

Swaledale and Arkengarthdale

+ Physical Influences

The present day landscape of Swaledale combines geology and glacial history with the work of the many generations of settlers who farmed the dale and the industrial legacy of the leadmining industry.

The geology of Swaledale and Arkengarthdale is dominated by the Yoredale series of rocks, clearly visible on the valley sides as a repeating pattern of banded rock outcrops or steeper slopes of hard limestone and gritstone interspersed by broader more gentle slopes formed by the less resistant shales. Dale side gills often cut a stepped pattern as they cross the alternating hard sandstones and limestones, for example at Gunnerside and Swinner Gills.

Within the Yoredale series, which tilt 10° to the north east, there are seven limestones, the lowest exposed being the Hardraw limestone on which Feetham is built. The Yoredale limestones are thinner and darker in appearance than the Great Scar limestone that outcrops further south. As each of the Yoredale limestones is relatively thin (most are less than 20m thick), Swaledale does not include the type of scenery that is found in the limestone country further south, and there are few potholes, caves and underground passages. However, at the top the series of Yoredale rocks, Main limestone is found in a prominent band, averaging 23m in thickness to a maximum 40m thickness on Kisdon and is responsible for several prominent scars and limestone features such as the limestone cliffs on Cotterby Scar near Keld, Kisdon and Ivelet scars above Muker and the high scar of Fremington Edge.

The influence of limestone is visible in the vegetation type of the dale sides, limestone supporting brighter green, species rich grasslands in contrast with the coarser grasses on sandstones and shales. In some areas eg on Kisdon side, the underlying geology of alternating bands of strata is reflected in a horizontally striped appearance to the valley side vegetation pattern.

The Millstone Grit lies on top of the Yoredales comprising a series of coarse sandstones with intervening shales and occasional coals. The horizontal gritstone strata caps the moors to the north and south of the dale forming an extensive plateau of heather, cotton grass and peat.

The largest coal seam, 1m thick, is the Tan Hill coal in the lower part of the Millstone Grit, which was worked for centuries on the moors near Tan Hill and helped to fuel the lead smelting mills. Other local seams of varying quality and thickness occur below the Underset and Main limestone and have been mined locally for lime burning and domestic use. Mineralisation has occurred particularly on the north side of the valley between Keld and Arkengarthdale, where there is a concentration of east-west faults containing calcite, barite, witherite, fluorite and galena (lead ore). In some places ores of zinc and copper were deposited.

During the last Ice Age, Swaledale, like the other Yorkshire dales, was ridden over by a thick sheet of ice which was level with the highest peaks, and the dale also developed its own glacier. The ice smoothed the contours, broadened the valley and diverted the course of the River Swale at Keld and Round Howe. Kisdon, the isolated area of upland (498m) that lies within the upper valley, was formed when the melting glacial rivers cut out a new course for the Swale along what is now known as Kisdon Gorge, the river's former course to the west of Kisdon being blocked by glacial debris. The lower dale was invaded by the Stainmore glacier from the Lake District. Glacial retreat moraines are in evidence at Gunnerside Bridge, Lower Whita Bridge, below Grinton Bridge and by Ellerton Abbey. The lower three moraines held back temporary glacial lakes.

Throughout its course within the dale the River Swale is very fast flowing, and prone to rise rapidly in times of flood. The river rises on the slopes of High Seat and Nine Standards Rigg and becomes known as the Swale at the point where the becks of Birkdale and Great Sleddale meet. The river descends rapidly towards Keld, with a waterfall at Wain Wath Force, before descending into a narrow gorge below Keld and over Catrake Force, followed by Kisdon Force. From here the river descends a further 200m along the next 20 miles to Richmond Bridge. The steep sided tributary valleys also contain a number of spectacular waterfalls.

+ Historical and Cultural Influences

Early signs of the presence of man include flint finds of the Mesolithic Age (8000-6000 BC) and flint arrowheads of the Neolithic period (2500BC to 1800BC). The first signs of settlement of the upper valley sides occurred during the Bronze Age (1800-1000BC) eg at Arngill Scar and on Harkerside, where there is a small stone circle. On the slopes of Calver Hill and on Harkerside there is considerable evidence of old field patterns, wall boundaries, house platforms and lanes of the Iron Age and Romano British times which suggest that during these periods the population of the dale was quite significant.

