwards of thirty years. His judgement of form and quality was almost, if not quite, unerring, and his recognition of animals was most surprising; for he was known to go through herds, and then many months, or even years afterwards, has found certain of the animals by touch, and called them by their names. This fine old man, a native of Cumberland, and brother-in-law of the poet Wordsworth, was stout and hale in frame, and clear in intellect at the age of eighty-four, "alike upright in stature and in dealings," and, in accordance with the benevolence that characterized his whole life, he left £200 each to five of his old servants. Mr. Monkhouse was an example of most successful judgement employed to test the perfections and demerits of cattle by the use of the hand only.

His executors were his nephew the Rev. Thomas Hutchinson, vicar of Kimbolton with Middleton-on-the-Hill, and the Rev. Henry Dew, rector of Whitney. Monkhouse's herd was sold after his death on 19 October 1866, the auctioneers Messrs. Russell and Son remarking that:

> His fame was not local but national, finding its way into every corner of the British Isles, where intellect and energy have been directed to the advancement of the great interest of agriculture, and recording itself by numerous brilliant successes on the pages of the proceedings of the Royal Agricultural Society, as well as those of the chief Provincial Cattle Shows in Herefordshire and adjoining counties.[47]

It may well have been on a show day that the old man was escorted by his nephew into the Bustins' photographic studio in Victoria Street, a studio which very often took photographs of the clergymen visitors to the bishop's palace, and here one last portrait was taken for the family album. In the picture (best seen in Plate 5.4, an enlarged version of the image used for the *carte-de-visite*) Monkhouse sits erect, dignified, his cane propped in his lap, and sporting a rather stylish top-hat. There is little doubt that he would have been a very distinctive and familiar figure around Hereford, and that he will have been much missed after his passing.

## NOTES AND REFERENCES

[1] See *Find a Grave Index*, ref. 181496615.
[2] *Carlisle Journal*, 14 Aug. 1802.
[3] The Hutchinsons were descended from that family of Whitton House, Co. Durham - see *Burke's Landed Gentry* **I** (1847), p. 625.
[4] See: ed. J.C.C. Mays, *The Collected Works of Samuel Taylor Coleridge: Poetical Works* **I** Poems (Reading Text): Pt 2, (Bollingen Series LXXV, Princeton, 2001), p. 659—Verse letter to Miss Isabella Addison and Miss Joanna Hutchinson, August 1801.
[5] She lies buried in the Monkhouse family grave. See also *Lancaster Gazette* 16 May 1807: 'On Tuesday last, at Penrith, Mrs. Monkhouse, wife of Mr. John Monkhouse, spirit merchant, in the prime of life, and much regretted by a numerous acquaintance.' See also the *Carlisle Journal*, 7 September 1866.
[6] Dictionary of National Biography, **LXIII** (1900), p. 18.
[7] J Macdonald & J Sinclair, *History of Hereford Cattle* (London, 1886), p. 172.
[8] ed. B Darlington *The Love Letters of William and Mary Wordsworth* (Cornell University Press, 2009), p. 59.
[9] Macdonald & Sinclair, p. 173. Monkhouse's brass memorial plate in Whitney church also states that by 1866 he had been resident there for 53 years.
[10] *Hereford Journal* (hereafter cited as *HJ*): issue 6233, 22 Nov. 1862. A reprint of an account of a visit to Monkhouse by Henry Hall Dixon, originally published in the *Mark Lane Express* in 1862.
[11] *An Act for Ascertaining the Measure of Corn and Salt*, 1670 (22 & 23 Charles II, c12). As bushels of corn were often specified in part payment of rent for copyhold land, a reduction in volume received would have been to the

prejudice of landowners, although to the benefit of tenants.
[12] Lord Beveridge, Prices and Wages in England from the Twelfth to the Nineteenth Century **I** (1939; digital edition 2006), pp. xxix, 13, 16.
[13] *HJ*: issue 2555, 4 Aug. 1819.
[14] *HJ*: **i**ssue 2593, 26 Apr. 1820.
[15] *HJ*: **i**ssue 2445, 25 June 1817.
[16] *HJ*: issue 2704, 12 June 1822.
[17] *HJ*: issue 2931, 25 Oct 1826.
[18] A Hereford millwright, Peter Watkins of St Martin's, claimed to have developed an 'improved' machine, powered by three horses, and this was demonstrated at Withington, Kilpeck, in October 1828. See *HJ*: issue 3040, 15 Oct. 1828.
[19] ed. Ann Cripps *The Countryman Rescuing the Past* (David & Charles, 1973), pp. 52-5.
[20] *H J*: issue 3157, 12 Jan. 1831. See also: J C Eisel, 'Charles Anthony and the events leading to the founding of the Hereford Times' in *TWNFC,* **58** (2010), pp. 148, 153.
[21] *HJ*: issue 3158, 19 Jan. 1831; issue 3160, 2 Feb. 1831.
[22] *Hereford Times*: issue 145, 4 April 1835.
[23] *HJ*: issue 5559, 13 May 1846; *Hereford Times*: issue MCXXXIII, 1May 1852.
[24] Ed T Whelan, The Letters of Henry Crabb Robinson, Wordsworth Library, Grasmere (London, 2013), 111; Diary, Reminiscences, and Correspondence of Henry Crabb Robinson, Barrister-at-Law, F.S A. Selected and edited by Thomas Sadler, Ph.D. (**III**, 1869), p. 141.
[25] *Illustrated London News* (No.1387, 1 Sept. 1866), p. 206.
[26] Wordworth's visits to the Stowe were in Sept. 1824, Dec.1827, and in June 1849 when he had also visited Thomas Hutchinson for the last time. See ed. W Plomer, *Kilvert's Diary 1870-1879* (2011 online edition); *ibid.* 'Wordsworth in Kilvert' in *The Kilvert Society Newsletter* (Feb. 1986), p.4. I am most grateful to Terry Morgan for drawing this reference to my attention.
[27] Illustrated London News, p.206.
[28] *Mark Lane Express*, 10 Feb. 1902, p. 184; *ibid*. 14 April1902, p. 472. The RASE moved its headquarters twice, in 1956 and 1994, and then its historical assets were auctioned off in London in July 2014 to raise funds. A search for the picture has so far been fruitless, and the portrait's present location is unknown.
[29] Illustrated London News, p.206.
[30] J Macdonald & J Sinclair, *History of Hereford Cattle* (London, 1886), pp. 172-3.
[31] Thomas Hutchinson had retired from Brinsop in 1846, moving to Mathon, Worcestershire, where he died on the 2 July 1849 aged 76. For the last twelve years of his life he had been crippled by a riding accident after his horse fell on him. Wordsworth visited him at Mathon, witnessing his will in May 1849. See: *Temple Bar* **XLIX** (1877), p. 112.
[32] Macdonald & Sinclair, p. 37; H. H. Dixon, 'History of the Rise and Progress of Hereford Cattle', in *The Journal of the Royal Agricultural Society of England*, **IV** (1868), p. 278.
[33] *Hereford Herd Book* **I** & **II** (1846), appendix: 41.
[34] As several generations in some families were breeders in different locations, it's not always clear which individual was referred to.
[35] William Henry Vale of High Town was also editor of the *Hereford Journal*, where Monkhouse placed advertising.
[36] This dietary requirement was mentioned up until 1831 but was dropped in later advertising.
[37] *HJ*, issue 5262, 2 Sept. 1840.
[38] E L Jones, 'Hereford Cattle and Ryeland Sheep: Economic Aspects of Breed Changes, 1780-1870' in *TWNFC,* **XXXVIII** (1964), p. 47.
[39] *Hereford Times*, issue MCCXXIV, 22 Sept. 1855; *HJ*, issue 6436, 22 Sept. 1866.
[40] *HJ*, issue 6286, 26 Dec. 1863.
[41] D L Wykes, 'Robert Bakewell (1725-1795) of Dishley: farmer and livestock improver' in *The Agricultural History Review*, **52** (2004), pp. 38-55.
[42] C Darwin, On the Origin of Species (London, 1859), p. 36; W Youatt, Sheep: their Breeds, Management, and Diseases (London, 1837), p. 315
[43] Illustrated London News, p. 206.
[44] In the 1861 Census Samuel Jones, his herdsman, aged 40, was living at the Stowe, and had been born at Brinsop. H. H. Dixon said he was 'the very image of the late Robert Pashley, Q.C.', the antiquarian (d. 1859).
[45] *HJ*, issue 6228, 18 Oct. 1862.
[46] *HJ*, issue 6457, 2 Mar. 1867.
[47] *HJ*, issue 6437, 6 Oct. 1866.

# Church Chests in Herefordshire Revisited: New Perspectives on their Dates and Construction

*By* RACHEL ANNA SYCAMORE

*In 1947 F. C. Morgan compiled an inventory of church chests in Herefordshire. Recent research, undertaken as part of a master's thesis, has revisited many of the church chests recorded by Morgan, with the intention of updating and reassessing the records, photographs, and dating methods. Firstly, extant church chests in Herefordshire were located and each chest was identified as one of the four main types: dug-out, boarded, clamped, or panelled. Secondly, the research focused on the dug-out type of chest in a detailed archaeological study, also considering its broader social and symbolic context. The study applied major developments in understanding of stylistic characteristics, saw marks, and construction techniques, as well as historical evidence, to refine dating estimates considerably. Conclusions were strengthened with new science; five dug-out chests were dendrochronologically dated in Herefordshire and Worcestershire, returning dates ranging from the 13th to the 16th century. Results here and elsewhere in England show that the dug-out method of constructing a chest was not chronologically confined to the 'earliest' period as believed by Morgan and early scholars.*

## EDITOR'S NOTE: REFERENCE MATERIAL

This paper is underpinned by substantial research data and a large photographic catalogue, arranged by church and chest. The full archive can be accessed under *Transactions Extra* on the Woolhope Club website (www.woolhopeclub.org.uk). From time to time, tables too extensive to publish here, but available in that online archive, are referenced in the paper, always in the format 'Table R1', 'Table R2' and so on. This applies for example to comprehensive listings of every church chest identified, by type, church, and location, with dating and research details, information that will be of interest not only to specialists but also to those curious about church chests in their local parish, whether those chests are extant or missing.

## TYPES OF CHURCH CHEST

Chests were a ubiquitous part of medieval furniture throughout Britain and Europe, with those in churches being used to store church plate, vestments, sacraments, and registers, to collect alms for the poor or to help fund crusades.[1] They were constructed to keep their contents dry and secure from thieves and vermin, so were generally large, heavy, and difficult to break into. Wealthy households also used church chests as safe depositories for their valuables, believing that the sanctity of the church would provide protection against theft.[2]

There are four main types of chest: *dug-out chests*, made from the hollowed-out trunk of a tree; *boarded chests*, made from five large boards nailed together with a sixth hinged to form a lid; *clamped chests*, whose front and back each comprise a large board (or boards) clamped between two stiles (usually wide upright boards); and *panelled chests*, which comprise unglued panels set within frames to prevent shrinkage cracks.[3] Boarded chests are further sub-divided into those with sides that extend to form legs (boarded-hutch type), and those without extended sides (boarded-box type)—see Figure 1.[4] Lids on boarded and dug-out chests can either be flat or domed. This typology has been established by various scholars, though Morgan referred to

boarded chests as 'plank' chests and panelled chests as 'framed' chests.[5] Uniquely, Morgan sub-divided framed chests into those with feet (hutch chests) and those without (box chests). He did not include clamped chests as a separate chest type.

Early studies assumed that the four main types of chests evolved in sequence. It was believed that relatively little skill was required to make dug-out chests and that the dug-out was therefore the earliest style, persisting only in rural areas where tools and technologies remained primitive, until around the 17th century.[6] It was also considered that once the tools and technologies developed to saw planks in the 13th century, dug-outs gave way to boarded and clamped chests in churches.[7] This paper challenges these beliefs, showing that dug-outs were still made as a matter of choice until the 17th century. Panelled chests were widely produced from the 16th century to overcome shrinkage splits in other styles and were still being made in the 19th century.[8]

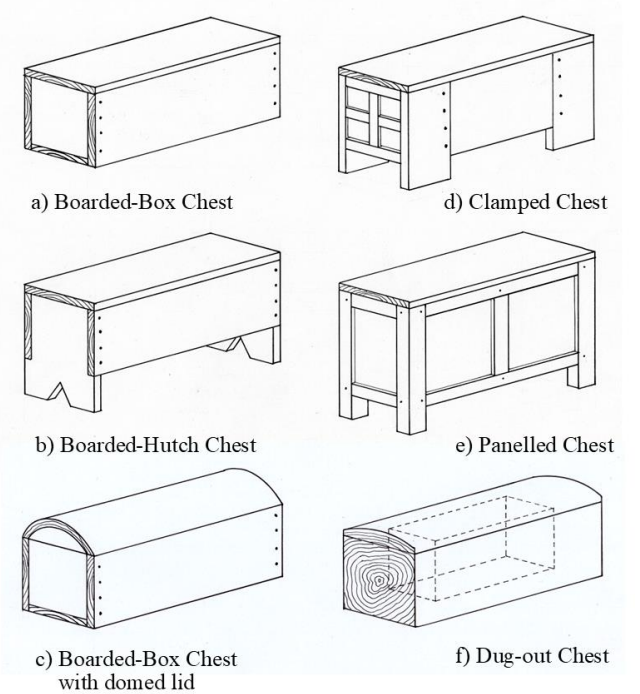



Figure 1. Types of church chest found in Herefordshire. (Sycamore 2023)

## THE DEVELOPING USE OF CHURCH CHESTS

Chests were among furnishings required for churches in *c.*1000, well before the Norman Conquest.[9] Following the Conquest (certainly from the mid-12th century), various edicts were issued which affected the form, function, significance, and even physical position of chests within the church. In 1166, King Henry II ordered money trunks to be placed in all parish churches to receive offerings for the relief of the Holy Land, with similar orders being made by Pope Innocent III, in 1199 and 1200, and in 1206 under King John.[10] These edicts specifically instructed that chests should be strongly constructed, dug out from a solid tree trunk, reinforced with ironwork, and have three locks with three keys and a money slot.[11] The Synod of Exeter in 1287 formalised the role of churchwarden and forbade the use of trunks for alms, instructing that existing money slots be covered and the chests used solely for storing books and vestments; it was around this time that boarded chests and clamped chests appeared in churches.[12] The use of chests for storing books and vestments was reinforced in 1289 by Bishop Gilbert of Chichester, but in 1308 Pope Clement V issued injunctions for chests to collect alms once more, so the money slot was uncovered in those chests already made.[13]

By the 13th century, the emergence of chantries with side altars, where intercessions

could be offered for the benefactor's soul, required chests to store candles, vestments, and salaries bequeathed to the church.[14] These tended to be boarded or clamped chests.[15]

The first panelled chests appeared at the end of the 15th century.[16] During the English Reformation in the 16th century many church chests and their contents were claimed by the crown or taken into noble households. Others were sold or burnt, but those chests which survived lost their importance and many were adapted for the provision of a 'poor man's box', with three locks and keys, in accordance with injunctions issued throughout the 16th century.[17]

## PREVIOUS STUDY

During the late 19th and early 20th centuries, academic interest in church antiquity peaked, with various authors writing about medieval church chests.[18] However, these studies were approached from an art-historical perspective, rather than an archaeological one, with only a handful of chests included from churches in Herefordshire. The first county-wide study of church chests, carried out in Essex in 1913, comprised an inventory with pen sketches of chests in the county, along with detailed references to historical documents relating to their function and a list of edicts issued by popes or kings for the construction of chests.[19] Also, in the early 1900s, Fred Roe included descriptions and detailed sketches of various church chests in his four publications.[20]

After the Second World War, F. C. Morgan made an inventory of church chests in Herefordshire, including a brief history of the evolution of chests and a three-type classification, with monochrome photographs of selected examples.[21] His album of photographs now resides in the Woolhope Club Library. Although an invaluable record of church chests across the county, the records do not follow a systematic approach and dating was carried out on a purely stylistic basis. Although Morgan did not cite any references for his dating methods, one can assume that they were based on those made by The Royal Commission on the Historical Monuments of England (henceforth RCHME), some twenty years previously.[22]

In 1977 Penelope Eames published an important and lengthy study of furniture in England, France, and the Netherlands from the 12th to 15th centuries, including a chapter dedicated to chests.[23] Eames listed many charters, wills, and medieval documents which reference chests and their function, in addition to mentioning the medieval boarded chest in St James the Great, Cradley, Herefordshire. In 1979, Victor Chinnery included a discussion about chest types and construction of dug-out chests as part of his comprehensive study of oak furniture in Britain.[24] In 1946, in his book about parish records, W. E. Tate discussed 'The chest itself', describing the range of ecclesiastical and parish documents and registers stored in the parish chest by the orders of various edicts and injunctions during the medieval period.[25] The Victoria and Albert Museum published details of their collection of chests in 1988.[26] A more recent and thorough county study of church chests in Suffolk was made in 2008, which coincided with a re-emerging interest in extant church treasures.[27] The most recent and extensive studies of church chests have been carried out in Sussex, Oxford and Kent by the late Professor Christopher Pickvance, who produced systematic comparative analyses of medieval clamped, boarded chests, including those with domed lids.[28] Pickvance employed dendrochronology to obtain more accurate dates for many medieval chests, calling for further type-specific, systematic studies in other counties.

There are few systematic studies of medieval ironwork in England. Professor Jane Geddes compared styles of ironwork found on church doors with fittings found on church chests to make stylistic date estimates for each.[29] She also discussed examples of dendrochronologically dated chests and included a catalogue of decorative ironwork in England from 1050-1500, with

examples of ironwork on chests in Herefordshire. More recently, Ian Goodall's monograph comprised an archaeological survey of iron tools and fittings from *c*.1066 to 1540.[30] Containing line drawings, information, and dates of artefacts from a range of excavations, it forms an invaluable resource for understanding of medieval ironwork in Britain.

Between the 1970s and 1990s, an extensive and unpublished collection of notes and sketches of church chests in several counties, including Herefordshire, was made by Harold Aston.[31] Now held in the City Museum of Worcester Archives, this collection provides an exceptionally useful starting point for determining which churches contain medieval chests and which of the four types to expect. Aston made notes about the construction of each chest, its timber species, repairs, or later additions, along with notes on the function of church chests and the edicts which led to their commission.

In the early 20th century, the RCHME recorded many chests in churches throughout England.[32] The entries for chests in inventories are brief, and some include monochrome plates, though it is not apparent on what basis date estimates were made. The current research found that the RCHME had recorded some chests incorrectly. Church chests are occasionally mentioned in Pevsner's original 1963 volume covering Herefordshire, and in the updated Brooks and Pevsner version of 2012, but they are often overlooked.[33].

The first dendrochronological dating of chests was carried out in 1948 (published in 1957).[34] It was not until 1974 that Jenning published results for early examples of chests housed in The Public Records Office in London.[35] This was followed in 1984 by Fletcher and Tapper's dendrochronological testing of a selection of church chests around England.[36] Bridge, Miles, Worthington, and Groves have undertaken similar work, and in 2011 Bridge and Miles published a review of the information gained from dendrochronological testing in Britain to date.[37] As part of the current research, seven dug-out chests were dendrochronologically tested in Herefordshire and Worcestershire, with five samples returning dates (discussed later).[38] Recently, as part of conservation work, a dug-out chest was also dated in Gloucestershire.[39]

## CHURCH CHEST SURVEY IN HEREFORDSHIRE: METHODS

Initially research was carried out to develop a gazetteer of church chests extant throughout Herefordshire. This entailed establishing which churches contained chests, which of the four types they contained, and how many survived of each type. To achieve this, many of the churches were visited, whilst sources consulted included documents at the Herefordshire Archive and Records Centre (HARC), academic books and journals, online databases, and studies by previous scholars, such as F. C. Morgan and Harold Aston.

The research then focused on a detailed and systematic study of the dug-out type of chest in the county. Pro-forma sheets were developed to record the physical characteristics of each chest, such as dimensions, timber species, construction methods, decoration, and ironwork, in addition to features arising from repair or change of use. Visual attributes of chests were recorded through photographs and some measured drawings. Photographs were taken in raw data format, using a daylight lamp and reflective white boards. Databases were established to include any previous studies, and edicts which might relate to a chest's construction. A study was made of churchwardens' accounts, inventories, wills, journals, archives, and other records relating to the function of chests in medieval society, and of comparative studies of church chests. Dates were estimated on stylistic grounds—based on a chest's physical characteristics, ironwork, construction methods, and saw marks—and also by considering contemporary edicts issued by kings or popes for the provision of chests in parish churches throughout the medieval period.

The dendrochronological testing, that returned five date ranges from seven chests tested in Herefordshire and Worcestershire, was made possible through kind funding from the Regional Furniture Society. Its purpose within the research programme was to confirm or contradict theories for stylistic dates. The selection of chests for testing was based on suitability, whether permissions had been gained, and whether the chest had already been dated on stylistic grounds.

## CHURCH CHEST SURVEY IN HEREFORDSHIRE: RESULTS

In 1947, Morgan photographed ninety church chests in Herefordshire, with notes of twelve others, including one iron chest—a total of 102 chests. The number he recorded by type has been corrected during the current research, giving totals of fifty-three boarded chests—box and hutch types combined—not fifty-four; and thirty-four panelled chests, not thirty-three. In fact, as noted above, Morgan called boarded chests 'plank chests' and panelled chests 'framed chests', but current terminology is used here to prevent confusion. Detailed changes to reach these totals comprise elimination of duplicate records of the chests at Holmer and Leintwardine as both boarded-box and boarded-hutch chests (the latter is right); reclassification of the chests at Hampton Bishop and Craswall (boarded-box and boarded-hutch chests respectively, not *vice-versa*); and clarity about chests at Burghill and Peterchurch, which are missing from Morgan's summary, yet appear in his inventory. Morgan's original total for boarded-hutch chests included four, at Avenbury, Burrington, Hereford Cathedral III, and All Saints, Hereford; these are now classified as clamped chests, a categorisation he did not use.

Morgan recorded fourteen dug-out chests in Herefordshire, categorising the dug-out chest at Dulas as a boarded-box chest (as the RCHME had also recorded it) with later feet.[40] In 2022, the chest at Dulas was correctly recorded as a dug-out by the author, providing a new total of fifteen dug-out chests in the county, contained in fourteen churches.[41]

Table 1 summarises church chests in Herefordshire by type, as identified by the survey. 'Total recorded in 2023' means all chests made from timber reliably recorded in churches in Herefordshire, as identified by Morgan, the author, and other scholars. This gives a new total of 142 recorded church chests in the county, including thirteen recorded for the first time. However, twenty-four are now missing, leaving a total of 118 extant today.

**Table 1. Survey Summary: Church Chests in Herefordshire by Type (Sycamore, 2023)**

| Chest Type | Recorded by Morgan, 1947 | Total Recorded in 2023 | No. Lost from Total Recorded | Total Extant in 2023 |
|---|---|---|---|---|
| Boarded Box | 23 | 33 | 9 | 24 |
| Boarded Hutch | 30 | 32 | 6 | 26 |
| Panelled | 34 | 54 | 6 | 48 |
| Clamped | 0 | 6 | 1 | 5 |
| Dug-out | 14 | 17 | 2 | 15 |
| **TOTALS** | **101** | **142** | **24** | **118** |

Table 1 shows that the panelled chest is the most common type in Herefordshire, followed by boarded-box and boarded-hutch chests. Clamped chests are rare whilst the county's dug-out chests are the subject of new archaeological assessment below. Comprehensive information by type of chest, covering each chest recorded, its location, date, and whether it is extant or lost, is

available in Tables R3 to R6 of the online archive.

Table R2 of that archive provides full details of the twenty-four missing chests. Of these, the fifteen chests recorded by Morgan, but now missing, comprise the following: panelled chests at Abbey Dore, Eastnor, Evesbatch, and Turnastone, the latter stolen in the mid-2000s; boarded-box chests at Abbey Dore, Eastnor, Eye, Llancillo, Ross-on-Wye, and Walford; boarded-hutch chests at Ledbury, Little Hereford, Stanford Bishop, and Yarkhill; and the fine example of a clamped chest once present at Avenbury.[42] The latter has been sold abroad and the church is now in ruins.[43]

The nine missing chests, previously recorded by scholars other than Morgan, include panelled chests at Lea and Ross-on-Wye; boarded-box chests at Eastnor, Edwyn Ralph, and Leysters; and boarded-hutch chests at Edvin Loach and Whitbourne. Two dug-out chests missing from Stanford Bishop and Tedstone Delamere are unlikely ever to be located as they were last recorded extant in 1898.[44] Other chests have been moved over the years: the boarded-hutch chests at Canon Frome and Longtown were moved to Munsley and Clodock respectively, and the chest at Lucton to Yarpole when the church at Lucton was closed.

Morgan listed 101 wooden chests in 1947, so that the current study has identified a further thirty-nine recorded in Herefordshire's churches, though not all are extant. The thirteen chests now recorded for the first time are listed in Table 2 below.

**Table 2: Church Chests in Herefordshire Recorded for the First Time in Current Research (Sycamore, 2023)**

| Type | Location / Chest Name if Applicable | Est. Date |
|---|---|---|
| Boarded-box | St John the Baptist, King's Caple | 17th C. |
| | St Mary the Virgin, Ross-on-Wye, III | 18th C. |
| Boarded-hutch | Leominster Priory, Leominster, III | 15th-16th C. |
| Panelled | St Mary the Virgin, Burghill | 19th-20th C. |
| | St Peter, Dormington | 17th C. |
| | St Mary, Kenderchurch | 17th C. |
| | St Michael & All Angels, Ledbury, VI | 17th C. |
| | St Mary the Virgin, Pembridge, III | 18th C. |
| | St Mary, Sarnesfield, II, III and IV | All 17th C |
| Clamped | St Mary the Virgin, Eardisland, I and II | 18th C. |

Further information about the four main types of church chests found in Herefordshire is provided below, together with case studies detailing a notable example of each.

## BOARDED CHESTS—BOX TYPE

This type of chest is made from five boards nailed together to form a box with no feet. A sixth board is hinged to form a lid. The bottom board, or boards, either extend below the sides or are clamped between them. In the case of the latter method, the nails used to secure the bottom are usually a feature. Many boarded-box chests have suffered decay and rot underneath through sitting directly on a damp floor for a long time. Those raised up on beams have fared better. Boarded chests first appeared in the late 12th century and continued being made into the 18th century.[45]

**St. James the Great, Cradley**

The finest, and possibly the earliest, boarded-box chest in Herefordshire can be found at St James the Great, Cradley (Plate 6.1).

The chest is constructed from six oak boards, being 2745mm long (just over 9ft), 470mm (1ft 6½in.) deep and 505mm (1ft 8in.) high. The lid has been divided into two with saw marks and adze marks visible on the underside of each lid. The interior has been divided approximately in half by a thick piece of oak, with a further small section created on the left by the addition of an oak partition (Plate 6.2). Eleven straps on the front (one is missing) extend under the chest to reinforce the bottom board. Four similar straps extend around the end boards, each terminating in 'bi-foliated' or 'split-curl' terminals.[46] There are eight straps on each lid (two are broken off), two are bi-foliated and two terminate in fleurs-de-lis with stamped collars (Plate 6.3). Five loop-hinges secure the lid (two on the left lid; three on the right), plus four pin-hinges which extend to straps across the lid. Indentations in the edge of the lid above each lock plate show where hasps would have originally been hinged. There is evidence for a total of eleven locks, five on the lid and six on the front, but only eight are visible from the outside of the chest. On the lid two round plates with upturned scrolls swivel to cover a keyhole, one being covered over with a diamond-shaped escutcheon plate for a lock beneath the lid. There is a small iron ring on each section of lid, near to the front edge, which would have enabled the lid to be secured when open.

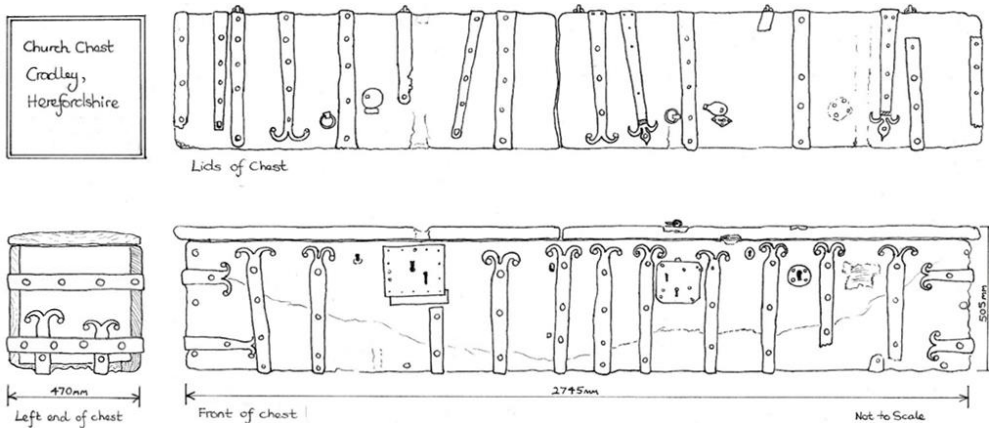



Figure 2. Plan drawing of Cradley chest (Sycamore, 2019)

Penelope Eames noted that the straps on the Cradley chest were similar to those on a chest at Merton College, Oxford (*c.*1280-1300), but argued that, because the locks were not original, it was difficult to date the chest stylistically.[47] Similar straps can also be seen on the Richard de Bury Chest (*c.*1334-1345) in the Burrell Collection, Glasgow.[48] Stylistic characteristics thus point to the Cradley chest dating from 1280-1345, with repairs and additional ironwork added later in the medieval period and more recently. The chest may have been made in response to the edict issued by the Synod of Exeter in 1287, which ordered chests to be placed in every parish church, with separate compartments for church plate, books, and vestments.[49] Given the quality of ironwork and its size, the Cradley chest would have been of great importance and have accommodated valuable accoutrements.

## BOARDED CHEST—HUTCH TYPE

The sides of boarded chests extend to the ground to form legs in the hutch type, often having a cut-out at the bottom to form feet.

### St John the Baptist, Mathon

The chest at Mathon is a boarded-hutch chest as the end boards extend below the chest and are cut to form feet. It is 1640mm (5ft 4½in.) long, 480mm (1ft 7in.) deep and 655mm (2ft 2in.) high, constructed from six oak boards of substantial thickness, and reinforced with generous ironwork (Plate 6.4).

On each lid there are two strap-hinges with fleur-de-lis terminals. Each lid is decorated with a cross, having three arms terminating in a fleur-de-lis and one arm extending into a pin-hinged hasp with penny-end and scroll (Plate 6.5). These hasps line up with the second and third lock plates on the front of the chest. The cross of the left lid has been sawn through when the lid was divided, allowing a small section of the cross to be lost. There is a further hasp which extends from beneath the lid to the first lock plate on the front of the chest. This hasp is different in design from the other two and was probably added later. There are two straps on either end, each terminating in a fleur-de-lis on the chest's front. On the left end of the chest two pin-hinged hasps with small scrolls meet two rectangular lock plates, the left being a large rectangular plate with a raised vertical bar in the centre; the plate is secured with round-headed bolts, indicating that it is a modern addition. The right lock plate is plain with a standard-shaped keyhole.

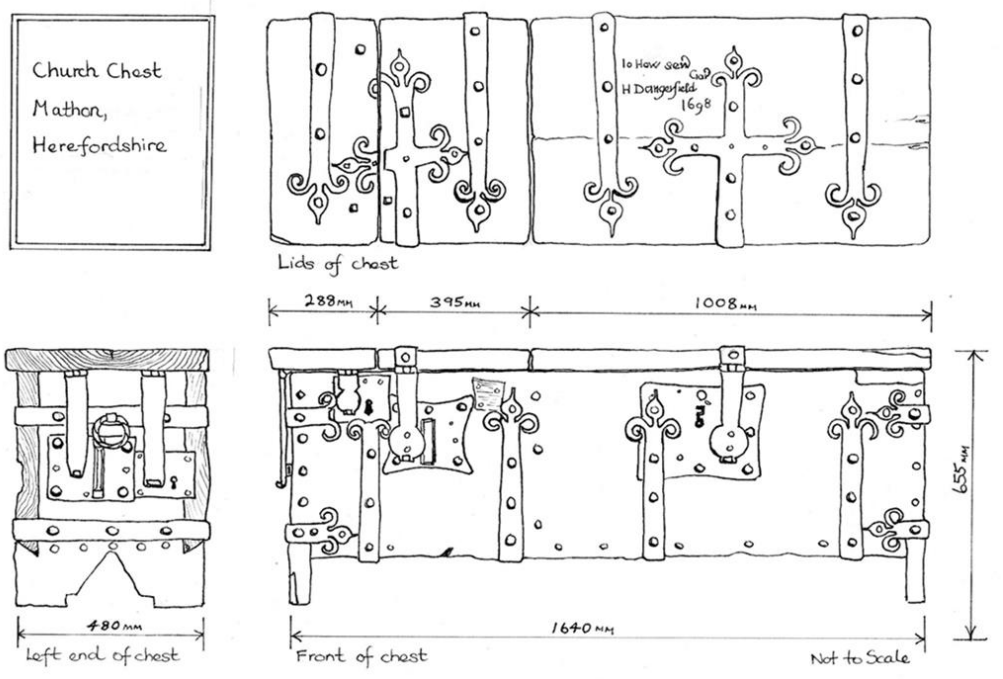



Figure 3. Plan drawing of Mathon chest (Sycamore, 2019)

There are three lock plates on the front of the chest: the first is plain with a pin located at the top

of the keyhole; the second has pronounced concave edges and a pin-hinged flap covering the keyhole, which fits into a raised key guard. The third lock plate has slightly concave sides and is overlapped by the fleur-de-lis terminal of the fourth perpendicular strap; the keyhole is upside down, requiring the key to be entered upside down. A single twisted or 'rope' ring is attached at each end of the chest, which would have facilitated moving the chest over short distances. On the right-hand lid there is a carved inscription 'Io How sen Gar H Dangerfield 1698' (Plate 6.6). 'Sen' means senior, or 'the elder' in English whilst 'gar' is the abbreviation for '*gardiani*', Latin for '[church]wardens'.[50] The Dangerfields were an extensive local family at that time.[51] Sherlock pointed out that many churchwardens inscribed their names on chests, so that inscriptions should not be relied upon for the chest's construction date.[52] Morgan believed that the Mathon chest's lid was divided into three parts—one for alms, one for church plate, and one for vestments and registers—to comply with the 1536 edict, requiring a 'Poor Man's Chest for alms to be provided and placed near the altar', with three locks; one for the priest and two in the custody of churchwardens.[53] This suggests that many existing chests in churches were adapted to comply with new edicts, and supports Morgan's theory that the construction of the chest at Mathon was 'undoubtedly earlier' than the '1698' stamp on the lid.[54]

Locks with applied vertical strips are estimated to date from 1450-1700,[55] and concave-sided lock plates from 1300-1550.[56] On the front of the chest there are several near-vertical saw marks, which indicate that the boards were pit-sawn, a method used to convert boards after *c*.1540-42 in Herefordshire (as discussed later).[57] Given that there was often a slight delay in response to edicts, this date estimate concurs with Morgan's theory that the chest was constructed in response to the edict of 1536.

## PANELLED CHEST

Panelled chests first appeared in the late 15th century and were made widely during the 16th and 17th centuries to overcome the problem of shrinkage-splits occurring in other styles.[58] Typically, panelled chests have between three and four panels on their front and lid, and single-panelled ends, though some have two. Many have carved stiles and rails, in addition to carved panels, which sit unglued in the frames to allow free movement. This chest type is the least secure and tended to have just one central lock. Many were secular chests donated to the church.

### Holy Trinity, Bosbury

The panelled chest at Bosbury is made of oak and measures 1313mm (4ft 3in.) long, 515mm (1ft 8¼in.) deep and 640mm (2ft 1¼in.) high. It has four plain panels on the lid, three carved panels on the front, and plain, panelled ends. The stiles and rails are scratch-moulded and bevelled on the inside edges around the panels (Plate 6.7). The three front panels are carved, the central panel having a Romanesque arched design and the two outer panels having a quatrefoil design. The front top cross-rail is carved with a row of medallion roundels. There is one central box lock behind the front carved rail, with only the keyhole escutcheon visible. According to A. J. Conybeare, the quatrefoil guilloche motif on the two outer panels was popular in the West Country during the 17th century.[59]

## CLAMPED CHEST

Clamped chests have their fronts and backs, comprising one or more boards, clamped between two wide stiles (uprights).[60] Studies carried out in the last ten years by the late Christopher Pickvance have furthered our understanding of clamped chests and led to the introduction of a

separate category for them, one not used in Morgan's inventory. We now know that they appeared around 1200 in England, persisting until the 17th century in some rural areas.[61]

**All Saints, Hereford**

The clamped chest at All Saints, Hereford, is made of oak and is 2145mm (just over 7ft) long, 720mm (2ft 4¼in.) deep and 895mm (2ft 11¼in.) high. It has an elaborately carved front, with Gothic arcading and medallions carved on the front boards, and quatrefoil rosettes on each stile. At the base of each stile there are what appear to be sheaves of corn, though Morgan believed they were monsters (Plate 6.8).[62] The underside of the lid shows evidence of restoration and re-use of timber, as the central board appears trestle-sawn, whilst the surrounding timber is more recent; there are also holes from previous hinges and strengthening battens (Plate 6.9). The rectangular lock plate in the centre of the front is a replacement, as shown by the scars of a previous lock and keyhole behind. The ends are made up of three panels with corner straps. A piece of timber has been added to the rear left-hand end to reinforce it. On the right side of the interior there is a candle box.

In 1894, J. Hart compared the chest at All Saints, Hereford, with a 15th-century chest at Brailes Church in Warwickshire; it has similar tracery carving but Hart believed the Hereford chest to have been made earlier, in the 14th century.[63] Brooks & Pevsner mentioned the chest as 14th century.[64] Pickvance allocated the clamped chest to the period 1200 to 1500 in England.[65] Morgan agreed with a 14th-century date and suggested that, being of light construction, it was probably used 'for the storage of books and manuscripts and not for treasure.'[66]

**DUG-OUT CHEST**

The dug-out church chest, or '*monoxylon*', is constructed from a solid tree trunk, by first sawing off a board for the lid and then hollowing out the body with an axe and adze.[67] In Britain the earliest written description of making one is found in Reginald's account of the translation of St Cuthbert's Relics in 1104, where sacred relics of saints, hidden from invading Danes, were placed in 'wooden receptacles hewn out for the purpose'.[68] The dug-out has been seen as a simple but laborious solution 'where wood is plentiful and labour cheap' and therefore carried out by 'primitive societies'.[69] Early scholars also believed the dug-out to be the oldest and simplest type of chest.[70] The evidence of this research contradicts these beliefs (as discussed later).

Extant dug-out church chests in Herefordshire are listed in Table 3 below. The majority can be found in rural areas, in the south of the county, and at low altitude on the edge of the Black Mountains. Footprints (length x depth) vary considerably, the largest being at Fownhope and the smallest at Whitbourne. Thirteen of the fifteen dug-out chests in Herefordshire churches are made from oak; those at Foy and St Weonards from elm.

**Table 3. Dug-Out Chests in Herefordshire with Footprints in $m^2$ (Sycamore 2021)**

| Chest | Footprint | Chest | Footprint | Chest | Footprint |
|---|---|---|---|---|---|
| Fownhope | 2.03 | Orleton II | 1.03 | Orleton I | 0.67 |
| St Weonards | 1.58 | Munsley | 1.01 | Pudleston | 0.67 |
| Garway | 1.44 | Foy | 0.82 | Dulas | 0.66 |
| Kingstone | 1.27 | Clodock | 0.78 | Mordiford | 0.62 |
| Lea | 1.11 | Llancillo | 0.70 | Whitbourne | 0.54 |

**St George's, Orleton, Chest II**

This substantial oak chest is 1910mm (6ft 3¼in.) long, 540mm (1ft 9¼in.) deep and 570mm (1ft 10½in.) high (Plate 6.10). The lid is tapered, being thinner at the back than the front, suggesting it was cut using the riving method, where the timber is split into boards along the grain using a riving iron, mallet, and wedges (Plate 6.11).[71] The lid is also slightly domed, though this is possibly down to movement of the timber rather than design. On the top of the lid is carved a square motif with a cross in the centre; this is likely to be an apotropaic protection mark.[72] Axe and adze marks are visible on the underside of the lid, which opens to one large cavity. On the underside of the left end the timber has been cut away to form an angled ridge, which may have been created so that the chest could sit against a step or other protrusion in the church.

A wide strap extends across the front edge of the lid and part way around each end. Two pin-hinged hasps pass behind this front strap and terminate in single leaves on the lid. Three hinges secure the lid, each having bifurcated, or split-curl terminals. There are three vertical straps on the front of the chest with similar terminals, though these have had an additional heraldic fleur-de-lis inserted between each terminal. All the ironwork is secured with hand-forged, round nails.[73] Near the centre of the lid there is a large keyhole which corresponds to the scar of a lock beneath the lid and large staple. There are also two staples for padlocks on the front. The ironwork around the lid, the two hasps, the heraldic fleurs-de-lis, and the round-headed nails used to secure them are of a similar colour and texture, though different to the other ironwork, suggesting they were added at a later date than the split-curl straps (Plate 6.12).

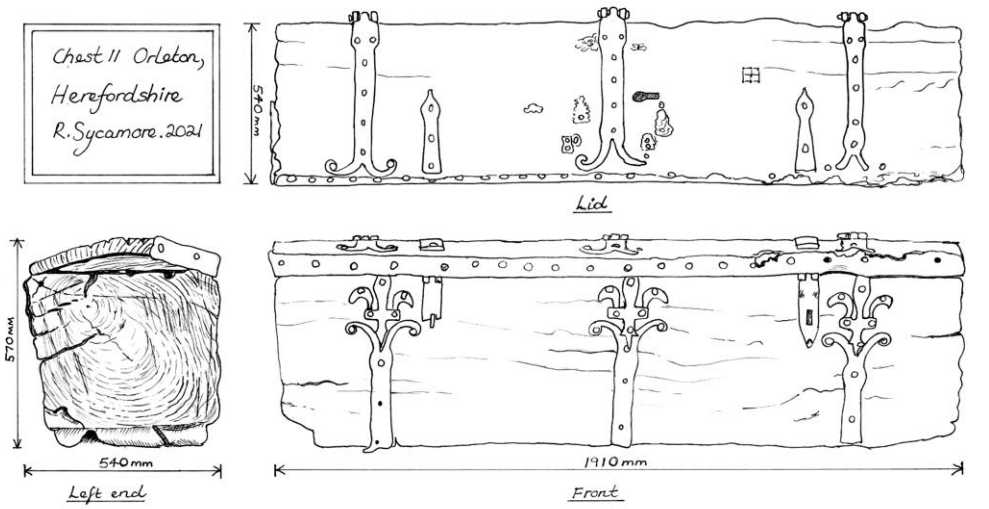



Figure 4. Plan drawing of Orleton Chest II (Sycamore, 2021)

Previously, date estimates have been made for Chest II based on physical and stylistic characteristics. Morgan estimated this chest to date from the 13th century, as did the RCHME, but with 'later straps'.[74] Roe referred to a 'gouged-log' chest at Orleton, 'which can be more definitely dated, [by] the character of its iron strap mounts showing that it belongs to the thirteenth or early fourteenth century', though he did not state which of the two chests at Orleton he was discussing.[75] Geddes estimated that the chest and split-curl straps dated from the 12th

century, adding that the compact, heraldic fleur-de-lis terminals were probably added *c.*1275-1300.[76] However, dendrochronology, carried out in 2020 as part of the author's MRes research, dated a 112-year ring series to span 1225-1336, with a likely felling and conversion date of between 1347-1377 for the chest, placing its construction in the 14th century.[77]

## DATING CHURCH CHESTS

There are five sources of evidence to consider when making date estimates for church chests; each has advantages, disadvantages, and limitations, as summarised below.

***Dendrochronological dating*** is a reliable and scientific method where it is suitable. Testing relies on counting and measuring growth rings extracted from quarter-sawn oak (sawn perpendicular to the growth rings) with a minimum of fifty growth rings, for comparison with a collection of tree-ring samples of known date from the same region. Dug-out chests are generally good candidates, having radial growth rings exposed on the ends of their base, though quarter-sawn boards and lids can also be tested. Straight-sawn timber (sawn parallel to the growth rings) and chests with damage or woodworm are not suitable.[78] Elm is harder to date due to erratic growth patterns, less visible rings, and being the most genetically diverse native hardwood.[79]

In yielding five dates, the dendrochronological testing of seven church chests in Herefordshire and Worcestershire, carried out within the research programme, almost doubled the number of dug-out chests dated in this way in England (items 7 to 11 in Table 4).[80] The twelve studies recorded in Table 4 demonstrate that the dug-out method of construction was in use from the mid-13th century through to the mid-17th century. In Herefordshire, the oldest dug-out church chest for which a result was achieved (at Kingstone) was shown to date from 1243-73 (Plate 6.13). Tests on the chest at Lea and Orleton I yielded no results but for Orleton II and Munsley I (Plate 6.14) dates were returned of 1347-77 and 1354-88 respectively.[81] In Worcestershire, testing returned a date of 1435-65 for the dug-out chest at Feckenham and 1519-49 for the one at Lindridge.[82] Subsequently, testing dated the dug-out chest at Hartpury, Gloucestershire to 1254-86.[83]

**Table 4. Dug-out Church Chests Dated by Dendrochronology in England (Sycamore, 2023)**

| No. | Church and Place | Felling Date | Reference |
|---|---|---|---|
| 1 | St Mary, Kempley, Gloucs. | 1492-1522 | Miles/Worthington/Groves, 1999 |
| 2 | St Mary & St Margaret, Castle Bromwich | 1500-1530 | Miles and Worthington, 2000 |
| 3 | St Michael, Betchworth, Surrey | 1505-1537 | Moir, 2006 |
| 4 | St John the Baptist, Wolverley, Worcs. | *c.* 1600 | Bridge and Miles, 2011 |
| 5 | Chest I, St Cuthbert, Kirkby in Furness | 1610-1645 | Arnold and Howard, 2016 |
| 6 | Chest II, St. Cuthbert, Kirkby in Furness | 1610-1645 | Arnold and Howard, 2016 |
| 7 | St Michael & All Angels, Kingstone, Herefs. | 1243-1273 | Moir, 2021 |
| 8 | St George, Orleton (Chest II), Herefs. | 1347-1377 | Moir, 2021 |
| 9 | St Bartholomew, Munsley, Herefs. | 1354-1388 | Moir, 2021 |
| 10 | St John the Baptist, Feckenham, Worcs. | 1435-1465 | Moir, 2021 |
| 11 | St Lawrence, Lindridge, Worcs. | 1519-1549 | Moir, 2021 |
| 12 | St Mary the Virgin, Hartpury, Gloucs. | 1254-1286 | Moir, 2022 |

***Stylistic and physical characteristics*** can assist in making date estimates for chests in the absence of dendrochronology. Since the 19th century, various authors have estimated dates for chests based on changing styles throughout history, influenced by architecture, secular furniture, or ironwork.[84] Straps, hinges, and locks on church chests can be compared to those on church doors, although dating a chest based on ironwork styles alone can be misleading, given that medieval blacksmiths tended to continue the same designs for centuries.[85] Modern-day conservation blacksmiths also make reproductions of previous styles.

