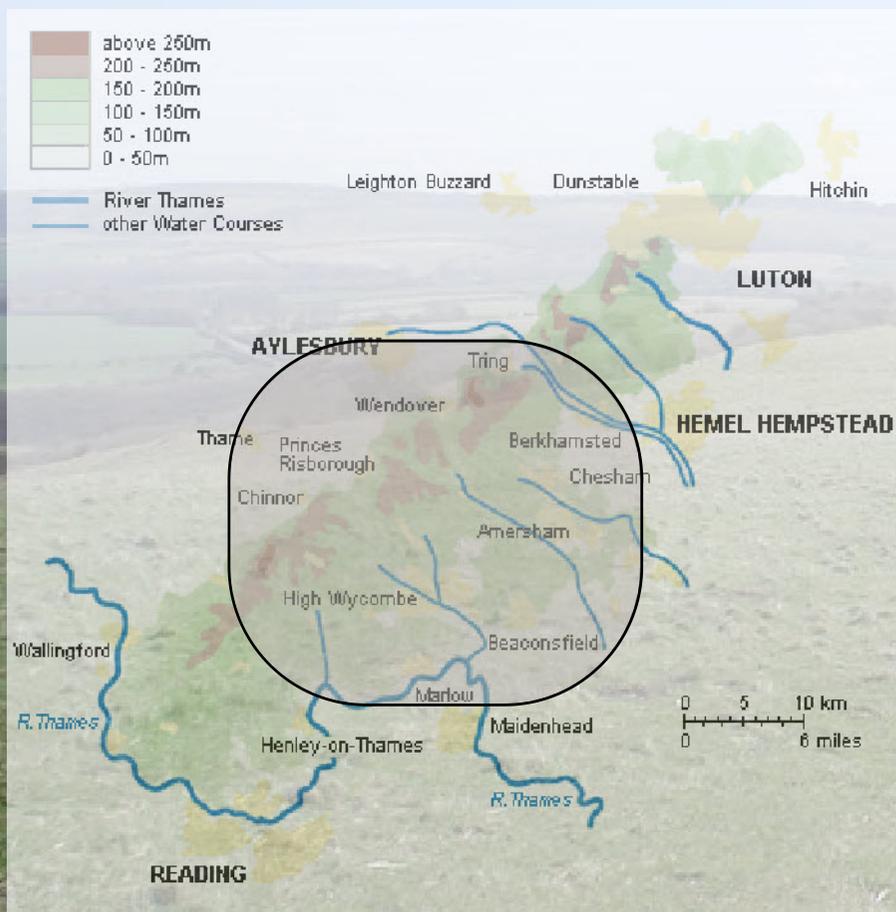


Livelihoods from Chalk

in the Buckinghamshire Chilterns



Stretching from Ivinghoe Beacon to Stokenchurch, the Chilterns Area of Outstanding Natural Beauty forms a meandering Chalk spine right across Buckinghamshire.

The striking Chiltern's landscape is rich in wildlife, history and archaeology; with rare glimpses of a once widespread industrial past.

For those wanting to get away from the roads and hustle and bustle of modern life numerous green lanes, bridleways and footpaths cross the hills and valleys, or perhaps a gentle stroll along the languid Thames or more bracing route along the northern scarp on the Ridgeway path.

Today's diverse landscapes are the direct result of the underlying geology, and the use of both by people in ancient and modern times. Springs, Chalk streams, hilltop ponds, watercress beds and broad rivers represent some of the many diverse habitats based upon geology and land use. Traditional hilltop woodlands and heaths occupy poorer gravels and clay soils. Scented downlands, beech hangers and arable crops dominate the slopes and shallow valleys, with the most intensive agriculture on the richer valley bottom soils.

Historically the pattern of towns and villages was closely related to the landscape and our use of it, as the local building resources are clearly evident in brick and flint buildings, timber framed barns and ornate churches raised on wool money.

This leaflet explores some of the livelihoods of the past, present and future Chiltern Hills.

The Past.....