At Maiden Castle, above Harkerside, a prehistoric ditch 4-5m deep and 110 x 90m in size has been carved out of the hillside, with a long entrance in the form of an avenue of stones and with traces of hut circles inside. Its purpose is uncertain; possibilities include a defensive fort against the Romans, or a settlement with its own defences. Iron Age defensive earthworks occur at Harkerside, Fremington Edge, How Hill, Low Whita and on the Grinton moraine. A further settlement has been excavated under Whitcliffe Scar which was occupied up to 600 AD.

During the Roman period a great fort was established at Catterick, within easy reach of the lead mines of Swaledale. It is thought that the Brigantes may have worked as slaves in the Hurst mines on the moors to the north of the dale. There is no visible evidence of Roman roads, villas or forts within the dale.

The Angles first settled the lower part of the dale in about the 8th century when communities were founded at Reeth, Stainton, Grinton and Fremington. The settlements were grouped about a village green where the cattle could be kept in safety. At the beginning of the 10th century, the Norse Vikings came across the Pennines by way of Ireland and the Lake District to settle the upper part of the dale. They made clearings among the trees and in summer took their stock to the summer pastures on the fells. There are many Norse names in upper Swaledale reflecting these origins. The pattern of settlement was widely scattered.

With the Norman invasion and the series of rebellions that followed came a campaign of destruction by William in 1069 during which houses, crops, grain, cattle and food were burnt. Thousands of people were killed or starved and others left and Swaledale became a backwater for several decades. William built castles to establish his power over the people and for his help in subduing the English, Count Alan of Brittany was granted the honour of Richmond. The castle, built between 1071-1091, was one of the earliest stone castles in England, built on a bluff overlooking the River Swale. The town of Richmond was built soon after. Much of Swaledale became a Norman hunting forest under Robert Arkhil, whose name was given to Arkengarthdale. Upper Swaledale became the Manor of Healaugh under Walter de Gant, kinsman to William. The Reeth area continued to be farmed and strip lynchets were worked in an extension of cropland up the valley side during a warm period in the 13th century.

The first monastery to be built in Swaledale was the Benedictine Priory of St Martin, built across the river from Richmond Castle. In 1151, the Premonstratensians built the Abbey of St Agatha at Easby 800m away on the left bank of the river. The white cannons were here for over 400 years and had a considerable influence over the local community. Marrick Priory was built in 1154 for Benedictine nuns and lay sisters. Ellerton Priory housed Cistercian nuns. During the monastic times, Richmond prospered, along with the wool trade and monastic houses. In the 14th century Scots raids resulted in attacks on Marrick Priory (in 1318) and Ellerton Priory (in 1347). In 1349 the plague was spread from Hull and the economy dwindled. The dissolution of the monasteries started in 1536.

Leadmining has occurred in Swaledale since Roman times. In the 9th century, Swaledale produced half the lead mined in Yorkshire. In the 12th century lead from Swaledale supplied the Tower of London, Dover Castle and Jervaulx Abbey. The big expansion of the industry came in the beginning of the 18th century, at which point there were dramatic changes to the landscape. The extraction of lead involved a technique known as 'hushing', which is thought to have been used by the Romans but which was developed on a grand scale in the 18th century. Turf dams were built to collect water within the gills on the side of the dale, which was then released in a torrent down the hillside to expose the vein. A sluice allowed repeated use of the dam and after the surface soil and rubble was washed away, the miners would loosen the ore with picks. The next flood of water would trap the ore within a

deep pit dug along the course of the hush. The hushes are now very apparent as deep gashes in the dale side.

New methods of production with the big expansion of the industry included the digging of adits or levels into the hillside, which allowed the use of rails with men or ponies to heave the tubs of ore. The ore was separated from waste minerals such as barite, fluorite and limestone using a machine crusher or by hand hammering on a 'dressing' floor. It was then channelled into settling tanks or shaken on racks under a flow of water to separate the heavier ore from the lighter minerals. The waste from dressing included a spread of finely crushed material on which little or nothing will grow.