***Edicts*** show that orders were given by kings and popes for chests to be constructed for certain purposes, but it is difficult to equate a specific edict to a specific chest, as the delay in constructing chests in response to edicts must also be considered (a complete list of relevant edicts is included in the online archive).[86]

***Wills, parish records and manuscripts*** usually refer to a chest's contents, but seldom provide a description of the chest itself. Medieval manuscripts located in the British Library, the National Archives, and the Bodleian Library occasionally illustrate boarded and clamped chests.[87] In Herefordshire, the church chest at Pudleston is mentioned in a parish record of 1881.[88]

***Construction methods of a chest*** and how the lids are attached can also assist in determining date estimates. Extant saw marks on the surface of some chests can be analysed to determine whether the timber has been single trestle-sawn, or pit-sawn, and this can aid in estimating a chest's construction (discussed below). Examining similarities between a way the lid is attached may also be revealing; the more chests are recorded and analysed, the greater our certainty of emerging patterns. Considering the size of a chest's cavity may also point to a chest's use, and this can sometimes be matched to a particular edict issued for a specific use. Prior to Norman edicts calling for the collection of alms and storage of vestments and books, chests were used to store coins and plate; therefore, the cavities tended to be relatively small in comparison to the size of the chest, as their main purpose was security.[89]

## TOOLS AND TECHNIQUES EMPLOYED IN CONSTRUCTING CHURCH CHESTS

During the 12th to 14th centuries, chests would have been constructed through a collaboration between the parish woodworker and the blacksmith.[90] The term 'woodworker' covered carpenters, joiners, sawyers, makers of furniture, and carvers.[91] The blacksmith was primarily responsible for embellishment on the chest through ironwork before elaborate carving and mouldings were introduced as decoration.[92] The 13th to mid-14th centuries saw an increase in demand for highly skilled carpenters, as their work became a precision craft.[93] In the 14th century the manufacture of chests became a recognised industry and carpenters' guilds were formed to protect the workers' interests and conditions.[94]

The construction method, size and finish of a church chest would have been affected by the woodworkers' varying skill along with the type and quality of tools available. Regardless of skill, construction would have required a standard set of hand-made tools, which varied little in design between the Roman period and the 19th century.[95] Constructing a medieval church chest—particularly the dug-out type—would have been laborious and time consuming.

Felling a tree was carried out with a *felling axe*, a method which continued throughout the medieval period despite the use of saws becoming more common in later medieval times.[96]

A *broad axe*, or *T-axe*, was then used to trim the edges of timber, as depicted in the Bayeux Tapestry.[97] A *barking iron* was used to strip the bark from the felled trunk before the larger branches were sawn off.[98] A two-handled *cross-cut saw* was used to cut the tree trunk into smaller lengths in a process called 'bucking'.[99] To shape logs into a rectangular baulk, such as a dug-out chest, the trunk was squared off with the side axe, as can be seen from the axe marks on the ends of chests at Mordiford and Orleton (Plate 6.11).[100]

Up until the Industrial Revolution there were two ways to obtain planks to make a boarded chest, or the lid for a dug-out chest: *sawing* or *riving* (also known as cleaving).[101] Riving relied on the timber being straight-grained and relatively knot-free as logs were split into smaller, radial boards using a *beetle* (a type of mallet) and iron wedges.[102] This process is evidenced by slightly tapered planks, such as the lid on Orleton Chest II, which is narrower at the rear.[103] The best method of sawing planks was by quarter-sawing, where the majority of boards are cut radially with annual rings running across their thickness; this produces an attractive figure (a flecked or silvered pattern) on the surface, and little shrinkage or warping, but could be wasteful.[104] Straight-sawn (or tangential-sawn) boards have annual rings running across their width, producing a plainer figure, sometimes resembling 'cathedral arches', though prone to warping. Planks were sawn longitudinally, either using a *frame saw* in conjunction with a single trestle, a *two-handled pit saw* in conjunction with twin trestles, or a *saw pit* dug out from the ground.[105]

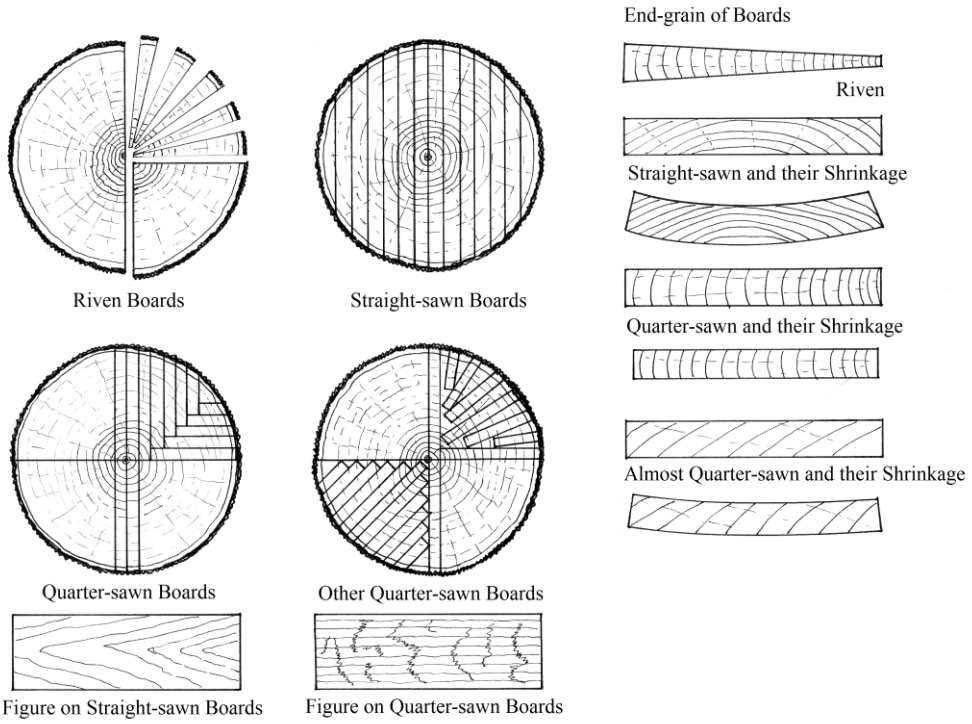



Figure 5. Methods of timber conversion and the boards they produce (R. Sycamore, 2023)

The frame saw consisted of a blade, up to seven feet long, held under tension in a wooden frame

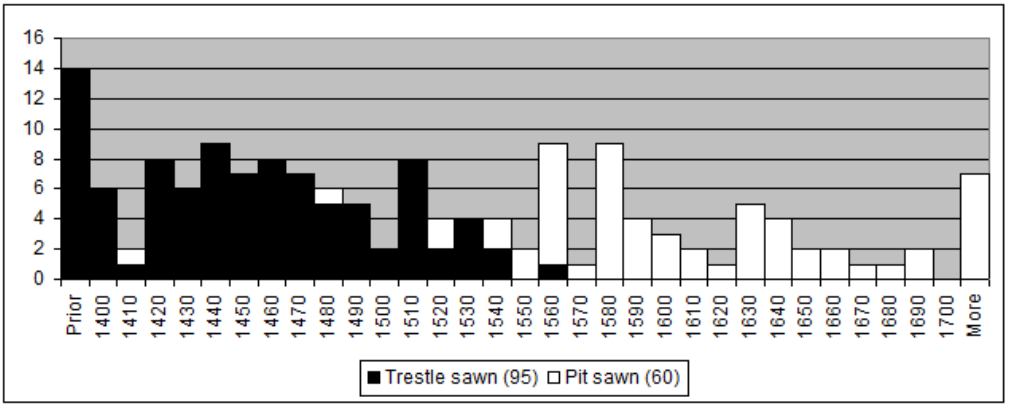
which prevented it from wandering over a long distance. Frame saws were limited by the depth and width of the frame, which restricted its movement side to side up to a girth of about 2ft (61cm).[106] Where timber was cut over a single trestle, one end of the trunk was propped up and sawn using the frame saw to about half way, before being tipped up the other way and sawn from the other end in a 'see-saw' motion. The saw cuts met in the middle and the section snapped off midway, leaving a triangular snap-off mark and typically 45-70° saw marks that change direction on the surface of the wood.[107] A refined method of single-trestle sawing involved revolving the timber 180° about its long axis on the trestle, before tipping the timber and sawing from the other end; the saw marks appear parallel with only a small snap-off mark.[108]

In 2011, Duncan James's study of saw marks found in timber-framed buildings throughout Herefordshire provided evidence that single-trestle see-sawing was the standard method of timber conversion until *c.*1540, when there was:

> …a sudden and apparently complete transition to the use of a vertical or near vertical rip-saw for cutting timber either laid horizontally across a saw pit or possibly raised up on a pair of trestles.[109]

More recently, Tree-ring Services in the Forest of Dean analysed saw marks on 155 tree-ring dated timbers, recorded in various locations around England, and confirmed that this finding is not just confined to Herefordshire. Table 5 demonstrates this clearly.[110]

**Table 5. Histogram of Saw Marks in 155 Tree-ring Dated Buildings Across England**
(Reproduced with permission from Dr Andy Moir)




The transition to pit sawing eliminated the need to manoeuvre heavy timber onto a trestle, as a trunk could be moved horizontally on rollers over a pit and sawn at near vertical by the pit man and top sawyer.[111] The teeth of the pit saw were raked to cut on the downward stroke, pulled by the 'pit man' in the bottom of a pit, with the saw being lifted out and repositioned the other side of the roller by way of a removable handle.[112] Saw marks on timber cut over a saw pit, or on twin trestles, generally run at 80 to 90° across the grain, sometimes with a snap-off mark at one end.[113] When analysing saw marks on chests in Herefordshire, it was found that those on the chest lid at

Foy run at approximately 70° to the front edge and change direction (Plate 6.19). Similarly, saw marks on the chest lid at Lea run at 70° with a change of direction and triangular 'snap off' (Plate 6.16). This points to the lids being sawn on a single trestle, using the see-saw method, with the triangular 'snap off' being removed. Saw marks on the chest lid at Pudleston are 80-90° to the edge, indicating they are likely to be pit-sawn, and thus that the chest was constructed after *c*.1540. These are good examples of how analysing saw marks can now contribute to making date estimates.

## DUG-OUT CHEST CONSTRUCTION AND FURTHER DATING EVIDENCE

The cavity of a dug-out chest would have been laboriously hollowed out with an *adze*—a long-handled axe with a curved blade and a striking plate, so it could be hammered through knots.[114] Once the cavity was roughly hollowed out, a *side axe* and/or *chisels* were used with the *beetle* (mallet), to flatten the sides of the interior cavity.[115] A *draw knife*, consisting of a narrow blade with handle at either end and pulled towards the workman, would have been used to shape the lid of a dug-out.[116]

Analysing how chest lids were attached to a dug-out chest can also be helpful in making date estimates, by ascribing scientific or estimated date ranges to the different methods. Victor Chinnery asserted that the simplest way of dissecting a log for a dug-out chest was firstly to square off the trunk with straight saw cuts, known as 'boxing the heartwood', and set aside the top plank to form the lid.[117] Both the main body of the trunk and the lid were hollowed out, retaining the natural domed shape of the trunk for a bowed lid. Although this method of forming a dug-out is not evident in any of the extant chests in Herefordshire, this research did identify five other methods and the date ranges associated with them.

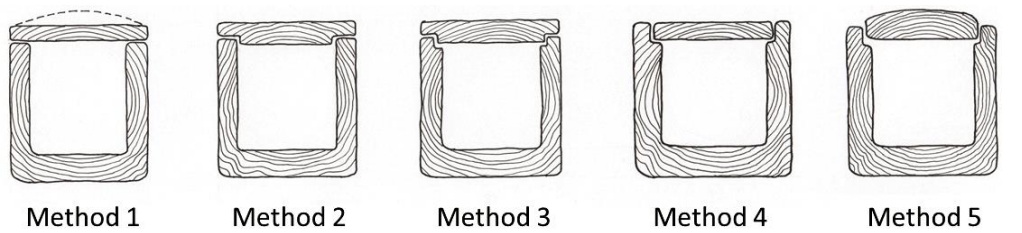



Figure 6. Methods used to attach a lid to dug-out chests in Herefordshire (Sycamore 2023)

Setting the lid into a rebate greatly increased a chest's security. Methods adopting a rebate not only required more time and skill in matching rebates, but also a greater girth of tree, or timber from a different tree, for the lid. Though it is possible to cut a rebate with just a chisel and mallet, using a rebate plane would have been easier and quicker. There is evidence of rebate planes being used to construct church doors from the 12th century, so it follows that they were also used on church chests.[118] With further research, recording and comparing the way in which a dug-out chest's lid is attached may, as patterns emerge, become more helpful in making date estimates.

Table 6 overleaf briefly describes the methods of lid attachment shown in Figure 6, the level of security offered, where examples can be found, and the estimated period when each method was in use. The latter derives from the stylistic features of the relevant chest or chests.

**Table 6. Herefordshire's Dug-out Chests: Lid Types and Date Ranges (Sycamore 2023)**

| Method | Detail of Lid Attachment | Locations | Est. Date |
|---|---|---|---|
| No. 1 | Lid sits directly on top of the chest, not hollowed out; can be flat or domed | Dulas, Fownhope, Orleton II* | 12-14th C. |
| No. 2 | Lid is only rebated to fit into the body; the top edge of body remains flat | Pudleston | 14-16th C. |
| No. 3 | Both the lid and top edge of the chest rebated—harder to prise open than No.2 | Clodock, Mordiford | *c.*14th C. |
| No. 4 | Lid sits flush with top of chest, fits into a rebate in the body—the most secure | Garway, Llancillo Whitbourne | *c.*13th C. |
| No. 5 | Lid is set into a rebate in the chest body but protrudes above it—flat or domed | Foy, Kingstone*, Lea, Munsley*, Orleton I, St Weonards | 12-15th C. |

Chests marked * in the table above have now been scientifically dated by tree-ring testing.

## DATING AND IRONWORK ON CHURCH CHESTS

Once the carpenter had constructed the chest it was probably moved to the blacksmith's forge where the ironwork was added: straps were nailed on, hinges attached to the lid, and hasp-straps were fitted, either for locks with keys or padlocks.[119] During the medieval period, the Forest of Dean and the Midlands were two of the most important areas producing iron ore.[120] The ore would have been smelted to remove impurities and sold to the blacksmiths in *blooms*, which were forged on an anvil using specialist tongs to produce ironwork for chests.[121] Between the 12th and 14th centuries it was the blacksmith rather than the carpenter who provided the decoration on chests.[122] After the 14th century, woodwork on chests became increasingly ornamented, with elaborate carving and moulding carried out by the carpenters.[123]

Early scholars believed that plain and rough ironwork indicated an earlier date than ironwork of a finer construction, but archaeology has revealed that around 1350 the introduction of water-powered bellows and hammers enabled smiths to produce larger blooms, facilitating a more generous application of ironwork.[124] In the 12th and 13th centuries ironwork on doors was used economically, restricted by the size of blooms and cost of the raw material.[125] Further developments were made in England in the late 15th century with the introduction of blast furnaces, which generated enough heat to produce cast iron.[126]

Throughout the medieval period ironwork on chests varied depending on the blacksmith's skill. Providing there is no evidence of replacement ironwork on a chest, types and stylistic characteristics can help in making date estimates for a chest's construction. However, this is more reliable when used in conjunction with other factors, such as construction methods and techniques. A continuation of ironwork styles, particularly in rural areas, can make stylistic dating by ironwork alone unreliable. Examination of the surface of ironwork can determine whether it is a later replacement, as sheet-cut straps have a smoother finish and more evenly cut edges than hand-forged ironwork.

### Straps

Split-curl, or bifurcated, terminals correspond to the earliest phase of ironwork on doors and are illustrated on Anglo-Saxon strap-hinges, though they continued in Norman decoration, evolving until the 15th century.[127] Split-curl terminals appear on church chests at Kingstone (Plate 6.13),

Orleton Chest I and Chest II (Plate 6.10), and Much Cowarne, subsequently adapted to a fleur-de-lis on the latter two chests. Fleur-de-lis terminals—defined as having three petals of similar depth, with the two outer petals bending backwards—appear on straps throughout the medieval period and are seen on the chest at Kingstone, as well as split-curl terminals (Plate 6.13).[128] A variation of fleur-de-lis is the compact 'heraldic' type, seen on Chest II at Orleton (Plate 6.12), dated by dendrochronology to 1347-1377.[129]

**Hinges**

Both looped-hinges and pin-hinges are used to attach lids on boarded chests in Herefordshire. Butt-hinges are sometimes found on panelled chests, or where hinges have been replaced. All dug-out chests recorded in Herefordshire have pinned strap-hinges, formed when the single loop on the end of one strap fits between a pair of loops on the end of another strap, joined by a pin.[130] Strap-hinges have either parallel or tapering sides, with a variety of terminal styles such as split-curl, fleur-de-lis, single-leaf, square-ended, or flanged.

**Hasps**

Lids are either secured to chests with looped-hasps or stapled-hasps. Looped-hasps are either figure-of-eight or oval shaped, having one end fastened to the lid with a staple, and the other end closing around a staple on the front of the chest, for use with a padlock.[131] Stapled-hasps are usually connected to a strap via a pinned-hinge; an example is found on the chest at Pudleston. Both types appear throughout the medieval period.[132]

**Keyholes**

These appear on either the front or lids of chests; some have escutcheons, and some have hinged covers. The chest at St Weonards, Herefordshire, has a large, elongated escutcheon (Plate 6.17).

**Locks**

*Lock plates* are the most common lock seen on church chests in Herefordshire, having the mechanism attached to the rear of a plate, and rebated into the front of the chest. A key inserted in the keyhole operates a bolt which engages in a stapled-hasp, or keeper, when the key is turned. The till-lid inside the chest at Lea has a sliding-bolt which locates into a separate keeper (Plate 6.16). Most lock plates are square or rectangular shaped. Concave-sided plate locks have been ascribed to 1300-1550 and can be seen on the domed box chest at Hereford Cathedral and the hutch chest at Mathon (Plate 6.4).[133]

**Stock-locks**

These have a mechanism and sliding bolt set into a wooden block but are rare in Herefordshire.[134] An example can be seen on the underside of the lid at Lea (Plate 6.16). Occasionally, evidence of *sliding-bar* locks can be found inside church chests; a keyhole on the front operates a long bar with prongs, which slides into staple loops on the underside of the lid. In Kent and Sussex sliding-bar locks are found on pin-hinged clamped chests, dating from 1240-1340.[135] The only example in Herefordshire is on the Kingstone chest, dated to 1243-1273 by dendrochronology.[136] .

## SUMMARY AND CONCLUSIONS

### Updating Morgan's Study

Prior to the 21st century Morgan's pioneering work was only the second county study of church chests to be carried out. He made some recording errors, and classification of some items such as clamp chests has moved on, but his work has proved an invaluable starting point for an up-to-date gazetteer of chests in Herefordshire. The inventory created by the current research includes 142 chests credibly recorded in the county by Morgan, the author, and others. Forty-one did not appear in Morgan's record; of these thirteen have been recorded for the first time. Of the total of 142, twenty-four are now missing, leaving a total of 118 extant today.

In some cases, Morgan's photographs are the only surviving record of the missing church chests. Investigating their whereabouts is difficult since records are not always kept, and since incumbents and churchwardens leave without necessarily passing on their knowledge. Nonetheless, the church is the place to start; in speaking to the churchwarden at Turnastone, I learnt that the panelled chest there had been stolen in the mid-2000's and the contents found in a nearby field.

### Dug-out Chests: Re-Writing Accepted Chronology

Dendrochronology has made the outcome of the detailed archaeological study of dug-out chests, a major element of the research programme, much stronger. The three dug-out chests thus dated in Herefordshire date from the 13th and 14th centuries.[137] These results, in combination with nine others available nationally (five from the adjoining counties of Worcestershire and Gloucestershire and four from further afield) demonstrate that dug-out chests were constructed between the 13th and 17th centuries, continuing long after tools and technical abilities facilitated other methods. This rewrites previously accepted chronology; it is now understood that dug-out, boarded, and clamped chests co-existed throughout the medieval period, and that styles were influenced by levels of skill, use, cost, significance, and preference. Dug-out chests were made by highly skilled carpenters and blacksmiths with specialist tools and equipment. They persisted so long, probably because they were the most secure means of storing church valuables until the development of cast-iron safes.

### Style and Construction: Refining Dating Techniques

The research reviewed how planks for boarded chests and lids for dug-out chests in Herefordshire (except the lid of the Orleton II chest) were sawn using a frame saw and single-trestle saw up to *c.*1540-42. Since pit sawing was almost universally adopted after that, recording and analysing saw marks is particularly helpful in making date estimates for church chests. For dug-out chests, the method of lid attachment can offer some indication too.

Evidence about ironwork now contradicts the belief of early scholars, that heavy, coarse work indicated an early date for church chests. In fact, 12th- and 13th-century ironwork was more delicate due to smaller blooms and the cost of iron at the time, whilst heavy, coarse, and more generous use of ironwork resulted from technical developments in the mid-14th century. This must be recognised when assessing ironwork to help date chests.

The detailed study of dug-out chests has illustrated the power of direct scientific dating to confirm or change stylistic date estimates. The 13th-century tree-ring date for the chest at Kingstone corresponds with stylistic date estimates, whereas the 14th-century tree-ring dates for chests at Munsley and Orleton II do not. Indirect dating methods can be helpful in the absence

of scientific results but need to be deployed with caution. Table R11 online provides a summary of all the direct and indirect dating evidence available for the fifteen dug-out church chests in Herefordshire.

For the future, through an expanding database of dendrochronological, stylistic, and constructional information for church chests, there is every opportunity to confirm or adjust current dating theories, so that stronger patterns can emerge.

## A Final Reflection

Sadly, many chests have been demoted from esteemed positions in the church and relegated to the rear for storing flower-arranging equipment and Christmas decorations, which attract rodents and restrict air flow. The relationship between people and church chests may have altered as their meaning and importance has changed, yet these enigmatic examples of church furniture can still emanate a powerful presence to parishioners and church visitors today.

## NOTES AND REEFERENCES

[1] H. W. Lewer, & J. C. Wall, *The Church Chests of Essex* (London, 1913).
[2] E. Yates, 'Church chests', *South-Eastern Naturalist and Antiquary: Being the Transactions of the South-Eastern Union of Scientific Societies*, 50 (1945), pp. 15–21.
[3] This terminology for types of church chest is now well established: see for example P. Eames, 'Furniture in England, France and the Netherlands from the twelfth to the fifteenth century', *Furniture History*, 13 (1977), pp. 131–303; D. Sherlock, *Suffolk Church Chests* (Suffolk, 2008), p. 16; V. Chinnery, *Oak Furniture: The British Tradition* (Suffolk, 1979) pp. 79-82 and C. Pickvance, 'Medieval tracery-carved clamp-fronted chests: the 'Kentish Gothic' chests of Rainham, Faversham and Canterbury in comparative perspective', *Regional Furniture*, 21 (2007), p. 67.
[4] Eames, 'Furniture', p. 109.
[5] See Eames, 'Furniture', p. 109; J. Geddes, *Medieval Decorative Ironwork in England* (London, 1999), pp. 31-3; D. Sherlock, *Suffolk Chests*, p. 16.
[6] P. M. Johnston, 'Church chests of the twelfth and thirteenth centuries in England', *The Archaeological Journal*. (1907), https://doi.org/10.5284/1018054; Lewer & Wall, *Chests of Essex*; Chinnery, *Oak Furniture*.
[7] J. C. Cox, 'Ancient coffers and cupboards', *The Reliquary: Quarterly Archaeological Journal and Review*. 1 (1903), pp. 109–123, https://search.proquest.com/docview/7788975/fulltextPDF/23306986851942A1PQ/1 accessed 11 Oct. 2018.
[8] C. Hayward, *English Period Furniture* (London, 1986); Geddes, *Medieval Ironwork*.
[9] See Johnston, 'Church chests' p. 245; Lewer and Wall, *Chests of Essex*, p. 39; Yates, 'Church chests', p. 16.
[10] E. L. Cutts, *A Dictionary of the Church of England* (London, 1889), p. 434, https://www.google.co.uk/books/edition/A_Dictionary_of_the_Church_of_England/EnsXAAAAYAAJ accessed 12 Nov. 2020; Lewer & Wall, *Chests of Essex*, p. 72; W. E. Lunt, *Papal Revenues in the Middle Ages*, (2 vols, New York, 1934) II, pp. 84-5; W. E. Tate, 'The chest itself' in *The Parish Chest* (Suffolk, 1983), p. 36 (the first edition was published in 1946).
[11] Cutts, *Church of England*, pp. 84-5.
[12] E. H. Landon, *A Manual of Councils of the Holy Catholick Church: comprising the substance of the most remarkable and important canons alphabetically arranged* (London, 1846), p. 240, https://books.google.co.uk/books?id=9QRfQLaLPKUC&pg=PA240&dq accessed 12 Nov. 2020.
[13] *Ibid.*
[14] K. French, *The People of the Parish: Community Life in the Late Medieval English Diocese* (2001), p. 99; N. Saul, 'Chantries and intercession' in *Lordship and Faith: the English Gentry and the Parish Church in the Middle Ages* (2017) pp. 135-61; N. Orme, *Going to Church in Medieval England* (2022), p. 51.
[15] S. Hinds, 'Opening the chest: a cultural biography of chests in late medieval England' (Master's thesis, York, 2018).
[16] Geddes, *Medieval Ironwork*, p. 33.
[17] Lewer & Wall, *Chests of Essex*, p. 72.
[18] H. S. Cuming, 'On church chests', *British Archaeological Association*, 28 (1872), pp. 225–30; C. C. Hodges, 'On some medieval carved chests', *Archaeologia Aeliana*, 15 (1892), pp. 295–309; J. Hart, 'Old Chests', *Transactions and Proceedings of the Birmingham Archaeological Society*, 20 (1894), pp. 60-94.

https://www.google.co.uk/books/edition/Transactions/D1c-AQAAIAAJ?hl=en&gbpv=0 accessed 19 Feb. 2019;https://archive.org/details/archaeologiaael03tynegoog/page/n406 accessed 12 Feb. 2019; Hart, *Old Chests* (1894); G. S. Tyack, 'Church chests' in William Andrews (ed.), *Ecclesiastical Curiosities* (1899), pp. 161–82, https://archive.org/details/ecclesiasticalcu00andriala/page/n5 accessed 1 Dec. 2018; F. Roe, *Ancient Coffers and Cupboards: Their History and Description From Earliest Times to the Middle of the 16th Century* (London, 1902); F. Roe, 'Coffers and chests from the Norman times to the Renaissance' in F. Roe, *Old Oak Furniture* (1907), pp. 112-38; F. Roe, *Ancient Church Chests and Chairs in the Home Counties Round London* (1929); Cox, *Ancient Coffers and Cupboards*; D. Davies, 'Church chests and their contents', *The Rutland Magazine and County Historical Record*, 3 (1907); J. Cox & A. Harvey, 'Church chests' in *English Church Furniture* (1907), pp. 291-307; Johnston, 'Church chests'; F. Howard & F. Crossley, *English Church Woodwork: a Study in Craftsmanship During the Mediaeval Period, AD 1250 to 1550* (1919); H. Cescinsky & E. Gribble, *The Development of the Chest and Standing Cupboard* (2 vols, London, 1922), II, pp. 1-96.`

[19] Lewer & Wall, *Chests of Essex*, p.72.

[20] F. Roe, *Ancient Coffers and Cupboards*; Roe, *Old Oak Furniture*; F. Roe, 'The art of the cofferer: 2. Decoration. Old furniture.', *The Connoisseur*, 44 (1916), pp. 123–34; Roe, *Ancient Church Chests* (1929).

[21] F. C. Morgan, 'Church chests of Herefordshire', *Trans. Woolhope Natur. Fld. Club*, 32 (1947), pp. 122–43 https://www.woolhopeclub.org.uk/search?q=church chests of herefordshire accessed 16 Oct. 2018.

[22] RCHME, *An Inventory of the Historical Monuments in Herefordshire, Volume 1, South-west, British History Online* (1931), https://www.british-history.ac.uk/rchme/heref/vol1 accessed 25 April 2020; RCHME, *An Inventory of the Historical Monuments in Herefordshire, Volume 2, East, British History Online* (1932), https://www.british-history.ac.uk/rchme/heref/vol2 accessed 6 June 2020; RCHME, *An Inventory of the Historical Monuments in Herefordshire, Volume 3, North-west, British History Online* (1934), https://www.british-history.ac.uk/rchme/heref/vol3 accessed 12 Aug. 2019.

[23] Eames, *Furniture*.

[24] Chinnery, *Oak Furniture*.

[25] Tate, 'The chest itself', pp. 35-42.

[26] C. Tracy, 'Chests and boxes', in *English Medieval Furniture and Woodwork* (London, 1988), pp. 172–84.

[27] Sherlock, *Suffolk Church Chests*.

[28] C. Pickvance, 'Medieval tracery-carved clamp-fronted chests: the 'Kentish Gothic' chests of Rainham, Faversham and Canterbury in comparative perspective', *Regional Furniture*, 21 (2007), pp. 67-94; C. Pickvance, 'Medieval domed chests in Kent: a contribution to a national and international study', *Regional Furniture*, 26 (2012), pp. 106–47; C. Pickvance, 'The tracery-carved, clamp-fronted medieval chest at St Mary Magdalen Church, Oxford, in a comparative North-West European perspective', *The Antiquaries Journal*, 94 (2014), pp. 153–72; C. Pickvance, 'A study of medieval iron-bound "domed standard" chests in Kent', *Archaeologia Cantiana*, 136 (2017), pp. 141–62; C. Pickvance, 'The Canterbury group of arcaded Gothic early medieval chests: a dendrochronological and comparative study', *The Antiquaries Journal* (2018); C. Pickvance, 'The St. Mary's, Climping and Chichester Cathedral medieval chests: a dendrochronological and comparative study', *Sussex Archaeological Collections*, 157 (2019a), pp. 173–87; C. Pickvance, 'The Surrey group of pin-hinged, clamped, medieval chests: a comparative study of the chests at Chobham, Godalming, Shere and Stoke d'Abernon', *Surrey Archaeological Collections*, 102 (2019b), pp. 169–89; C. Pickvance, 'Regional differences in medieval chest construction: a dendrochronological and comparative study of the Buxted, Sussex, and Hindringham and Walcott, Norfolk pin-hinged clamped chests' *Regional Furniture*, 34 (2020); C. Pickvance, 'Three Lincolnshire medieval chests', *Regional Furniture Society Newsletter, 37* (2021).

[29] Geddes, *Medieval Ironwork* (1999).

[30] I. H. Goodall, *Ironwork in Medieval Britain: an Archaeological Study, Monograph 31* (London, 2011).

[31] H. Aston, 'Church chests in Herefordshire', unpublished notes made between 1970 and 1991, held by The Worcestershire Archaeological Society.

[32] RCHME, *Herefordshire*, (1931), (1932), (1934).

[33] N. Pevsner, *The Buildings of England: Herefordshire* (1963); A. Brooks & N. Pevsner, *The Buildings of England: Herefordshire* (2012).

[34] D. J. Schove & A. W. G. Lowther, 'Tree-rings and medieval archaeology', *Medieval Archaeology*, 1 (1957), pp. 78–95.

[35] C. Jenning, *Early Chests in Wood and Iron* (London, 1974).

[36] J. M. Fletcher & M. C. Tapper, 'Medieval artefacts and structures dated by dendrochronology', *Medieval Archaeology*, 28 (1984), pp. 112-32.

[37] D. H. Miles, M. J. Worthington & C. Groves, 'Tree-ring analysis of the nave roof, west door and parish chest from the church of St. Mary, Kempley, Gloucestershire'. *English Heritage Ancient Monuments Laboratory Report*, 36, (1999); D. H. Miles & M. J. Worthington, 'Tree-ring dates', *Vernacular Architecture*, 31 (2000), pp. 90–113; D. H. Miles & M.

C. Bridge 'Westminster Abbey, London: tree-ring dating of the chests and fittings' *English Heritage* (2008); M. C. Bridge & D. H. Miles, 'A review of the information gained from dendrochronologically dated chests in England', *Regional Furniture*, 25 (2011), pp. 25–55; M. C. Bridge, 'Progress in British Dendrochronology', *Archaeology International*, 19 (2016), pp. 58–62. doi: 10.5334/AI.1910 accessed 17 Feb. 2022.

[38] R. Sycamore, 'Medieval dug-out church chests in Herefordshire and Worcestershire: a systematic archaeological study' (M. Res. thesis, Worcester, 2021).

[39] A. K. Moir, 'Dendrochronological analysis of an oak dug-out chest in Hartpury church, Gloucestershire, England', Tree-ring services report: CHST/41/22 (2022).

[40] Morgan, *Chests of Herefordshire*.

[41] RCHME, *Herefordshire* (1931), entry for Dulas, pp.58-9.

[42] These are previously recorded by Aston, *Chests in Herefordshire*, (1991); Morgan, *Chests of Herefordshire*, (1947); RCHME, *Herefordshire* (1931), (1932), (1934). Anne Lloyd from the Abbeydore Deanery informed me via email (12/1/23) that the chest at Turnastone had been stolen, though its contents were later recovered from a field.

[43] RCHME, *Herefordshire*, (1932), entry for Avenbury, pp. 6-8; Morgan, *Chests of Herefordshire*.

[44] Johnston, *The Finding of St. Augustine's Chair* (Cambridge, 1898).

[45] R. Sycamore, 'Crude and primitive? Rethinking the dating and construction of dug-out church chests in Britain', *Church Archaeology*, 22 (2022), pp. 81-99.

[46] Eames, *Furniture;* Geddes, *Medieval Ironwork*.

[47] Eames, *Furniture.*

[48] Chinnery, *Oak Furniture*, p. 79.

[49] Lewer & Wall, *Chests of Essex*.

[50].My thanks to Dr Janet Cooper for her comments on the inscription.

[51] NADFAS, *Mathon*, (1995).

[52] Sherlock, *Suffolk Chests*, p. 12.

[53] Lewer & Wall, *Chests of Essex*, p. 72.

[54] Morgan, *Chests of Herefordshire*, p. 125.

[55] Chinnery, *Oak Furniture*, p. 116.

[56] *Ibid.*

[57] D. James, 'Saw marks in vernacular buildings and their wider significance', *Vernacular Architecture*, 43 (2012) pp. 7–18, https://www.tandfonline.com/doi/full/10.1179/0305547712Z.0000000002 accessed 4 May 2020.

[58] Hayward, *Period Furniture*, pp. 23-4; Geddes, *Medieval Ironwork*, p. 33.

[59] A. J. Conybeare, *A Discourse on Boxes of the Sixteenth, Seventeenth and Eighteenth Centuries* (Worcestershire, 1992), pp. 100-101.

[60] Pickvance, *'Kentish Gothic' chests*, p. 67.

[61] *Ibid.*

[62] Morgan, *Chests of Herefordshire*, p. 134.

[63] Hart, *Old Chests*, p. 79.

[64] Brooks & Pevsner, *Herefordshire*, p. 308.

[65] Pickvance, *Chest at St Mary Magdalen*, p. 153.

[66] Morgan, *Chests of Herefordshire*, p. 125.

[67] Hart, *Old Chests*, p. 70.

[68] Lewer & Wall, *Chests of Essex*, p. 41.

[69] Chinnery, *Oak Furniture*, p. 50.

[70] Cox & Harvey, *Church Chests*, p. 291; Johnston, 'Church chests', pp. 244-5.

[71] Hayward, *Period Furniture*, p. 25; D. Goodburn, 'Woods and woodland: carpenters and carpentry' in G. Milne, 'Timber building techniques in London c. 900-1400', *London and Middlesex Archaeological Society Special Paper* (1992), pp. 106-30.

[72] T. Easton, 'Apotropaic symbols and other measures for protecting buildings against misfortune' in R. Hutton (ed), *Physical evidence for ritual acts, sorcery and witchcraft in Christian Britain*, (2016), pp. 54-55; C. Wood, 'X marks the post: an exploration of a magically protective sign', *Quest: for the Magical Heritage of the West*, 198 (2019), pp. 13-26.

[73] Goodall, *Ironwork in Medieval Britain*, pp. 163-164.

[74] RCHME, *Orleton, Herefordshire*, pp. 155-59; Morgan, *Chests of Herefordshire*, p. 138.

[75] Roe, *Ancient Coffers*, p. 122.

[76] Geddes, *Medieval Ironwork*, p. 358.

[77] A. K. Moir, 'Dendrochronological analysis of seven oak church chests in the West Midlands, England', unpublished Tree-Ring Services Report: CHST/30/21 (2021).

[78] Moir, 'Seven oak church chests', p. 8.

[79] Bridge, 'Progress in British Dendrochronology', p. 60.
[80] Moir, 'Seven oak church chests' (2021).
[81] *Ibid*.
[82] *Ibid.*
[83] A. K. Moir, 'Dendrochronological analysis of an oak dug-out chest in Hartpury Church, Gloucestershire, England'. Unpublished Tree-Ring Services Report: CHST/41/22 (2022).
[84] Roe, *Ancient Coffers*; Johnston, 'Church Chests; Lewer & Wall, *Chests of Essex*; Howard & Crossley, *Church Woodwork*, (1919); Chinnery, *Oak Furniture*, Geddes, *Medieval Ironwork*.
[85] Geddes, *Medieval Ironwork*, p. 7.
[86] Cutts, *Dictionary of the Church*, Vol. II, p. 434; Lunt, *Papal Revenues*, Vol. II, pp. 453-81; Lewer & Wall, *Chests of Essex*, p. 72; Tate, 'The chest itself', p. 36.
[87] Hinds, 'Opening the chest'.
[88] S. T. Pettigrew, 'Pudleston Church Record'. (Unpublished notes held by Pudleston church, 1881).
[89] Chinnery, *Oak Furniture*, p. 50.
[90] Roe, *Coffers and Chests*, p. 127; Geddes, *Medieval Ironwork*, p. 33.
[91] H. Cescinsky & E. R. Gribble, 'The early woodworker: his life, tools and methods', in *Early English Furniture and Woodwork:* (2 vols., London, 1922), I, pp. 17–31.
[92] Geddes, *Medieval Ironwork*, p. 33.
[93] *Ibid.*
[94] Cescinsky & Gribble, *The Early Woodworker*, pp. 17-18.
[95] L. F. Salzman, *Building in England Down to 1540: a Documentary History* (Oxford, 1952).
[96] Goodburn, 'Woods and woodland', p. 109.
[97] W. Goodman, *The History of Woodworking Tools* (London, 1964), p. 28; G. Binding, *Medieval Building Techniques* (Gloucestershire, 2004), p. 26, Fig. 50.
[98] M. Filbee, *Dictionary of Country Furniture* (London, 1977), p. 178.
[99] Goodburn, 'Woods and woodland', p. 110.
[100] Goodman, *Woodworking Tool*s, p. 29.
[101] Chinnery, *Oak Furniture*, p. 113; Goodburn, 'Woods and woodland', p. 113.
[102] Chinnery, *Oak Furniture*, pp. 113-4.
[103] *Ibid.*
[104] *Ibid.*
[105] H. C. Mercer, *Ancient Carpenters' Tools* (New York, 2000); L. Maskill, 'The Farnham Park Sawpit' (2011) http://oxfordshirewoodlandgroup.co.uk/images/Pits/Sawpits/L Maskill - sawpits monograph.pdf accessed 3 May 2020; James, 'Saw marks', pp. 8-9.
[106] James, 'Saw marks', p. 12.
[107] *Ibid.* p. 8.
[108] *Ibid.*
[109] *Ibid.* p. 10.
[110] A. K. Moir, 'Histogram of saw-marks in 155 tree-ring dated timbers around England', (email to R. Sycamore, 16 April 2021).
[111] James, 'Saw marks', p. 8.
[112] *Ibid.*
[113] *Ibid.*
[114] Mercer, *Carpenters' Tools*, pp. 92-7.
[115] Filbee, *Country Furniture*, pp. 178-9.
[116] *Ibid.*
[117] Chinnery, *Oak Furniture*, p. 50.
[118] C. Hewett, 'Tool-marks on surviving works from the Saxon, Norman and later medieval periods', in *Woodworking Techniques Before AD 1500* (1982), pp. 339-48; Geddes, *Medieval Ironwork*, p. 29.
[119] Geddes, *Medieval Ironwork*, pp. 31-3.
[120] *Ibid*. p. 9.
[121] Historic England, *Pre-industrial Ironworks: Introductions to Heritage Assets*, (Swindon, 2018), pp. 1-4, https://historicengland.org.uk/images-books/publications/iha-preindustrial-ironworks/heag221-pre-industrial-ironworks/ accessed 15 Feb. 2022.
[122] Geddes, *Medieval Ironwork*, p. 33.
[123] *Ibid.*
[124] Historic England, *Pre-industrial Ironworks*, p. 4; Geddes, *Medieval Ironwork*, p. 7.

[125] Geddes, *Medieval Ironwork*, p. 7.
[126] M. Whittock, *Life in the Middle Ages* (USA, 2009), p. 38; Goodall, *Ironwork in Medieval Britain*, p. 1.
[127] Geddes, *Medieval Ironwork*, p. 31.
[128] *Ibid*. p. 118.
[129] Geddes, *Medieval Ironwork*, p. 128; Moir, 'Seven oak church chests', (2021).
[130] Goodall, *Ironwork in Medieval Britain*, p. 166.
[131] *Ibid*. p. 167.
[132] *Ibid*. p. 168.
[133] Chinnery, *Oak Furniture*, p. 116.
[134] Salzman, *Building in England*, pp. 302-303; E. Monk, *Keys, Their History and Collection*, (Oxford, 1999).
[135] Pickvance, 'Pin-hinged, clamped, medieval chests', pp. 176-8.
[136] Moir, 'Seven oak church chests' (2021).
[137] Moir, 'Seven oak church chests' (2021).

# Recorders 2022

# Archaeology

By KEITH RAY

This Report provides a summary of information concerning archaeological fieldwork and research carried out in the county in the past year, in this case January to December 2022. As for 2021, the Report reflects a minimal level of fieldwork compared with some previous years. Although a reasonable number of development-related projects have taken place, these have mostly been small-scale and with limited results. The present Report therefore focuses even more disproportionately than previously upon the results of research excavations in the Dorstone area.

In past years, this Report has included brief accounts of research fieldwork and reports from archaeological contractors, commissioned by developers to undertake investigations prior (for instance) to housebuilding and infrastructure projects, and industrial-scale quarrying. In recent years, the scope of reporting has been extended to include identifications connected with the Portable Antiquities Scheme, co-ordinated by the British Museum.

This year, individual development-linked project reports are absent from this overview, for a variety of reasons. One reflects the current crisis in river pollution that has affected the Lugg catchment in particular; with the consequence that there has been a moratorium on major building projects (and hence the archaeological works that in some cases precede them) across much of north-central and northern Herefordshire. Another is the fact that many recording projects undertaken as part of the planning process have been very modest in scale, and the developments concerned have been so designed as to minimise the impact upon known archaeological deposits (hence giving little or nothing to report in terms of discovery).

Further to this point, it may be helpful to quote from a recent message I received from Julian Cotton, the long-serving Archaeological Advisor for Herefordshire Council (since 1999), regarding this very issue of 'not much being found that is reportable'. Talking of the 'NPPF', the government's National Planning Policy Framework document, issued in March 2012 and updated in September 2023, Julian wrote:

> In general, I would say that since the NPPF bedded in, there has been an increasing onus here (and elsewhere in local /national planning) on *avoiding* archaeology wherever possible rather than archaeologists having to dig it up. This is done of course at the site selection stage, or at least at design stage. It isn't just a philosophical point, however: it has an inevitable consequence in terms of the nature and bias of work that contract archaeologists usually undertake/publish. What may be regarded as a 'poor' result in terms of findings is often perceived as a *good* result in terms of conservation. The apparent thin-ness of yearly feedback is a corollary of this, and also of the continued agricultural and other loss. Even when development sites ***are*** investigated on a large scale (which has been rare recently owing to 'nutrient neutrality' issues) not much will turn up. Not much impacted, not much to report…

## RESEARCH AND CONSERVATION PROJECTS

Some highly localised research projects, including community-inspired investigations, were being undertaken in 2022 and have only just begun to be reported upon more widely. These include excavations such as that carried out as part of a community heritage project by members of the Leintwardine Historical Society on a post-medieval mill site at (their) Letton, nearby. Such projects will hopefully be the subject of summary statements to be included in the Archaeology Recorder's Report for 2023. The largest-scale archaeological research projects have once again been the two that have operated in tandem in the Dorstone area in recent years (see entries under Herefordshire Archaeology, below).

## HEREFORDSHIRE ARCHAEOLOGY

Herefordshire Council's County Archaeology Service has, throughout 2022, continued to provide routine case-work advice (development management and countryside matters), together with HER maintenance and updating duties. In addition, it has been involved with a number of community and agency-based projects. During the year there was a change in personnel, with the departure of the Historic Environment Record Officer, Liam Delaney, to take up a post with Historic England. This was followed by the recruitment of Peter Reavill (formerly the Portable Antiquities Scheme Finds Liaison Officer for Herefordshire and Shropshire) to that post.

The principal project undertaken in 2022 again comprised further work at Snodhill Castle, with some involvement in the Arthur's Stone excavations in Dorstone parish.