A hand axe from the middle Palaeolithic period from the River Thames terraces.

People have been living in the Chilterns since the Lower Palaeolithic (Old Stone Age) from at least 400,000 years ago. Discarded or lost stone tools are evidence for habitation and occasionally they made the tools on sites in the Chilterns. These camps, with working floors for tool manufacture, are particularly exciting to find. Neolithic people also dug mine shafts to reach layers of quality flint within the Chalk. Depressions in Pitstone Hill near Ivinghoe mark the locations of some of these mines.

During the Bronze Age and Iron Age, the Chalk escarpment was used as a defensive position on which to build hillforts. Examples include: West Wycombe, Pulpit Hill, Cholesbury and Ivinghoe Beacon, amongst many more. Clay overlying the Chalk was sometimes used to make a dewpond which provided a water source for the enclosure (e.g. Cholesbury). Others had no on-site water source, so this had to be collected from the spring line at the bottom of the escarpment (e.g. Ivinghoe).



The hillfort at Ivinghoe Beacon built 2,800 years ago and a popular site to visit today.



Scrapers (about 7 to 8,000 years old) from a Mesolithic hunting camp at Cadmore End where they made the tools.

Agriculture..... has always been an important livelihood of the Chilterns. The soils lying directly over Chalk are very poor in nutrients and also very dry, so as a result the hills have been traditionally used for grazing since the earliest farmers 6000 years ago. In contrast, the soils within the dry valleys are often more arable and can sustain crops, especially if the water table intersects the surface and a Chalk stream emerges. Water meadows and ancient field systems are common features in these locations – such as the Chess Valley. In the Chess Valley there is a multitude of evidence to show past livelihoods such as the Roman farm-villa at Latimer, the 13th century Chenies Manor, historic Latimer House and parkland, water meadows, mills, watercress beds, ancient and modern field systems, amongst much more.

Watercress beds..... were to be found in many locations where streams kept a steady flow from springs within the valleys. The water is filtered by the Chalk and contains all the natural nutrients and minerals that the watercress requires to grow. Watercress was harvested early in the morning while temperatures were still cool and sold the same day. Traditionally this was a very labour intensive business.



A Neolithic polished axe (between 6 and 4,500 years old) from Hambleden. This example was worked from flint obtained from the gravels of the river Thames. Often these were ceremonial, and hence not used for felling trees.

Wells..... A number of Chalk 'wells' have been dug in the Chilterns, these excavations are for Chalk extraction and not for water. These seemed to be mostly worked during the 18th and 19th centuries and written accounts describe how it took three men to cut the Chalk and raise it in baskets tied to a rope that ran over a pulley and windlass. The Chalk was commonly used for spreading over fields to break up clay soils, but it was also extracted for lime-burning. Once dug they are a hazard to the unwary as they could be 30 feet deep, so they were covered, but not always effectively as the covers can fail and the shafts can unexpectedly re-appear!

This leaflet was produced by Bedfordshire Geology Group on behalf of Buckinghamshire Earth Heritage Group with the support of The Chilterns Conservation Board

Woodland managementis as important now as it was 6000 years ago when the first farmers settled to work the land. Although wood was a huge managed resource for building material, fuel, charcoal and furniture in Bucks, it is clear that woodland can also support a paper industry, pigs, wild fowl, small quarries and much more.

Cherry orchards..... Bucks had a thriving industry growing many different varieties of cherry both for food and industrial uses. Often grown on localised clay, sand or gravelly ground they benefited from the damper ground conditions overlying the free draining Chalk. The chalkier elements are said to have a beneficial effect on cherries, bringing out a bright acidity in the juice. Cherry pie fairs and festivals celebrated the edible varieties, whilst others such as the “Aylesbury Prune”, a heritage variety bred locally and grown only in the area, had its almost black juice extracted and used for dyeing cloth and straw hats. The fruit and stones (prepared carefully as they contain cyanide) could be bruised, distilled with herbs and made into a treatment for convulsions in children. The Chiltern Open Air Museum is establishing a Victorian style orchard of cherries as well as apples and all manner of local varieties of fruits, many of which can also be seen at Hughenden Manor and Kiln Common Orchard in Prestwood.