The smelt mills relied on waterpower and were usually situated downstream from the mines where a large waterwheel wound the bellows of the furnace, although they were sometimes sited on hillsides, making use of the prevailing wind to obtain a high temperature for melting. Timber from the valley side woodlands was used to stoke the furnace; for the second stage of smelting charcoal was used and remains of platforms and kilns can be seen in woodlands used for the charcoal burning. Woodlands were gradually lost through this process and peat was also cut for fuel.

At the peak of the industry there were 40 smelt mills in Swaledale and Arkengarthdale. Legacies of the mining industry include the heaps of mine waste supporting distinctive plant communities and the maze of footpaths, established by miners to reach the mines.

Although mining has played an important part in the development of the present landscape, the most significant influence has been the centuries of pastoral farming, responsible for the pattern of drystone walls, field barns and meadows in the valley bottom. It is thought that many of the present day field systems could date back to the prehistoric period, once forming part of the Iron Age landscape. The position of the dispersed Iron Age farmsteads are sometimes visible as small platforms of flat land dug out of the hillside 300-400 yards apart, their lands separated by a system of rectangular fields running up the hillside.

Wool has been an important product since the monastic times and most of the sheep are of the hardy, blackfaced Swaledale variety that can withstand the harsh conditions of the uplands in winter. Knitting has been the second industry of the dale since Elizabethan times and was undertaken by miners and their families. Haverdale Mill, operating between 1835 and 1870 produced yarn for knitting and also carpets.

Quarrying of chert, a hard flint-like stone used for pottery making, has been important in Arkengarthdale.

The small field barns, which occur in almost every meadow, are distinctive features of the Swaledale landscape, particularly as they occur at a very high density. The barns housed a small herd of cows and their feed hay for the winter in the loft above. The hay was also used for sheep, brought down from the fells during winter. In summer the manure from the cows was spread over the land to enrich the hay crop. The barns occur in a pattern with drystone walls, which is particularly well represented at Muker and near Gunnerside.

The older drystone walls enclose small irregular fields near to the villages (mainly dating from the 16th or 17th century). The first parliamentary enclosures occurred on Fremington Edge in 1778. By the 18th century, higher ground was being enclosed by a series of straight, parallel walls. The enclosures allowed big take-overs of common land by the gentry, with resulting loss of common rights for poorer farmers. However, not all of the dale was enclosed, and unlike Wharfedale or Wensleydale, there are large tracts of land on dale sides that have never been enclosed, e.g. at Gunnerside Pasture.

For centuries, packhorse routes were the main form of transport and were used in the mining areas up until the 1880s. Where the road crossed the river, it was usual to ford it, but where the riverbank was steep, a single arch bridge was built, of which there are fine examples at Ivelet, Ravenseat and near Marske. Coal roads also radiate from the Tan Hill Inn into the dale, and lead roads carried lead from the mining areas to the port of Stockton, until the railway came to Richmond in 1846 and shipping ceased.

A major drove road crossed the dale from the Scottish borders to fairs at Askrigg, Appletreewick and Malham Moor, entering upper Arkengarthdale via Dale Head and Whaw and reaching Swaledale at

Feetham. In about 1800, when the droving trade was at its peak, some 10,000 cattle a year were being driven south into England and most of them came through the dales.

In Victorian times, Swaledale experienced a depopulation and migration more significant than that occurring in any of the other dales. The population of the dale (excluding Richmond) reached its peak of 8,279 in 1821 and started a gradual decline, which accelerated after 1851 so that by 1901 it was down to 3061. The population of Arkengarthdale declined from 1500 in the 19th century to 300 today. The mining industry attracted a large influx of people and at its peak employed more workers than farming. The 19th century saw growing difficulties in the industry as the mines were made deeper and the ore more difficult to extract and by the 1870s imported ore from Spain and South America was much cheaper.