### PETERCHURCH: *Snodhill Castle* (NGR: SO 3223 4038); [EHE80341 ; HSM 155, SAM 1015168]

Further archaeological excavation and recording was undertaken at Snodhill Castle, Peterchurch, on behalf of the Snodhill Castle Preservation Trust. Once again, the excavation formed part of the field school operated by the University of Manchester (in partnership with Herefordshire Council and Cardiff University) that has also included the continuation of the 'Beneath Hay Bluff' prehistory project with the ongoing investigations at Arthur's Stone. As in 2021, students in archaeology and related studies from a number of different tertiary colleges in the USA (whose participation was co-ordinated through the Institute for Field Research in California) took part in the excavation.

Five trenches were excavated, four of which were placed within the inner bailey and one external to the north curtain wall. As in 2021, trenches were located to shed light upon specific questions concerning the historical development of the castle and its layout. The exception to this was Trench 12, which was excavated through what was known (from excavations in 2021), to be a buried ridge of spoil resulting from post-medieval quarrying. This was excavated and graded by hand to form an access-way into the north tower.

Of the four remaining trenches excavated in 2022, Trench 7 was located close to the suspected gatehouse into the inner bailey. Trench 11 was an extension eastward of a 2021 trench that had revealed the western end of the chapel (the aim was to reveal the full extent of the eastern end of the building). Trench 13 was excavated over the north curtain wall to the east of the north tower to confirm its alignment. Trench 14 was meanwhile excavated outside (and downslope from) the north curtain wall to reveal and investigate a localised apparent mound of masonry, which was protruding through the undergrowth toward the foot of the slope.

The excavation of Trench 7 revealed the basal three courses of the foundations of the south curtain wall and what appear to be the remains of a gatehouse tower overlooking the outer

bailey. A cut for the curtain wall was identified and investigated: the fills of this feature strongly suggest that this wall was constructed in the late 12th to early 13th century. The heavily robbed, curved inner face of what appears to have been a semi-circular tower was apparent within the western end of the trench. It is assumed that this represents the southern fragment of the gatehouse between the inner and outer baileys.

Excavation of Trench 11 revealed that the semi-circular, apse-like space at the eastern end of the chapel was not an integral part of it. Instead, the terminus comprised a perpendicular eastern wall that served to define the chapel as a fully rectangular structure without any apparent access into the semi-circular room. The plaster-faced and tufa-constructed base for the altar was discovered set against the western side of the eastern wall of the chapel. It would appear that the 'apse-like' structure had been added to the eastern end of the chapel at a later date and had been made accessible by the insertion of a doorway and steps, truncating the north-eastern corner of the chapel wall. The apse-like shape, its association with the chapel, and the presence of two aumbries located within its east wall, has led to the supposition that this easternmost area functioned as a vestry. The recovery of a gilded and enamelled 'Limoges' figurine, from the base of the rubble layer within this small room, can be cited as possible evidence in support of this interpretation. Plate 7.1 shows the complex arrangement of walls at the eastern end of the chapel and the feature interpreted as an altar-base.

Trench 13 was excavated to confirm the alignment of the north curtain wall. During the removal of rubble resulting from post-medieval quarrying a doorway was revealed. This cut through the entire thickness of the curtain wall and comprised a dressed stone facing, with an internal rebate for a door and the external channel for a portcullis approximately 0.9m wide. This is considered to represent the remains of an otherwise undocumented postern gate, which must have led to steps down the steep flank below the northern wall (Plate 7.2).

Trench 14 was excavated to the north of Trench 13 at the base of slope. The location was chosen due to the presence of a large fragment of masonry which protruded through the undergrowth. The coursing of the fragment was vertical suggesting that it was either lying on its side or had been constructed for a very specific purpose. The trench was aligned roughly north to south, in order to cross the coursing at right angles. It quickly became apparent that the masonry represented part of a collapsed wall which, it was initially assumed, had fallen *en bloc* from the curtain wall. However, after careful cleaning and excavation, it appeared that the wall had collapsed instead *towards* the curtain wall, thus indicating that it had been an external structure. It is likely to represent the remains of an outwork or barbican, which had led directly (probably via a timber bridge-work) to the postern gate discovered within Trench 13.

The revealing of a 'Royal Free Chapel' and apparent barbican tower during this season of excavations further elevates the profile of Snodhill Castle within the otherwise well-known welter of medieval castles of Herefordshire and the Marches. It also raises fascinating questions and possibilities regarding the development of the castle and its status within the castle hierarchy of medieval Britain.

*T. Hoverd and S. Mayes, 2023, 'Archaeological Excavations at Snodhill Castle, Peterchurch, Herefordshire, 2022', Herefordshire Archaeology Report No. HAR 406.*

**DORSTONE, *Arthur's Stone* (SO 319 431)**

Fieldwork at, and in the vicinity of, the Neolithic chambered tomb of Arthur's Stone, overlooking the Golden Valley, took place in July 2022. This work was co-directed by Professor Julian Thomas of Manchester University and Professor Keith Ray of Cardiff University, supported by

Associate Director, Dr Nick Overton, also of Manchester University. It was undertaken in continuation of the 'Beneath Hay Bluff' project, which had already seen the completion of nine seasons of excavation at Dorstone Hill nearby (*TWNFC* 67, 129-32) and an initial season of investigations in 2021 around Arthur's Stone. The excavation was staffed by professional archaeological supervisors on leave from their normal work duties (mostly in contract archaeology elsewhere in England), undergraduate students from Manchester and Cardiff universities, American students under the aegis of the Institute for Field Research, and specialist consultants and advisors (including TigerGeo geophysicists Martin and Anne Roseveare; lithics researcher Dr Tom Elliot; and University of Bristol PhD researcher Isabel Wiltshire).

The excavation in 2022 consisted of two elements. The first comprised two trenches, once again sited in the field to the south-east of Arthur's Stone (and in this case adjacent to the 2021 trench, to the west and south). The second featured three trenches on the Guardianship Monument itself, for which permission had first to be sought from English Heritage, the charity which has been given responsibility for the nation's stock of sites under the protection of, and ownership by, the state. Scheduled Monument Consent had also first to be obtained from the government's Department for Digital Culture, Media and Sport (on the advice of Historic England's specialist regional Inspectors of Ancient Monuments).

Plate 7.3, a drone-based aerial photogrammetric image by Adam Stanford, of Aerial-Cam and Sumo Services, provides an overview of the excavations of July 2022. The furthest south trench (at the bottom) revealed the postholes forming the continuation of the line of former timber uprights uncovered first in 2021. The largest trench (to the left) uncovered the parallel line of former posts, making up the western side of the avenue of posts, which approached the chambered tomb from the south-east. Between the two, a pit with the surviving base of a stone monolith can just be made out in the image; it was found to be one in a double line of former standing stones, set just inside the lines of wooden posts and built to replace that timber avenue of uprights with a stone avenue. Small and abraded pottery sherds from middle Neolithic 'Peterborough Ware' style bowls were found in the abraded bases of more than one of these 'standing stone foundation pits', indicating that this replacement of timber with stone posts took place sometime around 3.200 to 3,000 BCE. Such a replacement is so far unique in the archaeological record.

The excavations at the eastern end of the Scheduled Monument (shown at the top of Plate 7.3) first established that the trackway leading from Arthur's Stone Lane (the road) to the gateway into the field to the south (centre left) had respected the Neolithic stony mound to its west. However, the cutting of this access way had almost completely removed any surviving traces of the primary turf mound that had once continued from the east (left) side of the hedge and had formerly extended under the (later) chambered stone mound to the north-west. Initial recording and removal of extremely small areas of the mound of angular stones, that had been carefully placed on and around the perimeter of the chambered tomb mound, revealed fine stone perimeter walling in two locations. In the first of these a partially collapsed, repaired, and very slightly curving length of fine drystone walling was exposed. A second such cutting within one of the two trenches opened at this eastern end of the mound revealed a closely similar drystone wall (Plate 7.4).

This serves to demonstrate that, in at least one phase of what is by now clearly a very complex 'evolution' of the Arthur's Stone long barrow, it was transformed into a conventional 'Cotswold-Severn' long barrow such as is found not only on the Cotswolds and in south Wales (Glamorgan and the Gower Peninsula), but also in the Wye and Usk valleys north and west of

the Brecon Beacons. A prior discovery (in 2011) of a more heavily built drystone wall within the north-east hornwork, when one of the wooden posts of the protective fence around the monument was replaced, indicates the likelihood (so far untested) that there was an inner, heavy-duty wall retaining the bulk of the long-barrow mound that was fronted by this more lightly built 'decorative' wall.

## DEVELOPMENT-RELATED ARCHAEOLOGICAL PROJECT REPORTS

As noted above, unusually this year there are no summary reports of the results from projects carried out by individual contract organisations on behalf of developers to be included in this Recorder's Report. In fact, a total of only thirteen such projects was completed in 2022. These included work by Worcestershire Archaeology, as part of their long-term series of operations at Wellington Quarry, during which, as in 2021, there were no significant discoveries due to the progress of the quarrying across relatively low-lying areas of the Lugg floodplain devoid of traces of post-Pleistocene human activity (Robin Jackson, *pers. comm.*). Ongoing monitoring work by Headland Archaeology (based in Hereford, currently at Rotherwas Industrial Estate) at Hereford County Hospital, on the site of St Guthlac's medieval priory, was likewise 'precautionary' only, since little archaeology of any note was adversely affected by the ongoing programme of maintenance works at the site.

Border Archaeology (another local archaeological contractor based in Herefordshire at the Leominster Enterprise Park, south of that town) carried out four watching briefs in Hereford: again with (thankfully) little loss of significant archaeological deposits within the city's Area of Archaeological Importance. Readers of these *Transactions* will be interested to learn that among these monitoring works was observation of the trial pits for the design of the refurbishment of Hereford Museum: this work confirmed that the rear of the former Library building was indeed built out over the eastern lip of the King's Ditch.

Other small-scale watching briefs were carried out by other contract archaeologists in response to the discharge of archaeological conditions at Clifford Castle, at Bishopstone House (close to the recorded site of a Roman villa west of Kenchester), and at St John the Baptist parish church at Eastnor. A small-scale excavation, undertaken by Clwyd-Powys Archaeological Trust on behalf of the National Trust at Berrington Hall, produced little new information about the 18th-century estate. A field evaluation to assist with a planning application in Grafton parish produced no finds worthy of attaching a follow-up condition to a permission for new housing. An excavation was carried out by staff of Cotswold Archaeology on land to the north of the railway viaduct at Ledbury. A report will hopefully be included in the 2023 Recorder's Report.

## PORTABLE ANTIQUITIES SCHEME RECORDED FINDS

Only seven records of reported finds in either Herefordshire or Shropshire in 2022 were posted on the PAS website (at finds.org). The only find of especial note was a medieval gold finger ring (discovered in 2020) from near Wigmore. This was a gold and gem-set stirrup-shaped ring, dated stylistically to between the 12th and 15th centuries.

# Botany 2022

*By* STUART HEDLEY

As I write, the BSBI[1] have just launched their milestone new atlas of the flora of Britain and Ireland, *Plant Atlas 2020*. This presents the results of the two decades of botanical recording following the onset of the new millennium. It is the third volume of its kind, following the previous two volumes capturing the state of our flora in the early 1960s and in 2000. For the first time the results are available free of charge in digital form via the organisation's website, so if you've not already discovered this marvellous resource, do take a look[2]. If you submitted records of wild plants in Herefordshire between 2000 and 2020, then your efforts will form part of this story and I add my own thanks to the BSBI's for continuing to make ours the best-understood flora in the world.

Back to Herefordshire. The botany account for 2022 is divided up into the seven NCAs[3] as usual, starting in the south-west and moving anticlockwise around the county. My grateful thanks to Ian Draycott who has contributed the bryological paragraphs.

**BLACK MOUNTAINS & GOLDEN VALLEY**

Two years ago in the *Transactions* I mentioned a record I had received for the Heath Dog-violet *Viola canina* at Ewyas Harold Common. Given its dwindling fortunes in Britain as a whole, I went to the site myself to see how much of the plant there was and was pleasantly surprised. This led on to further work in 2022, when a group of local volunteers joined me in the production of a baseline census that we hope will be of value to those managing the common in future. An Ordnance Survey grid overlain onto aerial photography was used to map the presence of the plant. The results are shown on Plate 8.1.

*Viola canina* is classed as 'vulnerable' (VU) in England because of an ongoing population reduction with the causes not having ceased; in fact, the size of the decrease brings the plant close to the more acute level of threat, 'endangered' (EN). However, the good news is that at Ewyas Harold Common at least, its total population certainly lies in the thousands, and probably in the tens of thousands. The Common Dog-violet *Viola riviniana*, a more generalist and very widespread species which will be familiar to many readers, also occurs throughout the whole of the area covered by Plate 8.1: no survey square had *canina* in the absence of *riviniana*, but in the centre of its main stand on the common *canina* may locally outnumber that plant. Hybrids between the two, identified by their intermediate characters, hybrid vigour and sterility, were found in a couple of places only, quite a contrast to the situation on the Bromyard Downs where, we think, only the hybrid now survives.

During the day's mapping, two further species of note were re-found on the common: Sand Spurrey *Spergularia rubra* and Brown Bent *Agrostis vinealis*. The spurrey will be a longstanding inhabitant of the common's acid sands but is now developing a particular fondness for the interstices of the track along its north side, which is composed of abutted concrete railway sleepers. Interestingly, many other roadsides in Herefordshire are now occupied by a different spurrey, *Spergularia marina*, which has spread from its normal home at the coast and set up shop alongside winter-salted highways. I found it this year along almost the entire length of Kings Acre Road, for example, in the drear and blackened strip immediately behind the kerb. For more on Brown Bent, keep on reading.

## HEREFORDSHIRE LOWLANDS

It is uncommon in Britain for bryologists and vascular plant botanists to visit and assess wild places together, a shortcoming that did not beset our Victorian forebears. This year, the former gravel pit of Stretton Sugwas, also known as Brockhall Gravel Pit, was something of an exception, with a range of individuals visiting, all drawn by its unusual expanses of nutrient-poor, warm, free-draining sands and gravels, substrates now very rare in the wider countryside. It proved to be as interesting bryologically as it is ornithologically. With the low water levels, a number of ephemeral wet-edge species had appeared, most notably the Spreading Earth-moss *Aphanorrhegma patens*. However, careful inspection revealed two other less common Earth-mosses *Ephemerum recurvifolium* and *Microbryum davallianum*. Amongst other finds there were two species of Aloe-moss, *Aloina aloides* and the less common *A. ambigua* (only declaring itself to Claire Halpin after material left in a dish on her desk-top could be encouraged to produce the necessary fruiting capsules), Golden Feather-moss *Campyliadelphus chrysophyllus* and Cylindric Ditrichum *Trichodon cylindricus.* The overall list of mosses and liverworts contained an unusual mix of weak lime-lovers and calcifuges, something mirrored in the vascular flora. Here, two natural arrivals around the lake perimeter of the former gravel workings deserve mention, both present extensively. First were surprising stands of Vervain *Verbena officinalis* (usually a plant of dry calcareous places rather than inundated gravel), closely grazed by geese. Second, along the high-water mark, good material of *Plantago major* ssp. *intermedia* was abundant.

The botanical find of the year however was, without doubt, Hilary Wallace's discovery of True Fox-sedge *Carex vulpina* at The Sturts, the first confirmed record of the species for Herefordshire. Although Purchas & Ley deemed this plant to be common in 1889,[4] they misconstrued it: Linnaeus had named *Carex vulpina* in his *Species Plantarum* of 1753, but it took nearly another 170 years for the Czech botanist Josef Podpera to formally distinguish the very similar *Carex otrubae* in 1922. This, now going under the English name of *False* Fox-sedge, is the common plant of Herefordshire and Britain, whereas *vulpina* has a more markedly continental distribution, and will have been the more frequent plant in Linnaeus's Sweden. Thus, politics and phytogeography jointly explain what is always counterintuitive to British botanists—that the more common of the two species should be the 'false' one. And, for anyone who has ever wondered what *exactly* is fox-like about *Carex otrubae*, seeing *Carex vulpina* for the first time answers the question! See Plate 8.2.

When I revisited with Hilary a few weeks after her initial discovery we had some problems relocating the plant, but we eventually succeeded, tracking it down in amongst clumps of *otrubae.* There are at least two to three tussocks of *vulpina* present around a sedge swamp dominated by a third species, *Carex acuta.* This new record is the furthest west for Britain recorded to date. Further studies of the population may help us decide whether the plant is a relatively recent arrival or a longstanding inhabitant.

A mile or two further north from The Sturts at Almeley, Corky-fruited Water-dropwort *Oenanthe pimpinelloides* was found for only the second time in Herefordshire by Mike Williams. Its context was a hay-meadow, an improvement on the sole prior find which had been from gang-mown amenity grassland in the Hereford suburbs! However, the meadow lacked other indicators of long continuity and the plant was highly localised, approximately eight individuals occurring in a patch of less than a square metre close to the boundary. This, together with the plant's distinctive British distribution, suggests very strongly that the plant was a recent introduction, probably an inadvertent one on machinery.

Shucknall Hill turned up a couple of nice surprises—both Spring Cinquefoil *Potentilla verna* and Common Cudweed *Filago germanica* have been seen there before, but the former not since 1960 and the latter not since 1956. Both were present in 2022 in good amounts, however, the latter found by Jonathan Forsyth.

It has been another appalling year for the Wye with drastically low flows compounding chronic eutrophication, a scandalous state of affairs which we are now told may take many decades to rectify. I have not yet had an opportunity to get to know the county's rivers as well as I would like, so a few records for species of note came as a pleasant surprise. Jonathan Forsyth found Narrow-leaved Water-Plantain *Alisma lanceolatum* on the Wye south of Hampton Bishop, and Will Watson found Lesser Water-parnsip *Berula erecta*, in a new tetrad at Sutton St Nicholas, and Arrowhead *Sagittaria sagittifolia* on the Lugg Rhea. This year Will completed his involvement with the project to restore Berrington Pool. Although all our semi-natural ecosystems continue to face loss and degradation, the situation is especially bleak with regard to aquatic ones. To glide over a crystal-clear waterbody in a rowing boat, gazing down through still layers of translucent and varied waterplants might once have been a birthright, but is no more. Read about this wonderful collective effort in the latest *Flycatcher* magazine.[5]

Last, but by no means least, I found bullace in a hedgerow beside the A438 near Letton. Bullace is not a subspecies of the wild plum but a variety of a subspecies, another stratum down, *Prunus domestica* ssp. *insititia* var *nigra.* Recording it is squarely leaving the realms of wild flora and entering the terrain of historical fruit cultivation. There is no shortage of records for this plant, but how many of them are genuine, I wonder? On the one hand the superb *Flora of Cardiganshire*[6] considers bullace to be the commonest form of *Prunus domestica* in that county, which only lies 60km or so to the west of us. On the other hand, fruit cultivars might be expected to show highly local distribution patterns, reflecting local preference and supply, and Purchas & Ley cite only four records for Herefordshire. Certainly, here I am 130 years later, pleased at finding good material for the first time, in spite of having kept my eyes peeled in the south-west of the county now for several seasons. For the moment, I strongly suspect that many of the plants which are taken to be bullace are, in fact, introgressed hybrids between it or other forms of *Prunus domestica* and the sloe *Prunus spinosa*. However, a taxon of this sort is as much of interest to fruit growers as ecologists and I know there are some very knowledgeable fruit growers out there, so please get in touch if you have planted the tree, or, even better, know of historical plantings or naturalised individuals near where you live. Guidance on what unequivocal material looks like is given in Plate 8.3.

## SOUTH HEREFORDSHIRE

One of the trickiest of all British wildflowers to identify turned up in a quadrat during vegetation sampling this spring on Garway Common. Though about as unprepossessing as it gets, this too was one of the nicest surprises of the year. It was Brown Bent *Agrostis vinealis,* purportedly not uncommon, but certainly tremendously elusive. So much so in fact that it completely eluded Purchas & Ley—and no excuse this time, as the taxon had first been described in 1771! The credit for the first record for this plant in Herefordshire may take some time to elucidate, though it was late, and will either go to Stephanie Thompson (pre-2000), Les Smith (2003) or Peter Garner (2012). There is no doubt, however, that *Agrostis vinealis* will have been here all the time. You have to have a certain amount of respect for a plant which can stay beneath the radar for so long.

What a pleasure to run three separate plant courses on Broadmoor Common this year, in

the centre of the Woolhope Dome. A particular joy was undertaking them on a tract of land designated a Local Nature Reserve, where education is part of the *raison d'être*. Mark July, who oversees the Broadmoor Common Community Group, is keeping a record of the numbers of people who benefit from these courses, and why not? In a world where opportunities to experience wild plants continues to shrink, what better way of providing evidence of how those few patches which remain are absolutely invaluable in training our next generation of field ecologists? This is a well-recorded site, but in the course of time spent there, new records were made for Purple Moor-grass *Molinia caerulea* (a pest in the uplands, but a rare indicator plant in the lowlands), heather *Calluna vulgaris,* Spiked Sedge *Carex spicata,* Lesser Hawkbit *Leontodon saxatilis,* Strawberry Clover *Trifolium fragiferum* (showing evidence of spread along the roadside) and, wait for it, Brown Bent *Agrostis vinealis.* Late September proved the ideal time to identify this plant, when its very narrowly constricted spent inflorescences contrast strongly with the open ones of its abundant relative, Common Bent *Agrostis capillaris.* Broadmoor is also home to several extensively naturalised garden plants including a shocking forty-metre stand of Druce's Cranesbill *Geranium* x *oxonianum.* Please refrain from dumping garden plants in the countryside!

In terms of star-power, the orchid hybrid *Dactylorhiza x hallii*, which cropped up this year in this NCA, was hard to beat (Plate 8.4). This is the hybrid between Southern Marsh-orchid *D. praetermissa* and Heath Spotted-orchid, *D. maculata.* It is the third record for the county.

Will Watson found Pedunculate Club-rush *Bolboschoenus laticarpus* at Wormelow Court. This deserves a mention as the taxon was only described in 2004 and this is the first confirmed record for Herefordshire. However, the plant occurred in a small lake created in the 19th century, and, though possibly native alongside lowland rivers in some parts of Britain, this is unlikely to be the case with us.

## THE LOWER WYE

On 23 January a field meeting of the Border Bryologists was held on The Doward, focussing on the special species of King Arthur's Cave and Lord's Wood. A total of 127 species were noted on the day including several nationally scarce specials such as Chalk Feather-moss *Campylophyllopsis calcarea,* Luisier's Tufa-moss *Gymnostomum viridulum* and, best of all, Elegant Grimmia *Schistidium elegantulum,* found by Mark Lawley and a 'county de-bracketing', having been previously recorded only once before in vc36[7] in 1968, probably at the same spot. Amongst the other uncommon species were Lesser Striate Feather-moss *Plasteurynchyium striatulum,* Streaky Feather-moss *Brachythecium glareosum,* Bordered Screw-moss *Tortula marginata,* Neat Crisp-moss *Tortella nitida,* Blunt-leaved Tufa-moss *Gymnostomum calcareum* and the leafy liverwort *Porella arboris-vitae* which can easily be confirmed by taking a very small nibble and feeling the strong pepper taste five minutes later.

## MALVERN HILLS

Once again, new records of significance are thin on the ground in this NCA, Peter Garner having covered the ground so efficiently during his tenure as county recorder. However, in the course of other work I have been struck by two observations on the vegetation of the area. The first was at Oyster Hill, north of Wellington Heath, a promontory of heavily faulted Silurian strata including the Aymestry Limestone, where vegetation has escaped the worst excesses of 20th-century agriculture. Here, an acidophilous sward is developed over the limestone with species such as Bitter Vetch *Lathyrus linifolius,* Tormentil *Potentilla erecta* and, most unusually,

Lousewort *Pedicularis palustris*; only on its steeper south-east-facing slope, corresponding with a fault, does a typical calcareous sward manifest, with, for example, Upright Brome *Bromopsis erecta* and Purging Flax *Linum catharticum.* The opportunity to see the relationship between different plant communities and landscape gradients is very rare in heavily fragmented ecosystems and this makes the site a special place.

The second was on the main Malvern ridge itself where I was struck by the contrast in vegetation at Ragged Stone Hill and Pinnacle Hill on two separate visits. Both are dominated by grassland of Sheep's Fescue *Festuca ovina*, but that on the less-visited Ragged Stone Hill has impressive patches of lichen-rich sward including several species of bushy *Cladonia* lichen, whereas that on the main ridge is impoverished in both species content and structure. In this instance the change has nothing to do with geology or any other natural phenomenon but is entirely down to heavy foot-traffic, which physically destroys the brittle lichens. There is no doubt of the colossal uncosted benefits of a bracing walk along the Malvern ridge, but as in so many other instances the chronic deleterious changes to semi-natural ecosystems in heavily used protected sites often goes unnoticed.

## HEREFORDSHIRE PLATEAU

I am greatly indebted to Jo Weightman for once again getting out and about on the Herefordshire plateau, knocking on doors and searching out relicts of quality semi-natural habitat in this, perhaps the most intensively FARMED of our NCAs. She has confirmed the continuing presence of several areas of note which I hope to visit with her in 2023 and report back. Henbane, *Hyoscyamus niger*, trails a legacy of awe. Following soil movements to reinforce the bund on the Lawn Pool at Brockhampton, a henbane plant popped up (Plate 8.5). I presume it had germinated from formerly buried seed and was subsequently encountered by Toby Fountain of the LWS team. Strongly warmth-loving and a plant of free-draining, often calcareous soil, it has never been more than a rare casual in Herefordshire.

## NORTH-WEST HEREFORDSHIRE HILLS

Herefordshire's basin mires, though much less extensive than their more famous counterparts in Shropshire and Cheshire, probably still punch above their weight in terms of scarce plants. With this in mind, I went to a mire east of Kington in July to follow up a record last made in 1890 for White Sedge, *Carex canescens*.[8] The aerial imagery showed an intact and highly natural-looking canopy of shrubby willows that looked fairly promising, so imagine my surprise to encounter a digger hard at work in a peatland which, until that moment, looked like it had survived the best part of 130 years relatively unscathed. The initial shock of the deep, steep-sided excavation was compounded by hearing the enthusiastic operator's imminent plans to "scatter some wild-flower seeds about the place to do something with it." Rapid attempts at a damage-limitation exercise followed, and a silver lining began to glint when conversation revealed that the same operator had undertaken further clearance work on the far side of the peatland two years previously. This proved to be an exemplary piece of conservation work, where a contrasting, very shallow-sided scrape, which allowed the peat to remain damp but not inundated for long periods, had been created. My slight disappointment that the re-growth did not include the rare *Carex canescens* I had gone there for was countered by the variety of other species which had arisen phoenix-like from the seedbank, all of them uncommon plants by virtue of the restrictedness of their habitat (Plate 8.6).

Tim Green submitted via I-Record a completely new site at Wigmore Rolls for the rarer

of our two native limes, the Large-leaved *Tilia platyphyllos*. He found ten coppiced trees in the un-coniferised rim of the woodland not far from Wigmore Castle. We need further work in Herefordshire in separating records of genuinely wild *platyphyllos* from their planted counterparts. Its frequency as a planted tree may have contributed to a rather blasé attitude in the past to this, one of the stars of our county's wild flora.

Lastly, I thoroughly enjoyed the organised Herefordshire Botanical Society visit to Tatteridge Hill in July. In the course of the afternoon many of the special plants of this corner of Herefordshire were spotted. What was most surprising however was the chance find of Hairy Bindweed *Calystegia pulchra*, twining through the brambles beside the unremarkable lay-by in which we had all parked (Plate 8.7). Rather a conspicuous plant, it had been recorded in the area many decades ago, so was good to re-locate. Not a common plant with us, and easily clocked with its large, pink flowers, so do keep your eyes open for this one.

## NOTES AND REFERENCES

[1] Botanical Society of Britain & Ireland.
[2] https://plantatlas2020.org
[3] National Character Areas.
[4] W. H. Purchas & A. Ley, *Flora of Herefordshire* (1889)
[5] 'The Restoration of Berrington Hall Pool' *The Flycatcher* **87** pp 12-21 (*The Flycatcher* is available to members of the Herefordshire Wildlife Trust).
[6] A. O. Chater, *Flora of Cardiganshire* (published by the author, 2010).
[7] 'vc' stands for vice-county. Herefordshire is vc36.Vice-counties are still used in making biological records across the British Isles. Their boundaries have necessarily remained the same since their inception in the middle of the 19th century and often differ slightly from modern administrative ones.
[8] 'In a small bog near Titley Junction.' A. Ley, 'Additions to the Flora of Herefordshire', *Trans. Woolhope Natur. Fld. Club* (1894), p. 6 of a stand-alone section at the end of the volume.

# Buildings 2022

By DUNCAN JAMES

It is easy to assume that every historically significant building in the County has been found and given the protection of statutory listing, but this is not the case. One of the pleasures of investigating and recording historic buildings is that hidden ones continue to be discovered. Sometimes it can be little more than fragments of an earlier structure, although even these can contribute to our understanding of the past, but if their significance is not recognised the evidence can easily be lost during repairs, refurbishment, or remodelling.

One discovery, 45-49 Mill Street, Leominster, the only known cruck building in the town, was reported in the *Transactions* for 2018.[1] The building is 15th century in date and at the time of writing is being considered by Historic England for listing. Another hitherto unrecognised and unlisted cruck building that has been given the added protection of listing is Lower Hardwick House, Pembridge.[2] Described in the listing as 'a medieval hall house with C16 and later adaptations…an early and noteworthy example of an historic dwelling', it also has a counter-change ceiling which adds to its importance.

## COUNTER-CHANGE CEILINGS

Recent work, as yet unpublished, on the subject of counter-change ceilings has, so far, revealed a total of about ninety examples. These are coffered ceilings, with heavily moulded or steeply chamfered beams forming panels in which the joists in each panel are set in alternate directions, thus creating a chequerboard effect (Figure 1). In the first-floor room, the floorboards are also laid in alternating directions across the joists, so that the decorative nature of the chequerboard is in evidence, literally, on the floor above.

Counter-change ceilings mostly belong to the second half of the 16th century and are frequently found inserted in the upper, or higher-status bay of a medieval open hall to create an upper storey. Some are also found in new buildings of that date, often in the solar crosswing.



Figure 1. Nine-panel, counter-change ceiling, Church House, Yarpole. (Three panels are hidden above the adjacent corridor)

The distribution of this high-status feature is concentrated in south Shropshire, north Herefordshire, and the Welsh border counties (Figure 2). Two outliers, just a few miles apart, have been found in Norfolk. There is also an important dispersed group in Devon and Somerset that may be earlier in date.

Work to locate further examples is continuing alongside research to determine whether the ceilings are coeval with the buildings they are in or have been inserted into an earlier building.

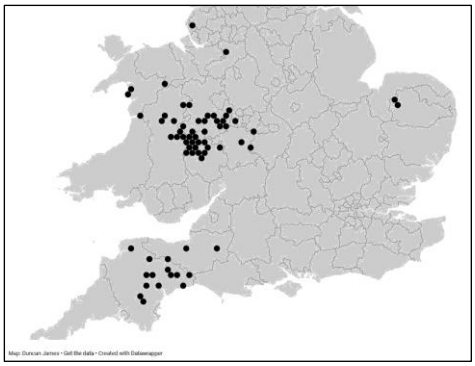


Figure 2. Distribution map for counter-change ceilings in England and Wales

Some of the best examples, such as that at Little Moreton Hall in Cheshire,[3] are very impressive indeed. There, in the withdrawing room of the house, the solar range has a twelve-panel counter-change ceiling with richly moulded beams and joists (Figure 3). It is almost certainly the work of the carpenter Richard Dale, who also made the spectacular bay windows within the courtyard in about 1560. There is clear evidence in the beam at the upper end of the hall to show that Dale had also inserted a six- or possibly nine-panel counter-change ceiling in the open hall.[4] This was removed at some time prior to 1807.[5]

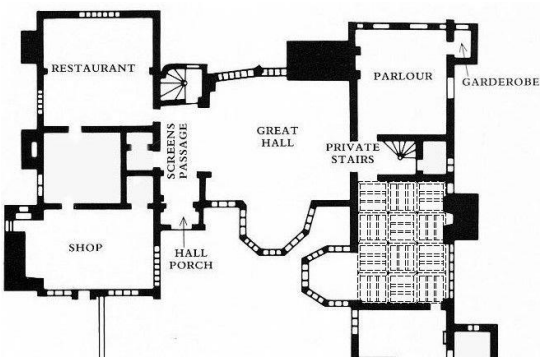



Figure 3. A plan of the hall and crosswings at Little Moreton Hall, showing the layout of the twelve-panel counter-change ceiling in the solar range

**ANGEL HOUSE, LONGFORD, KINGSLAND, HR6 9QS**
Lat./Long.: 52.248254, -2.811237 NGR: SO 44710 61428. Hereford SMR 42648. RCHME 19. Listed grade II.

Kingsland has many buildings of interest, not least of which is Angel House, a 16th-century, timber-framed building, remodelled in the early 18th century (Figure 4). Luckily this remodelling has left the majority of the primary structure undamaged, in particular the dramatic counter-change ceiling in the principal room.

The building was noted briefly by the Royal Commission in 1934[6] and in the Woolhope *Transactions* of 1969, but no detailed analysis has been carried out.[7] The house stands alongside The Angel Inn and there is evidence that it was formerly also used as an inn, perhaps the precursor of the present Angel. Norman Reeves, in his book on the Leon Valley, makes a few

unsubstantiated observations concerning Angel House but if we are looking for facts, the house itself is the best source.[8]

It seems likely that there was a significant link between Angel House and the present building on the west side, which was a post office in 1888 (Figure 5) and still is. They share the site, and this is confirmed by evidence that 'In 1891 Mrs Elizabeth Burden [of Angel House] had the double job of landlady and shopkeeper.'[9] On the map the positioning of the lettering for 'Angel Inn' suggests that it included Angel House at that time.



Figure 4. Angel House, Kingsland showing timber framing behind the brick facade

Angel House consists of a two-storey, four-bay, timber-framed range, laid out on an approximate north-south alignment, which abuts, at its southern end, a three-bay, two-storey, timber-framed crosswing, on an east-west alignment parallel with the principal road through the village. The cross-wing first floor is jettied on the gable ends to the west and to the east. The south side of the crosswing, which faces the street, has been re-faced in brick, with windows and a central doorway.

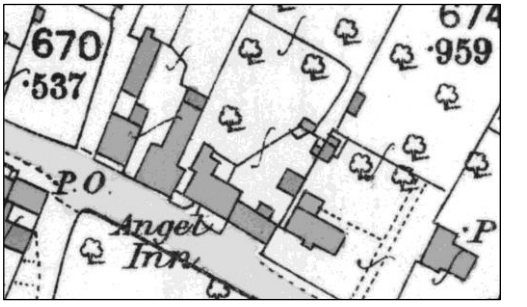



Figure 5. Kingsland, showing Angel House with the present Inn on the right and present shop & post office on the left. (O/S 25in., 1888)

For the purposes of this short report and as shown in Figure 6, the bays and roof trusses of the crosswing are numbered west to east (bays 1 to 3, and trusses T1 to T4) and those of the main range south to north, (bays 4 to 7, and trusses T5 to T10). The evidence indicates that bays 1 to 5 and trusses T1 to T7 are coeval, while bays 6 and 7 are each of different (probably later) date.

**The Crosswing**

The crosswing (bays 1, 2 & 3) formed the solar or upper-end accommodation of the house, with primary fireplaces on the ground and first floors in the north wall of bay 1, and a later fireplace on the ground floor in the east wall of bay 3. Two of the three bays are of similar length, but bay 1 at the west end is about 10% longer on the ground floor and more so at first-floor level due to the jetty.

The crosswing rests on a rubble-stone plinth that has been increased in width on the south front to create a foundation for the later brick facade. The principal, south elevation of the crosswing is hidden by the brickwork on the exterior but the framing is visible on the end elevations and on the interior, including both faces of the (mostly internal) north wall.

The west gable elevation (at T1) has square framing, two panels high and six panels wide on the ground floor, with a now blocked central window. The jettied first floor has a plain, chamfered bressumer with curved brackets under each end above attached pillars. The first-floor framing is two panels high, but nine panels wide, in a layout that would be classed as close-studding if the panels were a little narrower.[10] There is a central window and corner braces beneath the tiebeam. The roof truss has a cambered tiebeam with five studs (spaced to match the studs below the tiebeam) rising to the soffit of the collar. There are 'V' struts above the collar. The roof has a double tier of trenched purlins and the wall plates project, with curved brackets below.

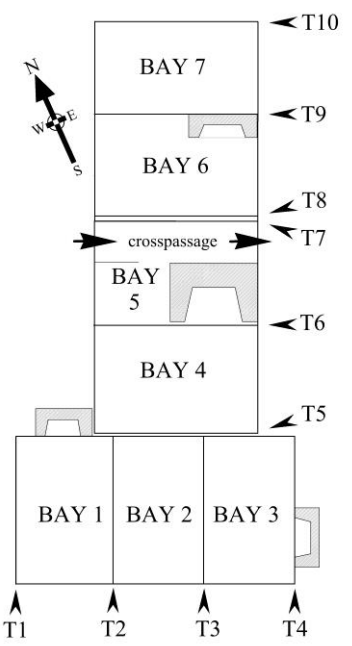



Figure 6. Ground plan sketch of Angel House

The east elevation is partially obscured by the adjacent building and the later chimney with brickwork that wraps around the south-east corner of the wing. The framing is similar to that on the west end although there are larger panels under the collar of the truss T4. There is also a first-floor jetty with a surviving bracket under the north end of the bressumer. The central first-floor window on the gable end had an oriel window but the projecting sill has been hacked back, although not removed completely, and the mullions reset (Figure 7).

On the ground floor the primary window survives although it has been partially hidden by the encroachment of the chimney stack (Figure 8). However, this window has been in a sheltered position and is the most important in the building because it retains the primary, projecting window sill and the primary mullions, which show that it was an oriel window, almost certainly indicative of the original form of the windows in both the crosswing and bays 4 and 5 of the main range.[11] The heavy mullions are square in section, set on the diagonal and, for this gable-end ground-floor window, set closely together, almost certainly for reasons of security. Whether a similar close spacing of mullions was used for the other primary windows is not known.



Figure 7. Angel House. First-floor window on the east face of bay 3



As noted above, the south elevation is of brick to create what is, essentially, a symmetrical facade with a central doorway and window above, flanked by single windows to each floor. The brick is laid neatly in Flemish bond, with rubbed-brick, flat arches above the ground-floor windows. The first-floor casement windows each have two narrow mullions forming three lights, while those on the ground floor are a variation on the cross-light, with two narrow mullions and a single transom one-third down from the top. The central doorway has a double-leaf door, opening onto a recessed lobby illuminated by a rectangular, glazed panel above the lintel. There is a small, pitched-roof hood, supported on double-ogee brackets.

Figure 8. Angel House. The oriel window under the east-end jetty of the crosswing

**The Principal Range**

The main north-south range abuts the north sidewall of the crosswing, using it for closure and thus forming the internal south wall of bay 4. The range does not align with the middle of the crosswing but is offset to the east, to make room for the two-flue (primary) chimney stack with fireplaces on the ground and first floors in the north wall of bay 1.

Bays 4 and 5 have square framing, two panels high on ground and first floor. The wide cross-passage doorway on the west side of bay 5 has a shaped doorhead in the form of a Tudor arch, but this is modern and probably not based on a lost original, since this was likely to have been higher up, just below the girding beam, as indicated by redundant pegging on each side of the opening. Another clue concerning the original form of the doorhead can be seen on the east side of the bay, where the primary cross-passage doorhead is still in place although the doorway is now blocked. The end wall of bay 5 (T7) appears to have formed an end wall of the range before bays 6 and 7 were added because it is faced-up towards the north. Had there been a further coeval bay to the north, then the upper, heartwood face of the cross-frame T7 would have been to the south to acknowledge the higher status of that part of the building.[12]

Bays 4 and 5 form a ceiled hall with a cross-passage passing east to west through the north end of bay 5, behind the principal chimney which has a large fireplace facing south into bay 4. The fireplace has an oak lintel with multiple taper-burn marks. The soffit has a narrow chamfer that turns at each end to the wider chamfer on the two stone jambs, one of which has a re-used section with a 14th-century moulding profile. On the first floor of bay 5 there is a fireplace in the west face of the large chimney stack. It has an oak lintel and chamfered stone jambs that, like the ground-floor fireplace, incorporate moulded stones of 14th-century date.

The status of bay 4 is indicated by the ceiling, which is a counter-change, coffered ceiling of six panels, each with five plain joists (Figure 9). The main beams have steep, wide chamfers and broach stops, each with the points (unusually) trimmed back slightly.[13] The chamfers show evidence of having been worked with an adze rather than a side-axe. The ceiling is coeval with

bays 4 and 5, and not a later insertion, as the chamfered and stopped beams along the east and west sides are formed from the girding beams rather than being planted-on half beams.



Figure 9. Angel House. The counter-change ceiling in bay 4

Bays 6 and 7 form the two-storey, service part of the house. It is slightly lower at the ridge and eaves than bays 4 and 5, with a marginally steeper pitch. The timber-framed wall on the west side is three panels high. The east sidewall of bay 6 is of stone replacing timber. Bay 6 has a service fireplace (now blocked) backing on to the north wall.

The upper rooms in bays 1 to 5 were originally all open to the ridge but have had later ceilings installed, although those in bays 1 and 4 have since been removed. It is clear that there have been a number of refurbishment campaigns in which modifications and repairs to the fenestration have been carried out with some care, utilising diagonally set, square mullions, copied from the primary windows.

The internal timbers have all been sand-blasted to remove dirt and, very probably, black paint. Luckily this has not obliterated the many coherent assembly marks on the cross frames that use both circles and lines cut with a race knife.[14] However it has perhaps removed at least half a millimetre of material from the surface of the timber, except in slightly raised areas where a series of painted numbers have been left, untouched by the sand blasting. Those carrying out the work clearly masked these areas off. It is thought that the numbers relate to the use of the building as a guest house.

**Summary**
Angel House is a building of some considerable status. Bays 1 to 5 are the primary structure, bays 6 and 7 being later additions. The saw-mark evidence indicates that the primary timbers were pit-sawn using a technique that post-dates 1530/40.[15] The counter-change ceiling suggests a date within the second half of the 16th century and there is tree-ring dating evidence from elsewhere in the County to suggest a more precise date. Tree-ring dating of a counter-change ceiling in The Throne, Hereford Street, Weobley (a multi-phase former inn) gave a timber-felling date of spring 1560. Dendrochronology dated a porch in the same building, also with a counter-change ceiling, but in this case with broach stops on the beams, to 1572-75.[16] With this in mind it would be reasonable to propose a construction date within 1560-80 for the primary phase of Angel House.

Angel House, as a 16th-century 'new build,' owes much, in terms of layout, to the deeply entrenched design of the medieval open hall that, in Herefordshire, ceased to be built in the decade before and after 1500, leaving the 16th century to be a period of modernisation, with the widespread introduction of chimney stacks, window glass, and ceiled halls. But the concept of the medieval hall lived on in respect of the orientation of the buildings, with the solar aligned towards the south-west quadrant, placing the service end to the north-east. The cross-passage was sited to pass through the lower end of the hall, with the upper bay of the hall containing the decorative elements of status. Finally, the most private and relatively inaccessible chambers were arranged to be in the solar. All this we can see in Angel House.

The later service bays that have been butted up to bay 5 are of poorer-quality timber and poorer-quality construction, as befits their function. Truss T9 reuses a pair of earlier (probably 15th century) principal rafters. Since the primary phase did not include an integral service bay it may be that there was a detached kitchen, close to the property, that has been demolished.

Regarding the early 18th-century brick refacing of the south elevation it should be stressed that bays 1 and 3 would not have had windows in the south side and certainly no doorway leading directly in to the solar. However, there must have been a small window in the south side of bay 2, at both ground- and first-floor levels, since otherwise the rooms in that bay would have been too dark.

It is to be hoped that documentary evidence might, at some point in the future, reveal who built this important house. In view of the name of the house a strong connection with the church, which is in full view to the south, cannot be ruled out.

## TUDOR HOUSE, GREEN LANE, YARPOLE, HEREFORDSHIRE, HR6 0BD

Lat./Long.: 52.278986, -2.780111. NGR: SO4688064827. Hereford SMR 21516. RCHME 6. The house is listed Grade II.

This house was recorded by the Royal Commission in the 1930s, at which time it had been subdivided to form two dwellings, with an inserted doorway in the front of the crosswing.[17] Since then this doorway has been removed and the framing restored so the house is once more a single dwelling. The Commission also noted that inside the north room there was 'some original panelled plaster-work with enrichments, an eagle and a pomegranate', but there is no trace of them now.

As shown in Figure 10, the main, four-bay, two-storey, brick-fronted range of the house is laid out on a north-south axis with, at the north end, a two-bay, two-storey, timber-framed crosswing set close to, and parallel with, the road (Green Lane).




Figure 10. Tudor House, Yarpole. The east elevation, with bays and trusses marked

**The Crosswing**

The crosswing is built above a cellar which, because the house stands on raised ground, has level access north onto the road. The walls of the cellar are of rubble stone and form the plinth for the sill beams of the house. The first floor is jettied on the front (east) elevation, with the jetty carried on the projecting ends of the girding beams and the ends of two ceiling beams above each side of the window. There are no jetty brackets. There is a replacement bressumer—the earlier one was moulded. The gable has a shallow jetty. The crosswing is probably *c.*1600 in date. The gable end of the crosswing has close studding, flanking a central window on the ground floor. On the first floor there is square panelling with paired diagonal bracing in each square to form diamond patterns on each side of the central window. The gable has a slightly cambered tiebeam, above which is diagonal cross-bracing forming six square (diamond) panels, and four triangular panels along the bottom. There are other examples of this gable decoration in Herefordshire such as those found at Throne View Cottage, High Street, Weobley, and The Cottage, East Street, Pembridge.

The north sidewall has square framing, two panels high on the ground floor and three panels high at first-floor level. There are windows but all of these may be later openings. There are quite a few replacement timbers in the crosswing framing.