Brick and tile manufacture..... Tile making in the Chilterns is known to date back to the 13th century where Ley Hill is a good example. This was a valuable industry – in the 13th century the price for roof tiles averaged about 3 shillings per thousand. Penn and Tylers Green made floor tiles from 1340 to 1390. Kilns making tiles usually also made bricks. A kiln present in the mid-1700's at Downley Common appears to have made bricks for the West Wycombe Estate. The feature all these sites have in common is the presence of the Reading Formation clays at the surface. These clays are 40 million years old and produce a good quality product.



A wide ditch and bank forming a Norman woodland boundary (c.1100AD)



Section showing Reading Formation clays at Downley Common. These clays were present in discontinuous and sinuous outcrops. The result of chasing these thin outcrops is an unnatural landscape full of bumps and hollows.

Cement..... Cement manufacture, using Chalk from the lower Grey Chalk, occurred in the Chilterns since Roman times. The Castle cement works at Pitstone provided cement for the area. Historically, sand and gravels required for mixing the cement and mortar could be found in small pits within hill top woodland (old river terraces) or later in the larger quarries of the neighbouring Thames Valley.

Building stones..... In our archaeological past building materials were usually those to be found close at hand. Exceptions might be for prestigious buildings such as churches or Royal residences. The Chilterns most popular building material was without doubt wood – even very high status Roman villas such as Yewden in Hambleden were built in wood with wattle and daub walls, the latter making use of clays and Chalk also obtained locally. Building stones do occur in the geological succession and these include Chalk Rock, Totternhoe Stone, flint and sarsen. The latter two can still be sourced loose at the surface or could be dug out from shallow pits. A popular building style in the Chilterns is the ‘chequerboard’ pattern created by alternating Chalk Rock with knapped flint.



The ‘chequerboard house’ in Princes Risborough.

This leaflet was produced by Bedfordshire Geology Group on behalf of Buckinghamshire Earth Heritage Group with the support of The Chilterns Conservation Board

The Present.....



College Lake Nature Reserve - previously a Chalk quarry owned by Castle Cement.

Today's main industries include agriculture, woodland management, sports, education, leisure and tourism. Some of the traditional industries are still on the go, for instance clay extraction at Dunton's Brickpit with specialist brick-making at H.G.Mathews in Chesham.



Handmade bricks are being made by H.G. Mathews for specialist purposes. Handmade bricks have a beauty and individuality you cannot obtain with mass production. They are made from the local Reading Formation clays.



Sunflower crop at Downley Common. What changes will global warming bring?

And the Future

Buckinghamshire's Chiltern Hills will continue to be an important agricultural resource – from arable crops to grazing. However, changes include the introduction of new crops or livestock such as sunflowers and occasional replacements for sheep in the form of llamas, emus and wild boar. Woodland management will continue in importance, and trends to re-planting with traditional species continue. Some larger estates stock their woodland with pheasant and even guinea fowl to provide an income from shoots and game bird sales in local stores. In this respect, it is the leisure and tourism industry which is taking hold and replacing previous industries based on geological extraction or labour intensive orchards, now long gone. An increase in leisure and tourism is highly likely and is a direct result of the beautiful landscape. The green rolling hills, clear Chalk streams and shady woodland will hopefully continue to attract people of all ages, all physical abilities and with a multitude of interests.

The Bucks Earth Heritage Group aims to promote and look after the geological heritage of the Chilterns and, in doing so, promotes and looks after the many features and wildlife that rely on that geology. There are walks and geological sites accessible to the public and details of many may be found on the group's website: www.bucksgeology.org.uk Sites are maintained by volunteers and we are always looking for more helping hands, so please contact us for details. When visiting the countryside please remember to leave only footprints and take only photographs.

This leaflet was produced by Bedfordshire Geology Group on behalf of Buckinghamshire Earth Heritage Group with the support of The Chilterns Conservation Board