Grouse shooting, which has been carried on in Swaledale for 150 years, has its own impact on the landscape. Careful upland management has produced some of the broadest stretches of heather moorland of the dales, many parts of which form a mosaic of burnt over areas and various stages of regrowth. Lines of shooting butts are present but often blend with the colours of the landscape. More obvious are the purpose built tracks for the four-wheel drive vehicles used by shooting parties to reach the butts.

The qualities of the dale have been recognised in paintings by Turner and in writings by Speight and Bogg. The Kearton brothers, well known naturalists and wildlife photographers, were born in Thwaite and were influenced by the landscape of the dale, which fostered their interest in nature.

Swaledale and Arkengarthdale are situated further from main centres of population than many of the other dales and as a result are less frequently visited than certain other parts of the Park. Richmond with its Castle, attractive market square and Georgian Theatre is a focal point for tourism to the east of the Park boundary. Within the dale, the villages with their pubs, cafes and occasional craft shops are focal points for visitors. Additional low key attractions include the Folk Museum and National Park Visitor Centre in Reeth and the Tan Hill Inn, the highest inn in England on the moors to the north of the dale.

The Yorkshire Dales Cycle Way follows the dale between Fremington and Gunnerside and the Coast to Coast Walk follows the dale between Richmond and Reeth before crossing the moors to the north. The Pennine Way crosses the upper reaches of Swaledale from the Buttertubs Pass to Muker crossing the Coast to Coast path at Keld and up to Tan Hill. A number of small camping and caravanning sites are sited within the dale but do not exert an undue influence.

+ Buildings and Settlement

Much of the building stone in Swaledale is drawn from the many small quarries of Ten Fathom Grit at the head of the dale and in the upper reaches of Arkengarthdale. The Ten Fathom grit is so called because it is generally about 20m thick, forming the basal beds of Millstone Grit. It is very hard and fine-grained and often occurs in six or eight inch flags that can be cut cleanly into regular sized building stones. Houses and farm buildings in Angram offer good examples of the use of the stone and are very striking for the regularity of the coursing of the stone. For roofing stones, slates were brought from the hill top quarries in nearby Birkdale, although ling thatch was used on a number of older buildings particularly barns.

The earliest stone built houses in Swaledale date from the 17th century, slightly later than in other parts of the dales. Rows of houses are characteristic of Swaledale where houses and cottages were built onto a farmhouse which developed in time into a row. Many such cottages would have been owned by miners, who had only small plots of land. Many of the farms in the upper dale are typical longhouses, with living quarters and barn all under one roof.

Remains of the monastic period are present in the form of Ellerton Priory, now a meagre ruin, and Marrick Priory, a series of ruins set beside the River Swale with an associated orchard, church and farmhouse.

Early churches are infrequent in the dale. One church, at Langthwaite, serves the whole of Arkengarthdale. The Norman church at Grinton served the whole of the upper dale until 1580 when a church and burial ground were established at Muker. Until this time funeral corteges from the head of

the dale travelled up to 12 miles along the corpse road, which was routed along the valley side between Keld and Grinton away from settlements. The corpse road avoided villages for fear that the spirit of the dead would be enticed to return, a fear that stemmed from Norse mythology, in which the corpse way was thought to mirror the last journey of the soul from the earth to the underworld.

The dales were also a non-conformist stronghold. The Quakers built meeting houses and chapels in many settlements.

The buildings and settlements of the lead mining industry form an important part of the cultural heritage of the dale, although many buildings were robbed for stone and roofing slates after the collapse of the industry. Buildings and structures include remains of smelt mills, flues, shafts and chimneys, leats and waterwheels, dressing floors, bouse teams and crushing mills. Some of these buildings and structures have been recorded and selectively conserved.

Shooting lodges often form prominent features in the dale, examples being found at Ivelet Gill and above Grinton. Abbeys are found at Ellerton and Marrick, close to the former priory sites. Halls and larger houses include Walburn Hall, a fortified Elizabethan Manor House; the Georgian Marske Hall; Thiernswood Hall; Park Hall, Healaugh; the Georgian Draycot Hall in Fremington; Cogden Hall; and Scar House in Arkengarthdale.