**The Main Range**

The main range has a first phase of three bays (bays 2, 3 &4) abutting the south side of the crosswing. A later bay (bay 1) has been added to the southern end although there is no evidence for this on the brick front, which is a single phase of building. The three first-phase bays (2, 3 & 4) may reflect an earlier, open hall layout on the site, and the present front door may be located close to what would have been the cross passage. The listing description states that the brick front was carried out in two phases, but I think this is incorrect. The two northern bays of the main range are decorated, especially the string course which has burnt bricks to create a chequerboard effect, but across the two southern bays the string course is plain. This does not indicate two phases—the decoration is marking out the two bays (3 & 4) of the ceiled hall or principal chamber, leaving the two service bays with a plain string course, although they do appear to have had lozenge decoration at first-floor level. Note also that the windows in bay 4 are larger, another indication that bay 4 was marked out for extra decoration. What also indicates that the front was a single phase is that the bricks are the same and, more significantly, there is a similar, rather ‘loose’ Flemish bond employed throughout on the brickwork. The brick facing,

with the string course, continues around the south, gable end of the main range, although the gable itself is of timber and weatherboarded.

**The Roof Structure**
Roof truss T2 and the framing below on the same line is faced up towards the south. It is weathered enough on that face to indicate that it formed the original end of the main range and that bay 1 is a later addition. Trusses T3 and T4 are both faced up towards the upper (south) end of the range.

**Later Additions**
To the back (west) of bay 1 is a single-storey extension with a catslide roof. On the south side of the rear bay of the crosswing there is a single-storey addition, also with a catslide roof.

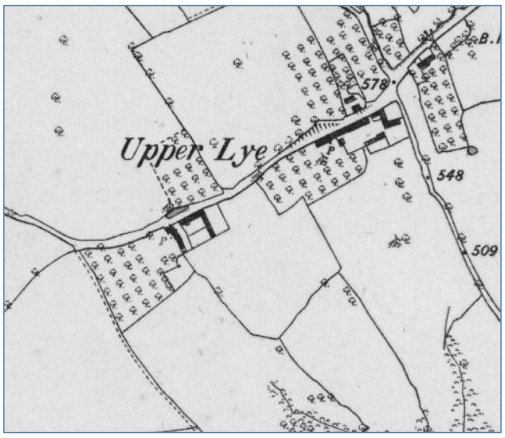
**Summary**
It is suggested that there was a single-storey (possibly cruck-framed) open-hall house on the site, likely to have been 15th century in date, and that the present crosswing of *c.*1600 was an upgrading of the solar accommodation. The earlier open hall was demolished and replaced with the present timber-framed, two-storey, three-bay range that abuts the side of the crosswing. That the earlier main range was a single-storey structure is indicated by the fact that the first-floor south wall of the front bay of the crosswing did not have a primary doorway linking it with the first floor above bay 4; a later doorway had to be cut when the present main range was built. Then an additional two-storey service bay (bay 1) was added to the southern end of the range. Either then, or more probably later, in the early 18th century, the east front and south end of the main range were re-faced in brick. The rear walls were replaced in stone.

**WESTERN LYE FARMHOUSE, UPPER LYE, AYMESTREY, HEREFORDSHIRE, HR6 9SZ**
Lat./Long.: 52.28576, -2.89267. NGR: SO3920265665. RCHME 2. Listed grade II.



This building was noted by the RCHME in *c.*1930 as 'Upper Lye Farm.' It was first listed (Grade II) in 1959, also as Upper Lye Farm. The listing was amended in 1986 with the name Western Lye Farm. The house and farm buildings are situated on the southern side of the narrow east-west road between Upper Lye and Limebrook. There is rising ground to the north and the house is built on a site that slopes down to the south. (Figures 11 & 12).

Figure 11. Western Lye Farmhouse. East elevation




The earlier part of the house consists of three bays (bays 1-3) laid out on an approximate north-south axis with, at the north end, adjacent to the road, a later phase in the form of a tall, two-bay crosswing (bays 4 & 5). Both principal phases are timber-framed but with some stonework and later brick work to bay 3.

Figure 12. Western Lye Farmhouse, labelled as Upper Lye on the OS map of 1886

For the purposes of this report the orientation of the main range is taken to be north-south and that of the crosswing east-west. The bay and roof truss numbering is shown in Figure 13. These notes avoid discussion of the fenestration as this was not inspected closely.

**The Main Range—Bays 1, 2 & 3**

Bays 1 and 2 have timber-framed sidewalls but bay 3 at the south end of the range is of brick. The structure retains significant elements of a medieval, cruck-framed, open hall into which a later floor has been inserted in bay 2, formerly the upper bay of the hall. The walls and part of the roof of bay 3 have been rebuilt. The bay contains a large chimney stack backing onto the site of the former cross passage. A recent balcony has been added to the west of bay 1 linking the first floor in bay 2 with the staircase landing in the crosswing.

**Roof truss T1**

This is a tiebeam truss of uncertain date, laid against, but not attached to, the timber-framing of the crosswing sidewall. It supports double tiers of purlins and a ridge purlin. There is no collar and only the two ends of the tiebeam are still in place, the centre section having been removed, probably when the recent doorway was cut through to link the crosswing with the inserted balcony. This has compromised the structural integrity of the roof truss.

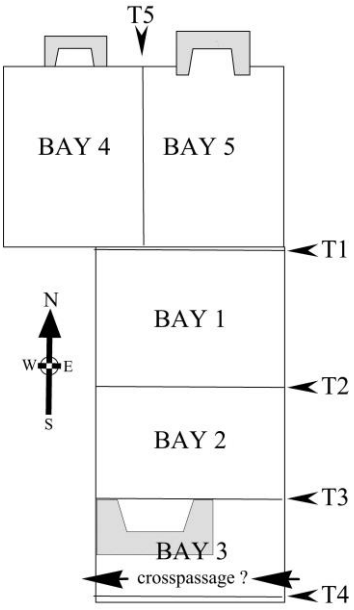



Figure 13. Sketch plan of Western Lye Farmhouse

**Truss T2**

This truss is formed by a pair of curved, full-cruck blades, with a massive, cambered collar (Figure 14). There were two primary tiebeams at lower levels, but these have been removed. A later beam has been inserted at a higher level than the lost primary tiebeam. Lapped into the south face of the east cruck blade, and tenoned into a mortice in the wall post, is the short section of a wide beam, but the angle of the cut (which could not have been made with it *in situ*) suggests that it may be a later insertion.[18] The cruck on the west side does not have a lap joint at the corresponding level although there are pegs that indicate a hidden mortice. Much is obscured, not least at ground-floor level where the inner faces of the cruck blades on both sides of the building have been hacked back, and later posts, face-pegged into place, added to replace the lost wood. The upper face of the truss is to the south. A metal tie, in the form of a substantial iron bar, probably of 19th-century date, has been inserted at ceiling level to arrest any spreading of the cruck frame.



Figure 14. Cruck truss T2, north elevation. Western Lye Farmhouse

**Truss T3**

Truss T3 is the principal cruck frame that would have been over the middle of the hall. This has a collar with the remains of arch bracing below the collar on the west side of the frame. The arch bracing is missing on the east side, where a later first-floor doorway has been inserted, but there are peg holes for a chase mortice which indicates where the bracing was fitted. Above the collar there are 'V' struts. On the south face of the truss, on and around the collar, the timber is heavily charred, probably because there was an earlier configuration of the present chimney stack that incorporated the cruck frame. It is also possible that the existing stack was preceded by a timber-framed chimney that used the cruck truss to provide support. In certain circumstances oak will smoulder rather than burn rapidly, something that can happen over time within a chimney stack. The cruck frame, in addition to the mutilation from the charring and loss of arch-bracing, has had the lower part of the east cruck replaced and an iron tie fitted at ceiling height between the cruck blades. The tie is an iron bar, square in section, and possibly of earlier date than that on T2.

**Roof Truss T4**

Truss T4 at the south end of the range is a relatively lightweight, king post design, probably of 18th-century date. The base of the king post is tenoned into a mortice in the tiebeam and secured

with three pegs. On each side of the truss there are two lightweight raking struts from the tiebeam to positions under the purlins. The truss is hidden from the exterior by the brick end-wall of the range.

**Bay 1**

This is the longest of the three bays. It is open from the ground floor to the ridge. Without further detailed analysis and recording of the frame (or through tree-ring dating) it is impossible to be certain that the wall framing is coeval with the date of the cruck blades, but it is less substantial than the wall framing in bay 2 and may be the same date as the late 17th-century crosswing. The RCHME sketch plan of 1931, held at the National Monuments and Records Centre, Swindon, shows this bay with an axial ceiling beam supporting a first-floor level. Since then, this floor has been removed and the present balcony installed along the west side of the bay, linking the crosswing with the first-floor level in bay 2. It very probably makes use of the earlier axial beam which has been moved to one side. A doorway has been cut through the side of the crosswing to give access and a modern doorhead inserted. As mentioned above, the insertion of this doorway has involved cutting the T1 tiebeam, which has led to structural problems.

**Bay 2**

Bay 2 has cruck trusses at both ends and wall framing that is almost certainly part of the primary build. The bay was originally open to the ridge but now has an inserted, six-panel, counter-change ceiling of late 16th-century date.[19] The beams and half-beams have wide, steep, slightly hollow chamfers and diagonally cut stops. The joists are now hidden and a transverse beam on the east side is missing, presumably because the south-east corner of the bay was the site of a later staircase (shown in an RCHME sketch of 1931). Also marked on the sketch plan is a wide doorway (since removed) in the west wall of bay 2, adjacent to the north side of T2.[20] It is almost certain that this was not a primary feature.

On the south side of the bay is a fireplace with a long, oak lintel that indicates the original size of the fireplace opening. The chimney stack is principally of stone, but the fireplace has been remodelled and partially infilled with brickwork so that it now has three components: on the left, a copper for heating water; on the right, a bread oven; and in the middle a fireplace, now with a woodburning stove in place. The copper is still *in situ* within a deep recess, with a cast iron door at the base for access to the hearth. Above the copper the fireplace lintel has been cut to form an arch. The bread oven has a cast iron door (marked No.18) and a curved iron support under the brick arch above the opening. The width of the present fireplace suggests that it may have been fitted with a cast iron grate and register plate. The bricks are handmade and have been fired at a low temperature. It is likely that the fireplace was remodelled in the 19th century.

**Bay 3**

The bay is mainly occupied by the massive stone base of the chimney stack. The 1931 plan of the house indicates that there was a recess, possibly a fireplace, on the east side of the stack heating what would have been a small room. The floor area is a little more generous at first floor level although the chimney stack is still a dominant feature.

**The Crosswing**

This is a two-bay, timber-framed, two-storey wing with attics and a cellar, laid out on an east-west orientation. It is built on a high plinth of stone and brick. The roof is hipped. The high plinth

means that the ground floor is two panels high while the first-floor level is three panels high. The attic storey has a single row of panels beneath the eaves. When built, probably in the late 17th century, the framing panels would have been infilled with wattle and daub, much of which has been replaced with brick infill. On the north side of the range there are two chimney stacks of stone, with brick dressings and brick chimney shafts. The larger one is that to the east, with two flues, which relate to a service fireplace on the ground floor of bay 5 and a fireplace on the first floor. The smaller stack to the west has a single flue that relates to a former fireplace on the ground floor of bay 4.

The wing is remarkably complete, with a primary staircase that rises to the attics. The original newel posts are still in place as is some of the glazed partitioning at first-floor level. Each of the two attic rooms is lit by a south-facing dormer window. The roof structure is primary with hipped ends to the east and west. The central roof truss has an interrupted tiebeam with a doorway linking the two bays. The fenestration in the ground-floor west wall of bay 4 has undergone radical change, as has the framing in that area.

The cellar is under bay 4. The present access is from a flight of internal steps. There is a central, north-south, drainage channel. The primary access was via external steps on the south side of the bay. This route has been lost and the steps infilled due to introduction of a modern door in the framing at ground-floor level.

**Discussion**

The earliest part of the house is bay 2 with a cruck truss at each end and with primary wall framing on the east and west sides. It is almost certainly 15th century in date—perhaps 1440-1460, although there is insufficient surviving structure, such as doorheads, window details, windbraces, moulding profiles etc., to make a more accurate assessment on stylistic grounds. Bay 2 formed the 'upper' bay of a two-bay hall; the 'lower' bay would have been on the site of bay 3 and, to the south, there would possibly have been a service bay on the site of the former pigsty—see the note below about the possibility of a byre-end. A cross passage would have passed through the southern end of the lower bay, behind the present chimney stack.

The 'upper' bay of the hall is marked by the six-panel, counter-change, inserted ceiling. There are many examples of these in the surrounding countryside on the border with Wales. They were added to open halls in the last quarter of the 16th century when open hearths were being replaced with chimney stacks, which made it possible to have a first-floor level. The decorative nature of the ceiling was reserved for the higher status of the upper bay of the hall.

The upper end accommodation (the 'solar') would have been on the site of bay 1. Here, the wall framing and roof structure is not primary, and may have been inserted when the late 17th-century wing was added. The building of the crosswing marks an important increase in wealth, possibly following the construction of the large barn adjacent to the road, which could indicate a period of prosperity.

**Byre-end**

The usual layout for medieval halls would have placed the solar or upper end of the building towards the south-west, with the service end to the north-east, keeping it cool for food preparation and storage.[21] However, Western Lye Farmhouse is on a sloping site and has been built to place the service bay at the (physically) lower end. This may be because this was a byre-end house in which the service bay was used instead to house animals, the downhill position being essential for drainage. It is possible that the pigsty was an echo of the earlier use of that

part of the range. It is thought that a byre would have been used to house important animals such as bullocks (the power to draw the plough) or other prized animals to keep them safe overnight. The border area in the 15th century was vulnerable to raiding from Wales, or so it is thought!

**EATON HALL, STOKE PRIOR LANE, EATON, LEOMINSTER, HEREFORDSHIRE, HR6 0NA**

Lat./Long., 52.2183419, -2.7204804 NGR: SO5088058035 RCHME 5. Listed Grade II.



Figure 15. Eaton Hall. South elevation

Eaton Hall is about a mile south-east of Leominster. It is a more important building than the grade II listing suggests. It is a base-cruck, timber-framed hall house of considerable size and status, that has been encased in later stone and brick (Figure 15). It was one of the many monastic granges or burys, such as Ford, Hennor, and Ivington, built by Leominster Priory (a cell of Reading Abbey) to manage their extensive holdings of land.[22] The high quality of the timber structure at Eaton marks it out as having an ecclesiastical connection.

Eaton has been confused at times with Eyton, a village two miles north-west of Leominster, because both names have a suffered a wide variety of spellings. I have argued that the claims made by many historians, of an ancient link between the Hakluyt family and Eaton, arise from this confusion and are misleading. The error appears to stem from John Price who, in his book of 1795, misquotes Leland's reference to the Hakluyt family, placing them in the township of Eaton rather than Eyton.[23] This is picked up and repeated by Jonathan Williams in 1808.[24] Then, in 1862, there was the Rev. G. F. Townsend who continued the error.[25] More recently it was repeated by the Royal Commission in the publication of 1934 concerning Eaton Hall: 'The property belonged to the family of Hackluyt, and Leland records that William Hackluyt, who was with Henry V at Agincourt, built a house in the village.'[26]

Leland's text is a clear reference to Eyton since he even noted that it was west-north-west of Leominster. He wrote that he travelled:

> From Leonminster to Eyton a mile of by west northe west. One William Hakcluit that was with Kynge Henry the 5. at the batell of Egen Courte set up a house at this village, and purchasyd lands to it. He had one St. George, a nobleman of Fraunce, to his prisoner. Hakcluit now lyvynge is the third in descent of the house of Eiton.[27]

So, Leland meant Eyton, north-west of Leominster, not Eaton, which is south-east of the town.[28] Further evidence supports this association of the Hakluyts with Eyton; Thomas Hakluyt, Secretary of The Council in the Marches of Wales, based at Ludlow, had a house in Eyton,[29] whilst his son, Richard Hakluyt (the elder) inherited land there following the death of his father.[30]

In addition, there is a very strong argument that Eaton Hall could not have been the principal, ancestral house of the Hakluyt family in that, as a grange of Leominster Priory, it would only have been 'available' for secular use following the Dissolution of the Monasteries in 1540. There is certainly evidence to indicate that it was occupied by a member of the Hakluyt family after this date, and although there is no mention of Hakluyt in Eaton in respect of the 1545 subsidy tax,[31] the name 'Thomas Hackluytt of Eaton Grange' does appear in a 'grant in fee' dated 1578.[32] It is known that Eaton was sold to Wallop Brabazon at some time between 1613 and 1630 so the name Hackluytt can be associated with Eaton for perhaps *c*. fifty years. [33]




Figure 16. Eaton Hall, OS 6-inch map 1902

It is significant that the 1578 reference is to a 'grange'.[34] A search through maps of the site revealed that there appear to have been fishponds, and that there was a mill, fed with a curved channel taking water from the river and thence to a sluice and a long tail race (Figure 16). The southern half of the north-south barn range also contains the remains of an aisled barn, probably of 13th-century date. The side aisles have been removed. Few, if any, barns of this date survive in the County.[35] There are also references to a former chapel on the site.[36] All these features would form the components of a monastic grange.

Some account of Eaton Hall was made by the Royal Commission and a ground plan was published (Figure 17). It is clear that the northern bays of the east crosswing are of particular interest as there is close studding on the east elevation and an early doorway at the north end, with wide bracing forming a two-centred door head. These features are shown in Figures 18-20

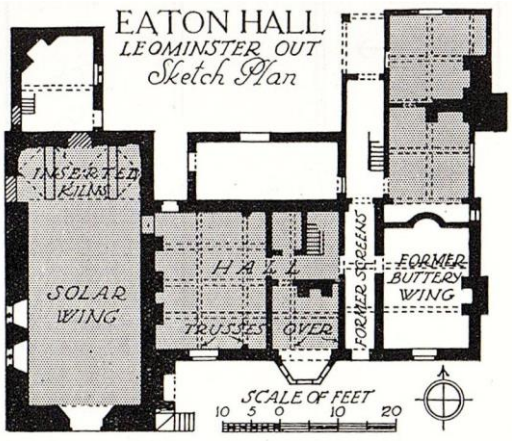
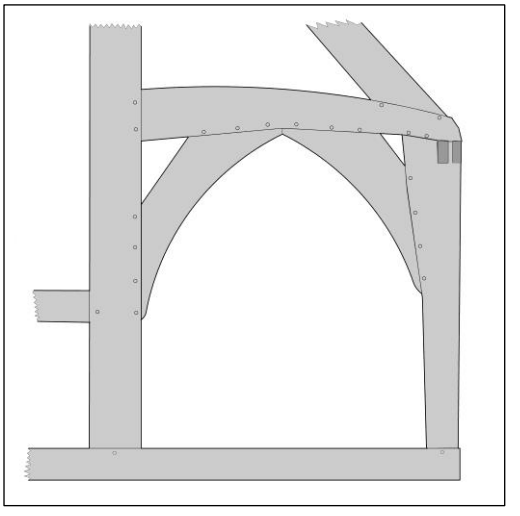



Figure 17. Eaton Hall, ground plan. (RCHME 1934)

Very few of the granges attached to Leominster Priory have survived. Eaton Hall stands on an historic monastic site where much remains, both above ground and almost certainly hidden below the surface, to indicate the layout and how the community was organised.







Eaton Hall: the east crosswing.

Figure 18 (top left). East elevation

Figure 19 (above). North elevation

Figure 20 (left). Sketch of north-elevation doorway

## NOTES AND REFERENCES

[1] Duncan James, 'Buildings 2018', *Trans.Woolhope Natur. Fld. Club (*henceforth *TWNFC),* Vol. 66 (2018), pp. 177-79.
[2] Listing number 1481993. Lat/long 52.20508, -2.87450.
[3] Lat/long 53.12722, -2.25181.
[4] There is structural evidence for this at the upper end of the hall.
[5] A drawing of the Great Hall by John Sell Cotman, dated 1807, shows the hall without the inserted ceiling.
[6] Royal Commission on Historical Monuments, England, *An Inventory of the Historical Monuments in Herefordshire. Vol. 3 – North-West, (*H.M.S.O. Kingsland, 1934), Monument No.19, p.84.
[7] J. W. Tonkin, 'Buildings, 1969', *TWNFC*, Vol. 39 (1969), Part III, p. 484.
[8] Norman C. Reeves, The Leon Valley; Three Herefordshire Villages, Kingsland, Monkland & Eardisland, (Phillimore, 1980), pp. 52-3.
[9] R. Shoesmith & R. Barrett, *The Pubs of Leominster, Kington & N.W. Herefordshire*, (Logaston, 2000), pp. 270-1.
[10] 'In close studding the spaces between the studs are approximately the same width as the studs.' *Recording Timber-*

*Framed Buildings: an illustrated glossary*, (Council for British Archaeology, 1996).
[11] The wide window on the ground floor of the east side of bay 4 has weathering marks on the posts alongside the sill indicative of the overlap of the ends of an oriel window sill that has been hacked back.
[12] Unwritten rules concerning the orientation of crossframes were observed with remarkable diligence.
[13] A similar design of broach stop can be seen in the west wing of Black Hall, Aston, which is about a mile north-west of Kingsland.
[14] D. James, 'Carpenters' Assembly Marks in Timber-Framed Buildings' *Vernacular Architecture*, Vol. 49 (2018), pp 1-31.
[15] D. James, 'Saw marks in vernacular buildings and their wider significance.' *Vernacular Architecture*, Vol. 43 (2012), pp 7-18.
[16] D. James, 'The Throne, Weobley, An Analysis and Selective Recording of the Building,' March 2012, an unpublished report produced in advance of a planning application. Also, *Vernacular Architecture*, Vol. 43 (2012), pp 79-80.
[17] Royal Commission on Historical Monuments, England, *An Inventory of the Historical Monuments in Herefordshire. Vol. 3 – North-West,* (H.M.S.O, 1934). Yarpole, monument No. 6, p.216
[18] Having reflected on this point, it is possible that the tie beam was cut and that later, the cruck blade has sunk, perhaps through rotting of the base, pulling the short section of tiebeam to the present angle.
[19] See *TWNFC*, Vol.43 (1979), p.74.
[20] The 1931 plan in the Historic England archives at Swindon fail to illustrate the north chimney stack and fireplace in bay 4 of the crosswing although it can be seen in the photograph of that date.
[21] D. James, 'An Investigation of the Orientation of Timber-framed Houses in Herefordshire'. *Vernacular Architecture*, Vol. 34 (2003), pp. 20-31.
[22] 'Grant and confirmation by Richard [de Capella], bishop of Hereford, to Reading Abbey and Abbot Hugh [I], of the church of Leominster…Ford, Hennor, Eaton, Hampton [Wafer], Stockton...'. B. R. Kemp, (ed), *Reading Abbey Cartularies, I,* (1986) Camden Fourth Series, Volume 31, p. 287.
[23] John Price, An Historical & Topographical Account of Leominster and it's Vicinity, (1795) , p. 158-160.
[24] Jonathan Williams, *The Leominster Guide,* (1808). 2nd edition Eric Turton (ed.) (2000) Leominster Folk Museum. p. 137-8.
[25] G. F. Townsend, The Town and Borough of Leominster, (1862) pp. 42-3.
[26] Royal Commission on Historical Monuments, England, *An Inventory of the Historical Monuments in Herefordshire. Vol. 3 – North-West.* (1934) H.M.S.O. Leominster Out, monument No. 5, p. 128
[27] John Leland, *The Itinerary of John Leland in or about the years 1535-1543*, part V, p.75. A modern English transcription of the Itinerary has been prepared by John Chandler, *John Leland's Itinerary - Travels in Tudor England,* (1993) Sutton. The Herefordshire section is, pp.213-229.
[28] E. G. R. Taylor, The Original Writings and Corresponence of the Two Richard Hakluyts, (1935) Hakluyt Society, p.2.
[29] D. James, 'The Herefordshire Hakluyt Houses'. (January 2017), Hakluyt Society Journal.
[30] E. G. R. Taylor, The Original Writings and Corresponence of the Two Richard Hakluyts, (1935) Hakluyt Society, pp. 2-5.
[31] M. A. Faraday, *Herefordshire Taxes in the Reign of Henry VIII,* (Woolhope Naturalists' Field Club, 2005), p. 389 item *47Wp16* (for Eaton).
[32] Mrs Baldwyn-Childe & John Amphlett (Ed), *The Kyre Park Charters*, (Worcestershire Historical Society, 1905), p. 69, item 254.
[33] Charles J. Robinson, A History of the Mansions and Manors of Herefordshire, (1872), p. 175.
[34] See note 32.
[35] My attention was drawn by Nick Joyce to this rare survival .
[36] John Price, An Historical & Topographical Account of Leominster and it's Vicinity, (1795) pp. 160-1.

# Geology 2022

*By* MOIRA JENKINS

## EARTH HERITAGE TRUST NEWS

The Herefordshire and Worcestershire Earth Heritage Trust (EHT) is carrying out a project to find and conserve Birmingham's erratic boulders. Many of these large rocks, transported in the ice from north Wales to the Birmingham area, have been recorded and others are still to be found. Some new ones have been discovered. Several guides are being written for cycling and walking trails. To find out more see the website https://erraticsproject.org/.

## SITE DESIGNATION

A meeting of a panel of assessors took place to designate additional important sites as Local Geological Sites (LGS). In Herefordshire, those designated were: Upper Hall Quarry, an SSSI for biodiversity; Medlands, the kettle hole pond; Norton Wood Orchard, ice-sculpted ponds at the margin of a lake; the classic landslip features and periglacial modification of The Darens; and the narrow ridge of the Cat's Back, steepened by ice. The Worcestershire sites designated show features and structures in the Lickey Quartzite Formation at Rose Hill, Warren Lane, and Kendal End Quarry. Further details of the Herefordshire sites are given below.

In the extreme west of Herefordshire the sites at both the Cat's Back and The Darens expose Devonian Old Red Sandstone, the Freshwater West Formation (St Maughans Formation), and the overlying Ffynnon Limestone and Senni Formation. A variety of landscape features are displayed. The sites are located on open-access land, on either side of the head of the Olchon Valley, at the eastern edge of the Black Mountains. They can be visited via mountain paths that are steep and muddy at times but offer wonderful views of the Herefordshire countryside. See Plate 9.1.

### The Cat's Back

The Cat's Back, on the southern slope of Black Hill, forms a dramatic, arête-like feature, extending south from the Black Mountains plateau, with the deep Olchon Valley to the west and the relatively low-lying Herefordshire Plain to the east, as shown in Plate 9.2. The official name of the site is Black Hill, but the location is widely known by its colloquial name 'Cat's Back', said to have originated from the resemblance of the ridge's profile (caused by the alternation of hard and soft rock beds) to the vertebrae of a cat's back.

The ridge is a product of various periods of glaciation when ice sculpted the ridge from the near-horizontal Lower Devonian rocks. These rocks, which may be readily studied at outcrops along the ridge, provide an instructive display of sedimentary features, along with beds of calcrete. The site presents features from two palaeoenvironments that are chronologically widely separated, the relatively recent Devensian glaciation and the 410-million-year-old, semi-arid, fluviatile setting of the Lower Devonian.

This is a key site to study the Ffynnon Limestone, a calcrete located at the junction of the Freshwater West Formation and the following Senni Formation. In addition, the site provides excellent examples of soft sediment deformation, as shown in Plate 9.3, and geomorphological features relating to glaciation.

**The Darens**

Black Darren and adjacent Red Daren ('The Darens') are two significant geomorphological features overlooking the Olchon Valley, on the eastern edge of the Black Mountains in Herefordshire. Impressive evidence exists here of relict large-scale rock slope failure (RSF), which reflects a landscape adjustment to the former glacial erosion of the valley slopes. Black Darren has a number of classical landslip features, whereas Red Daren is simpler but reveals solid rock exposures which give clues to the origin of the landslips. Considerable periglacial (cold climate) modification through solifluction and nivation processes has also occurred to the landforms at these sites as well as on other slopes within the Olchon and nearby valleys. These landslips are likely to have taken place catastrophically either during the Late Devensian glacial stage or in the early Holocene. Intermittent rock falls from the head scarp still occur. Overall, the assemblage of landforms at the Darens is unique within Herefordshire and Worcestershire. The site is also notable for the extensive exposures of the Senni Formation and the Ffynnon Formation, also seen at the nearby Cat's Back site.

At Black Darren, there is a landslip area shown in Plate 9.5 and pronival rampart (protalus rampart), seen in Plate 9.4. The rampart is a periglacial feature, a ridge running parallel to the steep slope, composed of large, angular blocks, and formed when rock debris fell onto a snowbank from the cliff above. Over a long period of time, sufficient material accumulated to produce a distinct bank of stony debris which, long after the snow bed melted away, remained as a rampart.

These geological features are excellently described in both the *Cat's Back Deep Time Voyager* and *Black Mountains Field Trip* apps. These 'Voyages' are games of discovery and survival in ancient environments. For details, to look at all the apps available, and to see which you can download from the Apple or Google Store, see https://deeptime.voyage/. If you wish to explore the sites in the field, you will find the Cat's Back picnic site and car park at grid reference SO 288 328 (postcode HR2 0NL) and the Black Darren car park at SO 298 299.

**Upper Hall Farm Quarry**

The third Herefordshire site to receive LGS status is Upper Hall Farm Quarry. Located near to Ledbury, it is an impressive site, with massive, near-horizontal beds of Much Wenlock Limestone topped by beds of more nodular Lower Ludlow Shale. It is the only site that exposes the transition from Wenlock to Ludlow rocks in the south of Herefordshire. The quarry is on private land, so access requires the owner's permission. This site is described later in this report.

Two of the sites studied in the Ice Age Ponds project have also been selected for designation as LGS, at Medlands, Park Farm and at Norton Wood Orchard, both described below in the description of that project.

**ICE AGE PONDS PROJECT**

The Ice Age Ponds project, carried out by Herefordshire and Worcestershire Earth Heritage Trust, Herefordshire Wildlife Trust and Herefordshire Amphibian and Reptile Team, supported by a grant from the National Lottery Heritage Fund, came to a successful conclusion in the summer. More than fifty volunteers have helped to survey more than 100 ponds. Landowners, local communities, and farmers have learnt more about these ancient ponds, dating back to the Ice Age. They are rare nationally, but Herefordshire is lucky that 25% of ponds in the county are kettle hole ponds. Public awareness of the ponds is so important as many have been infilled, thus losing the evidence of tens of thousands of years of history and of changing biodiversity as the

climate ameliorated after the Ice Age. Many ponds contain rare species. Water quality has been tested and recorded. A full paper describing the work undertaken, the results, the considerable knowledge gained, and subsequent conservation activity can be found from p. 73 of this volume. This report includes some references to colour plates associated with the paper.

The communication programme has included participation at events and festivals, especially those involving children, talks online and in person, visits to schools, and a conference. Site management plans have been drawn up for twenty ponds. Conservation management work has been carried out at fifteen. Training has been given and there are now eight 'Champions' to help monitor the ponds.

A wealth of resources is available to continue the work of the project, such as trail guides, interpretation panels, an informative website, and online descriptions of driving, cycling, and walking routes in the areas, once covered by ice, in which the ponds are found.

More information, including a video, can be found at https://iceageponds.org.There are trail guides produced by the EHT for Kenchester and Staunton on Wye.

You can download free apps for mobile phones. A description of walks at Almeley, Breinton, Brockhall, The Sturts, and Birches Farm can be found at https://iceageponds.org/app/. There are also apps for two cycle tours and three car tours.

On the Wildlife Trust website, https://www.herefordshirewt.org/iceageponds there is interesting information about some sites, including videos.

**Medlands, Park Farm**

This site is located on private land and access is through agreement with the landowners. It has a kettle hole pond, shown in Plate 9.6, formed by melting ice at the end of the Devensian Ice Age, roughly 15,000 years ago, in an area of hummocky moraine.

As part of a site management plan, most of the pond was cleared in 2022 because it was so tangled a mess that it was impossible to leave single standing stems. The open conditions are far better for wildlife as they allow the plants in the seedbank around the margin to germinate. We should now get a swathe of aquatic plants, which will not germinate under deep shade. These open conditions should also favour the Great Crested Newt, which is present. There are still some trees to the west.

Unlike many examples of kettle hole ponds within this part of north-west Herefordshire, this pond contains peat deposits, with preserved pollen grains that can be dated, and has remained unmodified by farmers. It is scientifically important because it provides information on both landscape formation at the end of the last Ice Age and the subsequent changing climate and vegetation history for this part of the county.

In 2019, a 2m core of peat resting on clay was extracted from the kettle hole. The coring operation can be seen in Plate 3.6. The core was laid on the ground and the dark-coloured peat it contained was examined. The peat at the bottom of the core has since been dated from 9053 ± 32 years BP (Before Present), with further dates of 8122 ± 27 yrs BP at 110 cm depth and 5667 ± 27 yrs BP at 27 cm depth. Pollen from the cores show the change in vegetation as climate ameliorated.

Jack Bowen and Alex Jones from Birmingham University carried out undergraduate projects on the Ice Age and the pollen found in the peat from the Ice Age ponds. Olivia Verplancke from Keele University undertook an MSc project investigating the ponds, using techniques including resistivity and ground-penetrating radar surveys.

**Norton Wood Orchard**

The second Ice Age Pond site, at Norton Wood Orchard, is a field containing no fewer than five depressions, formed at the fringes of glacial Lake Letton, at the end of the Ice Age. These may be where periglacial ice mounds collapsed about 23,000 years ago, as the lake drained, or where icebergs grounded and became covered in sediment before finally melting.

Norton Wood Orchard sits within an area of 0.2km$^2$ containing at least sixteen of these Ice Age depressions, located at what would have been the shore of the glacial Lake Letton. Four of these depressions are now ephemeral ponds, and the remains of peat have been found within one of them.

The field has undergone minimal alteration through farming practices, making it particularly valuable to science. It was purchased by the Herefordshire Wildlife Trust in 2021 and provides an excellent place for the general public to see Ice Age Ponds, and to learn about their formation. They provide a direct example of the links between geodiversity and biodiversity. One of the ponds can be seen in Plate 3.5.

**GURNEY'S QUARRY / UPPER HALL QUARRY** (SO 7175 3834) *by* Dr John Payne.

The site is privately owned so permission to visit it should be obtained from the owner of Upper Hall Farm.

This disused quarry near Ledbury is an SSSI for both its geology and the adjacent grassland. Its geological importance is emphasised by its mention in the Geological Conservation Review. It shows similar features to the internationally important site at Pitch Coppice in the Mortimer Forest, *viz.* the boundary between the Wenlock and Ludlow series of Silurian strata, although the rock facies are somewhat different.

The site clearly shows the Wenlock / Ludlow stratigraphic boundary, although this is not easily accessible, being some six or seven metres above the quarry floor. It has been professionally investigated for its fossils and in terms of regional sequence and bentonite stratigraphies.

The quarry was severely overgrown for many years despite efforts by the landowner and a one-day effort by the EHT site maintenance team. Early in 2022 the owner applied a major effort to clearance of the site, with the removal of the undergrowth and most of the trees. It is currently in fine condition for geological study.

Plates 9.7 and 9.8 show parts of the quarry in its previous condition in 2017, with bushes covering many parts of the rock face and closely growing trees obscuring a wide view of the site. The quarry at present is shown in Plates 9.9 and 9.10. The Wenlock / Ludlow boundary is at the step halfway up the cliff in Plate 9.9; this is one of the very few good exposures of this junction in Herefordshire and it extends for the whole length of the quarry. The strata are almost horizontal but dip slightly to the north (into the rock body). Although close to the horizontal and not at all distorted, these strata are at the core of the anticline which is the principal structure of the Ledbury Hills. The quarry face is about 220m in length; this length of well-exposed rock is probably unique in Herefordshire, especially with its 12m height.

**THE KNIGHTON GEOLOGICAL MAP**

The British Geological Survey has not yet published the Knighton Sheet 180, one of the few areas of UK with no geological map. As reported previously, mapping has been carried out by a keen group of volunteers led by Dr Arthur Tingley, and finally a limited number of 100 copies

has been printed as shown in the postcard in Plate 9.11. This is an excellent, thorough piece of work, with a map of the geology of the area together with cross sections, gravity and magnetic information, and references. Maps have been sent to specialist institutions, geology groups, and some libraries. If you are interested in buying one of the few remaining copies, please contact H&W EHT.

## A FEW OTHER GEOLOGICAL EVENTS IN HEREORDSHIRE

### Malvern U3A Geology Group

The group continues work on recording sites in the Malvern Hills AONB and on producing an updated version of the Geologists' Association Guide for the Malverns. Several walk descriptions are planned. Plate 9.12, a photo taken from the ramparts of British Camp, shows on the left the curving line of woodland growing on the Ridgeway, a ridge of Much Wenlock Limestone which has been folded into an anticline plunging to the right, and on the right is a similar curved line of the Aymestry Limestone. These are separated by fields on the lower ground underlain by Lower Ludlow Shales. In the middle distance are the Ledbury Hills, an area of upfolded Silurian rocks, an anticlinorium. There is deep soil developed on the shales and only a thin layer of soil on the limestone, which cannot be ploughed and is left as woodland. The topography clearly reflects the underlying geodiversity and is shaped by the different rocks and their structure. This determines the use that can be made of the land.

### Hereford Walking Festival

As part of the festival, a walk was led to Huntsham Hill (Plates 9.13 and 9.14). Here the uppermost Old Red Sandstone rocks, the Quartz Conglomerate, and Tintern Sandstone are overlain by Carboniferous Limestones. There is also an area which has been affected by landslips, which slightly deflect the channel of the River Wye.

Plate 9.13 shows the entrance to the former railway tunnel where Carboniferous Lower Dolomite, now called Barry Harbour Limestone Formation, overlies the Lower Limestone Shales (Avon Group). The old names are more descriptive of the type of rock seen than the newer national names.

## THE IMPORTANCE OF RECORDING TEMPORARY EXPOSURES

Moira Jenkins would be grateful to hear about interesting geological sites, especially those where rock is temporarily exposed, that would give the opportunity for recording the geology before it is again covered over.

# Mycology 2022

*By* JO WEIGHTMAN

2022 was not the best of years. The seemingly endless, hot, sun-filled days brought no excitement to the mycologist.

Once rain had fallen and enough time had elapsed for water to seep into the ground and kickstart growth, it was just too late for many species. In particular, there was a deafening silence from the ectomycorrhizal fungi—those symbiotic genera, headed up by *Russula*, *Lactarius* and *Amanita* species and by the boletes, just did not show. The odd appearance of a singleton, here and there, only served to increase speculation about the whys and wherefores of the widespread and various absences. The big exception was the Fly Agaric *Amanita muscaria* which did, in places, put on a splendid show. By November the ground was no longer parched, and saprophytic fungi began to appear.

## SINGIFICANT FUNGI REPORTED IN 2022

The fungi mentioned below were all significant in their various ways. All are saprophytes, recyclers of all kinds of dead organic material—wood, herbaceous stems, leaves, etc.

***Hygrophoropsis aurantiaca* False Chanterelle** (Plates 10.1 & 10.2).

The False Chanterelle stands alone in this Report because it was quite exceptionally and extraordinarily abundant this year. It is a species that we can rely on seeing most years, so much a part of the scene under conifers that it almost escapes notice. 2022 was something else. At a time when next to nothing was fruiting anywhere, Conifer plantations were lit up with hundreds and thousands of vibrant orange fruitbodies.

The cap is up to 8cm across, felty, and orange to apricot. The gills are decurrent, thin, close, and regularly forked (suggesting fan vaulting), intensely orange in colour and noticeably darker than the cap. The stipe is also orange. Other species of *Hygrophoropsis* occur in Britain and these can be distinguished by a pallid, ivory colouring in all parts (*H. macrospora* and *H. fuscosquamula*) or by the presence of red-brown hairs on the cap (*H. rufa*). However, with the False Chanterelle, as with most forms of wildlife, natural variation plays its part and the colours of *H. aurantiaca* quoted can vary in intensity.

Fungi are not always all they seem to be. It can happen that relationships are not as obvious as appearances suggest. This is the case with the False Chanterelle which, although it has gills, is more closely related to the boletes, which have pores, than to the agarics, which do not. On the other hand, it does not enjoy the lifestyle of these near relations, because it is saprophytic not mycorrhizal. It lives principally on the needles and debris in coniferous woodland but has also been recorded in mixed woods and even in grassland.

False Chanterelles are often confused with the Chanterelles but should not be. No part of the Chanterelle proper could be described as orange. All parts are butter yellow when fresh and paler with age, and the gills are few, thick like veins, and very irregularly forked.

***Pluteus umbrosus*—and getting to recognise a *Pluteus*** (Plates 10.3 and 10.4)

Two words are key to recognising a *Pluteus*: ‘pink’ and ‘free’.

First, look underneath to check the gill colour. If pink you may have a *Pluteus*. Secondly, look to see how the gills are attached to the stipe. If you cannot answer that because they are free, not touching the stipe at all, then you have a *Pluteus*. This is an important field character which *Pluteus* shares with, for example, the familiar mushroom on the supermarket shelves. Free gills are usually easy to see with the naked eye. The x10 hand lens carried by all mycologists and botanists makes things even clearer.

Taking these first steps gives a very good start to identification. Refinements can come later although it can be added here that *Pluteus* species occur as singletons, stand-alone fungi, and not in clumps.

Once the finder has arrived at *Pluteus*, the next destination is getting the specimen to species. This can often mean turning to the microscope, but not so with this particular species for *Pluteus umbrosus* is one of the few fungi that everyone can identify on the spot. The cap is unique. A cream base colour is overlaid with fine brown specks and the whole ornamented with a network of velvety and dark-brown veins. Added to this, the pink gills have a pronounced dark-brown edge. This beautiful agaric occurs singly on trunks or large branches of broadleaf trees and is fairly common.

The name *Pluteus* derives from the Latin for shield, presumably in reference to the gently rounded shape of the cap.

***Panus conchatus* Lilac Oysterling (**Plate 10.5**)**

This fungus is much less common than the above species, with just fifteen records in Herefordshire since 1900. Before that, the earliest known exact date is 16 October 1875, as noted in the caption to a painting by Dr Henry Graves Bull following a Woolhope Club meeting in Foxley Woods. This tough fungus occurs singly or in clusters on stumps and large logs of hardwood trees, often fully exposed to the elements. The caps can be laterally or eccentrically attached to a short, thick stipe, initially funnel-shaped then flattening out or remaining centrally depressed. The entire fruitbody is a sandy-brown colour, overlaid initially with violet tones, but the violet disappears almost entirely at maturity, perhaps remaining at the base of the stipe.

*Panus conchatus*, although a gilled species, is, like the False Chanterelle above, a fungus whose gilled appearance cloaks its genetic links for it is most nearly related to a pored family—the polypores. A clue to this lies in the 'feel' of the fungus, as it is tough, not softly fleshy. The recent hot summers may have favoured it as it fruited in both 2021 in Moccas Hill Wood and in 2022 on the Brockhampton Estate. It is known from Northern and Central Europe and North America.

*Panus*, the generic name, probably comes from the Greek and means a swelling or tumour (a growth, therefore). The specific epithet *conchatus* comes from Latin and means 'shell-like'.

***Cyclocybe* (*Agrocybe*) *cylindracea* Poplar Fieldcap** (Plate 10.6)

The Fieldcaps (*Agrocybe* spp.) occur singly in fields and under hedgerows but this particular species, recently moved to *Cyclocybe*, grows not in grassland but at the base of roadside trees or stumps, often in urban situations and often in large clusters. The host tree is Poplar or Willow. It also reportedly grows in woodchip mulch. The caps are smooth and large, up to 120mm in diameter, red brown, and fading to pale buff or sandy ochre. The gills are pale to grey brownish. The stipe is cylindrical with small brownish scales beneath a well-defined and persistent ring. An occasional species in the county, it was found during an HFSG foray in a woodland situation near Leominster on 23 November 2022.

At a quick glance this fungus might be mistaken for the equally spectacular Honey Fungus *Armillaria mellea* as both form large clumps with yellow-brown caps and have a ring on the stipe. Honey Fungus however always has a scaly cap and decurrent gills. The ring is placed high on the stipe (but midway for the Fieldcap). When broken the flesh is damp and fibrous in texture. It is not restricted to Poplar and Willow.

***Fomitopsis pinicola* Red-belted Bracket** (Plate 10.7)
This fungus forms a large, woody, perennial bracket, hoof- or shell-shaped, up to 30cm across, with a build-up of concentric zones, grey to blackish on the inner, older part and bright orange-brown to purple-brown and glossy at the outer, younger edge. It grows primarily on standing or fallen Pine and Spruce and has also been recorded on broadleaf trees, especially Birch and Alder. The brown rot produced forms a stable component of coniferous forest ecosystems in the northern hemisphere. In Britain it is considered rare with most reported findings in Scotland. It was recorded in New House Wood on a fallen trunk, probably of Spruce, on 26 November 2022, a first record for the county.

***Pterula multifida*** (Plate 10.8)
A collection of this fungus was brought to a meeting by a lady who had observed sheets of it growing in her polytunnel in Hereford. The usual locus would be in thick leaf or needle litter on the woodland floor anywhere in Europe, from the lowlands to the mountains. In Britain it is uncommon, with single or only a few records from some counties in the South or Midlands and just two in Wales.

Some terrestrial fungi have no differentiated structure where spores are produced, i.e., no gills and no pores. The fruiting body is shaped like a club, thick or thin, and the outer layer or skin is the spore-producing area (hymenium). Often the stipe is very short and sometimes barely distinguishable from the club or needle. These bodies may be simple, or they may be ramified and coral-like. Some are bright yellow or white, even purple. They occur in grassland or woodland. *Pterula multifida* is a woodlander and closer to the Typhulas which inhabit woodland debris than to the grassland clubs. Typhulas are usually very small, simple clubs, a centimetre or less in length. *Pterula multifida* is larger, growing in densely branching tufts of very slender clubs up to 50mm tall and perhaps 1mm in girth. It is whitish, then light cream to yellowish cream and finally brownish ochre. When fresh it has an unpleasant phenolic smell, sickeningly sweet and tarry. This is the second county record.

***Auricularia mesenterica* Tripe Fungus (**Plate 10.9**)**
This greyish-brown, zoned bracket, growing in rows and overlapping tiers, can at first glance be easily mistaken for the very common Turkey Tail *Trametes versicolor*. There however the resemblance ends.

The underside, instead of having white or cream pores has an entirely smooth and rubbery surface and is purplish grey in colour. The upper side has a dense tomentum, which is often green with algae. *A. mesenterica* is one of the so-called ‘jelly fungi’, a disparate group whose common *modus operandi* enables them to maximise their chances for successful spore germination. In dry periods these fungi bide their time in a hard, highly shrunken, and nearly invisible state. In wet weather they absorb atmospheric moisture, swell up, and switch on spore production. The alternating resting and active conditions come and go in response to the levels of atmospheric moisture. When fully engorged, *A. mesenterica* is an appealingly chubby species.

The species was once common but since the loss of Elm, its preferred host, it is now only found occasionally on stumps of other hardwoods. It was recorded at Kentchurch Court on a hybrid Poplar stump on the 9 November 2022.

***Libertella faginea*** (Plate 10.10)
We have a mental picture of what a fungus looks like. The image in our brain is nearly always that of the fungus in its perfect or sexual state. We know, for example, what a fly agaric looks like.

Some fungi however also materialise in a different guise known as the imperfect or asexual state. These two states may occur together but more often separately. As it can happen that these two states, the perfect and the imperfect, are physically very different from each other, in times past each was allotted its own name. It often took years for these two morphologically different states to be paired up. Nowadays the rules of nomenclature dictate that fungi in the imperfect state must be recorded under the name of their perfect state.

The subject of this section should therefore, strictly speaking, be *Quaternaria quaternata*. An Ascomycete, it forms hard and rather knobbly black lumps or cushions, a few millimetres across, on the bark of fallen Beech *Fagus sylvaticus*. It was however the imperfect state of *Quaternaria quaternata* that was spotted on an HFSG foray in Moccas Hill Wood on 24 August 2022. Let us for once dally with the name of its *alter ego, Libertella faginea,* which, although very small, is much more conspicuous than its other self because it arises through the bark as twisting and curling orange ribbons.

**Spathularia flavida Yellow Fan** (Plate 10.11)
To finish where this report began, in a conifer plantation, *Spathularia flavida* is one of the few fungi that, like the False Chanterelle, brighten up the forest floor, although sadly much less frequently.

Like the *Pterula* above, it can be thought of as a club with the hymenium or spore-producing area covering the club or fan and fully exposed. But there any similarity ends as the *Pterula* is a Basidiomycete while the *Spathularia* is an Ascomycete. The fungus stands about 5cm tall, with a short, rather thick, white or yellow stipe surmounted by a yellow, fan-like fertile head. The head is often somewhat folded or puckered and clasps the stem on two sides. It can be solitary but is more usually in a troop and is found in temperate conifer forests across the northern hemisphere. In Britain its main areas of distribution are Scotland and the English / Welsh border country with scattered records elsewhere. Even so, it is uncommon here as Herefordshire has records from just eight locations. The 2022 collection was from Cefn Common on 16 October.

## REFERENCES

Franchi, P. & Marchetti, M. (2021). *I Funghi clavarioidi in Italia.*
Kibby, G. (2012). *Field Mycology*, 13 (2)
Kibby, G. (2017). *Mushrooms and Toadstools of Britain & Europe,* Vol. 1.
Kibby, G. (2020). *Mushrooms and Toadstools of Britain & Europe,* Vol. 2.
Kibby, G. (2021). *Mushrooms and Toadstools of Britain & Europe,* Vol. 3.
Laessoe. T. & Petersen, J. (2019). *Fungi of Temperate Europe,* Vols 1 & 2.
Legon, N. & Henrici, A. (2005 with later updates). *Checklist of the British and Irish Basidiomycota.*
Ryvarden, L. & Melo, I. (2014). *Poroid fungi of Europe.*
*Fungus Records Database of Britain and Ireland* - http://www.frdbi.info/

# Ornithology 2022

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## INTRODUCTION

Covid-related restrictions on movement have been relaxed through 2022, and so ornithological recording has been easier, although, as ever, limited by the number of recorders and the places they choose to frequent. It is noteworthy that Herefordshire's gravel pits receive far more coverage—indeed daily by a number of expert observers—than all other landscapes and habitats across the county. Recording at these pits is excellent, but overall interpretation of the county's bird records has its limitations.

This annual report notes rarities seen in Herefordshire and deals with topics specific to the county, whilst also continuing my recent practice of exploring a key ornithological topic. Following on from the impact of climate change and biodiversity loss in 2020, and migration in 2021, the report this year addresses the intriguing topic of social intelligence in birds. Whereas, when I was a child in the 1950s and 60s, all bird and indeed animal behaviour was attributed by my parents to 'instinct', scientific studies now suggest that some birds have social lives nearly as complex as our own, requiring some very sophisticated mental skills. Some birds, like the Pied Flycatcher, are relatively solitary, and hang out in pairs only for the breeding season, while others, such as Long-tailed Tits, stay in their family groups all year round, regularly visiting my bird feeders. Indeed, this morning a family party of twelve visited my feeders and stayed for many minutes.

## SOCIAL BEHAVIOUR AND INTELLIGENCE

We are all familiar with the fact that chickens form a stable social group with a clear hierarchy, from which we derive the expression 'pecking order'. A Norwegian zoologist found that the higher up the pecking order, the greater the access to food and safety, whilst the lower levels were fraught with vulnerability and risk.[1] Rooks are supremely social, living in large rookeries, and ducks often gather in large numbers through the winter. Researchers at Oxford University have discovered that Great Tits gather in loose foraging flocks based on their personalities.[2]

So, the question that scientists are now asking is whether all this living close to mates, family, friends, and neighbours has made birds intelligent. Do they owe their quick, flexible minds not just to having to solve the tricky physical challenges of the environment, but also to the social challenges they face in order to get along with others? The idea that a demanding social life might drive the evolution of brain power was first developed by Nicholas Humphrey in 1976, based on his observations of monkeys. Scientists now consider that many bird species are not so different, and that their brains may also have developed to manage relationships.[3] Some birds show surprising social intelligence. Magpies can recognise their own image in a mirror, a form of self-awareness that we once believed was restricted to humans. When experimenters placed a red dot on the throat of six Magpies, two of them tried to scratch the dot off their own bodies with their legs rather than reacting to the image in the mirror.[4]

Crows are known to leave gifts in response to being left food. Marzluff and Angell consider that 'leaving gifts suggest that crows understand the benefits of reciprocating past acts that have benefitted them and also that they anticipate future reward. It is a planned activity: the Crow has to plan to bring the gift and plan to leave the gift.'[5] Indeed, corvids and cockatoos can

delay gratification if they think a reward is worth waiting for, a form of emotional intelligence that involves self-control, persistence and the ability to motivate oneself.[6] Common Ravens have the ability to remember relationships. Before settling down to a paired territorial life, the young Ravens hang out in social groups for several years, where they form alliances with friends and family. They pick special individuals to share food with, sit close to, preen with, and play with, but over the years these social groups break apart and come back together again. So, do the birds then remember their affiliations? Thomas Bugnyar discovered that Ravens remember their social ties even after three years of separation.[7] Like other corvids, Jays share food, but only do it to win the favour of their mate. Lerka Ostojic found that Eurasian Jays possess a sophisticated social ability called state attribution, that is the ability to understand their mates' needs and desires. Experiment showed that when the Jays were allowed to watch their mates' choice of food, it had no effect on their own choice of food but a direct influence on what food they chose to give to their mate.[8]

Being social has great advantages since there are more eyes to spot predators, locate food, and learn from others. Aplin's study in Wytham Woods found that tits use their social connections to locate food and to copy strategies for getting it, transferring information from flock to flock and even across the species of Great Tit, Blue Tit, and Marsh Tit.[9]

Birds are very good at learning from their peers. We are familiar with the fact that, in the early 20th century, some Blue Tits learned how to open milk bottle tops; by the 1950s, milk bottles all over England were under siege, so that my parents got the milkman to leave the bottles not on the doorstep, but in a secure safe that the tits could not open. In order to investigate such social learning, Aplin and her colleagues planted some new behaviours amongst the Great Tits of Wytham Woods and watched how the behaviours spread. The team took a few birds into temporary captivity and trained them to solve a simple foraging puzzle, where they had to push a sliding door to the left or right to access a feeder hidden behind the door. Some birds were trained to push left and others to push right. Then the birds were released back into their woods where a number of these foraging puzzles had been placed. The released birds were fitted with electronic tags, so that each bird could be identified by special detecting antennae fitted to the puzzles. The researchers found that the trained birds remained faithful to the side they had been trained for, and within days this same behaviour was taken up by local birds in the area, with a rapid spread through most of the local population. Even if a bird discovered it could push the slide the other way to get the same reward, it stuck with the local tradition. Moreover, birds that moved into a new part of the wood with the opposite tradition switched their behaviour to the local way of doing things. A year later, birds remembered their preferred technique and bias towards left or right, even when the behaviour spread to the next generation of Blue Tits. [10]

Social learning doesn't just happen in the food domain. It has been shown to happen in the choice of a mate, and in the recognition of apparent danger. Marzluff and his colleagues organised teams of people to wander through various neighbourhoods in Washington, wearing different types of masks. One type of mask in each group represented the 'dangerous' mask, and other types were 'neutral'. The people wearing 'dangerous' masks captured several wild American Crows, while the people wearing neutral masks or no masks at all, just walked round harmlessly. Nine years later the masked scientists returned to the scene of the crime, where they found that the Crows in these neighbourhoods, including those that had not been hatched at the time of the original experiment, reacted to the people with the dangerous mask as if they were a threat, bombing, scolding, and mobbing them. It appeared that the birds that had witnessed the original capture, remembered which masks represented danger, and demonstrated this to the

other Crows. The tendency to mob the dangerous masks spread to Crows half a mile away from the original neighbourhood area.[11]

The social intelligence hypothesis predicts that animals living in big social groups will have larger than expected brains because of the complex social pressures they are dealing with. Robin Dunbar found that primates living in larger social groups had bigger brains. It was thought that complex social interactions like cooperation provided the selection pressure necessary for the evolution of bigger brains and advanced cognitive skills.[12] However this pattern did not hold for birds. The birds with the biggest brains tended to favour small, cohesive groups and lived mostly in lifelong pairs.[13] It seemed that for birds it was the quality of the relationship rather than the quantity that called for the additional brain power.

About 80% of bird species live in socially monogamous pairs, staying with the same partner for a single breeding season or longer.[14] This is because the feeding of nestlings is so taxing that it needs both parents to cooperate; without the contributions of both parents, nestling survival is much more difficult. Jointly incubating the egg, feeding, and protecting the young requires careful coordination and synchronisation of activities. This in turn demands relationship intelligence, that is the ability to read a partner's subtle social signals, respond appropriately, and use this information to predict his or her behaviour.[15] Some birds reinforce their bonds through synchronised behavioural displays or song.

DNA studies have also demonstrated that while birds may be socially monogamous, they are often not sexually monogamous. For example, Skylarks are socially monogamous and while the male does not help build the nest or incubate the eggs, he does contribute half the food of the chicks. However, scientists have found that 20% of the offspring in Skylark nests were not genetically related to the male bird attending the nest.[16] Males of course benefit from promiscuity by achieving more offspring. For females, there are a number of possible explanations. The promiscuous female achieves more genetic diversity in her offspring, possibly increasing their chances of survival. Another promising theory is that the philandering females are encouraging better cooperation in the whole neighbourhood. Eliasson and Jorgensen suggested that 'females benefit because extra-pair paternity incentivises males to shift focus from a single brood towards the entire neighbourhood, as they are likely to have offspring there', resulting in less territorial aggression and better group protection from predators.[17] It is unlikely that there is any single explanation for extra-pair paternity and the factors that drive it may differ between and among species. Rhiannon West considers that this dual life may be key to the large brain size of socially monogamous birds. Regularly procuring extra-pair copulations while maintaining a social partnership makes for a complex social life—the male needs to guard his territory and his mate, and contribute to rearing the nestlings, while the female needs to find time for her own *rendezvous*, amidst incubation, brooding, and feeding.[18]

So, the tendency to promiscuity appears to have driven the evolution of greater intelligence. Successful pilfering and storage of food may have had a similar effect. Individual Eurasian Jays hoard many thousands of acorns in autumn to see them through the winter, spring, and early summer before the next crop ripens. They select acorns for hoarding based on ripeness and quality of the acorn and prefer acorns over hazel nuts and beech mast.[19] Researchers in Poland studying the Eurasian Jay in an area of mixed forest put radio trackers in acorns to see how far the Jays would disperse them. Over half the acorns were cached at least 100 metres from their source, with a maximum distance of 456 metres. The minimum distance was 3 metres.[20] The cached acorns were usually hidden about 0.5 cm deep in leaf litter or mossy cushions, which reduced the likelihood of cache loss to other Jays or predation by other animals. The concept of

waiting for a better option through self-control seems a very human characteristic and is related to intelligence. Cognitive experiments on Eurasian Jays in captivity have shown that they too will wait for better possibilities. Ten three-year-old Jays were assessed for memory, spatial awareness, and learning, in effect their individual intelligence level. Then the Jays were tested for their food preferences—all the birds preferred mealworms over cheese or bread and ranked raisins lowest. In an experiment offering the birds immediate access to their least favourite food, raisins, versus delayed access to their favourite, mealworms, all the birds showed the capacity to wait for their favourite food. The individual Jay's capacity to delay gratification varied, from 40 to 160 seconds, and was found to be significantly correlated with an individual Jay's cognition score, so the more intelligent Jays showed greater self-control.[21] Nicola Clayton and colleagues have studied the interaction between Scrub Jays hiding their food and others stealing the hidden food, leading to tactical deception to outwit each other. If another bird is watching, the Jay tries to hide his food behind a barrier. However, if the observing bird's view is blocked, the Jay does not bother to find a more private place. If the observing bird has seen him hide the food in a particular spot, he may return to that spot and either move or pretend to move the food elsewhere, thus confusing the potential thief. If his mate is watching he will not bother to hide the food, only doing so if a potential pilferer is watching. However, the Jay only does this if he has himself pilfered in the past; thus 'it takes a thief to know a thief'. So, Clayton considers that the Jay is showing some highly sophisticated thought processes: memory for who was present when and where; the ability to use the personal experience of being a thief to predict a thief's expected actions; and perhaps even perspective, that is taking or imagining another bird's point of view (what it knows and doesn't know) and tailoring reactions accordingly.[22]

Do birds experience empathy and grief? A recent study at the Konrad Lorenz Research Station in Austria measured the heart rate of Greylag Geese—a measure of distress—when exposed to thunder, vehicle noise, departing or landing of flocks, and social conflicts. The biggest boost in heart rate turned out to be in response to a social conflict involving a partner or family member. For the scientists this suggests emotional involvement and possibly empathy.[23] Rooks nest in crowded rookeries where there is lots of opportunity for conflict. One study revealed that after watching a partner in a conflict, Rooks often comfort the distressed bird within a minute or two by twining bills with it. Bugnyar and Fraser investigated Common Ravens to see if they showed similar comfort behaviour after aggression. They found that, within two minutes of an intense fight, flock members offered consoling gestures to the victim of a conflict, such as sitting side by side, preening, bill twining or touching the body gently with the bill while uttering soft sounds.[24]

There are a number of anecdotal stories of birds, especially corvids, grieving their dead. Marzluff has shown that when Crows see a person holding a dead Crow, the hippocampus in their brain is activated indicating that they are learning about the danger. Marzluff and Angel suggest that Crows and Ravens routinely gather round their dead, and that this may be primarily a social rather than emotional response, as the birds work out what the death means for their group hierarchy, mates, and territory, and indeed as Iglesias suggests, how they might avoid a similar death.[25]

I hope that this brief account of the social behaviours and interactions of birds shows how interesting and rich the experience of bird watching can be, and how it need not be simply an exercise in identification and ticking off birds in a list, or indeed of just of counting and monitoring, important though that is, especially as concern mounts about the damage posed by climate change and pollution.

## RARITIES SEEN IN HEREFORDSHIRE IN 2022

Photographs of some species listed in Table 1 are included in the plates section: Firecrest (Plate 11.1); Long-tailed Duck (Plate 11.2); Red-necked Phalarope (Plate 11.3); Snow Bunting (Plate 11.4); and Osprey (Plate 11.5). All photographs are published courtesy of Mick Colquhoun.

**Table 1: Rarities Seen in Herefordshire in 2022**

| **February to May** | | **June to October** | |
|---|---|---|---|
| **Month / Species** | **Location** | **Month / Species** | **Location** |
| | | | |
| **February** | | **June (cont…)** | |
| Cattle Egret | Brampton Abbots | Bar-headed Goose | Wellington Gravel Pits |
| Ring-necked Duck | Wellington Gravel Pits | **July** | |
| Garganey | Brockhall Gravel Pits | Cattle Egret | Wellington Gravel Pits |
| White-fronted Goose | Winforton / Clifford | Mediterranean Gull | Old Bridge |
| **March** | | Bar-headed Goose | Wellington Gravel Pits |
| Osprey | Leominster West | **August** | |
| Caspian Gull | Brockhall Gravel Pits | Mediterranean Gull | Old Bridge |
| Caspian Gull | Lugg Meadows | **September** | |
| Pink-footed Goose | Lugg Meadows | Wood Sandpiper | Brockhall Gravel Pits |
| **April** | | Red-necked Phalarope | Brockhall Gravel Pits |
| Cattle Egret | Wellington Gravel Pits | Mediterranean Gull | Brockhall Gravel Pits |
| Garganey | Hereford Quarry | Cattle Egret | Bodenham |
| Little Gull | Wellington Gravel Pits | Osprey | Hartleton Lakes |
| Mediterranean Gull | Brockhall Gravel Pits | Long-tailed Duck | Brockhall Gravel Pits |
| Bar-tailed Godwit | Brockhall Gravel Pits | Common Scoter | Brockhall Gravel Pits |
| Firecrest | Coppett Hill | **October** | |
| **May** | | Snow Bunting | British Camp |
| Nightjar | Croft Ambrey | Pink-footed Goose | Brockhall Gravel Pits |
| Sanderling | Wellington Gravel Pits | Quail | Marcle Ridge |
| Mediterranean Gull | Brockhall Gravel Pits | Cattle Egret | Bodenham |
| **June** | | | |
| Montagu's Harrier | By Secret Garden pub | | |

## CONSERVATION CONCERN

The British Trust for Ornithology, the national organisation tasked with coordinating monitoring of British birds, reported in 2022 on a study to decipher the decline of the Chaffinch and Greenfinch in the UK. Both species were increasing before 2006, probably at least partly due to widespread garden feeding. However, since 2007, Greenfinches have been in steady decline, leading to their Red listing in the most recent UK *Birds of Conservation Concern* (*BOCC 5)*, published in December 2021. This decline has been driven by a disease called finch trichomonas, an epidemic of which started in Britain in 2006 and is caused by a strain of single- celled protozoan parasite, *Trichomonas gallinae*. The parasite is transmitted between birds in saliva, both directly, e.g., during courtship or when rearing young, or indirectly, via consumption of contaminated food or water. The disease has been known previously in pigeons and doves and may have spilled over from other species feeding alongside finches. Chaffinch numbers have fallen precipitately since 2013, an effect most marked in gardens, supporting the idea that

supplementary feeding of garden birds may increase transmission of parasites. It is not clear why the two species were affected at different times, but it is thought that transmission between Chaffinches may have become more common once there were fewer Greenfinches (whose numbers had declined first and who are larger and more aggressive) to compete for access to the bird feeders. There is now a concern that the disease could spill over into other Red-listed species such as House Sparrow, Bullfinch, and Hawfinch, so it is imperative that those of us who routinely feed our garden birds take great care to ensure the feeders are regularly cleaned, and follow the best practice guidance produced by Garden Wildlife Health, a partnership between the BTO, The Zoological Society of London, Froglife, and the RSPB.

In a most interesting recent paper, whose topic relates to the focus on climate change in the 2020 ornithology report, Pearce Higgins and Morris have suggested that climate change may be responsible for the observed link between declining insect populations and declining bird populations.[26] For many decades, UK bird populations have been in decline, especially on farmland but also in woodland and urban areas. The species most vulnerable to decline appear to be ground nesters and Afro-Palaearctic, long-distance migrants. Some of the underlying causes are well known, such as habitat change due to agricultural intensification and urbanisation, as well as climate change. Meanwhile, invertebrate populations have also been declining, and the question arises whether the declines in invertebrates and birds are linked. Many bird species are insectivores, so that variation in the numbers of soil invertebrates (e.g., earthworms, molluscs, caterpillars and beetles), foliar arthropods (e.g., caterpillars and spiders), aerial insects (e.g., butterflies, moths, bees, hoverflies) and aquatic invertebrates (e.g., caddisflies, stoneflies, mayflies, dragonflies) has the potential to alter populations of the birds that feed on them, and climate change may often be a mediating factor. For example, there are fewer earthworms in the surface of the soil during periods of dry weather, so that earthworms become less accessible to birds as hot, dry summers occur more often. This would account for the strong correlation between the breeding success of the Blackbird and rainfall in the UK, a pattern found more generally across Thrush species. On similar lines, the decline in Song Thrush is linked to under-field drainage and loss of grasslands. Curlews are also reliant on earthworms, although the main causes of their decline are change in land use and predation.

The breeding success of woodland insectivores, such as Blue Tit, Great Tit, and Pied Flycatcher, is linked to abundance of caterpillars, which can be super abundant in deciduous woodland in the spring. Climate change may be causing caterpillars to emerge at a somewhat different time, leading to a mismatch between the timing of bird breeding and maximum caterpillar populations. However, it is thought that overall decline in insect populations, rather than factors linked to relative timing, has the main impact on insectivorous birds. The breeding success of aerial insectivorous species, such as House Martin and Barn Swallow, is believed to be linked to the abundance of aerial insects. Aerial insect populations are declining for a number of reasons, including use of pesticides and fertiliser as well as climate change. Populations of aquatic insects are strongly linked to oxygen concentrations, and therefore reflect long-term changes in water quality as well as temperature. Pollution of British waterways has of course been of growing concern for decades, but in addition warming of water temperatures and drying out of wetland affects populations of aquatic invertebrates and hence the birds that feed on them. Tree Sparrows feed on damselflies from aquatic invertebrates while dragonflies provide a key source of energy for the Hobby. The range and population expansion of breeding Hobbys in the UK may be a response to the widespread expansion of many dragonfly species associated with warming temperatures.

## NOTES AND REFERENCES

[1] T. Schjelderup-Ebbe, 'Contributions to the Social Psychology of the Domestic Chicken', in M. Schein (ed.) *Social Hierarchy and Dominance* (1975), pp. 35-49.
[2] L. M. Aplin *et al*., 'Social networks predict patch discovery in a wild population of songbirds', *Proceedings of the Royal Society*, Bulletin 279 (2012), pp. 4199-4205.
[3] N. Humphrey, 'The Social Function of Intellect', in P. P. G. Bateson and R. A. Hinde (eds.) *Growing Points in Ethology (*Cambridge University Press 1976), pp. 303-317.
[4] H. Prior *et al.*, 'Mirror-Induced Behaviour in the Magpie (Pica pica): Evidence of Self Recognition' *PLOS Biol* 6 no. 8 (2008): e202. https://doi.org/10.1371/journal.pbio.0060202.
[5] J. Marzluff and T. Angell, Gifts of the Crow: *How Perception, Emotion, and Thought Allow Smart Birds to Behave like Humans* (Free Press, New York, 2012).
[6] V. Dufour *et al*., 'Corvids can decide if a future exchange is worth waiting for', *Biol Lett* 8, no 2 (2012), pp. 201-4.
[7] T. Bugnyar, 'Social cognition in ravens', *Comp Cogn Behav* rev 8. (2013), pp. 1-12. M. Boekle and T. Bugnyar, 'Long-term memory for affiliates in ravens', *Curr Biol* 22 (2012), pp. 801-6.
[8] L. Ostojic *et al.* (2013), 'Can male Eurasian jays disengage from their own current desire to feed the female what she wants?', *Biol Lett* 10 20140042. L Ostojic *et al.* (2013), 'Evidence suggesting that desire state attribution may govern food sharing in Eurasian jays', *PNAS* 110, pp. 4123-8.
[9] L. M. Aplin *et al*., 'Social networks predict patch discovery in a wild population of songbirds'. *Proc Roy Soc*, Bulletin 279 (2012), pp. 4199-4205. D. R. Farine *et al*,. 'Interspecific social networks promote information transmission in wild songbirds', *Proc Roy Soc*, Bulletin 282 (2015) 20142804.
[10] L M Aplin *et al*., 'Experimentally induced innovations lead to persistent culture via conformity in wild birds', *Nature* 518 no. 7540 (2014), pp. 538-41.
[11] J. M. Marzluff, 'Lasting recognition of threatening people by wild American crows', *Animal Behaviour* 78 (2010), pp. 699-707.
[12] R. Dunbar and A. Schultz, 'Evolution in the social brain', *Science* 317 (2007), pp. 1344-47.
[13] S. Schulz and R. I. M Dunbar, 'Social bonds in birds are associated with brain size and contingent on the correlated evolution of life history and increased parental investment', *Biol J Linn Soc* 100 (2010), pp. 111-23.
[14] A. Cockburn, 'Prevalence of different modes of parental care in birds', *Proc Roy Soc* B 273 (2006), pp. 1375-83.
[15] N. Emery, 'Cognitive adaptions to bonding in birds', *Philos Trans R Soc Lond B Biol Sci* 362 (2007), pp. 489-505
[16] J. M. C Hutchinson and S. C. Griffith, 'Extra-pair paternity in the Skylark *Aluda avensis', Ibis* 150 (2008), pp. 90-7.
[17] S. Eliasson and C. Jorgensen, 'Extra-pair mating and evolution of cooperative neighbourhoods', PLOS One 9 no. 7 (2014): e 99878.
[18] R. J. D West, 'The evolution of large brain size in birds is related to social, not genetic monogamy', *Biol J Linn Soc* 111 no. 3 (2014), pp. 668-78.
[19] I. Bossema (1979), 'Jays and Oaks: an Eco-ethological Study of a Symbiosis', *Behaviour* 70 (1-2), pp. 1-116.
[20] P. Kurek, D. Dobrowolska, and B. Wiatrowska, (2018), 'Dispersal distance and burial mode of acorns in Eurasian Jays *Garrulus glandaris* in European Temperate Forests', *Acta Ornithologica* 53 (2), pp. 1-8
[21] A. K. Schnell, M. Boekle and N. Clayton (2022) 'Waiting for a better possibility: delay of gratification in corvids and its relationship to other cognitive capacities', *Philosophical Transactions of the Royal Society* B 377:20210348.
[22] N. S. Clayton *et al.,* 'Social cognition in food caching corvids: the western scrub-jay as a natural psychologist', *Philos Trans R Soc Lond B* 362 (2007), pp. 507-22. U. Grodzinski and N. Clayton, 'Problems faced by food caching corvids and the evolution of cognitive solutions', *Philos Trans R Soc Lond B* 365 (2010), pp. 977-87
[23] CAF Wascher *et al*., 'Heart rate during conflicts predicts post conflict stress related behaviour in greylag geese' PLOS One 5 no. 12 (2010): e15751.
[24] O. Fraser and T. Bugnyar, 'Do ravens show consolation? Responses to distressed others' PLOS One 5, no 5 (2010) e 10605.
[25] Marzluff and Angell, *Gifts of the Crow*.
[26] J. W. Pearce Higgins and R. K. A. Morris (2022), 'Declines in invertebrates and birds—could they be linked by climate change?', Bird Study 69 (3-4) pp. 59-71.

## HEREFORDSHIRE NESTBOX RECORDING SCHEME 2022

Report and data compilation by David Coker, Herefordshire Wildlife Trust Co-ordinator.

### Background

The Nestbox Recording Scheme (NRS) is now sixty years old! It started when the Herefordshire Nature Trust (HNT), now the Herefordshire Wildlife Trust (HWT), came into being in 1962 via the Woolhope Naturalists' Field Club. In the following year, sixty nestboxes were made by pupils of Whitecross School under the supervision of Dr Charles Walker. As this was before any reserve had been acquired by HNT, they were set up in promising hilly woodlands, such as Moccas, Mary Knoll, and Shobdon—monitoring at all three sites continues to this day. Since the first volunteer recorders were Hereford Ornithological Club (HOC) members who had joined HNT and had the expertise, some of the early woodlands have long-term records with equally long-term recorders and ringers, some involved for forty years. Their dedication is much appreciated. It is appropriate to record that Moccas, Shobdon, and some other sites were recorded for many years by Dr David Boddington, who passed away as this report was being compiled.

The duties of recorders are to maintain the boxes, now provided by HWT, to clear them ready for occupation and, once nesting has started in April, to make as nearly weekly visits as possible, recording the species nesting, the number of eggs laid, and hatching and fledging numbers; these details are then passed on to the HWT Co-ordinator for collation. They also notify named ringers for certain species, such as Pied Flycatcher, Nuthatch, and Redstart.

The adverse effects of the Covid-19 coronavirus pandemic, which started in 2020, had largely subsided by the start of the 2022 breeding season, thanks in part to the rapid development and distribution of effective vaccines. However, there were still some adverse effects, for example in disrupting both the habitual annual cycle of nest recording for some observers and handovers from previous to new observers. For these reasons monitoring was interrupted, or results were not received, for six sites which have contributed to this report in recent years. However, the overall observing effort was largely comparable to that for 2021.

So, this report presents the summary data for 2022 from seven HWT reserves, two National Nature Reserve (NNR) sites, and ten other sites.

### Results

The results of sites recorded and nestbox usage for the past 10 years are given in Table 1. Incomplete data were received for some sites, so the figures for tit species are minima, and the numbers of chicks hatched have in some cases been inferred.

**Table 1.** ***Overall results for the last 10 years, 2013 – 2022***

| Record Details | 2022 | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sites recorded | 19 | 20 | 18 † | 25 | 25 | 26 | 27 | 27 | 23 | 26 |
| Boxes available | 749 ‡ | 768 | 645 ‡ | 845 | 825 | 854* | 871 | 852 | 731 | 741 |
| Boxes used | 396 | 409 | 364 | 484 | 485 | 390 | 501 | 465 | 447 | 453 |
| % used | 52.9 | 53.3 | 56.4 | 57.3 | 58.8 | 56.2* | 58.0 | 54.6 | 61.1 | 61.1 |

** Since there is no record for 'boxes used' at 3 sites in 2017, '% used' is based on 694 boxes at the other 23 sites.*

*† Fewer sites were recorded in 2020 because boxes at several sites could not be inspected.*

*‡ This figure includes a few boxes which are provided for dormice, but which tits will also use.*

The take-up rate of boxes in 2022 was in line with previous years, but as usual the mean '% used' figure coves a wide variation between sites, from a maximum of 90% (18 out of 20 boxes) to a minimum of 28% (7 out of 25); the observer at the latter site commented on the very poor occupancy, which continued in 2023 and may require replacement of some boxes.

Winter 2021-22 was milder than average, with a mixture of settled spells and wetter weather; overall it was the UK's eighth mildest in a series from 1884. January was particularly dry, but February became increasingly unsettled, with frequent rain in most areas and a particularly stormy spell between the 16th and 21st, including three named storms. Spring was warmer than average, by up to 1.0º C in most areas, largely due to daytime temperatures in March and night-time temperatures in May being higher than average. The weather was relatively settled for much of the time, though the first part of March continued the unsettled theme of late winter. The early part of April and most of May were also unsettled in some areas. Rainfall for March was below normal in many places, giving an overall UK figure of 58% of average. Most of April's rainfall came during the first half of the month; it was another rather dry month with 68% of average UK rainfall in total. Some parts of England and Wales were rather dry in May.

**Table 2.** ***Species results for 2022 compared with 2021 & 2020***

| Species | Sites | | | Nests | | |
|---|---|---|---|---|---|---|
| | **2022** | 2021 | 2020 | **2022** | 2021 | 2020 |
| Pied Flycatcher | **11** | 10 | 8 | **76** | 106 | 69 |
| Blue Tit | **19** | 19 | 16 † | **158** | 172 | 131 † |
| Great Tit | **18** | 17 | 16 † | **121** | 101 | 87 † |
| Coal Tit | **–** | 2 | – | **–** | 2 | – |
| Marsh Tit | **2** | – | 1 | **2** | – | 1 |
| Tit species | **7** | 6 | 6 | **20** | 19 | 61 |
| Nuthatch | **5** | 3 | 5 | **11** | 4 | 5 |
| Redstart | **3** | 2 | 2 | **3** | 4 | 6 |
| Wren | **1** | 1 | 1 | **5** | 1 | 2 |

| Species | Eggs | | | Fledged | | | % success | | |
|---|---|---|---|---|---|---|---|---|---|
| | **2022** | 2021 | 2020 | **2022** | 2021 | 2020 | **2022** | 2021 | 2020 |
| Pied Flycatcher | **491** | 527 | 369 † | **377** | 389 | 243 | **76.8** | 73.8 | † |
| Blue Tit | **1,329** | 1,329 | 931 † | **947** | 751 | 650 † | **71.3** | 56.5 | † |
| Great Tit | **823** | 580 | 456 † | **608** | 330 | 321 † | **73.9** | 56.9 | † |
| Coal Tit | **–** | 17 | – | **–** | 6 | – | **–** | 35.3 | – |
| Marsh Tit | **14** | – | 6 | **13** | – | 5 | **92.9** | – | 83.3 |
| Tit species | **62** | 84 | 65 † | **6** | – | 29 † | **9.7** | – | † |
| Nuthatch | **64** | 16 | 30 | **51** | 6 | 24 | **79.7** | 37.5 | 80.0 |
| Redstart | **16** | 15 | 15 † | **13** | 5 | 11 † | **81.3** | 33.3 | † |
| Wren | **3** | 6 | 4 | **3** | – | 4 | **100.0** | – | 100.0 |

*'% success' is calculated as total number of chicks fledged as a percentage of total eggs laid.*
*† These figures are absolute minima, and are certainly significant underestimates; accordingly, no meaningful % success rate can be calculated.*
*Note: in 2020, inability to visit some sites until late in the breeding season meant a large number of nests could only be recorded as 'Tit species'.*

Table 2 includes 2020, to show the recovery in observed results following the adverse impact on recording of the pandemic in that year.

The unchanged number of Blue Tit eggs for 2021 and 2022 is real, not a typing error; the totals at individual sites fluctuated between the years but happened to balance out exactly in the overall total. The additional site where Pied Flycatchers were recorded was Yoke Wood, which had the first nest of this species since 2019. In contrast, nearby Wellington Wood again had no flycatchers. The apparent spike in numbers of Pied Flycatcher nests in 2021 is an artifact of the occurrence of predation, especially at Mary Knoll; if a hen's first nesting attempt is predated or disturbed, and she tries again, that will be recorded as an additional nest.

Numbers of tit eggs and chicks are again lower compared to 2018 and 2019 (i.e., before Covid), but comparable to the period 2013 to 2017, when more sites were included than now. It appears that the figures for 2018 and 2019 were unusually high compared to the earlier period, even though the number of sites reporting in that period was similar or even slightly higher. Both Blue Tit and Great Tit successfully fledged substantially more chicks in 2022 than in the previous year.

The nests indicated as 'Tit species' typically fail after some eggs have been laid, but before any adult or hatched chick can be observed, so the species cannot be determined with confidence.

The combined figures in Table 2 conceal an interesting and intriguing contrast in relative numbers of Blue Tits and Great Tits at different sites. The majority of sites have more Blue Tit (BT) than Great Tit (GT) nests, but at six sites that situation is reversed, sometimes to a significant degree, as shown for eighteen sites in Table 3 (insufficient detail was available for one other site).

**Table 3.** ***Numbers of Blue Tit (BT) and Great Tit (GT) nests at each site***

*Note: the sites with more Great Tit than Blue Tit nests are shown in* ***bold****.*

| Site | BT Nests | GT Nests | Site | BT Nests | GT Nests |
|---|---|---|---|---|---|
| Brilley Green Dingle | 3 | 2 | Mowley Wood | 9 | 4 |
| **Coughton Marsh** | **5** | **7** | Nupend | 8 | 5 |
| Crow Wood | 8 | 4 | **St. Wulstan's Wood** | **2** | **6** |
| **Devereux Park** | **6** | **12** | Shobdon Hill Wood | 14 | 8 |
| Leeping Stocks | 8 | 7 | Wellington Wood | 10 | 6 |
| Mary Knoll | 22 | 14 | **White Rocks** | **2** | **4** |
| Merryhill Wood | 21 | 10 | Whitney Sawmills | 13 | 8 |
| **Moccas – Upper** | **6** | **10** | Woodside, Doward | 7 | 2 |
| Moccas – Lower | 10 | 6 | **Yoke Wood** | **1** | **6** |

**Table 4.** ***Comparative success rates in fledging for various species over the last four years***

| Species | 2022 | | 2021 | | 2020 | | 2019 | |
|---|---|---|---|---|---|---|---|---|
| | Sites | Success % | Sites | Success % | Sites | Success % | Sites | Success % |
| Pied Flycatcher | 11 | 76.8 | 10 | 73.8 | 8 | † | 13 | 63.6 |
| Blue Tit | 19 | 71.3 | 19 | 56.5 | 16 | † | 25 | 73.1 |
| Great Tit | 18 | 73.9 | 17 | 56.9 | 16 | † | 25 | 67.5 |
| Coal Tit | – | 35.3 | 2 | 35.3 | – | – | 1 | 77.8 |
| Marsh Tit | 2 | 92.9 | – | – | 1 | 83.3 | – | – |
| Nuthatch | 5 | 79.7 | 3 | 37.5 | 5 | 80.0 | 5 | 65.3 |
| Redstart | 3 | 81.3 | 2 | 33.3 | 2 | † | 2 | 30.0 |
| Wren | 1 | 100.0 | 1 | – | 1 | 100.0 | – | – |

*† No meaningful % success rate can be calculated.*

The % success measure compensates for variations in number of sites contributing records. This has been generally stable over the last ten years, though with a dip in the middle of the last decade. Nuthatch shows more variation than other species.

**Table 5.** ***Pied Flycatcher results summary, 2000 - 2022***

| Year | Sites | Nests | Eggs | Fledged | % Success |
|---|---|---|---|---|---|
| 2022 | 11 | 76 | 491 | 377 | 76.8 |
| 2021 | 10 | 106 | 527 | 389 | 73.8 |
| 2020 | 8 | 69 | 369 † | 243 | † |
| 2019 | 13 | 101 | 674 | 429 | 63.6 |
| 2018 | 13 | 109 | 527 | 397 | 75.3 |
| 2017 | 13 | 144 | 774 | 430 | 55.5 |
| 2016 | 17 | 120 | 666 | 401 | 60.2 |
| 2015 | 16 | 114 | 742 | 434 | 58.5 |
| 2014 | 11 | 86 | 468 | 304 | 65.0 |
| 2013 | 14 | 135 | 773 | 563 | 72.8 |
| 2012 | 9 | 75 | 477 | 304 | 63.7 |
| 2011 | 11 | 87 | 543 | 354 | 65.2 |
| 2000-2010, Mean | 15 | 97 | 606 | 389 | 64.2 |

*† The figure for eggs laid is a minimum, and likely to be an underestimate; accordingly, no meaningful % success rate can be calculated.*

The success rates at the eleven sites where Pied Flycatchers could be recorded varied from 45.2% (Whitney Sawmills) to 100% (Yoke Wood); seven out of the eleven sites had a success rate greater than 70%, but another three had a success rate greater than 60%. Mary Knoll did not have the high predation of 2021, so had a much better % success.

At Mary Knoll a Blackbird built its nest in the bowl at the base of a tree holding a nest box occupied by Pied Flycatchers, which made inspecting the box contents without disturbing the Blackbird a little challenging. The nest was plainly visible, and not surprisingly the chicks disappeared soon after hatching. A sapling had fallen across the top of another box, partially

shielding it, inducing a Song Thrush to construct a nest on the box's lid. However, no eggs were recorded.

The Pied Flycatcher was added to the Birds of Conservation Concern (BoCC) Red list in 2015 and this was also the case in Europe, where their numbers and nesting results are similarly declining for reasons yet to be established.

**Further Information**

For those interested in the details of individual nestbox sites, an electronic copy of the full HWT report can be obtained from HOC.

**Acknowledgements**

Our thanks go to the ringers and recorders who persevere each year with their visits in the face of varying levels of nest failures and fledgling mortality, as well as weather conditions.

# Weather 2022

*By* IAN PORTER

| Month | Max temp. shade ºC | Min temp. shade ºC | Rainfall Mm | Max. rainfall in 1 day mm | Days with rainfall |
|---|---|---|---|---|---|
| January | 11.7 | -2.2 | 33.3 | 17.6 (2nd) | 4 |
| February | 11.7 | 1.1 | 98.8 | 20.4 (13th) | 9 |
| March | 16.7 | 0.0 | 53.9 | 17.1 (11th) | 7 |
| April | 20.0 | 0.0 | 13.4 | 7.6 (6th) | 2 |
| May | 20.5 | 7.2 | 39.1 | 7.6 (11th) | 7 |
| June | 27.8 | 8.3 | 87.9 | 35.8 (4th) | 6 |
| July | 32.2 | 10.0 | 8.8 | 5.0 (24th) | 2 |
| August | 31.7 | 11.7 | 28.2 | 27.7 (16th) | 2 |
| September | 23.3 | 7.2 | 45.6 | 15.9 (5th) | 5 |
| October | 17.2 | 4.4 | 108.1 | 32.8 (23rd) | 11 |
| November | 13.3 | 1.1 | 162.8 | 31.3 (1st) | 13 |
| December | 10.0 | -5.5 | 78.1 | 20.9 (23rd) | 10 |
| **Total** | | | **756.0** | | **78** |

Highest day temperature: 32.2ºC, 18 and 19 July
Lowest night temperature: -5.5ºC, 14 December
Named storms in 2022:

| | |
|---|---|
| Dudley | 16 February |
| Eunice | 18 February |
| Franklin | 20 February |

Records started in 1976.

## Weather Summary 2013 to 2022

| Year | Total rainfall in year, mm | Wettest day | | Days with rainfall | Highest temp. ºC | Lowest temp. ºC |
|---|---|---|---|---|---|---|
| | | mm | Date | | | |
| **2013** | **821.9** | 30.7 | 21 September | 116 | 28.9 | -4.4 |
| **2014** | **1018.3** | 44.2 | 13 October | 152 | 28.3 | -2.8 |
| **2015** | **768.4** | 27.9 | 14 August | 120 | 30.0 | -3.3 |
| **2016** | **874.8** | 52.3 | 21 November | 112 | 31.6 | -4.4 |
| **2017** | **796.3** | 36.1 | 11 May | 100 | 30.0 | -6.1 |
| **2018** | **870.2** | 32.8 | 20 September | 99 | 29.4 | -6.7 |
| **2019** | **1283.9** | 67.8 | 25 October | 122 | 30.0 | -5.5 |
| **2020** | **1088.3** | 69.8 | 23 December | 105 | 32.2 | -2.7 |
| **2021** | **819.3** | 40.4 | 4 October | 87 | 30.0 | -5.0 |
| **2022** | **756.0** | 32.8 | 23 October | 78 | 32.2 | -5.5 |

Recorded by I.K. Porter at Greening's Acre, Little Birch. Height: 500ft / 152m.

# Book Reviews 2022

By ELIZABETH SEMPER-O'KEEFE, JOHN C. EISEL, KEITH RAY, TERRY MORGAN, AND DAVID WHITEHEAD

***Miss Chave's Diary From 1897 to 1898*, edited by Angela Hodges (Angela Hodges. 2022) 116 pp., ISBN 978-1999697822.**

Miss Chave's Diary, edited by Angela Hodges, is a slim volume that, in size, echoes the original exercise book from which it was transcribed. It comprises the contents of a single volume of the diary of Florence Chave, the eldest child of William and Caroline Chave. Her father is perhaps best known in Hereford as the first half of the name of the pharmacy on Broad St—Chave and Jackson. He was also Mayor. The family moved from Broad St to Moor House on Widemarsh Common, next to the Evans cider factory that was owned by the family. Florence lived at Moor House until her death in 1971 at the age of 104. The diary, however, covers a much earlier period in her life, a period of almost a year from 26 July 1897 to 20 July 1898, when Florence was 30-31 years of age. The entries in the published volume start and end as abruptly as in the original, for this is but one volume in a series of diaries that it is presumed that Florence kept, but is one of only two volumes that are known to survive—this one in the Chave collection at Herefordshire Archive Service (ref L77) and the other within the wider Chave family. It would have been helpful to have this information more clearly stated and to have the HAS reference number of the diary itself given, for those who might wish to look at the original (ref L77/IV/22) or other elements within the Chave collection. I believe that it is significant that this particular volume was kept by Miss Chave to the end of her days, rather than any other, but the editor does not speculate about the reasons.

Florence's diary entries contain an overview of her activities each day, mentioning the family members and friends with whom she interacts. They can be as short as one or two lines, but occasionally cover a whole page, when she has something more meaningful to recount to herself. She rarely mentions anything of life beyond the sphere of her family—a notable exception being on 19 May 1898, when, at the end of the very short daily entry, she notes 'Gladstone died.'

Despite having their home base in Hereford, the diary begins with Florence and her family in Devon. Both her parents were born in Devon and the family frequently returned there for holidays and to spend time with their wider family. In fact, at the time of the diary's beginning, Florence and her parents had recently returned from Australia where her father had farming interests, and since Moor House was at this time rented out, throughout the period of the diary they are based elsewhere; in Devon, Malvern, and at her brother's house in Hereford. Florence's day-to-day life as described in the diary entries consists of cycle rides and hobbies, taking tea and shopping, driving out in traps, attending church, and entertainments. She hardly ever mentions any domestic duties or responsibilities beyond cleaning her bicycle. The family employ two young girls on the second trip to Devon that the diary covers, and there is a brief reference to her brother needing to employ a new housekeeper. It will be apparent then, that Florence's life is that from a middle-class business family, where the men work (the two eldest of her brothers, and her father, who suffers from poor health but still has some involvement) and the women, in the main, do not. Her sister, Mabel, is an exception—she is a governess at this time. As such, it is a gloriously breezy account of the life of a semi-independent woman in late Victorian England.