The settlement pattern of the dale varies between the lower and upper dale. The settlements of Reeth, Fremington, Healaugh, Grinton and Marske are Anglian settlements, the former three following a nucleated pattern, situated on the lower south facing slopes of the valley where tributaries enter the river and with the former market town of Reeth enclosing a substantial village green. Grinton is an exception to the pattern situated at a bridging point on the River Swale but strung out along Grinton Gill on the north facing slopes of the valley. Marske, situated in the steep sided wooded valley of Marske Beck, is strongly influenced by the character of the Georgian hall, with its clipped yew hedges, lime avenues, great beeches and ornamental grounds below the village.

Above Feetham the settlement pattern changes to one of mostly scattered hamlets and isolated farms of the Norse pattern. Where hamlets occur they are frequently spaced out along the roadside. Exceptions to the scattered pattern include Muker, a harmonious grouping of buildings on a terrace above Straw Beck and backed by abruptly rising meadowland, and the hamlet of Keld, which lies around a small square.

+ Land Cover

Swaledale and Arkengarthdale support a range of habitats and vegetation types, including broadleaved, mixed and conifer woodland (the latter found particularly in the lower part of the dale), hay meadow, limestone and neutral grassland, limestone scar, heather moorland, bracken, rough grassland and juniper scrub. Upper Swaledale and Arkengarthdale are included in the Pennine Dales Environmentally Sensitive Area.

Woodland is not extensive within Swaledale and covers only a very small percentage of the land area, much of it having been lost to fuel the lead smelting industry. In the upper dale the woodlands that remain are concentrated on the steeper slopes and scars and within gills. In the lower part of the dale woodlands are more extensive and include commercial forestry plantations. Species include ash, birch, rowan and bird cherry, with hawthorn, hazel and holly in the shrub layer. Yew is often a feature of valley side scars. The non-native sycamore is very common and the most dominant tree in some areas. Beech has sometimes been planted, for example at Scar House Wood in Arkengarthdale. Pine and larch are often planted amongst broadleaved trees and plantations of pine and spruce occur in the lower valley. Alder and willow are found on the riverbanks.

Few of the woodlands within the dale are of ancient origin but examples are found at Birbeck Wood in Gunnerside Gill and at Rowleth Wood. An important area of ancient semi-natural woodland exists in combination with scrub, limestone and neutral grassland, limestone scar and scree either side of the river just above Richmond. This is the largest area of ancient woodland in the Richmondshire and Craven districts. Six major types of semi-natural woodland occur here, due the range of aspect and slopes. Species include ash, pedunculate and sessile oak, birch, alder, wych elm, hawthorn and hazel together with planted sycamore.

In addition to woodlands, there is scattered tree cover associated with field boundaries, within fields, along river and streamsides and associated with settlements.

The colourful hay meadows of Swaledale are one of its most outstanding features. With a backdrop of drystone walls and stone field barns, the meadows first turn yellow, mainly with buttercups, then white with splashes of purple when pignut and wood cranesbill dominate. The meadows are often grazed by ewes until mid May when the flocks with their lambs go up higher onto the rough pastures. The hay is cut in late July, or August at higher altitudes or if weather is poor. Hay meadows are concentrated within Upper Swaledale and Arkengarthdale with particularly fine and extensive examples occurring in the Muker area. Many of the best examples of these meadows are designated as SSSIs.

Lower down the dale many of the species rich hay meadows have been replaced with improved grassland that is cropped for silage.

At Angram Bottoms, seven fields along a stream known as Skeb Skough support mire and wet and dry grassland communities that are uncommon in the Yorkshire Dales and under threat from agricultural improvement. At Len Pastures, Crackpot, is an excellent example of herb-rich, traditionally managed pasture of a type now increasingly rare nationally due to agricultural intensification. A further good example of this type of grassland is found at Fothering Holme in Arkengarthdale.

Broad stretches of rough grassland occur high on the valley side, for example on the south side of Calver Hill and on Harkerside. There are only small patches of calcareous grassland, which reflect the underlying rock eg near Kisdon Force.

Extensive areas of managed heather moorland occur to the north and south of the dale and at the dale head. They have developed on the high, gently sloping upland plateaux of Millstone Grit. Rainfall is heavy and drainage poor which has resulted in the formation of blanket peat in many areas. Harestail Cotton Grass also covers large areas of the moor and often occurs with heather. Bracken occurs in limited areas high up on the valley sides and in the dale head areas.