Written as it is for her own pleasure, Florence has no need to be specific in the details of the friends and family that she mentions, some of whom are referenced by family nicknames. Although Hodges does provide explanations of a number of the characters that we meet in Florence's life, these are not consistently formatted, so on p. 8 we have two aunts separately described as 'the younger sister of Flo's mother' and 'Mrs Chave's eldest sister' [my emphases]. Also, the identity and relevance of some of the people is not explained in a footnote when they are first mentioned; e.g., Florence's cousin Willie is encountered on p. 1, but Hodges first describes him on p. 15. There is a family tree, but this only covers the maternal family. It would have been useful to have the paternal tree too, as relatives from both sides are referenced by Florence. In fact, I would have found it most helpful to have had a *dramatis personae* provided of the most frequently encountered characters, as it was difficult to carry all the details of who's who in one's head at once—and this from someone who has a passing familiarity with the wider Chave family after a number of years of research! Similarly, a map of the Devon and Malvern areas, and perhaps Hereford centre would have been helpful as Florence visits so many locations on her, often lengthy, cycle rides.

The main diary is split into three sections as the Chaves move from Devon to Malvern and back to Devon. Each section has a short introduction by Hodges to give some context, but she doesn't explicitly state which members of the family are with Florence, which would have provided extra clarity.

Of 107 pages, only nine are by Hodges, with the bulk of the material, quite rightly, being Florence's own words. Other than a one-page preface, and the family trees of Florence's maternal family and that of Florence's fiancé, Mac, who is introduced in the volume, Hodge's main input is an appendix giving a summary of the story of Florence and her fiancé, and a recounting of how Hodges came across Florence's diary, via the glass-plate negatives of Mac.

The volume contains over fifty illustrations, including locations, family, and third parties mentioned in the book, but they are poorly referenced. Neither those sourced from HAS nor those images originally taken by Mac and now in Somerset Heritage Centre have their reference numbers provided. Surprisingly, there isn't an image of a page from the original diary.

This volume was published alongside Hodges's novel *You and You Only*, set in 1970s Hereford, in which the heroine reads Florence's diary and other Chave papers. Consequently, I feel that the edited diary has been produced more as a companion volume to the novel, rather than a robust, standalone piece with adequate background and referencing. It is perhaps too light-touch in the editing to be of greater value for researchers interested in both the period and specifically in women's lives at that time. That said, frustrating though it is to only have this one year of the diary, something of Florence's personality does shine through, and though it can feel odd at times reading the middle of a story when you already know the ending (spoiler alert—Florence and Mac's romance does not have a happy ending) it is also fascinating to have such a firsthand account of a local life. Overall, Hodges has undertaken a useful task in making this diary, and thus Miss Chave herself, more widely accessible.

Elizabeth Semper O'Keefe

***Constable John Richardson. Policing in early Victorian Leintwardine*, by Robert Cock (published by the author, 2022), vii + 169 pp., illustrated, ISBN 979871200313. £12.99 paperback, £9.99 Kindle.**

There is an interesting prehistory of policing in Herefordshire before the establishment of the

Herefordshire Constabulary in 1857, following the relevant Act of 1856, which made it compulsory to have a statutory, county-wide police force. The transition from the elected and unpaid parish constable to professional officers over the preceding decades was a piecemeal process, and only now are some of the aspects being thoroughly explored. In this present work the career of John Richardson, who was a paid constable in Leintwardine from *c.*1840 to *c.*1848, is explored in detail, and the cases in which he was involved are discussed. The main information in the book comes from press reports, although other relevant records have also been consulted. Unfortunately, the records of the Wigmore Petty Sessions, which covered the area in which Leintwardine lies, are not known to survive (or at least, if they do, their location is not known), but the gaps can be filled by newspaper reports. The author states quite unequivocally that without these reports the book would not have been possible.

One of the greatest boons to the historian in recent years is the amount of original information that has become available on the internet, in particular from digitised newspapers. Having spent many hundreds, probably thousands, of hours over the years searching through hard copy of newspapers, usually in microfilm, I cannot overstate the benefit for myself. I am sure that others will have found the same experience, certainly in the present case. Digital searches of newspapers are targeted, using appropriate search words, to locate relevant reports, with thousands of pages being searched in an instant, which otherwise might have taken years. All this depends on how good the digitisation is—it is not always perfect—and in case the search word is misread, it is worth trying others, which is generally successful. With his detailed newspaper searches, Robert Cock has produced a mass of evidence, augmented by other original sources, including court rolls, to produce a convincing and detailed picture.

To set the context, the first chapter discusses policing in Herefordshire in the early 19th century and the legislative background, with the gradual transition from parish constable to paid officer in different areas. This includes discussion of how Richardson might have been appointed *c.*1840. His appointment and career in Leintwardine are discussed in the next chapter, followed by a chapter on such details of his life as could be located, before, during, and after his tenure at Leintwardine. It is clear that when he came to Leintwardine he was already an experienced police officer, but where has not been identified. His life after Leintwardine was more easily traced using census records. The main analysis of the book follows, prefaced by a chapter on crime in Leintwardine in the period 1800 to 1840. This is followed by eight chapters analysing events in which he had a professional interest. These mostly relate to crimes, but the last of these chapters deals with his wider responsibilities in keeping order etc.

Richardson left Leintwardine either in late 1848 or early in 1849. The period from then up to 1857 is discussed in the next chapter. Interest now centres on why crime happened. The author discusses crime in Leintwardine and its social context, and then the consequences of crime in the punishments given on conviction. A final chapter gives an overview of Richardson's time in Leintwardine and puts it into context.

Three appendices are provided, the first a very long one, with *verbatim* transcripts of all the newspaper extracts from which the text has been constructed—inevitably almost all are newspaper extracts—and the second a six-page biography of W. H. Cooke Q.C., later Judge Cooke, whose path regularly crossed that of Richardson. The final appendix sets out a timeline of all the events discussed.

Clearly an impressive amount of work has gone into the book. While it is relatively easy to identify newspaper extracts, it is rather more time-consuming to produce the transcripts. Digitised text always has errors in it, a small number if the digitisation is good, with an increasing

number as quality gets poorer, and this text must be edited against the original to produce a 'clean' copy, so that it is not just a 'cut-and-paste' operation. The work done here gives valuable information on the early development of policing, and a very detailed analysis of policing in and around Leintwardine during Richardson's tenure of office.

Inevitably there are niggles. I feel that it would have been better for the text to have been edited to take out the personal element (I don't like the use of the word 'I' in such a text) and at the same time help could have been given with the somewhat idiosyncratic layout and in ruling out some inconsistencies. So, for example, on the same page the title of one newspaper is given in italics, whilst another is not italicised. On p.41 there is a reference to 'Mr. Cooke' which on the face of it must be W. H. Cooke, which should have been mentioned. On p.154 it is said that Cooke was 'reputed to have been author of both Duncombs' "*History of Herefordshire*" and the Murray's Guide to the county'. The latter statement refers to Murray's *Handbook to Gloucestershire, Worcestershire, and Herefordshire*, which at the time of the reference quoted (1866) was in preparation. The true situation about the Duncumb history is that Judge Cooke published several parts as a continuation of Duncumb's history: these are discussed in Philip Riden's introduction to the 1996 reprint of Duncumb's Volume 1 Part 1, which gives details of Cooke's other publications (but doesn't mention Murray's handbook!).

However, these niggles should not obscure the large amount of work and analysis that has gone into this book, which will be of interest to a wide range of local historians, particularly those with an interest in social history, and should be on their shelves—or even on Kindle! It is available through Amazon.

John Eisel

***The First Stones, Penywyrlod, Gwernvale and the Black Mountains Neolithic Long Cairns of South-East Wales,* edited by William Britnell and Alasdair Whittle (Oxbow Books, Oxford) xv + 302 pp., illustrated, ISBN 978-1-78925-739-7, epub: ISBN 978-1-78925-740-3), £38.**

'Cotswold-Severn' long barrows (and cairns) are early Neolithic (4th Millennium BCE) structures that were built in stone and earth in a characteristic style (or, more properly, built by deploying a suite of distinctive construction practices) in a geographically extensive area from west Oxfordshire in the east to north-central Breconshire and the Gower peninsula in the west.

Two of the Breconshire cairns were investigated in the 1970s: Penywyrlod (Talgarth) was discovered embedded within an upland field boundary when a farmer dug into it for building material; a salvage archaeology operation was mounted immediately prior to it becoming Scheduled as an Ancient Monument. The cairn at Gwernvale, in a more lowland situation on a west-facing terrace above the River Usk north of Crickhowell, was threatened by road-widening operations along the A40 main road and was completely excavated by a team from the Clwyd-Powys Archaeological Trust led by Bill Britnell. Some of its chamber stones, left *in situ*, still adorn a verge of that road, following some engineering adjustments made during the widening scheme. Joined by Hubert Savory (the excavator of Penywyrlod), Britnell did a considerable service to British archaeology with the rapid production of a full account of both excavations (with specialist analyses of the material recorded and retrieved) in a volume, published in 1984, in the then newly established Cambrian Archaeological Association's Archaeology Monograph series.

The present 'First Stones' volume is a second monograph devoted to the study of these

two sites, together with an appraisal of the wider context and implications. Although located in south-east Wales, on the north-western and south-western sides of the Black Mountains, neither is far from the Neolithic sites of Dorstone Hill and Arthur's Stone in Herefordshire, which face the north-eastern slopes of the range. As will become apparent later in this review, combining evidence from recent and ongoing excavations at the latter two sites with the extensive data presented here seems likely to add further to understanding of the Neolithic period in the region.

In this volume, Britnell is joined as co-editor by Emeritus Professor Alasdair Whittle of Cardiff University. A whole raft of new specialist studies is included, few of which would have been possible without the veritable explosion witnessed over the past twenty years in the development of scientific and laboratory analyses. A key dimension of these advances has been a more rigorous approach to the selection of samples for radiocarbon dating and the application of Bayesian statistical techniques to the study of related suites of such dates. The result is that close comparison can be made between sites in use across proximal spans of time—many of which sequences featured relatively short-lived bursts of activity. Whittle has been a pioneer and proponent of the practical deployment of such approaches to the dating of a range of Neolithic monuments in Britain.

*First Stones* encompasses both a re-analysis of the structural forms and sequences of the two cairns (involving limited re-excavation by Bill and Jenny Britnell in 2015-16); and comprehensive re-analysis of sample and artefact distributions from Gwernvale (especially the pre-cairn ground surface there), and a re-study of the artefact groups retrieved (worked flints from Gwernvale by Elizabeth Walker and ceramics from both sites by Alistair Barclay). The importance of the pre-cairn activity at Gwernvale (Mesolithic worked flint scatter; early Neolithic midden and 'house') is reiterated, and the complexity of structural development with multiple chambers and blocking sequences at Penywyrlod is emphasised, although investigations here have been minimal.

The scientific studies include review of the evidence from crop residues, wild plant remains, and charcoal from Gwernvale (by Astrid Caseldine) to consider diet and the origins of agriculture in south-central Wales (it should be noted in parenthesis that this would not have been possible without the careful soil-sampling strategy applied to the site by Britnell and his team almost fifty years ago); and detailed osteological study of human remains from various contexts within Penywyrlod cairn and nearby Pipton and Ty Isaf (Michael Wysocki) to make deductions about the life-courses of the individuals concerned. Further chapters report strontium and oxygen isotope analysis of teeth from Penywyrlod and Ty Isaf, to consider the degree to which the people concerned were 'local' (Samantha Neil); dietary isotope analysis of bone collagen from human remains from Penywyrlod, Tinkinswood, Ty Isaf, Heston Brake, and Parc le Breos Cwm cairns (Michael Richards) to provide a further overview of diet; and organic residue analysis from Gwernvale pots (Isabel Wiltshire and Lucy Cramp).

Drawing all the dating evidence (including new determinations) together, a further key chapter is that by Seren Griffiths who, by using systematic Bayesian analysis, broaches the huge topic of the chronology not only of all the Black Mountains long cairns, but the totality of the current dating evidence for the early Neolithic of south Wales and the Marches. Here there is an important contrast between the two long cairns: Penywyrlod was apparently built very early on (around 3800 BCE) but Gwernvale was constructed much later (around 3500 BCE), in line with Pipton and Ty Isaf.

The results of the scientific analyses are the easiest to summarise here: for example, emmer wheat and barley, as well as certain grasses featured in the pre-cairn deposits at

Gwernvale, and dairy product consumption among the slightly later burial population is attested by both the isotope and the lipid data. The surrounding environment featured mixed woodland with clearings and a local dominance at both sites of oak and hazel. At least one of the individuals from Penywyrlod for which data could be gained (none was feasible from Gwernvale) grew up some distance away from the locality (and could have journeyed there from as far afield as north-east Scotland or Dartmoor). Most of the bones present appear to have been those of young adults, and several had suffered perimortem wounds (including a leaf-shaped arrowhead embedded in a sternal fragment from Penywyrlod Chamber NE III or its passage). A variety of means of de-fleshing corpses and redistribution of their bones was detected, and at Pipton and Ty Isaf as well as Penywyrlod, the 'parcelling up' of groups of bones to re-constitute 'individuals' from several different bodies was evident. Such groups were 'sandwiched' between what had been taken to be flagstone flooring levels and were often found (especially at Ty Isaf) carefully tucked into corners of the chambers lined with upright slabs. Interestingly, both these practices were detected during our recent (2023) excavation of passage-chambers at Arthur's Stone.

This last point is germane to this review. Discussion of these two sites in eastern Wales (one in the Usk catchment, the other in the Wye) might have seemed somewhat abstract in the context of these *Transactions*, but for the considerable investment of field research in recent years into the Neolithic of the Dorstone area. We now know that the Dorstone Hill *halls* that pre-date the long cairns there (see Ray and Thomas, pp. 45-63 of this volume), can be dated earlier (*c*. 3850 cal BC) than any of the Black Mountains long cairns, but quite probably were contemporary with the early Neolithic midden and the 'house' structure beneath the Gwernvale cairn. The earliest long cairns in Wales and the Marches now include more certainly both Penywyrlod and the three Dorstone Hill mounds, with the 'Cotswold-Severn' tradition cairns being built a century or more later. It will be interesting to learn where Arthur's Stone fits in this pattern.

The carefully calibrated and compared date sequences in Griffith's study extended to causewayed enclosures and included an important re-assessment of the Hill Croft Field (Bodenham) site dates. She concluded that, like Dorstone Hill, it was among the earliest such sites in west-central Britain, starting at around 3700 cal BC (compare Womaston in the Walton Basin at around century later, and Caerau near Cardiff a century later than that). In their conclusion to this outstanding, if possibly to the non-archaeologist somewhat 'technical' volume, the editors devote much space to the consideration of origins: for the regional Neolithic, for the 'Neolithic' people who built the long cairns, and for the styles of architecture employed and evoked in their construction. The 'first stones' of the title of the volume were, in the editors' view, the first local manifestation of incoming groups of farmers whose origins lay in near-continental Europe.

Meanwhile, there remain significant questions for those interested in the prehistory of Herefordshire—for example, where are the more easterly traces within the county of early Neolithic societies other than the causewayed enclosures, such as those at Bodenham or on Dinedor Hill, and the river-valley traces (mostly of pits) at Wellington? As a result of this fascinating suite of studies of Penywyrlod, Gwernvale and related Breconshire sites, we now have a more detailed and nuanced appreciation of the intricacies, especially of the construction and use of the Neolithic cairns of south-east Wales and the Black Mountains: and a more fine-grained knowledge of the distant lives represented in the bones amid the 'stones.'

Keith Ray

***Offa's Dyke Journal, Volume 4, Borders in Early Medieval Britain.*** **Published online by JAS Arqueologia at http://revistas.jasarqueologia.es/index.php/odjournal/ (pdf downloadable free of charge). Printed version (Archaeopress with JAS Arquelogica 2022) 178 pp., ISBN 978-1-80327-396-9, £35.**

The *Offa's Dyke Journal (ODJ)* is 'a peer-reviewed venue for the publication of high-quality research on the archaeology, history and heritage of frontiers and borderlands focusing on the Anglo-Welsh border'. Submissions that explore Offa's Dyke, Wat's Dyke and the 'short dykes' of western Britain are accepted, along with comparative studies on various aspects of borders and frontier lands elsewhere. Each volume typically contains seven to eight papers.

The editorial board includes impressive representation from leading archaeologists and historians from Wales, England, and further afield, and also from organisations such as the Offa's Dyke Association. Four editions have so far been published, one for each year from 2019 to 2022. Prof. Howard Williams of Chester University has acted as the energetic and ever-present editor, with help from others in different volumes.

For anyone interested in the distinctive history of the Welsh Marches, the content lives up to the billing. This review serves mainly to bring the *ODJ* to the notice of readers of the *Transactions,* since, although well-known to specialists and to local organisations with a strong interest in Offa's Dyke, the *ODJ* can escape the notice of others who would find the content valuable. For your reviewer, the next volume of the *ODJ* has become something important to look forward to!

All four volumes can be downloaded as a pdf free of charge, thus supporting the notion of a 'venue' where research can be shared, freely and frequently. Downloading works well once the prospective reader has located the volumes; they are accessed via the 'Archive' tab on the 'Home' page of the website. Since this doesn't seem obvious or instinctive, perhaps it would be helpful to include a comment on the 'Home' page to indicate that the volumes are found there. The printed editions are well produced and illustrated.

This review focuses mainly on Volume 4 for 2022, because it is the most recent and because several of the papers present research of particular importance to Herefordshire and the surrounding counties. From this perspective, papers in earlier volumes are not to be missed either; for example, Liam Delaney's piece in Volume 3 uses LiDAR and other techniques to demonstrate beyond argument the continuous line of Offa's Dyke in north-west Herefordshire, from Rushock Hill to Bridge Sollers. The maps are particularly good. The conclusions are important and new; until recently many scholars believed that some, or all, of this section might never have been built, and/or doubted that the substantial earthworks at Lyonshall were part of the Dyke.

Volume 4 is a special issue focused on borders in early Medieval Britain. It mainly comprises the proceedings of a conference held digitally (for Covid-related reasons) in 2020. Dr Ben Guy, the conference leader, edited the volume, along with Prof. Williams and Liam Delaney. The intention was to 'study processes of political, cultural, and linguistic interaction in a regional border zone as a cohesive unit, moving beyond consideration of these areas as merely places where the boundaries or 'frontiers' of larger polities or cultural groups collided'. Dr Guy notes that research on these lines led him to 'reconsider the history of the entire Anglo-Welsh border zone in the early Middle Ages, along with the nature of Anglo-Welsh interaction that took place, not so much across it, but within it'. The final phrase acts as a telling reminder; the story of the Marches in this period is not a simple one of clear and decisive divisions.

Three papers of interest in themselves, but less directly relevant to the Marches, comprise:

Rory Naismith's '*Bige Habban: '*An Introduction to Money Trade and Cross-Border Traffic'; Neil McGuigan's piece 'Donation and Conquest: The Formation of Lothian and the Origins of the Anglo-Scottish Border'; and a study by Oliver Padel, 'King Aethelstan and Cornwall'. In general terms, Naismith's paper gives food for thought about the nature of trade and movement in border areas, something fundamental to an understanding of the early Medieval Marches.

The other papers will all grip anyone interested in that period in the Marches. Lindy Brady deals with two case studies, one of which seeks to clarify the context and implications of the *Ordinance concerning the Dunsaete.* Usually dated to the early 10th century, but by some more recently to the late 10th or early 11th century, this short document, originally written in Old English, seems largely to be a working agreement about addressing cattle theft. Brady sees it as drawn up within an ethnically mixed community of Welsh and Anglo-Saxon people—the *Dunsaete*—likely to have lived west of the Wye, roughly between Hereford and Monmouth. She calls the document an 'agreement', a 'memorandum of understanding', rather than an ordinance, the usual term applied to it. The last clause suggests that the *Wentsaete*, generally taken to be the people of Gwent, had once 'belonged' to the *Dunsaete*, but now belonged more rightly to the West Saxons. The geographical territory and identity of the *Wentsaete* had remained unchanged, but their wider political allegiance had changed. In Brady's view this represents 'a perfect illustration of a borderland that shifts not geographically, but politically'.

Dr Guy's piece ('The Changing Approaches of English Kings to Wales in the Tenth and Eleventh Centuries') also refers to the *Dunsaete* text. He suggests that the *Wentsaete's* payment of tribute and hostages to the West Saxons, which it mentions, might have originated in the 880s, when Gwent submitted to Alfred; nonetheless, the *Wentsaete* seemed to have retained some independence of action, since at one point the *Dunsaete* are seeking 'at least peace-hostages' from them. The bulk of Dr Guy's paper explores, via three case studies, the relationship between English and Welsh kings from the late 10th century to 1064, concluding that 'During the first half of the 10th century, English Kings deemed it important to maintain direct domination over the greater kings of Wales. The impetus for this may have been eroded thereafter…<and> in its place a more granular and regional approach to Wales, focused on the borderlands, emerges into view.' Interestingly, he also suggests that the annexation of the Welsh area of Englefield (near Rhuddlan) to Cheshire has parallels with the annexation of Archenfield to Herefordshire. Despite annexation, as late as 1086 Archenfield remained administratively separate.

The study of place-names in Herefordshire is problematic. The very title of David N. Parsons's paper—'Place-Names and Offa's Dyke: the Limits of Inference'—suggests the nature of the difficulty, on this occasion in the context of Offa's border zone, especially from south Shropshire northwards. Whilst exploring 'the potential of place-names and the unique insights into language and society across the border that such evidence can offer', he concedes that the place-name evidence is challenging for the historian 'particularly in that it resists close dating'. He feels that 'previous conclusions about Offa's Dyke and certain place names have…been expressed too optimistically'. This is necessarily a detailed paper, but one that repays attention. Figure 2, a map showing English place-names to the west of Offa's Dyke, including some just over the Herefordshire border into Radnorshire, is fascinating; predictably however, interpretation is not straightforward!

Prof. Keith Ray, so well-known to the Woolhope Club as its Archaeology Recorder, contributes a fine piece about the organisation of the mid-late Anglo-Saxon borderland with Wales. Even though almost no written material survives that relates directly to Offa's Dyke and the communities affected by it, he demonstrates that important suggestions can be made by

combining a range of archaeological sources with careful use of Anglo-Saxon charters, the Anglo-Saxon Chronicle, and the Domesday Book. The Anglo-Saxon fortification discovered at Breinton, above the Wye, in 2018 (*TWNFC* (69) 2021, pp. 85-106) is seen as 'potentially transformative of our understanding of how the Anglo-Welsh frontier may have operated', whilst the suggestion from archaeology of the 1990s , that 'Leintwardine may have been incorporated into the system of border control accompanying the construction of Offa's Dyke' is reinforced. The suggestion emerges that an organised border zone of some depth existed, one that played a key role in trade as well as military activity, and where former Roman roads seem likely to have acted as 'rearward communicative' arteries. The careful use of later documentary evidence is important, not least with reference to the *radmanni* or *radchenistri,* 'riding men', mentioned in the Domesday Book in Cheshire, Shropshire, Herefordshire, and Gloucestershire. Prof. Ray notes that these men seem inescapably associated with places relevant to the border zone; that they are likely to have had some role as fighting men or messengers; and that their Anglo-Saxon origins may relate to a network associated with a frontier zone much earlier than the 11th century.

Finally, with reference to Dodleston Castle in Cheshire, Rachel E. Swallow argues that, in siting castles, the Normans deliberately re-used pre-existing monuments from prehistory and the Romano-British period, and that continuity associated with important sites could be lengthy; for example, the earthworks at Dodleston probably represented an Anglo-Saxon meeting place and perhaps 'a meeting point of significance over millennia'.

Hopefully, despite the limitations of a review, enough has been said to show that the papers in *ODJ 4* will stimulate those interested in the period and in culture, politics, identity, and life in the Anglo-Welsh borderlands. The bibliographies provide a rich source of further reading, including much recent work; thinking and scholarship in this area is developing quickly, fuelled by fresh archaeology and by re-evaluation of a wide range of other evidence.

Terry Morgan

***Downton Gorge: the matchless valley. Landscape and industry, nature and culture*, edited by Tom and Gisèle Wall (Tom Wall, 2022), vi +502 pp., illustrated, ISBN 978-1-9160436-2-6.**

Downton Gorge, named the 'matchless valley' by Ann Seward, an 18th-century poet and literary figure, is well known to the Woolhope Club. The Club has visited many times, to appraise, record, and enjoy everything it offers. However, never before has such a wealth of research been gathered into a book so sumptuous and beautifully illustrated, designed to celebrate the Gorge and to inform and captivate readers, whether or not they know it already. It is good to think that Charles Darwin, who first visited in 1822 at the age of thirteen, was influenced by a rich formative experience. The work of painters inspired by the Gorge features in the book. The Club was delighted to help support publication with a grant from the G. W. Smith Fund.

Downton embraces river, woodland, pasture, and some arable land, extending to around 750 acres, of which 725 were designated as a Site of Special Scientific Interest (SSSI) in 1952. Sadly by 1988, only 165 acres were still designated. Within the SSSI, 118 acres were leased to Natural England (as it is now called) as a National Nature Reserve, while in 1996 the whole of the River Teme was notified as an SSSI.

The first section of the book covers landscape and industry, with chapters by Michael Rosenbaum on geology and landform; by David Lovelace on land use in Bringewood Chase and Mocktree Forest; and by Laurence Ince on the ironworks at Bringewood Forge and industrial use of local materials.

Rosenbaum gives an excellent description of Downton Gorge's position at the edge of an ancient ocean (Iapetus), which ceased to exist soon after the Silurian era had ended. He explains the characteristic fossils, the long and complex processes that have contributed to today's landforms, and the latest theories for the development of the watercourse and drainage patterns.

David Lovelace's insights deal with the balance between the ancient, complex system of grazing and other rights exercised by the peasantry versus their manorial lords, and transition into a Royal Forest in the 15th century and a private estate in Elizabethan times. The latter jeopardised the multipurpose use of Bringewood Chase and Mocktree Forest, which had served medieval communities for generations. He also documents the destruction of the deciduous woodland in the 20th century and its replacement with conifer plantations; now only fragments of the Chase and the Forest remain in a near-natural condition.

Laurence Ince describes the history of the iron industry in Bringewood Chase. The industry probably originated in the 16th century when the Earl of Essex leased the Chase and built iron mills and forges along the Teme. The river's reliable flow, and locally sourced charcoal, limestone, and ironstone (later brought from the Clee Hills), enabled the industry to flourish. Its history here is tied up with that of the Knight family over several generations until the early 19th century.

The second section of the book is a *potpourri* of the historical figures who lived in Downton, an account of the castle itself and of the landscape when viewed as a garden, and the literature associated with the Gorge. Barney Rolfe-Smith and Tom Wall bring us an engaging overview of 300 years of the Knight family, and their influence on art and on the agricultural heritage of Herefordshire. The link between the Knights and Downton was finally ended in 1986.

The story of Richard Payne Knight (1751-1824) is taken up in lavish detail by David Whitehead, who highlights Knight's cultural contributions, and describes the design and construction of Downton Castle, documenting contemporary reactions to this extraordinary dwelling and the debate as to whether it was a mansion with battlements or a castle; it was never Knight's intention that it should be considered the latter.

Barney Rolfe-Smith and Tom Wall provide a rich account of Knight's landscape garden, created, with 'art clandestine', 'conceal'd design', and 'secret skill' to display the landscape of the Gorge to dramatic effect through a network of paths. Key aspects of the landscape garden are described, together with the paintings of Thomas Hearne which relate to them. Rolfe-Smith continues the story, describing the later removal of the forges and furnace, the creation of a waterfall, the construction and loss of various bridges, and the disastrous replacement of the deciduous woods by conifer plantations.

Mark O'Hanlon gives a lively account of the literature—both poetry and prose— inspired by the Gorge, as well as the more academic and sometimes contentious output of Richard Payne Knight. Richard's brother, Thomas Andrew, contributed books and papers on Herefordshire's apple and pear varieties, of which the best known is the illustrated *Pomona Herefordiensis*. Sir Humphry Davy, famous for the Davy lamp, came to fish the Teme at Downton and wrote *Salmonia: or Days of Fly Fishing*, O'Hanlon also summarises the many scholarly accounts dealing with Richard Payne Knight, Downton Castle, and the story of the local community.

The third section is a tribute to the astonishing biodiversity of the Gorge. After a detailed account of the Teme, its bridges, mills, and forge, Tom Wall's overview of that biodiversity ranges from fish, plant life, and invertebrates to birds and mammals. There is an important discussion of growing pollution from agricultural run-off and sewage effluent and its impact.

Stuart Hedley then takes up the baton with a rich account of woods, trees, ferns, and

flowers. He explores the Oak, Ash, and Beech woods, their preferred soils and their related plant species, and gives a wonderfully detailed exposition of Small- and Large-leaved Lime, their concentration in the Gorge, and their very limited distribution outside the West Midlands. Lichens, mosses, and liverworts are described by Ray Woods and Mark Lawley, with a glimpse of the Victorian botanists, whose work forms a baseline from which to compare today's records. They raise examples of lichens sensitive to atmospheric pollution; intriguingly, *Lecanora conizaeoides* is tolerant, even demanding, of sulphur dioxide, but, with the loss of sulphur dioxide as a pollutant in the early 1990s, has become very rare and has now been replaced by *Physcia tenella* and *P. adscendens,* which have benefitted from reduction in acidic pollutants.

Jo Weightman takes us on 'a foray amongst the funguses', a phrase introduced by Dr Henry Graves Bull, who held the first foray at Downton in 1872. In the Gorge, mycorrhizal fungi, which live in a symbiotic association with living plants, are associated with Oak, Beech, Lime, Wych Elm, Alder, and Hazel, but interestingly not with Ash. Saprophytic fungi and parasitic species are very well represented too.

Tom Wall's chapter on woodland wildlife and management concludes the third section. After a chequered history, today's deer population comprises Roe, Fallow, and Mutnjac, the latter first recorded at Downton in 2019. Especially in deciduous woods, overgrazing by deer reduces wildflower numbers and biodiversity, and hampers natural regeneration of trees. Their exclusion results in rapid regeneration. The varying fortunes of birds in the Gorge are outlined: Wood Warbler and Redstart are in decline; the Pied Flycatcher population seems to be holding its own; and the Garden Warbler is affected by reliance on undergrowth such as Bramble, a favoured food of deer and also important to butterflies, of which twenty-one species have been recorded here. Ravens, exterminated as a breeding species in Herefordshire in the 19th century, have returned and become common; similarly, raptors such as Buzzard, Red Kite, Goshawk, and Peregrine Falcon nest locally. The woodland was surveyed by Roger Taverner for Elizabeth I and the individual trees by George Peterken in 1987 and 2008. In 2008, Peterken noted a major increase in Elder, and declines in Birch, Oak, Lime, Ash, and Sycamore, the latter due to management. Wall also discusses the pros and cons of Pheasant and Partridge shooting and concomitant control by gamekeepers of predators, noting the need for biodiversity audits to achieve net gain. He details threats to biodiversity from the Grey Squirrel and the likely impact of Ash dieback; around 118 species have been assessed as vulnerable should the Ash be lost.

The fourth section of the book examines key buildings, Knight's view of the Picturesque and the impact of other members of the family and their descendants on agriculture and forestry elsewhere, for example at Hafod in Mid Wales and on Exmoor.

Barney Rolfe-Smith describes Stonebrook Cottage and Dingle, where Richard Payne Knight lived for sixteen years after spending twenty-five years in Downton Castle. He had a Greek motto carved outside the sitting-room window, probably best translated as 'May leisure here prove the finest of possessions.' Rolfe-Smith argues that by living there, Knight could think, read, and write as an Athenian philosopher, surrounded by nature and views.

David Whitehead's detailed and nuanced account of Knight's involvement in the Picturesque movement brings alive controversy with landscape designers, such as Capability Brown and Repton, and Knight's involvement in the political and intellectual élite of Herefordshire. The Victorians considered that one of Knight's greatest achievements was to draw attention to the relics of Britain's past, such as mills, cottages, and bridges, mellowed by nature in the landscape of the British countryside, as a substitute for classical antiquities on the Continent; they had become inaccessible to British tourists during the French Revolution.

The book's final chapter summarises the recent history of the Gorge and considers the future challenges of balancing shooting, landscape, forestry, industrial heritage, and nature conservation, including river management. The extensive appendices, including lists of plants, lichen, and fungi, are important and will be of great interest to those in need of detail.

The book is beautifully illustrated and well laid out, with high-quality maps. It offers a splendid archive of information about the many facets of Downton Gorge. It should serve as an inspiration to the next generation, whether historians, archaeologists, geologists, or nature conservationists, to continue the study and preservation of this 'matchless valley'.

Rachel Jenkins

***Downton Postcards: Deltiology of the Downton Castle Estate, Herefordshire* by Mark O' Hanlan (Published by the author and available from 5 Cangeford Drive, Ludlow SY8 1X1) v + 64 pp., illustrated ISBN 978-0-9528059-7-7, £9.99.**

It is perhaps, unfortunate that the author of this excellent booklet chose 2022 to publish his work, the year in which Tom and Gisèle Wall produced their weighty monograph on Downton (see review immediately above). However, in many respects these books are complementary. My 1990 Collins *Dictionary* is silent on 'deltiology', but my spell checker is better informed, and it soon becomes apparent from reading the booklet that this is a serious study of postcards depicting the Downton estate. The fact that there were so many produced (*c.*25-27) in a relatively short period of time, is a measure of the significance of this relatively small part of Herefordshire in the late 19th and early 20th century. The producers of the postcards were generally fairly local but national printers quickly got in on the act. The highpoint, as the author points out, came between 1902 and 1918, when a postcard cost a halfpenny to send, and was delivered within 24 hours; thus, before the age of the email, they were the means of communication favoured by the population at large.

The story begins with some detective work, which identifies the earliest postcard of Downton which shows the new Nesfield terraces and was issued as a *carte de visite* in the late 1860s. It also provided Thomas Wright with a print in *Ludlow Sketches* (1867). Subsequent chapters in the book are devoted to local photographers and printers who maintained a steady flow of Downton views until the mid-20th century. This sort of approach is very revealing since it provides fairly accurate dates for the images used, which often circulated for many years after their creation. For example, the single-span iron structure across the Teme—'the Pony Bridge'—was unknown to me, but the serial number of the postcard indicates to the author that it was photographed in 1906. Equally interesting is the waxing and waning of the vegetation in the Gorge, e.g. the view of the Downton Rocks (p. 26), which reminds the observer that the cycle of growth and decay makes it very difficult to make judgments about 'picturesque' scenery as it was first celebrated by Richard Payne Knight in the 1790s, albeit we have the flattering watercolours of Thomas Hearne to help.

Perhaps the most photographed object used on the postcards was the Haymill (not to be confused with the later mill at the Castle Bridge). As time passed in the 19th century, the Haymill crumbled and became encrusted with moss and ivy, thus becoming more picturesque. However occasionally human intervention occurred, and on at least one occasion the ivy was cut back. Clearly, the mill was more than a picturesque prop. Since ivy was the most potent symbol of the picturesque, artists were quite likely to put it back. Photographers were less likely to lie.

The book is brought to a close with a chapter on the more recent rediscovery of Downton,

with the Whitworth Art Gallery exhibition and its influential catalogue in 1982, followed a decade later by the Hereford Art Gallery exhibition in 1994—the bi-centenary of the publication of *The Landscape* by Payne Knight. This brought to public attention the twelve watercolours produced by Thomas Hearne in 1784-6. The work is completed with an appendix charting the later history of the walks. This is a very good buy for just under £10, well-illustrated, with informative text, footnotes, and a bibliography.

David Whitehead

***The Making of England from Rome to the Reformation*** **by Toby Purser, (Amberley, 2022), 319pp, illustrated, ISBN 978 1 3981 0506 5, £22.99.**

Dr Toby Purser spoke to the club in February 2022 on the Holme Lacy Charter, one of the earliest surviving feudal documents, relating to an estate at Holme Lacy, issued by Bishop Robert of Hereford in 1085, in favour of Robert de Lacy. Dr Purser is no stranger to Hereford; he was brought up here and was taught the rudiments of his medieval history at Hereford Sixth Form College. Although the scope of the book is national, a review is included here because much of the content, especially up to and including the Norman Conquest, informs themes about the development of the Welsh Marches, the borderlands, and Herefordshire, explored elsewhere in this edition of the *Transactions*.

The book begins with the closing phase of Roman Britain in the late 4th century, when Christianity arrived, and ends in the 16th century with Reformation, when it was transformed. It is a brave historian who takes on the whole of this period, but Dr Purser produces many insights within a framework which is basically political, with frequent excursions into cultural, economic, and social history.

One of the key features of this book is that it embraces a revisionist position at every opportunity. For example, in the early chapters of the book Rome's influence had been diminished; city culture was superficial; villas were places of retreat and self-sufficiency; and, by continental standards, Britain was a failed state. It was left unproductive and de-skilled, and the Germanic settlers brought a better technology and real artistic ability. However, since they comprised no more that 10% of the population of Britain they were quickly integrated. In western Britain, like Herefordshire, they made no impression until the late 7th century and then their mark was political rather than social or cultural. Western and northern Britain was already Christian when St Augustine arrived in the late 6th century. His objective was to save the naïve Anglo-Saxons from being absorbed into the flourishing, schismatic British church. There are many refreshing insights such as these, which quietly undermine many of the key assumptions of our time and lazy teaching in our schools.

From here there is plain sailing via Alfred and the Vikings to the Norman Conquest. Alfred's heroic struggle is written from the perspective of Churchill's war-room in 1940 but, incidentally, illuminates very clearly the context for the Leominster Hoard. Special attention is paid to the wealth of England, which not only attracted the Vikings but underpinned Alfred's success in defeating them. His successors, the West Saxon kings, centralised England but tensions within the dynasty—and, again, the country's wealth—attracted another Scandinavian 'freebooter', Cnut. The political system failed, but there was no new migration of Danes and the Anglo-Danish aristocracy invited Edward the Confessor to return from exile in Normandy to take the crown and rule via Cnut's laws. Remarkably, the author believes that on Edward's death in 1066 England was one of most well-run states in Western Europe.

The story of the Norman Conquest is well told, employing much recent research explaining the motives of the key players. Basically, the author believes that English mistakes permitted the Conquest, and that in a sense the Vikings, in the guise of the Normans, finally defeated Alfred, played by Harold Godwinson. This is controversial stuff but produces a very interesting slant on a well-rehearsed event. The pace of the story continues after the Conquest where institutional changes are discussed via building of castles and churches. Latin culture, brought by the Angevin kings, was not strong enough to eclipse English culture, which went underground but soon re-emerged. However, Domesday Book, 'a wondrous achievement', records on every page the humiliation of the Anglo-Saxon élite. Once again, the conquerors, the Norman and Angevin nobles, benefitted from the wealth and general stability of England and were conspicuous by their absence, concentrating on their continental empire, which stretched from Normandy to the Pyrenees.

At this stage we are well over halfway through the book, but it would be wrong to assume that the author had passed the climax of his story. The pace perhaps quickens a little, but revelations and new insights continue to tumble from the passing pages. England is ruled by well-chosen administrators and continental links encourage trade. Moreover, the country was well-placed to play its part in the revival of classical learning. There was also a rediscovery of England's rich history by a number of talented chroniclers, many of whom had English ancestry. Significant landmarks, like Magna Carta and the emergence of 'parliament', are brought into focus, whilst Edward I conquers Wales but makes less headway into Scotland. All this 'progress' is brought to a sudden end in the early 14th century. The king, Edward II, is removed and murdered, and the usurpers pretend to rule through Parliament. Defeat in Scotland, famine, and plague wipes-out half the population.

The 'crisis of the 14th century' is heralded with the heading 'Apocalypse Now—Plague, Revolt and Usurpation', the last referring to the removal of Richard II by Henry IV in 1399. As the author perceptively notes, the 14th century ended where it had begun, with the removal of a monarch. The concentration on domestic issues provided an era of peace for England's nearest neighbours. Wales never recovered its sovereignty but was left in peace; Scotland remained stubbornly independent and, albeit new opportunities were opened-up in France by Edward III and Henry IV, by the late 15th century the English territories there had disappeared.

Since this book is concerned with social as well as political history, the end comes not with a change of dynasty in 1485 but, a little later with the Reformation. 'The Wars of the Roses' undermined both the later medieval kings and the early Tudors. To rectify this Henry VII was the first king for over a century to review the system of government. His son Henry VIII completed the process and also destroyed the last vestiges of foreign control over Britain by dismissing the papacy. At the same time, he enhanced the wealth of the monarchy by dissolving the monasteries. The book ends with a celebration of Shakespeare who, via his history plays, helped to demonstrate how badly England was governed before the Tudors.

For anyone interested in the early history of England this is a racy, revisionist view of the millennium from *c.*500 to 1500AD. Throughout there is a good balance between narrative and interpretation; the loose ends will undoubtedly lead the inquisitive reader elsewhere via the generous fifty pages of notes and bibliography.

David Whitehead

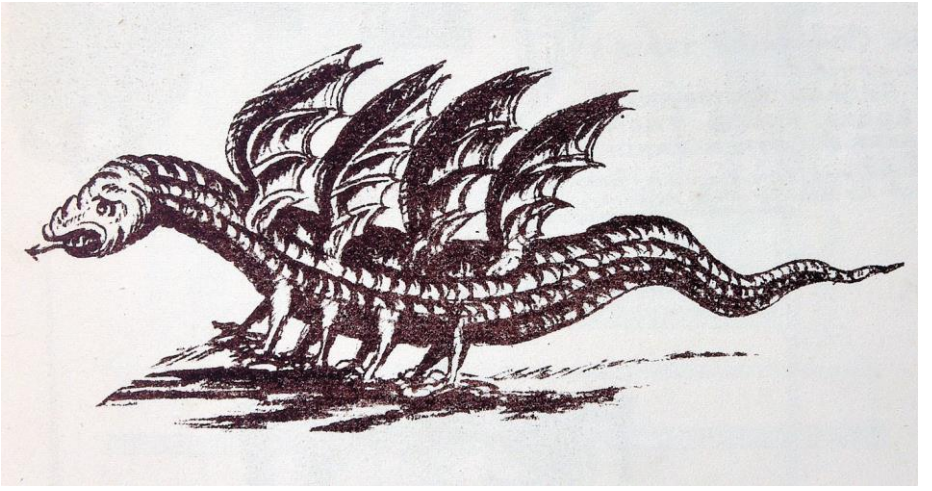


Plate 1.1. Drawing from Thomas Dingley's *History from Marble*, v.2, p cclxv. Completed in *c.*1684 but not published until 1868. (© Hereford Cathedral)

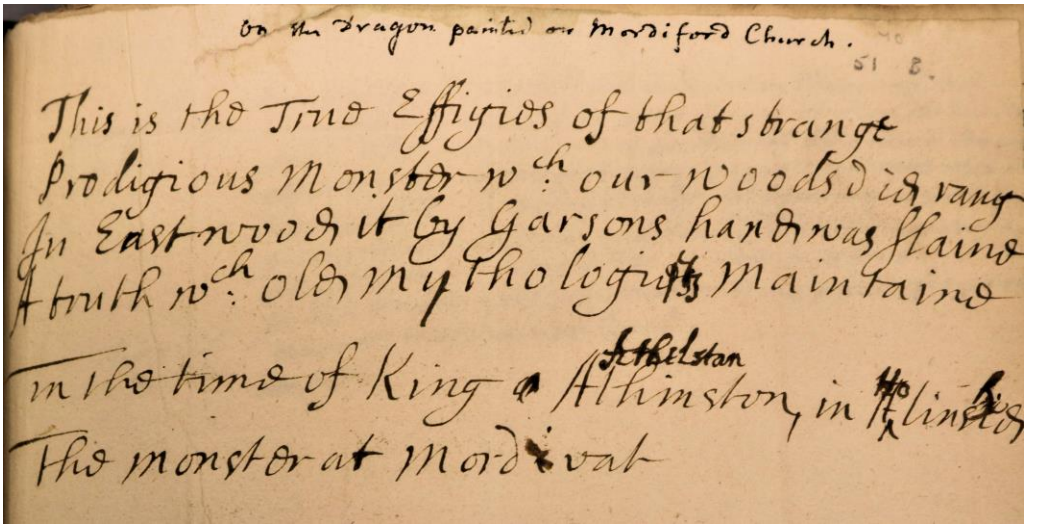



Plate 1.2. Notes about the Mordiford dragon included in the papers of the Herefordshire antiquary Thomas Blount (d.1679). (Herefordshire Archive Service, CF50/248, f. 70.)