The leadmining spoil, which is more extensive in Swaledale and Arkengarthdale than in any other dale, supports its own unique communities of plant life. Spoil is often only sparsely covered by vegetation but the plants that survive this sterile habitat can be of great botanical interest.

Juniper scrub is relatively common in Swaledale but outside the dale its other main location within the Park is on the slopes of Ingleborough. Within the dale it is found at Thwaite Stones, Scar Closes on Kisdon side and at Feetham Holme (each of which are designated as SSSIs). At Scar Closes it occurs in combination with calcareous grassland in contrast with the other areas in Swaledale where it is associated with acidic heath and grassland. These areas of juniper are believed to be part of formerly much more extensive scrub cover that has survived since the last glaciation.

+ Swaledale and Arkengarthdale Landscape Character Areas

Landscape Character Types (Draft National Types in brackets)	Landscape Character Areas	Location
Limestone Dale with Ancient Woodland (VLA)	Upper Swaledale	West Stonesdale and Wain Wath Force at dale head to Grinton
Limestone Dale with Ancient Woodland (VLA)	Arkengarthdale	South of Hill Top Farm at dale head to south of Castle
Limestone Dale with Ancient Woodland (VLA)	Mid Swaledale	East of Grinton to the National Park Boundary

1. Upper Swaledale

+ Key Characteristics

- Winding, steeply sloped narrow u-shaped valley within Yoredale series giving a sense of intimacy and enclosure in contrast with extensive open uplands to north and south.
- The dark purples, tans, greys and blacks of the gritstone uplands contrast with the lush greens and bright colours of valley vegetation and hay meadows, the influence of underlying rock often apparent in valley side vegetation cover.
- The underlying geology has created a stepped or terraced appearance to the valley sides, areas of farmland on the gentler slopes interspersed with woodland on steeper slopes with rocks occasionally outcropping to form prominent scars.
- The upland island of Kisdon, with its dark gritstone cap, divides and dominates the upper dale while Calver Hill, with its curved summit and stepped profile, is a distinctive feature within the middle dale.
- The River Swale is fast flowing with a platformed rocky bed and stony bank, descending the upper valley via a limestone gorge and a series of dramatic waterfalls. Steep sided gills, often wooded and with waterfalls, cleave the valley sides.
- Bands of woodland follow the steeper slopes of the valley sides, and often occur in association with scars. Trees follow the course of the river and tributaries and mark settlements, tree cover reducing with dale elevation. Yew in association with scars and several extensive areas of juniper scrub are distinctive localised features.
- The pattern of hay meadows in combination with a particularly high density of drystone walls and barns are an outstanding feature of the dale.
- Dramatic reminders of former lead mining, including structures, hushes and spoil heaps, dominate a number of valley side gills, and are particularly marked at Gunnerside Gill. Further scars of lead mining are visible on the upper valley sides and on moor tops but are very gradually greening over and blending with the background.
- Settlement pattern is a combination of traditional nucleated Anglian pattern in the lower dale and dispersed Norse pattern in the upper dale, with a few exceptions. Scattered traditional farmsteads, often occurring as long houses or in rows with other cottages, occur throughout the dale.
- The upper dale is increasingly remote and open and is surrounded by an amphitheatre of moorland. In these areas the pattern of barns and walls is dominant.
- The sinuous nature of the valley and overlapping fell sides creates a series of constantly changing vistas as one moves along the dale.

+ Landscape Character

Upper Swaledale is a steep sided relatively narrow and winding u-shaped glaciated valley orientated in a west to east direction, but with an abrupt turn to a north/south direction between Muker and Swinner Gill. The influence of the underlying geology, the Yoredale series of layered limestone, sandstone and shales is reflected in the topographic form of many areas of the valley sides, where steep wooded slopes alternate with gentler farmed landscape to give a stepped or terraced appearance. Elsewhere the dale sides are uniformly steep particularly on Kisdon side and on the sides of Black Hill contributing to the strong sense of enclosure found within Kisdon Gorge between Muker and Keld. Rocky scars are sometimes visible on the valley side, particularly in the upper part of the dale.