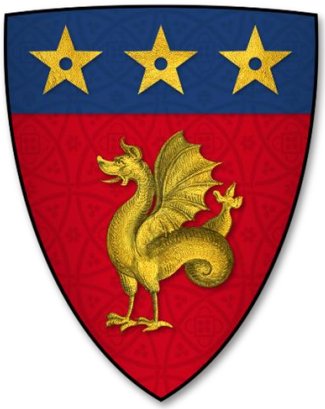


Plate 1.3. Arms of St Guthlac's priory from *Heraldry of Herefordshire*, 1848



Plate 1.4. Undated and unsigned picture of Mordiford Church from the north-west, before the partial rebuilding, showing the dragon on the western gable (Herefordshire Archive Service CF50/145, p. 7). A version of the picture, attributed to R. Clarke in E. M Leather's *The Folk-lore of Herefordshire* (1912), gives a date of *c.*1808 - this may be unreliable

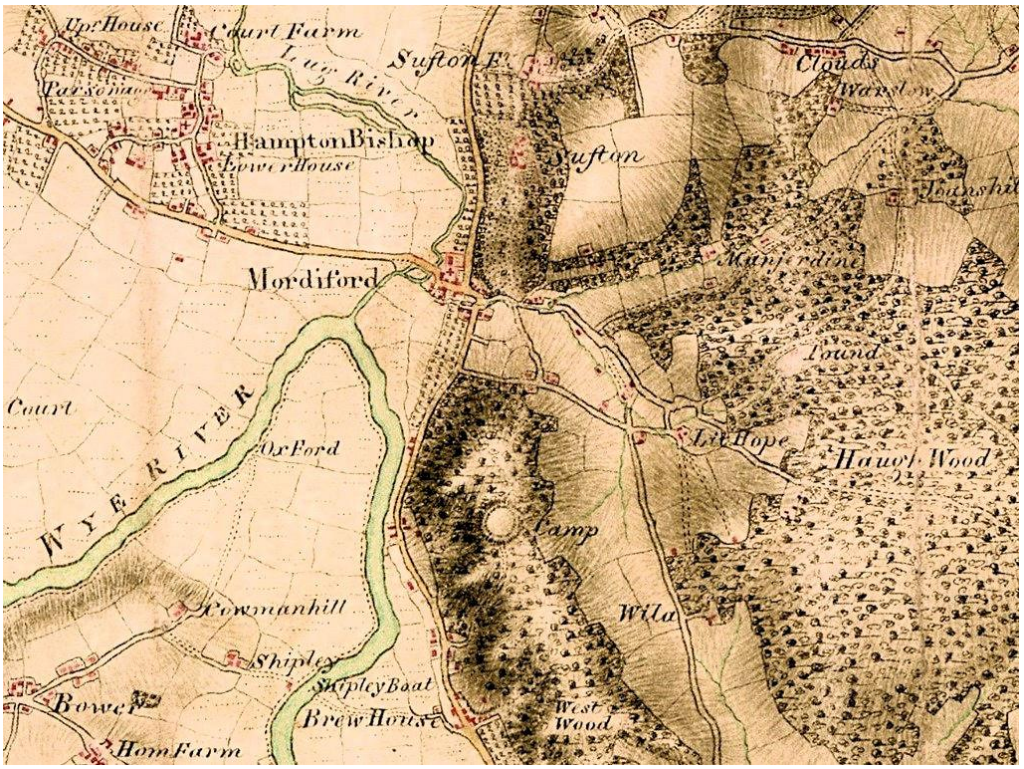



Plate 1.5. Detail from map of 1815 (BL OSD 204) showing key places including the rivers. Sources describe the line of Serpent's Lane, south of the main road from Mordiford to Haugh Wood, in different ways



Plate 2.1. Trench 1 (2011) under excavation, viewed at a distance from the south



Plate 2.2. Working shot of Trench 1 under excavation, seen from the north. The constitution of the bank of the easternmost mound can be seen close-up



Plate 2.3. Trench 3, sited across the centre of the middle long mound. The central burnt clay deposit, with carbonised 'streaks' of timber, was covered by a pink-buff, decayed-turf deposit (seen either side of the burnt clay and timber deposit) and stones to north and south. The turf deposit had in turn been capped by a layer of large, then small stones. Photo: Adam Stanford, Aerial Cam




Plate 2.4. Trench 4, located at the eastern end of the central mound, under excavation in 2013. Visible here are 'L' shaped lengths of timber that are the likely remains of 'architectural' timber braces used to support the roof structure. These are thought to be the first such structural roofing timbers of Neolithic date discovered anywhere in Britain



Plate 2.5. Trench 3, early in the 2013 season, from the north-west. Much of the burnt deposit, initially revealed in 2012, had at this point been removed by excavation, to reveal the paired posts flanking the central aisle and at least one clear line of fully carbonised stakes in the northern 'side aisle'. The northern wall line, with posts in a trench, is visible at left; it was later re-used to retain the northern side of the turf mound. The later stone-lined cist, inserted into the edge of that mound and associated with a remarkable leaf-shaped arrowhead with hinge fracture, made from a former finely polished flint axe head, is also visible. Photo: Adam Stanford, Aerial Cam



Plate 2.6. Trench over the western building in 2014, from the east. The two linear 'modern era' quarries at left (south) together with 1940s bulldozing, had removed the entire southern side of the mound. Note the arc of small posts in the foreground marking the eastern gable end of the primary Neolithic building; the basal levels of the northern retaining wall of the turf mound (the wall had formed the chambered south elevation of the trapezoidal 'Costwold-Severn' style long barrow covering the burnt remails of the timber hall); and, at right, the double line of posts forming the original northern side of the massive, rectangular, early Neolithic hall. Photo: Adam Stanford, Aerial Cam



Plate 2.7. The eastern mound as exposed in 2015. Note the surviving northern side of the mound, marked by the spread of stones. Also, at right, the oval-shaped linear burial chamber, excavated in opposing quadrants. Photo: Adam Stanford, Aerial Cam



Plate 2.8. Interior view of a reconstructed bark longhouse of the Seneca, an Iroquoian people. Each longhouse was 40 to 200 feet long, divided into sections (with a door at each end), and was home to several families. Two-tiered bunks lined each wall. A family slept in the first tier of a section; the upper tier was used for their storage. Ganondagan State Historic Site NY. Alamy Stock Image FY3FJE. Photo: Philip Scalia, 2006 (reproduced with Alamy copyright permission)



Plate 2.9. Eastern building: debris and remains of wooden 'slabs'. Note from foreground to background (in the centre) the elongated fire-reddened spread of burnt daub. Also, patches of carbonised timber, that resolved themselves into the traces of burnt flooring timbers on the same orientation



Plate 2.10. Concentration of carbonised timbers, including traces of the horizontally laid timber floor slabs (or rough-hewn planks) and the remains of a double upright post set into the ground below the flooring, but formerly rising up through it




Plate 2.11. Photo after removal of the timber flooring seen in Plate 2.10. The base of a double post is visible; this formed a fixed upright rising through the floor to provide, for instance, a frame for furniture or divisions (*cf.* Plate 2.8)




Plate 2.12. The drum-shaped ‘commemorative’ pit, dug during the Neolithic period into the western end of the eastern long mound, directly beside the linear burial chamber. The finely polished flint axe head is visible (Plate 2.13), as are stones, probably also deliberately placed into the base of the pit. The bifacially finely flaked flint knife (Plate 2.14), the trimming flakes from the knife, and a stone axe head were placed here too, the latter higher up in the pit fill; it had been broken by bulldozing in the 1940s and reburied in the fill of a nearby land-drain




Plate 2.13. A finely polished flint axe, found in the pit (Plate 2.12), made of a kind of flint (containing fossils) that is highly distinctive. It was probably deposited in the mid to late 4th millenium BCE. Hundreds of hours were clearly devoted to polishing the surface despite the existence of the fracture. Evidently the material was highly prized



Plate 2.14. Bifacially flaked flint knife from the 'commemorative' pit/shaft (Plate 2.12). Note the fine pressure-trimmed working along one edge to improve the cutting qualities of the edge (but note that, as a votive offering, the knife was destined never to be used). A prominent flake scar is visible



Plate 2.15. Cremated animal bone—mainly of cattle—carefully laid on stone slab paving lining the base of one of the shafts dug down into the east mound in the mid-4th millennium BCE, some while after the turf mound had been created and sealed by a capping of stones; this was thickest (and had partly survived) on the northern and southern sides of the long mound/barrow. The bones were dated between 3760 and 3650 BCE



Plate 2.16 The north-eastern line of ditch segments of the causewayed enclosure, seen from a drone-based aerial photograph. Note the possible entrance way between the two furthest right segments, and the stones visible at various points in the circuit. Photo: Adam Stanford, Aerial Cam



Plate 2.17. A large, slab-like piece of a carinated bowl vessel, carefully laid alongside a group of cattle bones, within a bowl-shaped recut of one of the causewayed enclosure ditch segments. Scale in 20-centimetre divisions



Plate 2.18. The single largest flake of rock crystal from Dorstone Hill, featuring clear secondary working, had deliberately been placed in an oval grave-pit close to the linear burial chamber

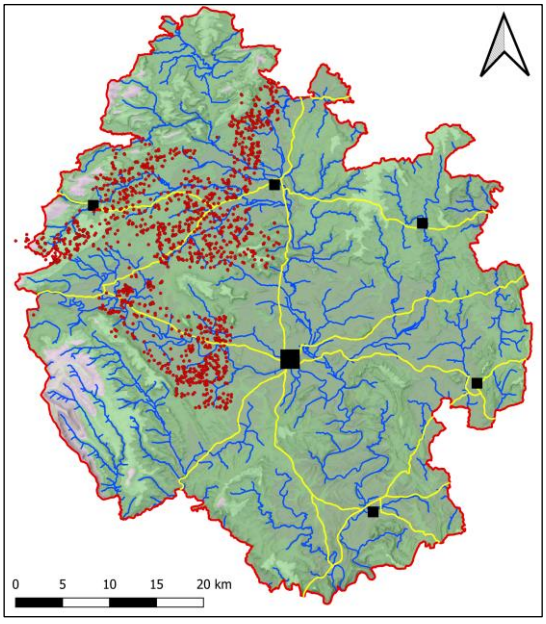



Plate 3.1. Map showing locations of 1,500 potential Ice Age Ponds. ©Giles King-Salter

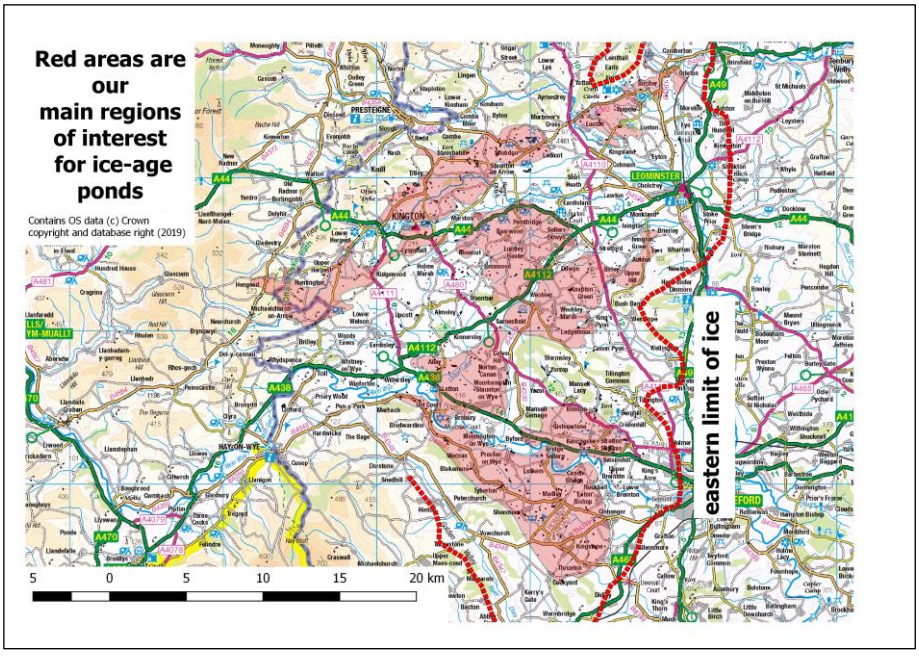



Plate 3.2. Map of the Hummocky Moraine. ©Herefordshire & Worcestershire Earth Heritage Trust. Base map © Ordnance Survey, licence number 100042410



Plate 3.3. Linear Pool West at Moccas Park, possibly a glacial outwash channel. ©Will Watson



Plate 3.4. Aerial view of frozen Ice Age Ponds at The Sturts East, HWT Nature Reserve, January 2023. ©Chris Griffith



Plate 3.5. Ice Age Pond at Norton Wood Orchard HWT reserve, showing a shallow saucer-shaped profile with zonation of marginal vegetation. May 2022. ©Giles King-Salter



Plate 3.6. Warren Eastwood (left) taking a core sample from Medlands Pond. ©Will Watson



Plate 3.7. Tubular Water-dropwort *Oenanthe fistulosa* at Turner's Boat. ©Will Watson



Plate 3.8. *Agabus undulatus* from Mere Pool, Blakemere. ©Will Watson



Plate 3.9. Lesser Spangled Diving Beetle *Graphoderus cinereus* among Bladderwort *Utricularia australis.* ©Will Watson



Plate 3.10. Brandt's Bat *Myotis brandtii* trapped at Mere Pool, Blakemere, 4 May 2022. ©HBRG





Plate 3.11 (left). RAF aerial photograph of field taken in 1946 with lots of Ice Age Ponds. Digitised by David Lovelace during the Herefordshire Water Meadow Survey

Plate 3.12 (right). The same field in 2021 with dry Ice Age Pond depressions. ©Google Earth




Plate 3.13. Ice Age Ponds on The Sturts East, HWT reserve. ©Google Earth / Giles King-Salter



Plate 3.14. Ice Age Pond on National Trust land near Kenchester, with dense Crack Willow trees and scrub. ©Giles King-Salter



Plate 3.15. Lapsed Crack Willow pollard casting heavy shade at Mere Pool. ©Will Watson



Plate 3.16. The same tree re-pollarded and other willows felled. ©Will Watson



Plate 3.17. The eastern margin of the Mere Pool colonised by Water Forget-me-not and other macrophytes. ©Will Watson




Plate 3.18. Aerial view of Ice Age Ponds at The Sturts East and the restored ghost pond, March 2023. ©Chris Griffith



Plate 3.19. Ghost pond excavation at The Sturts East in August 2021. ©Will Watson




Plate 4.1. Contemporary satirical cartoon of the Supplementary Militia by James Gillray: scurrilous no doubt, but likely to reflect a degree of public scepticism

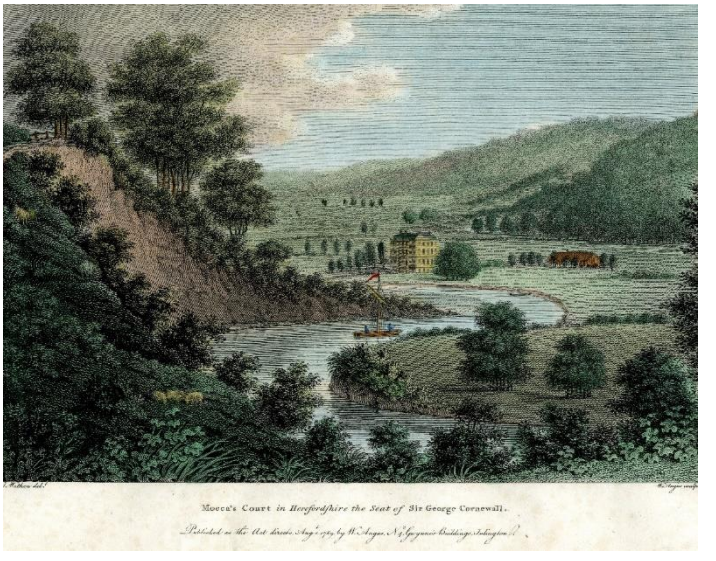



Plate 4.2. Engraving of Moccas Court, published in 1789, based on James Wathen's watercolour of 1788. It was later hand tinted. The open aspect around the house, before landscaping, would make it more suitable for the field-day in 1797. (Herefordshire Libraries Service)




Plate 4.3. The uniform of the 36th regiment of foot, associated with Herefordshire, as it was in 1792 just prior to the French Revolutionary Wars. The local volunteers would most likely have had a similar uniform, although with different coloured facings. (Author's collection)

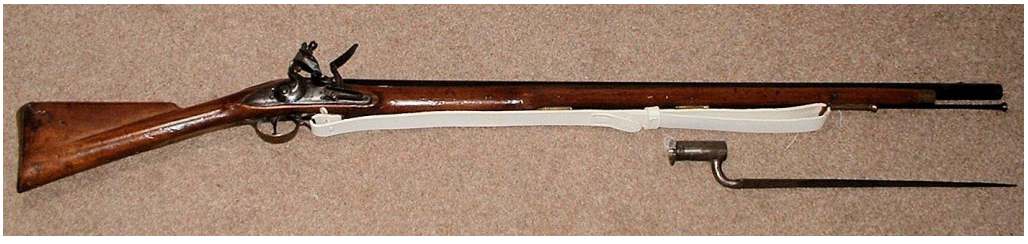


Plate 4.4. A Brown Bess, a flintlock musket of the type that would have been used by the local volunteers. This particular example was made in 1800, by the noted gunsmith Henry Nock, who supplied weapons to the Board of Ordnance. (Author's collection)




Plate 4.5. A fine lithograph of Sir John Geers Cotterell. Since the painting of the subject by Pickersgill, from which this was derived, was exhibited at the Royal Academy in the summer of 1831, it must have been produced soon after that (*Hereford Journal*, 15 June 1831). C. J. Hullmandel was a noted publisher of, and authority on, lithographs. (Herefordshire Library Service)



Plate 5.1. *Carte-de-visite* portrait, shown at actual size, taken towards the end of John Monkhouse's life in the 1860s. The words 'Mr Monkhouse' can just be made out from the faint writing in blue crayon across the bottom edge. (Photo taken in the studio of Richard and Marion Bustin in Hereford. Author's collection)



Plate 5.2. The Stowe from the south, on the lane to Millhalf Farm. (Photo: Peter Klein)

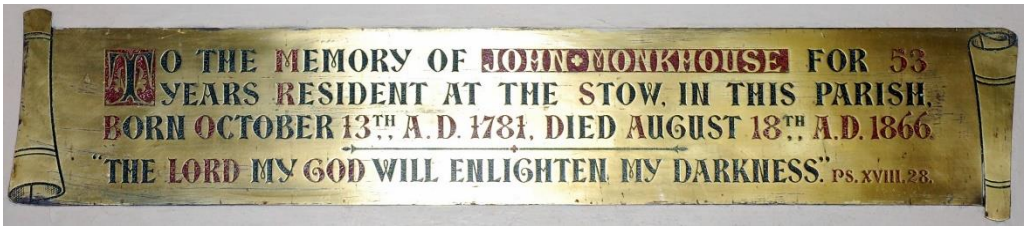



Plate 5.3. Brass memorial to John Monkhouse in Whitney-on-Wye parish church, on the north wall of the chancel. (Photo: Peter Klein)



Plate 5.4. Enlarged image of John Monkhouse, taken from the *carte-de-visite* of Plate 5.1. (Original photo taken in the studio of Richard and Marion Bustin in Hereford)



Plate 6.1. Boarded-box chest at St James the Great, Cradley



Plate 6.2. Boarded-box chest at St James the Great, Cradley, with lid open and partition visible



Plate 6.3. Hinges and ring on the lid of the chest at St James the Great, Cradley



Plate 6.4. Boarded-hutch chest at St John the Baptist, Mathon



Plate 6.5. Cross and hinges with fleur-de-lis terminals on the chest lid at St John the Baptist, Mathon




Plate 6.6. Inscription on the chest lid at St John the Baptist, Mathon



Plate 6.7. Panelled (framed) chest at Holy Trinity, Bosbury



Plate 6.8. Clamped chest at All Saints, Hereford

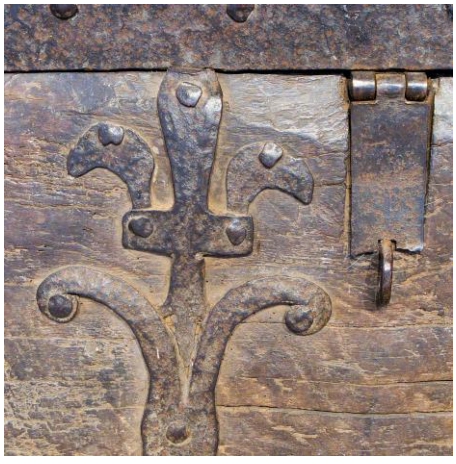


Plate 6.9. Clamped chest at All Saints, Hereford, with lid open



Plate 6.10. The dug-out Chest II at St George's, Orleton





Detail of Chest II at St George's, Orleton. Plate 6.11, left, showing the left-hand end of the chest and Plate 6.12, right, the heraldic fleur-de-lis added to the split-curl terminal



Plate 6.13. Dug-out chest at St Michael's Kingstone



Plate 6.14. Dug-out chest at St Bartholomew, Munsley





Plate 6.15 (left). Dug-out chest at St John the Baptist, Lea

Plate 6.16 (above). Interior of dug-out chest at Lea, showing saw marks, stock lock, and till. Red lines indicate the direction of the saw marks



Plate 6.17. Dug-out chest, St Weonard's, St Weonards



Plate 6.18. Dug-out chest at St Mary's Foy



Plate 6.19. Saw-marks on the underside of the chest lid at St Mary's Foy



Plate 7.1. Snodhill Castle: the complex arrangement of walls at the eastern end of the chapel and, at lower right, the feature interpreted as an altar-base



Plate 7.2. Snodhill Castle: remains of an otherwise undocumented postern gate, which must have led to steps down the steep flank below the northern wall



Plate 7.3. A drone-based, aerial photogrammetric image of 2022 excavations at Arthur's Stone. The trench at the bottom revealed postholes continuing the line of former timber uprights uncovered in 2021. The largest trench (left) uncovered a parallel line of former posts, the western side of the avenue which approached the chambered tomb from the south-east. Between the two lines, a pit with the surviving base of a stone monolith can just be seen. It was found to be one in a double line of former standing stones, erected to replace the timber avenue with a stone avenue. Middle Neolithic pottery sherds, found in the bases of foundation pits for the stones, indicate that this replacement of timber posts with stone (so far unique) took place around 3.200 to 3,000 BCE. The Scheduled Monument is seen at the top. Photo: Adam Stanford, Aerial-Cam and Sumo Services




Plate 7.4. Drystone walling, forming the southern hornwork of the south-east facing façade at Arthur's Stone, exposed by the 2022 excavations

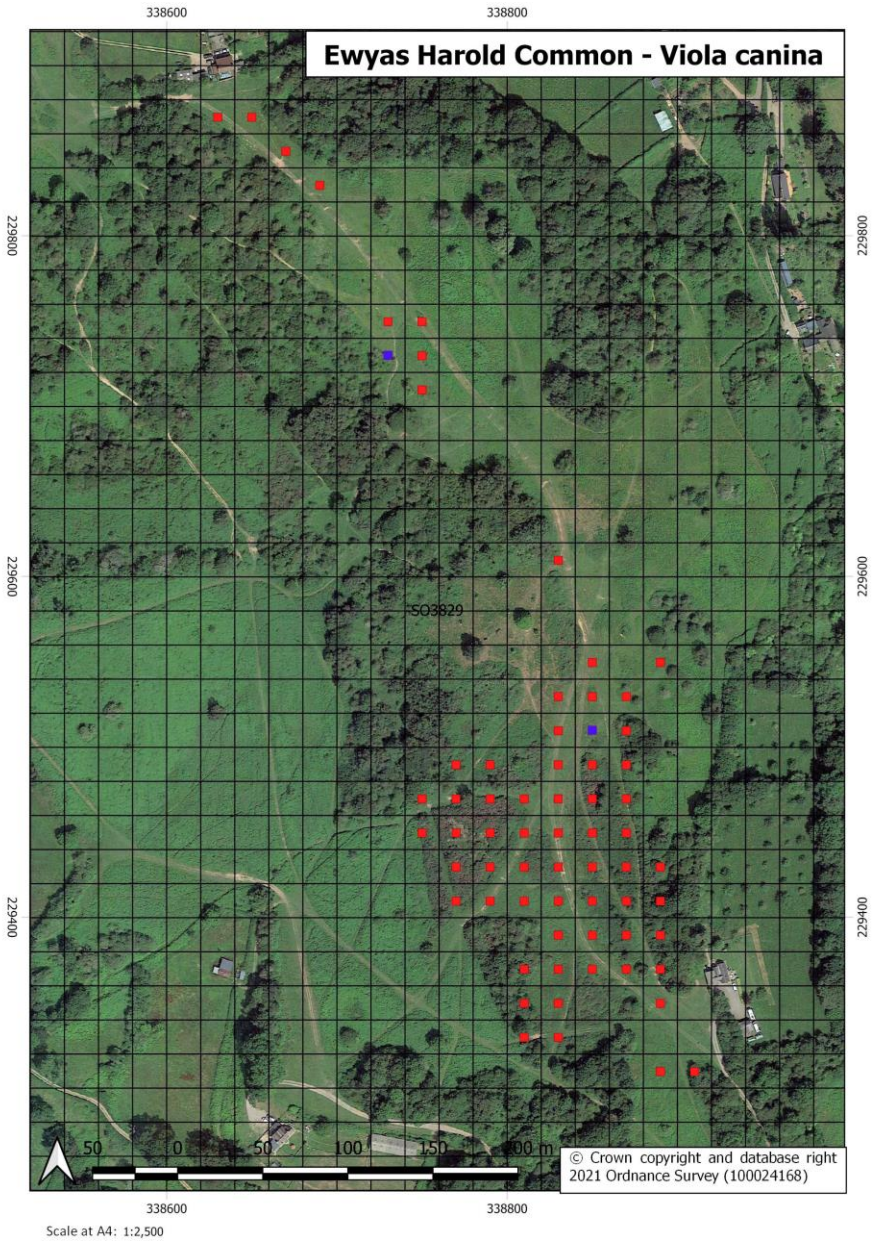



Plate 8.1. Distribution of the threatened Heath Dog-violet at Ewyas Harold Common, shown by red dots in 20 x 20m cells in the OS grid. The two blue squares indicate confirmed records of the hybrid *Viola x intersita*. Thanks to the Ewyas Harold conservation volunteers and to Sam Price for cartography

Plate 8.2. True Fox-sedge *Carex vulpina* (left) photographed alongside False Fox-sedge *Carex otrubae.* The Sturts Nature Reserve, June 2022. The darker, congested inflorescence of *vulpina* with its more apically directed flowers bears a striking resemblance to a fox's brush, unlike *otrubae.* The wider flanges on the stem are also visible







Plate 8.3 (above). Bullace (left) photographed alongside *Prunus x fruticans.* The true bullace has spherical, cherry-sized fruits, discernibly larger than sloes, and no spines on the leading shoots

Plate 8.4 (left). Hybrid vigour shown by the orchid *Dactylorhiza x hallii.* An idea of the size of this plant can be gained from one of its parents, Southern Marsh-orchid, present in the background. South Herefordshire, May 2022



` Plate 8.5 (left). Henbane *Hyoscyamus niger* popped up at Brockhampton in 2022 after an earth-moving operation



Plate 8.6 (right). Two-year old scrape in peat in a basin mire near Kington. There has been abundant regeneration from seed, including by two uncommon species Bog Pondweed *Potamogeton polygonifolius* and Pond Water-crowfoot *Ranunculus peltatus.*



Plate 8.7. Most large, hedgerow bindweeds in Herefordshire are white. Pink-flowered ones are very uncommon. Any seen whilst travelling could be checked for hairy stems characteristic of the Hairy Bindweed *Calystegia pulchra.* Downton-on-the-Rock, July 2022



Plate 9.1. From left to right: The Darens, the Olchon Valley, and the Cat's Back. (Photo: Derek Foxton)



Plate 9.2. Cat's Back on the edge of the Black Mountains, a narrow ridge or arête. View southwards with the Olchon Valley to the right and Herefordshire Plain to the left



Plate 9.3. Soft sediment deformation in the Senni Formation

Plate 9.4. Pronival rampart, a steep-sided ridge composed of large angular blocks of rock running parallel to the hillside





Plate 9.5. The landslip area at Black Darren



Plate 9.6. Kettle hole pond at Medlands, after clearance work. The pond is sited in an area of hummocky moraine. (Photo: Will Watson)





Plates 9.7 (left) and 9.8 (above). Upper Hall Quarry in 2017 when the rock faces were obscured by vegetation



Plate 9.9. Upper Hall Quarry after site clearance work in 2022. The Wenlock / Ludlow boundary is about halfway up the nearby quarry face and is now clearly visible



Plate 9.10. This shows about half of the long quarry face at Upper Hall Quarry. Much Wenlock Limestone at the base is overlain by more thinly bedded Lower Ludlow Shales

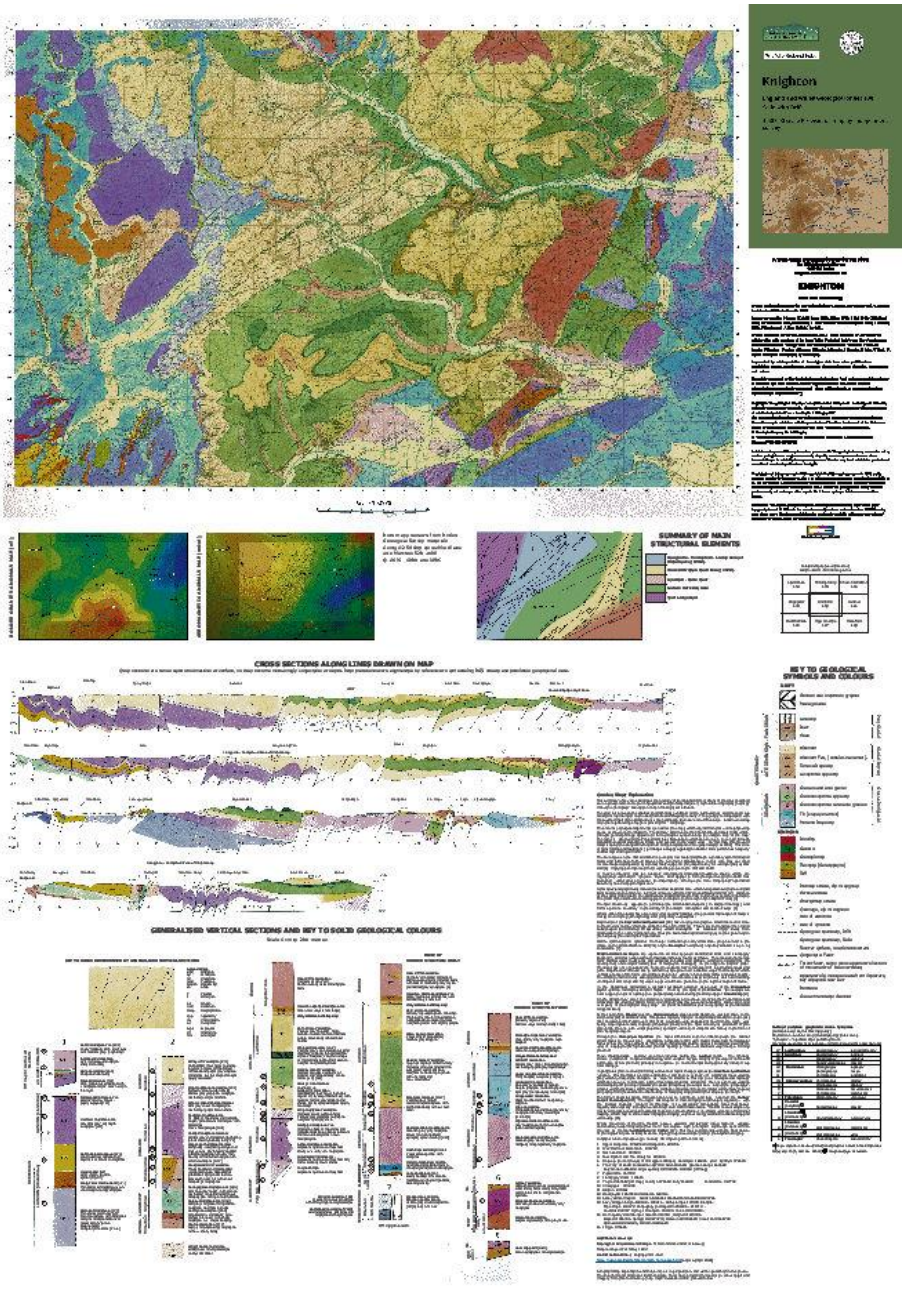



Plate 9.11. Postcard of the Knighton geological map, Sheet 180, produced by a team of volunteers, since as yet there is no British Geological Survey map for the area



Plate 9.12. View from the British Camp. The scenery is shaped by a plunging anticline, outlined by wooded ridges comprised of Much Wenlock Limestone and Aymestry Limestone.



Plate 9.13. Huntsham Hill, entrance to former railway tunnel. Massive beds of Lower Dolomite above the tunnel arch overlie thinner-bedded Upper Ludlow Shales, seen on each side of the cutting



Plate 9.14. Crags of Upper Devonian Quartz Conglomerate Rock, laid down in a period of flash floods in the Upper Devonian. Occasional jasper pebbles are found and there are lenses of current-bedded sandstone



Plate 10.1. *Hygrophoropsis aurantiaca***,** a collection illustrating the main characters. (Photo: Jo Weightman)



Plate 10.2. *Hygrophoropsis aurantiaca*, in sheets in conifer plantation. (Photo: Jo Weightman)



Plate 10.3. *Pluteus umbrosus*, several on an old log, Brockhampton Estate, October 2022. (Photo: Jo Weightman)



Plate 10.4. *Pluteus umbrosus*, showing the dark-brown edge to the gills. Seen at Brockhampton Estate, October 2022. (Photo: Jo Weightman)



Plate 10.5. *Panus conchatus*, a good clump on a fallen beech, with fading violet tones. Moccas Hill Wood, July 2021. (Photo: Ed Fox)



Plate 10.6. *Cyclocybe* (*Agrocybe*) *cylindracea*, a clump of this rather uncommon agaric growing on a poplar stump. Seen in Long Wood, Stockton, Nov. 2022. (Photo: Jo Weightman)



Plate 10. 7. *Fomitopsis pinicola* growing on a fallen beech, New House Woods, November 2022. (Photo: Ed Fox)



Plate 10.8. *Pterula multifida*, part of a large colony growing in a polytunnel in Hereford, November 2022. (Photo: Jo Weightman)



Plate 10.9. *Auricularia mesenterica*, a fully dilated example growing on a poplar stump. Seen at Kentchurch Court, 2022. (Photo: Jo Weightman)



Plate 10.10. *Libertella faginea*, the imperfect state of the pyrenomycete *Quaternaria quaternata*, emerging through the bark of a fallen beech. Moccas Hill Woods, August 2022. (Photo: Jo Weightman)



Plate 10.11. *Spathularia flavida*, a fan-shaped Ascomycete growing in the litter in a conifer plantation. Seen on Cefn Common, October 2022. (Photo: Jo Weightman)



Plate 11.1. Firecrest (© Mick Colquhoun)



Plate 11.2. Long-tailed Duck in winter plumage (© Mick Colquhoun)



Plate 11.3. Red-necked Phalarope in winter plumage (© Mick Colquhoun)



Plate 11.4. Snow Bunting (© Mick Colquhoun)

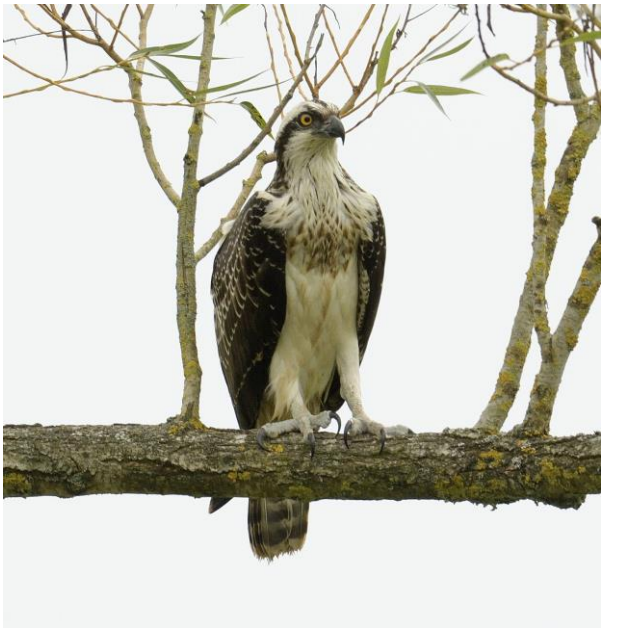


Plate 11.5. Osprey (© Mick Colquhoun)

## INDEX 2022


13th (1st Somersetshire) Regiment of Foot, 91
25 Year Environment Plan, 85
36th regiment of foot, uniform, 321
Abbey Dore, church chest, 117
Aberdeen, Lord, 196
Act of Union, 1536, 32
adze, 127
aerial insects and bired populations, 178
Aerial-Cam and Sumo Services, 139
Aethelbald, King, 23
Aethelred, King, 23
Aethelstan, King, 38, 193
*Agabus undulatus*, 79, 315
agarics, 169
*Agrostis capillaris*, 144
*Agrostis vinealis*, 141, 143, 144
Alder, 83, 171, 196
alder flies, 79
Alfred, King, 198
*Alisma lanceolatum*, 143
All Saints, church chest, 121
All Saints, Coddington, 64
All Saints, Hereford, 25, 116, 327
Allen, John bookseller, 92
Allen, Williams adjutant, 95, 100
Allensmore, 75
Almeley, 142
Almeley, Ice Age Ponds walk, 166
*Alnus glutinosa*, 83
Aloe-moss, 142
*Aloina aloides*, 142
*Aloina ambigua*, 142
*Alopecurus aequalis*, 78
*Amanita*, 169
*Amanita muscaria*, 169
American Crow, 174, 175
*Anas platyrhynchos*, 83
Angel House, Kingsland, 148, 149, 151, 153
Angel House, Kingsland counter-change ceiling, 152
Angel House, Kingsland sketch plan, 150
Angel Inn, Kingsland, 148
Angevin kings, 199
Anglo-Saxon Chronicle, 194
*Anglo-Saxon England*, 21
annelid worms, 79
anticlinorium, 168
antihelminthics in soil, 18
*Aphanorrhegma patens*, 142
aquatic invertebrates and bired populations, 178
Archenfield, 23, 193
Ariconium, 23
*Armillaria mellea*, 171
Arrowhead, 143
Arthropoda, 30
arthropods, 29, 30, 31
Arthur's Stone, 32, 46, 54, 137, 138, 139, 191
Arthur's Stone, chamber, 27
Arthur's Stone, drystone walling, 139
Arthur's Stone, hornwork, 140
Arthur's Stone, large postholes, 27
Arthur's Stone, lines of posts, 139, 332
Arthur's Stone, stone avenue, 139, 332
Arthur's Stone, turf mound, 27
artificial selection, 109
Ascomycete, 172
Ascott-under-Wychwood, Neolithic long barrow, 51
Ash, 196
Ash dieback, 26, 196
*Atlas of Breeding Birds*, 17
Attenborough, Sir David, 31
Aubrey, John, 37, 40
*Auricularia mesenterica*, 171, 345
Avalonia, 30
Avenbury, church chest, 116, 117
Aymestry Limestone, 144, 168, 341
Bakewell, Robert agriculturalist, 109
barking iron, 125
Barn Swallow, 178
Barnetts Cottage, near Mordiford, 41
Barry Harbour Limestone Formation, 168
Bar-talied Godwit, 177
Bartonsham assembly, 25
Bartonsham Farm, Hereford, 24
Bartonsham Meadows, Hereford, 25
Bartonsham, cavalry exercises, 97
Basidiomycete, 172
basin mires, 145
Bateman, Viscount Lord Lieutenant for Herefordshire, 88, 90, 98
Bayesian model, 52, 57, 62
Bayesian statistics, 190
Bayeux Tapestry, 125
Bayham Wood, Canon Pyon, 32
Bedford, William, 97
Beech, 172, 196
beetle, type of mallet, 125, 127
Bell pub, near Pentaloe brook, 41
*Bembidion quadripustulatum*, 84
Beneath Hay Bluff prehistory project, 27, 45, 47, 137, 139
Benson, Don archaeologist, 51
bentonite, 29, 30
Berrington Hall, 140
Berrington Pool, restoration, 143
Berrington, Captain Charles, 95, 97
Berrington, Miss, 97
*Berula erecta*, 143
Birch, 171, 196
Birches Farm, Ice Age Ponds walk, 166
Bird, C. J., rector of Mordiford, 38, 41

Birds of Conservation Concern (BOCC) Red List, 184
*Birds of Conservation Concern 1 (BOCC 1)*, 17
*Birds of Conservation Concern 4 (BOCC 4*), 17
*Birds of Conservation Concern 5 (BOCC 5)*, 177
Birmingham University, Ice Age projects, 166
Bishop's Meadows, Hereford, 24
Bishopstone House, 140
Bitter Vetch, 144
Black Country Geological Society, 28
Black Country Global Geopark, 19, 28
Black Darren, 165, 337
Black Hill, 164
Black Mountains, 164, 165
*Black Mountains Field Trip*, app, 165
Black Mountains, church chests, 121
Black Mountains, Curlew sites, 18
Black Mountains, Neolithic long cairns, 191
Blackbird, 178, 183
Black-tailed Godwit, 18
Bladder Sedge, 83
Bladderwort, 78
Blakemere, 75
Blissett, Joseph of Letton, 105
Blount, Thomas, 38, 41, 43, 301
Blue Tit, 174, 178, 181, 182, 183
Blunt-leaved Tufa-moss, 144
Board of Guardians of the Hay Union, 106
Boat Inn, Whitney-on-Wye, 105
Bodenham, 177
Bodleian Library, 124
Bog Pondweed, 335
Bogbean, 78
*Bolboschoenus laticarpus*, 144
boletes, 169
Border Archaeology, 140
Border Bryologists, 144
Bordered Screw-moss, 144
Bosbury, 64
Bosbury, church chest, 120
Bosbury, view of frankpledge, 66
Botanical Society of Britain and Ireland (BSBI), 141
Bowling Green, Hereford, 96
Brabazon, Wallop, 161
*Brachythecium glareosum*, 144
Brailes Church, Warwickshire, 121
Bramble, 196
Brampton Abbots, 177
Brampton Bryan Park, 32
Brander, Richard Speiker, 70
Brandt's Bat, 81, 316
*Branta canadensis*, 83
Braye, William of Coddington, 66
Breckland, Ice Age Ponds, 73
Brecon Volunteers, 91
Bredwardine, 75
Breinton, Anglo-Saxon fort, 194
Breinton, Ice Age Ponds walk, 166
Brewin's Tunnel, Saltwells NNR, 29
Bridge Sollers, 192
Brilley Green Dingle, 182
Bringewood Chase, iron industry, 195
Bringewood Chase, land use, 194
Bringewood Forge, 194
Brinsop Court, 104, 106, 107
Brinsop, dragon, 37
Brinsop, tympanum, 38
Bristol University, 139
Bristol Volunteers, 91
*Britannia Prima*, Roman province, 22
*British Birds*, 17
British Camp, 168, 177, 341
British Geological Survey, 340
British Geological Survey (BGS), 74
British Library, 124
British Museum, 136
British Trust for Ornithology (BTO), 17, 18, 177, 178
broad axe, 125
Broadmoor Common, 143
Broadmoor Common Community Group, 144
Brockhall Gravel Pit, 142, 177
Brockhall Quarry, 79
Brockhall, Ice Age Ponds walk, 166
Brockhampton, 31, 335
Brockhampton Estate, 170, 343
Brome, William, 38
*Bromopsis erecta*, 145
Bromyard Downs, 141
Bronsil Castle, Eastnor, 26
Brown Bent, 141, 143, 144
Brown Bess, musket, 321
Brown, Capability, 196
Buck, Mrs of Coddington Court, 69
Buckinghamshire Militia, 91
Buckley, John sheep breeder, 108, 109
*Bufo bufo*, 80
Bull, Dr Henry Graves, 170, 196
bullace, 143, 334
Bullfinch, 178
Burden, Elizabeth of Angel House, 149
Burgess, Robert sheep breeder, 109
Burghill, church chest, 116
Burrell Collection, Glasgow, 118
Burrington, church chest, 116
Bustin, photographers, 103, 110
Bustin, Richard and Marion, 323, 324
Butler, Edward, 106
Butler, Thomas of Coddington, 66
Buzzard, 196
caddisflies, 79
Caerau, causewayed enclosure, 191
*Calluna vulgaris*, 144
*Calystegia pulchra*, 146, 335

Cambrian Archaeological Association, 189
Camperdown, battle of, 93, 94
*Campyliadelphus chrysophyllus*, 142
*Campylophyllopsis calcarea*, 144
Canada Goose, 83
Canon Bridge, pond, 78, 79
Canon Frome, church chest, 117
Carboniferous Limestone, 168
Carboniferous Lower Dolomite, 168
Carboniferous Period, 29
Cardiff University, 27, 137, 138
*Carex acuta*, 142
*Carex canescens*, 145
*Carex otrubae*, 142, 334
*Carex spicata*, 144
*Carex vesicaria*, 83
*Carex vulpina*, 142, 334
Carlisle, 103
*Cascolus ravitis*, 30
Caspian Gull, 177
Castle Bridge, Downton, 197
Castle Green, excavation of 1973, 23
Castle Green, Hereford, 23, 24, 98, 100
Castle Hill, Dudley, 29
Cat's Back, 164, 336
*Cat's Back Deep Time Voyager,* app, 165
Cattle Egret, 177
Cavalry, Hundred of Broxash, 95
Cavalry, Hundred of Grimsworth, 94
Cefn Common, 172, 346
Chaffinch, 177
Chalk Feather-moss, 144
Chanterelle, 169
Chave and Jackson, pharmacy, 186
Chave, Caroline, 186
Chave, Florence, 186, 187
Chave, Mabel, 186
Chave, William, 186
Checkley, 42, 43
Cheshire, riding men, 194
Chester University, 192
Christianity, arrival in Britain, 198
Christianity, British, 22
Christianity, Roman, 23
church chests, boarded, 112, 113, 114, 116, 124, 125, 129, 130
church chests, boarded-box, 112, 116, 117, 118, 325
church chests, boarded-hutch, 112, 116, 117, 119, 326
church chests, clamped, 112, 113, 114, 116, 117, 120, 121, 124, 129, 130, 132, 327
church chests, construction methods, 124
church chests, dug-out, 112, 113, 114, 115, 116, 117, 121, 123, 124, 125, 127, 129, 130, 131, 133, 328, 329, 330
church chests, Essex, 114
church chests, framed, 116
church chests, hasps, 129
church chests, Herefordshire by type, 116
church chests, hinges, 129
church chests, ironwork, 114, 118, 124, 128, 130
church chests, Kent, 114
church chests, lids for dug-outs, 128
church chests, locks, 129
church chests, Oxford, 114
church chests, panelled, 112, 113, 114, 116, 117, 120, 129, 130, 327
church chests, plank, 116
church chests, stock locks, 129
church chests, straps, 128
church chests, Suffolk, 114
church chests, Sussex, 114
church chests, timber conversion, 125
church chests, V and A Museum, 114
Church Farm, Coddington, 69
Church House, Yarpole, 147
Churchland, Coddington, 65
Cirencester, 22
City Museum of Worcester, 115
clades, 30
*Cladonia*, 145
Clarke, R. painter, 41
Clee Hills, 195
Clement V, Pope, 113
Clifford, 177
Clifford Castle, 140
Clodock, church chest, 117, 121, 128
Clwyd-Powys Archaeological Trust, 140, 189
Clyde Petroleum, 70
Clyro Court Farm, 108
Cnut, King, 198
Coal Tit, 181, 183
cockatoos, 173
Coddington, 64, 65, 66, 69, 70
Coddington Court, 64, 69, 70
Coddington Court, Buddhist retreat, 70
Coddington Cross, 64
Coddington House, 69
Coddington Rectory, school, 69
Coleoptera family Staphylinidae, 80
Coleridge, Samuel Taylor, 104
*Collections towards the History and Antiquities of the County of Hereford*, 39
Colwall, 31, 64, 66
Colwall, company of infantry, 95
Combehouse, Coddington, 65, 67
Common Bent, 144
Common Carp, 82
Common Cudweed, 143
Common Dog-violet, 141
Common Frog, 80
Common Raven, 174, 176
Common Scoter, 177
Common Toad, 80
Conserving Herefordshire's Ice Age Ponds project, 73,

85, 165
Cooke, W. H., 39, 188
Coppett Hill, 177
Corixidae, lesser water boatman species, 80
Corky-fruited Water-dropwort, 142
Cornewall, Lady, 92
Cornewall, Sir George Bart., 89, 90, 92, 93, 94, 98, 99, 100
Cornwall, 193
corvids, 173
Cotswold Archaeology, 140
Cotswold-Severn Neolithic chambered tombs, 51, 54, 139
Cotswold-Severn Neolithic long barrows, 189, 191
Cotterell, Sir John Geers, 93, 100, 322
Coughton Marsh, 182
Council for the Marches of Wales, 32
counter-change ceiling, Angel House, Kingsland, 153
counter-change ceiling, Western Lye, 158
counter-change ceilings, 147, 151, 152, 158, 159
counter-change ceilings, distribution, 148
Countryside Stewardship, scheme, 85
Covid, 173, 180, 182
Crack Willow, 83, 318
Cradley, church chest, 118
*Crassula helmsii*, 83
Craswall, church chest, 116
Crickley Hill, Neolithic enclosure, 59
Croft Ambrey, 177
Croft Castle, 25, 26
Croft Castle, Gothic entrance, 26
Croft Castle, history of gardens, 26
Croft Castle, lime kiln, 26
Croft Castle, Renaissance parterres, 26
Croft, Eleanor, 26
Croft, Herbert Bishop of Hereford, 26
Croft, Sir James, 26
Croft, Sir Richard, 26
Croft, Sir William, 26
Croft, Volunteer Research Group, 25
cross-cut saw, 125
Crow, 173, 176
Crow Wood, 182
Crozens, place-name, Hereford, 25
cruck, 147, 155, 157, 159, 160
crustaceans, 79
Cumbria, Neolithic quarries, 58
Curlew, 17, 18, 178
Curlew Conservation Project, 17
Curlew Recovery Partnership, 18
*Cyclocybe (Agrocybe) cylindracea*, 170, 344
Cylindric Ditrichum, 142
*Cyprinus carpio*, 82
Dacres Devlin, James, 39, 40, 41, 42
*Dactylorhiza maculata*, 144
*Dactylorhiza x hallii*, 144, 334
*Dactylorhiza. praetermissa*, 144
Dale, Richard carpenter, 148
damselflies, 79
Dangerfield family, churchwardens, 120
Darwin, Charles, 109
Darwin, Charles and Downton Gorge, 194
Davies, Somerset mercer and MP, 26
Davis, John, 97
Davy, Sir Humphrey, 195
de Lacy, Robert, 198
de Lacy, Roger, 21
de Lacy, Walter, 20, 21
Deerhurst Church, 37
Deerhurst Gloucs., dragon, 37, 38, 39, 42
DEFRA, 18
dendrochronology, church chests, 114, 115, 116, 123, 129, 130
Department for Digital, Culture, Media and Sport, 139
Devensian Glaciation, 73, 75, 164
Devensian Ice Age, 166
Devereux Park, 182
Devonian Old Red Sandstone, 164
Dew, Miss Emily Mary, 107
Dew, Rev. Henry Rector of Whitney, 107, 110
Dew, Tomkyns, 104, 105, 106, 107, 108
Dilwyn Church, 37
Dinedor Hill, causewayed enclosure, 191
Dingle Quarry. Malvern, 24
Dingle Valley, Malvern, 24
Dingley, Thomas, 37, 40, 301
Dixon, Henry Hall journalist, 109
Dodleston Castle, 194
Domesday Book, 20, 21, 194, 199
Dore Valley, 48
Dore, river, 46
Dorstone, 31, 46
Dorstone Hill, 139
Dorstone Hill, 2011 trench, 304
Dorstone Hill, 2013 trench, 306
Dorstone Hill, 2014 trench, 307
Dorstone Hill, causewayed enclosure, 45, 46, 47, 50, 55, 56, 59, 312
Dorstone Hill, commemorative pit, 310
Dorstone Hill, dating sequence, 57
Dorstone Hill, eastern building floor, 308
Dorstone Hill, firing of longhouses, 53
Dorstone Hill, Iron Age bank, 56
Dorstone Hill, location, 46
Dorstone Hill, Neolithic burial chamber, 45, 49, 52, 54
Dorstone Hill, Neolithic complex, 45
Dorstone Hill, Neolithic halls, 191
Dorstone Hill, Neolithic long cairns, 191
Dorstone Hill, Neolithic longhouses, 45, 50, 52, 53, 59
Dorstone Hill, Neolithic monuments, 27
Dorstone Hill, Neolithic mounds, 45, 49, 53, 54, 58, 59
Dorstone Hill, Neolithic roof timbers, 305

Doulton Clay Pit, Saltwells NNR, 29
Downton Castle, 108, 195, 196
Downton Castle Estate, postcards, 197
Downton Estate, Nesfield terraces, 197
Downton Gorge, 194, 195, 197
Downton Rocks, 197
Downton-on-the-Rock, 335
Dragon of Wantley, 37, 43
dragonflies, 79
draw knife, 127
Druce's Cranesbill, 144
Dudley Bug, trilobite, 28
Dudley Canal and Caverns, 29
Dudley, West Midlands, 28
Dulas, church chest, 116, 121, 128
Duncan, Admiral, 93
Duncumb, *History of Herefordshire*, 189
Duncumb, John, 39, 40, 189
Dundas, Henry Secretary of State, 96, 97
*Dunsaete*, 193
*Dunsaete*, ordinance, 193
Eardisley, 106
East Malvern Fault, 23
Eastnor, church chest, 117
Eastwood, near Mordiford, 38, 41
Eaton Grange, 161
Eaton Hall, 12, 160, 161
Eaton Hall, ground plan, 161
Eaton, near Leominster, 160, 161
ectomycorrhizal fungi, 169
Edvin Loach, church chest, 117
Edward I, King, 32, 199
Edward II, King, 199
Edward III, King, 199
Edward IV, King, 26
Edward the Confessor, King, 198
Edwyn Ralph, church chest, 117
Eign Hill, 25
Eign Quay, 25
Elder, 196
Electrical Resistivity Imaging (ERI), 76
Elegant Grimmia, 144
*Eleocharis uniglumis*, 78
Elizabeth I, Queen, 26, 196
Elm, 172
Englefield, nr Rhuddlan, 193
English Folk Dancing Society, 24
English Heritage, 27, 47, 60, 61, 139
English Heritage, causewayed-enclosure survey, 47
*English Historical Review*, 20
English Reformation, 114
*Enochrus nigritus*, 79
Environment Act 2021, 85
Environmental Land Management Schemes, 85
Environmental Land Management Schemes (ELMS) 2024, 18
*Ephemerum recurvifolium*, 142
Ergyng, 23
Essex, Earl of, 195
Eurasian Jay, 174, 175, 176
Evesbatch, church chest, 117
Ewyas Harold Common, 141, 333
Eye, church chest, 117
Eyton, near Leominster, 160, 161
Eyton, T. C. cattle breeder, 108
*Fagus sylvaticus*, 172
False Chanterelle, 169, 170, 172
False Fox-sedge, 142, 334
Feckenham, church chest, 123
felling axe, 124
*Festuca ovina*, 145
Fethanleag, battle of, 22
Fethanleag, identification with Hereford, 22
Fforest Fawr Global Geopark, 19
Ffynnon Formation, 165
Ffynnon Limestone, 164
Fieldcaps, 170
*Filago germanica*, 143
finch trichomonas, 177
Firecrest, 177, 346
Fishpool Valley Project, 25
Fishpool Valley, Croft Castle, 25, 26
fitzOsbern, William, 20, 21
flatworms, 79
*Flora of Cardiganshire*, 143
Fly Agaric, 169, 172
*Flycatcher*, 143
foliar arthropods and bird populations, 178
*Fomitopsis pinicola*, 171, 344
Ford, monastic grange or bury, 160
Forester, George T. cattle breeder, 107
Forestry Commission, 195
Fownhope, 40, 41, 42
Fownhope, church chest, 121, 128
Foxley Woods, 170
Foxley, meeting of yeomen and farmers, 91
Foy, church chest, 121, 127, 128
frame saw, 125
Freshwater Habitats Trust, 74, 78, 83, 85
Freshwater West Formation, 164
Froglife, 178
fungus forays, 196
Galbraith, V. H., 20
Gallow Hill, N. Yorks, 104
Ganondagan State Historic Site NY, 308
Garden Warbler, 196
Garden Wildlife Health, 178
Garganey, 177
Garson, John, 42
Garson, name and family, 37, 38, 39, 42, 43
Garson, Richard, 42
Garson, Roger, 42
Garson, Thomas, 42
Garson, Walter, 42

Garson, William, 42
Garston, Anne, 43
Garston, John the elder, 42
Garston, name and family, 38, 40, 42
Garston, Thomas, 42
Garston, Thomas of Checkley, 43
Garston, William, 42
Garston, William of Eldersfield, 43
Garstone, name and family, 42, 43
Garstone, William, 43
Garway Common, 143
Garway, church chest, 121, 128
*Gasterosteus aculeatus*, 81
Geary, Captain Nicholas, 95, 99
geoconservation, 19
geodiversity, 19, 20
Geographic Information System (GIS), 31
geoheritage, 19
Geologists' Association, 20, 168
geomorphology, 18
*Geranium* x *oxonianum*, 144
ghost pond, 84
Gilbert, Bishop of Chichester, 113
Gillray, James, 320
Global Positioning System (GPS), 31
Gloucester Abbey, 20
Gloucestershire, riding men, 194
Glyndwr, Owain campaigns, 28
Godwinson, Harold, King, 199
Golden Dock, 78
Golden Feather-moss, 142
Golden Valley, 45, 46, 56, 138
Gongoozler, restaurant, 29
Goshawk, 196
Grafton parish, 140
Graig Lwyd, Penmeanmawr, 55, 58
*Graphoderus cinereus*, 79, 316
Grass-poly, 84
Gravesend (near Eardisley), 106
Great Crested Newt, 81, 82, 166
Great Crested Newt, licensing scheme, 85
Great Tit, 173, 174, 178, 181, 182, 183
Green Dragon, Hereford, 100
Green Valley, Malvern, 23
Greenfinch, 177, 178
Greylag Goose, 176
Ground Penetrating Radar (GPR), 76
Gurney's Quarry, 167
Gwernvale, Neolithic cairn, 189, 190, 191
Gwynedd, princes of, 32
*Gymnostomum calcareum*, 144
*Gymnostomum viridulum*, 144
Hafod, near Aberystwyth, 26, 196
Hairy Bindweed, 146, 335
Hakluyt family, 160, 161
Hakluyt, Richard the elder, 161
Hakluyt, Thomas, 161
Hakluyt, William, 160
Hales, Thomas of Cradley, 69
Hambledon Hill, Neolithic enclosure, 59
Hamilton, Brigadier General, 70
Hampton Bishop, 25, 39
Hampton Bishop, church chest, 116
Hampton Lodge, Yeomans, 108
Hampton meadows, 18
Hampton Park Road, Hereford, 25
*Handbook to Gloucestershire, Worcestershire, and Herefordshire*, 189
Harley, Right Hon. Thomas, 88, 89, 93
Hart, J., 121
Hartleton Lakes, 177
Hartpury, church chest, 123
Haugh Wood, 40, 41, 42, 303
Hawfinch, 178
Haymill, Downton Gorge, 197
Hayton, William cattle breeder, 108
Hazel, 196
Hazleton North, Neolithic long barrow, 51, 52
Headland Archaeology, 140
Headstart, breeding programme, 18
Hearne, Thomas artist, 41, 195, 197
Heath Dog-violet, 141, 333
Heath Spotted-orchid, 144
*Helochares obscurus*, 79
Henbane, 145, 335
Hennor. monastic grange or bury, 160
Henry II, King, 113
Henry IV, King, 199
Henry V, King, 160
Henry VII, King, 199
Henry VIII, King, 199
*Heraldry of Herefordshire*, 302
Hereford Armed Yeomanry, 89
Hereford Art Gallery, Downton exhibition, 198
Hereford Cathedral and Herbert Croft, 26
Hereford Cathedral, church chest, 116, 129
Hereford cattle, 104, 107, 108, 109
Hereford County Hospital, 140
*Hereford Guide*, 1806, 39
*Hereford Herd Book*, 108
*Hereford Journal*, 88, 89, 90, 91, 92, 94, 96, 97, 98, 99, 100, 105, 106, 109, 110, 111, 322
Hereford Museum, trial pits, 140
Hereford October Fair of 1862, 109
Hereford Ornithological Club (HOC), 17, 180, 184
Hereford Quarry, 177
*Hereford Times*, 39
Hereford to Brecknock turnpike, 106
Hereford Volunteers, 92, 93, 94, 96, 97, 98, 99
Hereford, Area of Archaeological Importance, 140
Hereford, diocesan boundaries, 23
Herefordshire Amphibian and Reptile Team (HART),

73, 86, 165
Herefordshire Ancient Woodland Inventory (AWI), 31
Herefordshire and Worcestershire Earth Heritage Trust (EHT), 73, 86, 164, 165
Herefordshire Archaeology, 25, 26, 27, 45, 137
Herefordshire Archive and Records Centre (HARC), 100, 115
Herefordshire Archive Service, 186
Herefordshire Bat Research Group, 81
*Herefordshire Bird Atlas 2007-2012*, 17
Herefordshire Botanical Society, 146
Herefordshire Constabulary, establishment of, 188
Herefordshire Council, 136, 137
Herefordshire Curlew Conservation Group, 17
Herefordshire Lagerstaette, 29, 30
Herefordshire Militia, 88, 94
Herefordshire Nature Trust (HNT), 180
Herefordshire Ornithological Club (HOC), 81
Herefordshire Plain, 336
Herefordshire Ponds and Newts Project, 73, 81
Herefordshire Water Meadow Survey, 317
Herefordshire Wildlife Trust (HWT), 18, 73, 86, 165, 167, 180, 184
Herefordshire Yeoman Cavalry, 98
Herefordshire Yeomanry, 98
Herefordshire, place-names, 193
Herefordshire, riding men, 194
Hewer, John cattle breeder, 108
Hewitt family of Hope End, 69
Heys, F. G., 22
Higgins, William, 95
High Town, Hereford, 93, 96, 99
Hill Croft Field, causewayed enclosure, 191
Hillande, Coddington, 65, 67
Hindwell, nr Walton Radnorshire, 104, 107
*Hirudo medicinalis*, 80, 82
Historic England, 25, 27, 139, 147
Hobart, Lord, 99
Hobby, 178
Holder family, churchwardens of Coddington, 66
Holder family, Coddington, 64, 65, 66, 67, 68, 69, 70
Holder family, Coddington, taxation, 65
Holder, John churchwarden at Coddington, 66
Holder, John of Moorfields in Coddington, 68
Holder, John tomb of, 68
Holder, John, inventory of 1749, 67
Holder, Richard churchwarden at Coddington, 66
Holder, Richard will of 1582, 65
Holder, William, Coddington parish constable, 66
Holinshed, 38
Holinshed's *Chronicles*, 38
Holme Lacy, 31
Holme Lacy Charter, 1085, 20, 21, 198
Holme Lacy Park, 32
Holme Lacy, episcopal manor, 20
Holmer, 116
Holmes, John Esq., 69
Holocene, 165
Holy Trinity, Bosbury, 120, 327
Home Guard, 88
Honey Fungus, 171
Houlder, Chirstopher, 47
House Martin, 178
House Sparrow, 178
Hugglescote, 109
Hugonin, Colonel, 93
Hullmandel, C. J., 322
Huntsham Hill, 168, 341
Hutchinson, Henry, 107
Hutchinson, Mary, 107
Hutchinson, Rev. Thomas, 110
Hutchinson, Sarah, 107
Hutchinson, Thomas, 104, 107
Hwicce, 22
Hyde, John, 43
*Hygrophoropsis aurantiaca*, 169, 342
*Hygrophoropsis macrospora*, 169
*Hygrophoropsis rufa*, 169
*Hygrophoropsis. fuscosquamula*, 169
*Hyoscyamus niger*, 145, 335
Iapetus, ancient ocean, 195
Ice Age Ponds, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 317, 319
Ice Age Ponds, location map, 313
*Illustrated London News*, 107, 109
Innocent III, Pope, 113
Institute for Field Research, California, 137, 139
invertebrates and bird populations, 178
Ion, Matthew, 105
Ireland, Samuel, 38, 39, 41
Iroquoian longhouses, 50, 308
Ivington, monastic grange or bury, 160
Ivy Scar Rocks, Malvern, 23
Jack, G. H., 25
James, Edward saddler, 91
John, King, 32, 113
Johnes, Thomas, 26
Jones, Captain John, 94
Jones, Samuel herdsman, 109
Jurassic Coast, World Heritage Site, 19, 20
kaolinization, 23
Keele University, Ice Age pond studies, 166
Kenchester, 22
Kenchester Pools, 78, 81
Kenchester, hummocky moraine, 76
Kenchester, Ice Age Pond, 318
Kenchester, Ice Age Ponds guide, 166
Kenchester, IceAge Ponds, 79
Kenchester, nearby Roman villa, 140
Kenchester, pond density, 82
Kendal End Quarry, Worcs, 164
Kentchurch Court, 172, 345
Kentchurch Park, 31
kettle hole, 73, 75, 76

King Arthur, 39
King Arthur's Cave, 144
King's Ditch, 140
Kinght, Elizabeth, 26
Kingspan Insulation Community Trust, 86
Kingstone, church chest, 121, 123, 128, 129, 130
Kington, 105
Kinnersley, James Clerk of the Peace, 100
Knight family and Croft Castle, 26
Knight family, Downton, 195
Knight, Andrew Thomas F.R.S. cattle breeder, 108
Knight, Henry yeoman of Coddington, 66
Knight, Richard, 26
Knight, Richard Payne, 195, 196, 197
Knight, Thomas Andrew, 195
Knighton geological map, 340
Konrad Lorenz Research Station, Austria, 176
*Lactarius*, 169
Lake Letton, glacial, 167
Large-leaved Lime, 146, 196
Late Devensian, 165
*Lathyrus linifolius*, 144
Lawn Pool, Brockhampton, 145
Lawn Pool, Moccas Park, 78, 79, 80
le Garson, Adam, 42
le Garson, William, 42
Lea, church chest, 117, 121, 123, 127, 128
Leather, E. M., 37, 41
*Lecanora conizaeoides*, 196
Ledbury, 70
Ledbury Hills, 167, 168
Ledbury viaduct, 140
Ledbury, church chest, 117
Leech Pool, Clifford, 78
leeches, 79
Leeping Stocks, 182
Leicester sheep, 105
Leicester University, 29, 31
Leicester, Earl of, 26
Leintwardine, 116, 188
Leintwardine and Offa's Dyke, 194
Leintwardine Historical Society, 137
*Leisure Hour*, 109
Leland, John, 160, 161
Leominster, 105
Leominster Hoard, 198
Leominster Priory, 117, 160, 161
Leominster Volunteer Association, 95
Leominster Volunteer Cavalry, 97, 98, 100
Leominster Volunteer Infantry, 98, 99, 100
*Leontodon saxatilis*, 144
Lesser Hawkbit, 144
Lesser Horseshoe Bat, 81
Lesser Spangled Diving Beetle, 79, 316
Lesser Striate Feather-moss, 144
Lesser Water-parsnip, 143
Letton (Leintwardine), post-medieval mill, 137
Letton Lakes, 74, 82
Letton, Ice Age Ponds, 76
Lewis, Rev. Mr of Dorstone, 92
Leysters, church chest, 117
*Libertella faginea*, 172, 345
Lickey Quartzite Formation, 164
LiDAR, 25, 192
Lilac Oysterling, 170
Lime, 31, 196
Limebrook, 155
Lindridge, church chest, 123
Linear Pond West, Moccas Park, 80
Linear Ponds, Moccas Park, 76
Linnaeus, 142
*Linum catharticum*, 145
Lipscomb, George, 38, 39, 40
*Lissotriton helvetica*, 81
*Lissotriton vulgaris*, 81
lithalsa, 75, 76
Little Gull, 177
Little Hereford, church chest, 117
Little Moreton Hall, 148
Littlehope, near Mordiford, 41, 42
Llancillo, church chest, 117, 121, 128
Llanthony Secunda priory, Gloucester, 42
Local Defence Volunteers, 88
*London Gazette*, 92
Long Wood, Stockton, 344
Long-tailed Duck, 177, 347
Long-tailed Tit, 173
Longtown, church chest, 117
Lord's Wood, 144
Lothian, 193
Lousewort, 145
Lower Coal Measures Formation, 29
Lower Devonian, 164
Lower Dolomite, 341
Lower Hardwick House, Pembridge, 147
Lower House Orchard, pond, 80
Lower Limestone Shales (Avon Group), 168
Lower Ludlow Shales, 165, 168, 339
Lowland Curlew Forum, 17
Lucton, church chest, 117
*Ludlow Sketches*, 197
Ludlow, cavalry exercises, 98
Lugg catchment, 136
Lugg floodplain, 140
Lugg meadows, 17, 18, 98, 177
Lugg Rhea, 143
Lugg, river, 38, 40, 45
Luisier's Tufa-moss, 144
Lulworth Castle, Dorset, 26
Lynch Court, Eardisland, 108
Lyonshall, 192
*Lythrum hyssopifolia*, 84

macrophytes, 319
Maddy, James saddler, 91
Madley, filled-in Ice Age Ponds, 82
Madley, Ice Age Pond, 80
Magna Carta, 199
magnetometry, Dorstone Hill, 49
Magonsaete, 22
Magpie, 173
Malacostraca, 31
Mallard, 83
Malvern Hills, 24
Malvern Hills AONB, 168
Malvern U3A Geology Group, 168
*Mammuthus primigenius*, 73
Manchester University, 27, 45, 137, 138
manor of Bosbury, Colwall and Coddington, 67
Marcle Ridge, 177
Margeries, Coddington, 65, 67, 68
Marsh Dock, 78
Marsh Tit, 174, 181, 183
Marsham, Mrs Gladys of Coddington Court, 69
Martindale-Vale, Henry Edward, 69
Mary Knoll, 180, 182, 183
Mathon Court, 70
Mathon, church chest, 119, 120, 129
Matthews, Captain then Major John, 92, 95, 96, 98
Matthews, Miss, 95
Maud and the Mordiford dragon, 39, 42
Mayfields Farm, Coddington, 69
mayflies, 79
Medicinal Leech, 80, 82
Mediterranean Gull, 177
Medlands, Ice Age Pond, 77, 164, 166, 315, 338
*Mentha aquatica*, 84
*Menyanthes trifoliata*, 78
Merbach Hill, 46
Mercia, 22
Mere Pool, Blakemere, 79, 81, 83, 315, 316, 318, 319
Merewalh, 22
Merewether, Revd F., 40, 41
Merryhill Wood, 182
Merton College, church chest, 118
Mesolithic Age, dated sediments, 77
*Microbryum davallianum*, 142
Millhalf Farm, 323
Minett, John labourer, 69
Moccas, 31, 180
Moccas Court, 320
Moccas Court, meeting of yeomanry, 92
Moccas Hill Wood, 170, 172, 343, 345
Moccas Park, 32
Moccas Park, Ice Age Ponds, 79
Moccas Park, Linear Pool West, 314
Moccas Volunteers, 98, 100
Moccas, Lower NNR, 182
Moccas, Upper NNR, 182
Moccas, Volunteer Infantry, 95
Mocktree Forest, land use, 194
*Molinia caerulea*, 144
Mollusca, 30
molluscs, 30, 79
Monatgu's Harrier, 177
Monaughty, 104
Monkhouse, Isabella nee Addison, 103, 104
Monkhouse, John, 103, 104, 105, 106, 107, 108, 109, 110, 323, 324
Monkhouse, John family history, 103
Monkhouse, John memorial, 324
Monkhouse, Mary Elizabeth, 107
Monkhouse, Thomas, 107
Moor House, Widemarsh Common, 186
Moorcroft, Coddington, 64, 67, 68
Moorfields, Coddington, 64, 67, 68, 69, 70
Mordiford, 38, 39, 40, 41, 42, 43
Mordiford Church, dragon painting, 37, 38, 39, 40, 41
Mordiford Parish Council, dragon website, 41
Mordiford, church chest, 121, 125, 128
Mordiford, dragon, 37, 38, 39, 40, 41, 42, 43
Mordiford, serpent, 37, 38, 39, 40, 41
Mordivat (Mordiford), 38
More of More Hall, 37, 43
Moreton Court, 108
Morgan, F. C., 112, 114, 115, 116, 117, 120, 121, 130
Mortimer family, 32
Mortimer Society, 32
Mouse Castle, Hereford, 25
Mowley Wood, 182
Much Cowarne, church chest, 129
Much Wenlock Limestone, 165, 168, 339, 341
Mud Pond Snail, 79
Munsley, church chest, 117, 121, 123, 128, 130
Murchison, Sir Roderick, 28, 30
Murchison's View, Wren's Nest NNR, 29
Murray, John, 189
mycorrhizal fungi, 196
*Myosotis scorpioides*, 84
*Myotis brandtii*, 81, 316
Narrow-leaved Water-Plantain, 143
National Archives, 124
National Geological Reserves, 19
National Lottery Heritage Fund, 73, 75, 86, 165
National Monuments and Records Centre, Swindon, 158
National Nature Reserves (NNRs), 19
National Parks and Access to the Countryside Act, 1949, 19
National Planning Policy Framework (NPPF), 136
National Trust, 140, 318
*Natrix helvetica*, 81
Natural England, 18, 20, 31, 194
Nature Conservancy, 19
Neat Crisp-moss, 144
Nelson, Admiral, 96
Neolihic polished flint axe head, Dorstone Hill, 58

Neolithic arrowheads, Dorstone Hill, 47, 58
Neolithic carinated bowl, 312
Neolithic complex, Dorstone Hill, 45
Neolithic flaked flint knife, Dorstone Hill, 311
Neolithic flint knife, Dorstone Hill, 55
Neolithic flint scrapers, Dorstone Hill, 47
Neolithic mortise-hole Dorstone Hill, 48
Neolithic period, Gloucestershire, 45
Neolithic period, Herefordshire, 45, 46
Neolithic period, Warwickshire, 45
Neolithic period, Worcestershire, 45
Neolithic Peterborough Ware, 139
Neolithic polished flint axe, Dorstone Hill, 55, 310
Neolithic pottery, Dorstone Hill, 58
Neolithic rock crystal, Dorstone Hill, 54, 57, 312
Neolithic stone axe heads, Dorstone Hill, 47, 56
Neolithic timbers, Dorstone Hill, 48
Neolithic worked flints, Dorstone Hill, 45, 47, 57
New House Wood, 171, 344
New Inn, Widemarsh Street, 88, 89, 90, 96
New Zealand Pigmyweed, 83
Newell, Mr salesman, 91
Nightjar, 177
Nile, battle of, 96
Nock, Henry gunsmith, 321
Nore, mutiny at, 93
Norfolk Broads, 79
Norfolk Pond Project, 84
Norman Conquest, 198
Norman's Cross, prisoner-of-war camp, 88
Normanton-on-Soar, 104, 108
North Hill, Malvern, 24
North Malvern, 23
North Quarry, Malvern, 23
north Wales, neolithic quarries, 58
Northumbrians, 23
Norton Wood Orchard, Ice Age ponds, 164, 167, 314
Nupend, 182
Nuthatch, 180, 181, 183
Oak, 196
Oak, ancient trees, 32
*Oenanthe fistulosa*, 78, 83, 315
*Oenanthe pimpinelloides*, 142
Offa, King, 23
Offa's Dyke, 192, 193
Offa's Dyke Association, 192
*Offa's Dyke Journal (ODJ)*, 192, 194
Offwood, near Mordiford, 38, 41
Olchon Valley, 164, 165, 336
Old Bridge, Hereford, 177
Old Eign Hill, 25
Old Red Sandstone, 29, 168
*Omphiscola glabra*, 79
Onibury, 20
Orange Foxtail, 78
Ordnance Survey, first edition maps, 31
*Origin of Species*, 109
Orleton, 75
Orleton, church chest, 121, 122, 123, 125, 128, 129, 130
Osprey, 177, 348
Oxford University, Great Tit research, 173
Oxfordshire Museums, 51
Oyster Hill, 144
palaeobiology, 30
Palmate Newt, 81
palsa, 75, 76
*Panus conchatus*, 170, 343
Park Street, Hereford,, 25
Parry, Cornet, 92
Partridge, 196
Payne, Thomas labourer, 69
Peace of Amiens, 99, 100
pecking order, 173
*Pedicularis palustris*, 145
Pedunculate Club-rush, 144
Pembrokeshire, French landing of 1797, 91
Penda, King of Mercia, 22, 23
Penrith, 103
Pentaloe brook, 41
pentastomid, 30
Penywyrlod, Neolithic cairn, 189, 190, 191
Peregrine Falcon, 196
Peterchurch, 46
Peterchurch, church chest, 116
Pheasant, 196
*Physcia tenella*, 196
*Physica adscendens*, 196
Pickersgill, artist, 322
Pickvance, Prof. Christopher, 114, 120
Picturesque movement, 196
Pied Flycatcher, 173, 178, 180, 181, 182, 183, 196
Pine, 171
pingo, 75, 76
Pink-footed Goose, 177
Pinnacle Hill, 145
Piper, G. H., 40
Pipton, Neolithic cairn, 190, 191
pit sawing, 126, 130
Pitch Coppice, Mortimer Forest, 167
Pitthouse, Coddington, 67
Place-names and Offa's Dyke, 193
*Plant Atlas 2020*, 141
*Plantago major* ssp. *intermedia*, 142
Plas Gwyn, Elgar's House, 25
*Plasteurynchyium striatulum*, 144
Plot, Robert, 37
Plough Cottage, Coddington, 69
*Pluteus*, 169, 170
*Pluteus umbrosus*, 170, 343
Podpera, Josef botanist, 142
polypores, 170

*Pomona Herefordiensis*, 195
Pond Water-crowfoot, 335
Pony Bridge, Downton, 197
Poore, Robert, 70
Poplar, 170
*Porella arboris-vitae*, 144
Portable Antiquities Scheme, 136, 140
Portland, Duke of, 90
Portway, troop muster, 89
*Potamogeton polygonifolius*, 335
*Potentilla erecta*, 144
*Potentilla verna*, 143
Pound Farm, Coddington, 69
Precambrian Malverns Complex, 23
Preece's Coffee House, 93
Prerogative Court of Canterbury, 42
Price, John, 160
Price, John of Ryall cattle breeder, 104, 108
Price, Uvedale, 91, 92, 94
Primitive Methodists, 106
Prior's Frome, Mordiford, 42, 43
pronival rampart, 165, 337
protalus rampart, 165
provisional cavalry (act of Nov. 1796), 90
*Prunus domestica*, 143
*Prunus domestica* ssp. *insititia* var *nigra*, 143
*Prunus spinosa*, 143
*Prunus x fruticans*, 334
*Pterula multifida*, 171, 345
Public Records Office, chests, 115
Pudleston, church chest, 121, 124, 127, 128, 129
Purchas & Ley, 142, 143
Purging Flax, 145
Purple Moor-grass, 144
Pye, Roger, 47
Pyttland, Coddington, 65
QGIS, 31
Quail, 177
Quartz Conglomerate, 168
*Quaternaria quaternata*, 172, 345
*radchenistri*, 194
*radmanni*, 194
Radnorshire, English place-names, 193
Ragged Stone Hill, 145
*Rana temporaria*, 80
Ranters, alleged sect, 106
*Ranunculus peltatus*, 335
Raven, 176, 196
Ravenshot Wood, Vowchurch, 32
Reading Abbey, 160
Red Daren, 165
Red Kite, 196
Red-belted Bracket, 171
Red-necked Phalarope, 177, 347
Redstart, 180, 181, 183, 196
Reformation, 198, 199
Reginald of Durham, 121
Regional Furniture Society, 116
Regular Militia, 88, 90, 93, 94, 96, 99, 100
Repton, Sir Humphry, 196
*Rhinolophus hipposideros*, 81
Richard de Bury, church chest, 118
Richard II, King, 40, 199
Richard III, King, 26
Richard, Duke of York, 32
Richardson, John constable, 188
Ricketts, William of Coddington, 66
Ridgeway, Malvern Hills, 168
Ring-necked Duck, 177
riving, 125
Robert, Bishop of Hereford, 20, 21, 198
Roberts, Edward, 67
Robinson, Henry Crabb, 106
Rocky Valley. Malvern, 24
Roe, Fred, 114
Roger of Breteuil, 21, 32
Roger of Montgomery, 21
Roman Britain, end of, 198
Rome, disengagement of, 21, 22
Rook, 173, 176
Rooke, Lieutenant-General, 98
Rose Cottages, Coddington, 69
Rose Hill, Worcs, 164
Ross-on-Wye, 105
Ross-on-Wye, church chest, 117
rove beetles, 80
Row Ditch, Hereford, 25
Royal Academy, 322
Royal Agricultural Society, painting of John Monkhouse, 107
Royal Commission on Historical Monuments (RCHME), 41, 114, 115, 148, 153, 158, 160, 161
Royal Commission on the Ancient and Historical Monuments of Wales, 47
Royal Doulton China, Burslem, 29
Royal Show, Newcastle 1864, 109
Royal Show, Plymouth 1865, 109
Royal Show, Worcester 1863, 109
Royal Society for the Protection of Birds (RSPB), 18, 178
*Rumex maritimus*, 78
*Rumex palustris*, 78
Ruperra, Glamorgan, 26
Rushock Hill, 192
Rushock, Ice Age Pond, 78
*Russula*, 169
Rusty Willow, 83
Saffron Walden, Essex, 40
*Sagittaria sagittifolia*, 143
Salisbury Crags, Edinburgh, 19
*Salix cinerea* subsp. *oleifolia*, 83
*Salix x fragilis*, 81, 83
*Salmonia: or Days of Fly Fishing*, 195
Saltwells NNR, Dudley, 19, 29

Sand Spurrey, 141
Sanderling, 177
saprophytic fungi, 196
saw marks and dating, 126, 130
saw pit, 125, 126
*Schistidium elegantulum*, 144
Scots Hole, Hereford, 25
Scottish Army, Hereford 1645, 25
Scrub Jay, 176
Scudamore archive, Holme Lacy House, 20
sea spiders, 30
Secret Garden pub, 177
Secretary of State for Digital, Culture, Media and Sport, 27
Seneca, Iroquioan people, 308
Senni Formation, 164, 165, 337
Serpent's Lane, Mordiford, 41, 42, 303
Seven Sisters, Wren's Nest NNR, 29
Severn district, military, 94, 96, 97, 98
Severn Valley, 6th century, 22
Seward, Ann poet, 194
Shakespeare, history plays, 199
Sheep, Leicester, 104
Sheep, New Leicester, 108
Sheep, Shropshire Down, 108
Sheep's Fescue, 145
Sherewalde, Coddington, 65, 67
Shobdon, 180
Shobdon Hill Wood, 182
Shropshire Curlew Group, 17, 18
Shropshire, riding men, 194
Shucknall Hill, 143
side axe, 127
*Sigara iactans*, 80
Silurian Lower Member of Much Wenlock Limestone, 28
Silurian Period, 28, 29, 195
single-trestle sawing, 126
Sites of Special Scientific Interest (SSSIs), 19
Skirrid near Abergavenny, 27
Skylark, 175
Slender Spike-rush, 78
Small-leaved Lime, 196
Smith, Herbert, 19
Smith, Lieutenant-Colonel, 100
Smooth Newt, 81
Smythies, Rev. J. R. cattle breeder, 108
Snake Pit Quarry, Wren's Nest NNR, 28
Snodhill Castle, 27, 28, 137
Snodhill Castle Preservation Trust, 137
Snodhill Castle, altar base, 138
Snodhill Castle, aumbries, 138
Snodhill Castle, barbican, 138
Snodhill Castle, Chandos family, 28
Snodhill Castle, chapel, 28, 137, 138, 331
Snodhill Castle, gatehouse tower, 137
Snodhill Castle, inner bailey, 137
Snodhill Castle, Limoges figurine, 138
Snodhill Castle, north curtain wall, 137, 138
Snodhill Castle, north tower, 137
Snodhill Castle, northern defences, 28
Snodhill Castle, outer bailey, 138
Snodhill Castle, possible second bailey, 28
Snodhill Castle, postern gate, 138, 331
Snodhill Castle, south curtain wall, 137
Snodhill Castle, tower, 28
Snow Bunting, 177, 348
soil invertebrates and bird populations, 178
Somerset Heritage Centre, 187
Song Thrush, 178, 184
Southern Marsh-orchid, 144, 334
Southey, Robert, 104, 107
*Spathularia flavida*, 172, 346
*Species Plantarum*, 142
*Spergularia marina*, 141
*Spergularia rubra*, 141
Spiked Sedge, 144
sponges, 29, 79
Spreading Earth-moss, 142
Spring Cinquefoil, 143
Spruce, 171
St Augustine, 198
St Bartholomew, Munsley, 123
St Cuthbert, 121
St Cuthbert, Kirkby in Furness, 123
St Dyfrig or Dubricius, 22
St George, Orleton, 122, 123
St George, tympanum at Brinsop, 37
St George's, Orleton, 328
St Guthlac's minster, 24
St Guthlac's Priory, 20, 25, 40, 42, 140
St Guthlac's Priory, arms of, 39, 40, 41, 302
St Guthlac's minster, 23
St James Road, Hereford, 24
St James the Great, Cradley, 114, 118, 325
St John the Baptist, Eastnor, 140
St John the Baptist, Feckenham Worcs., 123
St John the Baptist, King's Caple, 117
St John the Baptist, Lea, 329
St John the Baptist, Mathon, 119, 326
St John the Baptist, Wolverley Worcs., 123
St Lawrence, Lindridge Worcs., 123
St Martin's Chapel, Hereford, 24
St Mary & St Margaret, Castle Bromwich, 123
St Mary the Virgin, Burghill, 117
St Mary the Virgin, Eardisland, 117
St Mary the Virgin, Hartpury Gloucs., 123
St Mary the Virgin, Pembridge, 117
St Mary the Virgin, Ross-on-Wye, 117
St Mary, Kempley Gloucs., 123
St Mary, Kenderchurch, 117
St Mary, Sarnesfield, 117

St Mary's Foy, 330
St Maughans Formation, 164
St Michael and All Angels, Kingstone, 123
St Michael and All Angels, Ledbury, 117
St Michael, Betchworth Surrey, 123
St Michael's Kingstone, 328
St Owen's Church, Hereford, 25
St Peter, Dormington, 117
St Peter's Hereford, foundation, 20
St Weonard's, St Weonards, 330
St Weonards, church chest, 121, 128, 129
St Wulstan's Wood, 182
Stanford Bishop, church chest, 117
Staunton on Wye, Ice Age Ponds guide, 166
Staunton-on-Arrow, pond, 80
Stenton, Sir Frank, 21
Stenus genus, 80
Stockton Bury, Kimbolton, 108
Stonebrook Cottage, Downton, 196
stoneflies, 79
Strawberry Clover, 144
Streaky Feather-moss, 144
Stretton Sugwas, cavalry exercise, 93
Stretton Sugwas, military review, 93
Sufton Court, 41
Sufton Manor, court of, 42
Supplementary Militia, 93, 94, 96, 97, 320
Supplementary Militia for Herefordshire, 90
Sutton St Nicholas, 143
Swing Riots, 105, 106
Sycamore, 196
Symonds, Captain William, 92, 98
Synod of Exeter, 1287, 113, 118
Table Hill, Malvern, 24
Tank Quarry, Malvern, 23, 24
Tate, W. E., 114
Tatteridge Hill, 146
Taverner, Roger surveyor, 196
*T-axe*, 125
Taylor, Richard of Coddington, 65
Tedstone Delamere, church chest, 117
Teme, river, 194, 195, 197
Tempest, Sir Henry Bart., 95
Texel, surrender of Dutch fleet, 97
The Cottage, Pembridge, 154
The Darens, 164, 165, 336
The Doward, 144
*The Folk-lore of Herefordshire*, 41
*The Landscape*, 198
*The Memorials of the Civil War in Herefordshire*, 25
*The Pond Book: A Guide to Management and Creation of Ponds*, 83
The Ridgeway, 54
The Stowe, 104, 105, 106, 107, 108, 109, 323
The Sturts, 80, 142
The Sturts East, 84, 314
The Sturts East, ghost pond, 319
The Sturts East, Ice Age Ponds, 317, 319
The Sturts East, pond density, 82
The Sturts, Ice Age Ponds, 79
The Sturts, Ice Age Ponds walk, 166
The Throne, Weobley, 153
*The Welsh Marcher Lordships: Central and North*, 32
Thomas, M. J., 22
*Thoughts on the Defence of Property*, 91, 92
Three-spined Stickleback, 81
threshing machines, introduction of, 105
Throne View Cottage, Weobley, 154
TigerGeo, 139
*Tilia platyphyllos*, 146
Tintern Sandstone, 168
Tomkins, Benjamin cattle breeder, 107
tomography and fossils, 30
Tormentil, 144
*Tortella nitida*, 144
*Tortula marginata*, 144
Town Hall, Hereford, 93, 95
Townsend, Rev. G. F., 160
*Trametes versicolor*, 171
Treago Castle, St Weonards, 26
Treaty of Amiens, 99
Tree Sparrow, 178
Tree-ring Services, Forest of Dean, 126
*Trichodon cylindricus*, 142
*Trichomonas gallinae*, 177
*Trifolium fragiferum*, 144
Tripe Fungus, 171
Tristram, E. W., 40
*Triturus cristatus*, 81
True Fox-sedge, 142, 334
Tubular Water-dropwort, 78, 83, 315
Tudor House, Yarpole, 153, 154
Tully, Thomas cattle breeder, 108
Turkey Tail, 171
Turnastone, church chest, 117, 130
Turner's Boat, 315
two-handled pit saw, 125
Ty Isaf, Neolithic cairn, 190, 191
Typhulas, 171
UNESCO Global Geoparks, 19
UNESCO International Geodiversity Day (IGD), 20
Upper Devonian Quartz Conglomerate Rock, 341
Upper Hall Farm Quarry, SSSI, 164, 165
Upper Hall Quarry, 338, 339
Upper Ludlow Shales, 341
Upper Lye, 155
Upper Lye Farm, now Western Lye Farmhouse, 155
Upright Brome, 145
Usk, river, 189, 191
Uther Pendragon, 39
*Utricularia australis*, 78
Vale of the White Horse, 54
Vale, Mr bookseller, 108
*Verbena officinalis*, 142

Vervain, 142
veteran trees, Herefordshire, 31
Victoria Bridge, Hereford, 24
Vikings, 198
Vineyard Croft, 25
Vineyard, Hereford, 25
*Viola canina*, 141
*Viola riviniana*, 141
*Viola x intersita*, 333
Walford, church chest, 117
Walker of Burton Court cattle breeder, 108
Warren Lane, Worcs, 164
Wars of the Roses, 199
Wat's Dyke, 192
water beetles, 79
water bugs, 79
Water Forget-me-not, 84, 319
Water Mint, 84
Water Skater Beetle, 80
water-scavenger beetles, 79
Wathen, James artist, 320
Watkins, Alfred, 24, 25
Wayland's Smithy, 54
Wayne Herbert Quarry, 19
Wellington Court, 107
Wellington Gravel Pits, 177
Wellington Heath, 144
Wellington Quarry, 140
Wellington Quarry, Neolithic data, 45
Wellington Wood, 182
Wellington, Neolithic traces, 191
Wenlock and Ludlow strata boundary, 167
Wenlock Series Coalbrookdale Formation, 30
Went, Mrs member of Garston family, 43
*Wentsaete*, 193
West Saxons, 193
Western Lye Farmhouse, 155, 157
Western Lye Farmhouse, counter-change ceiling, 159
Western Lye Farmhouse, sketch plan, 156
Weyman, John cattle breeder, 108
Whalebone Inn, 25
Whitbourne, church chest, 117, 121, 128
White House, Coddington, 67
White Rocks, 182
White Sedge, 145
White-fronted Goose, 177
Whitney Court, 105
Whitney Sawmills, 182, 183
Whitney-on-Wye, 103, 104, 105, 110
Whitney-on-Wye Church, 109, 324
Whitworth Art Gallery, Downton exhibition, 198
Wicken Fen, 79
Widemarsh, military exercises, 93, 98, 100
Wigley, Mr of Hampton Bishop, 39
Wigmore Petty Sessions, 188
Wigmore Rolls, 145
Wigmore, gold finger ring, 140
Wilberforce, 'Soapy Sam', 109
Wildlife and Countryside Act, 1981, 82
William I, King, 20, 32
William Rufus, King William II, 21
Williams, Henry local radical, 105, 106
Williams, Jonathan, 160
Willow, 170
Winchester bushel, 104
Winforton, 177
Withington, 42
Womaston, causewayed enclosure, 191
Wood Sandpiper, 177
Wood Warbler, 196
Wood, Lieutenant-Colonel, 98
Woodland Trust, 31
Woodland, Coddington, 65
Woodside, Doward, 182
Woolhope, 40, 41, 42, 43
Woolhope Club Library, 114
Woolhope Dome, 28, 144
Woolly Mammoth, 73
Worcestershire Archaeology, 140
Wordsworth, Mary, 103, 104, 107
Wordsworth, William, 103, 104, 106, 107, 110, 111
Wormbridge Common, nr Kilpeck, 46
Wormelow Court, 144
Wren, 181, 183
Wren's Nest NNR, Dudley, 19, 28
Wright, Thomas, 197
Wych Elm, 196
Wye flood plain, Curlew sites, 18
Wye Side Association for the Prosecution of Felons, 105
Wye Valley, 79
Wye, river, 38, 40, 46, 143, 168, 191, 193, 194
Wytham Woods, study of tits, 174
X-Ray computed tomography, 30
Yarkhill, church chest, 117
Yarpole, church chest, 117
Yellow Fan, 172
Yeomanry Cavalry, 88, 89, 90, 91, 93, 94, 96, 97, 99
Yew, 31
Yoke Wood, 182, 183
Youatt, William veterinary surgeon, 109
Zoological Society of London, 178