The enclosing uplands comprise extensive, dark, relatively flat and almost featureless gritstone plateaux that often drop sharply into the valleys giving a distinct profile to the upper dale side. There is an abrupt transition to the open, unenclosed moorland to the north and south of the dale east of Crackpot, but west of Crackpot the transition occurs from enclosed valley landscape to enclosed upland allotments (usually one or two fields width) and thence to open upland. A unique feature of Swaledale is the isolated upland area of Kisdon, created by glacial activity, which forms a distinctive feature within the upper dale between Muker and Keld and which divides the valley into two u-shaped valleys, the River Swale following the course of the valley to the east of Kisdon and the western side being drained by Straw Beck. The contrast between the dark colours of the gritstone upland, with its mosaics of heather, with the lush greens of the woodlands and meadows within the valley are particularly marked in this area.

The dale head is shallow, bleak and open and surrounded by an amphitheatre of giant dark fells. As a result of the openness and simplicity of the landscape the pattern of barns and walls become dominant. The often broken walls enclose hay meadows and rough wet grassland within the valley floor, while moorland extends far down the valley sides, incised by dramatic deep gills, and trees mark isolated farmsteads. The availability of flagstones from quarries in the dale head is reflected in the composition of walls and barns.

The main valley is joined by a number of well-developed narrow enclosed and wooded u-shaped tributary valleys including Oxnop Beck, Stonesdale Beck, Gunnerside Gill, Summer Lodge Beck and Barney Beck. Elsewhere the valley sides are drained by a dense pattern of parallel gills. The side valleys and gills often contain waterfalls eg East Gill near Keld.

The River Swale is fast flowing and follows gentle meanders across a relatively narrow flat floodplain, occasionally dividing to follow a multi-channelled course. The riversides are often steep and sometimes enclosed by walls, but are nearly always marked by a line of broadleaved trees, limiting the river's visibility from the wider valley. The river crosses a number of platformed waterfalls in the upper valley including those at Wain Wath Force, Catrake Force and Kisdon Force and is often fringed by stony banks.

Broadleaved tree cover is concentrated on the steep dale sides, particularly on the upper and middle slopes, a pattern that becomes more marked above Muker. The tree cover generally follows a linear pattern along the contours of the middle and upper valley sides often associated with banded rock outcrops, and also follows the line of the river and v-shaped tributaries. Mixed woodland occurs at Horse Pasture Wood. Scattered tree cover also occurs within fields and along field boundaries, on the roadside and marking farmsteads, hamlets and villages. Tree cover is generally of indigenous species including birch, alder, ash, hawthorn, willow and rowan although conifers have been planted in some locations. Yew grows on many of the valley side scars and juniper scrub, once far more extensive, still extends down the valley sides on Whitaside and Harkerside. Elm has been a significant tree within the valley and there remain a number of fallen and standing dead trees. Planting has occurred in some locations to replace trees lost within valley side woodland.

Settlements are concentrated beside the river or on the lower dale sides (generally facing south), at the springline or where a tributary enters the main river, and are frequently associated with a historic river bridge. Settlements in the lower part of the upper valley, including Reeth and Healaugh, are of Anglian origin, and follow a nucleated pattern, in the case of Reeth grouped about an extensive village green (a layout which owes much to remodelling that took place in the 18th century) with panoramic views across the valley. Some buildings are rendered whilst others make use of black and white paint on render and stonework, a practice that probably originates from the late 19th century.

The village of Feetham and villages to the west are of Norse origin and many follow a more dispersed and linear pattern, with buildings set along the line of the contours facing out across the valley. Exceptions to this pattern include Muker, Keld and Thwaite, which are each tight knit settlements of small-scale buildings. Settlements are constructed in coarse rubble stone or better quality ashlar with stone flagged roofs. Modern developments on the edge of settlements are infrequent and the absence of a railway into the dale has ensured that traditional materials have continued in use over a longer period, well after machine made brick and tile was introduced elsewhere.

Gunnerside is a large village, which expanded as the centre of the lead mining industry, and as a result has more of an industrial feel than other villages within the dale.

Roads within the dale are winding and tend to follow the lower dale side or riverside. Winding up the hillside and down to the riverside, with each turn in the road, a series of frequently changing vistas unfolds. Roads follow both sides of the dale as far as Ivelet, thereafter a single B road follows the valley and the line of Straw Beck, the narrow gorge between Muker and Keld remaining inaccessible except on foot. Roads also extend onto the moors on either side of the dale.

The distinctive, dense pattern of often, long, narrow fields that generally cross the contours at right angles stripe the lower and mid valley sides, interspersed by frequent field barns. The fields are mostly small and square or rectangular in pattern, although becoming longer and more regular in pattern on upper slopes in areas that have been enclosed more recently. In some areas eg around Angram valley sides are lumpy and uneven and the walls emphasise the terrain. There is a marked change in field size and pattern between the Upper and Mid Swaledale character areas; the fields of the latter being much larger and more regular in shape. Certain parts of the dale have escaped enclosure, eg Gunnerside Pasture.

The fields enclose hay meadows which occur in an almost continuous pattern in the upper dale but which are more scattered around Reeth. A pattern of coaxial field systems exists on the terraces above Reeth, whilst ridge and furrow is visible in the lower valley and strip lynchets occur throughout the dale. In some areas the walls have fallen into disrepair leaving gaps in the pattern or piles of rubble where walls have once been. Fences and hedges occur in certain areas.

Field barns become more frequent moving west up the valley. The density of these barns is a very distinctive feature of the dale and very significant to its character. As a result of initiatives by the National Park to protect the barns, many are in a good state of repair although some are still crumbling. The Swaledale barns are often associated with small semi-circular walled enclosures extending from the barn.

The remains of the lead mining industry are present on the moor tops particularly to the north of the dale and within the gills. Gunnerside Gill represents one of the most dramatic examples of the devastation to the landscape wreaked by the lead mining industry, where the scars left by the industry are clearly exposed. In other areas the scars have started to regenerate and blend with the valley scene, but the chimneys of the smelting mills remain prominent. Derelict mine buildings and structures, spoil heaps and a dense network of miners' trails contribute to landscape character.

Extensive areas of parkland are not a feature of the upper dale although properties such as Draycot Hall in Fremington, Theirnswood Hall at Healaugh, Park Hall, Haverdale House, Calvert House, and Gunnerside Lodge exert a local influence. A series of ancient dykes are visible across the valley floor between Grinton and Fremington.

Detractors in the dale are few and limited to small-scale electricity poles and occasional large farm sheds. There is occasional housing within villages and within open countryside that is out of keeping with the character of the dale, but this is localised and does not exert a significant visual effect on the dale as a whole. Small-scale camping and caravanning parks can become more visible in peak season. Tourism has had a subtle but noticeable influence on certain settlements with a proliferation of cafes and craft shops occurring at Reeth and Muker in particular.

2. Arkengarthdale

+ Key Characteristics

- Winding, narrow u-shaped valley within Yoredale series, with steeper slopes close to river but in many areas upper valley sides opening out to broader and more gentle slopes, giving a sense of enclosure only within the valley bottom.
- Underlying geology and effects of glaciation create a stepped or terraced appearance to the valley sides, farmland occurring on the valley floor and on gentler slopes interspersed by tree cover on steep, lower slopes, and rocks outcropping to form prominent scars on the valley sides.
- Extensive areas of devastation caused by quarrying and lead mining are evident as unvegetated rock, spoil and screes on upper slopes within adjacent moorland and within side valleys, and at increasingly low elevations within the upper dale.
- Linear belts of broadleaved, mixed and occasionally coniferous woodland are concentrated on the valley floor, on riversides and on the lower valley slopes, with occasional scattered tree cover on middle slopes.
- The intense colours of hay meadows and lush greens of the wooded valley contrast with the greys of mining waste and prominent upper valley side scars and cliffs and the darker colours of the gritstone moors.
- Peaceful and sparsely populated with treed small hamlets occurring beside the river and on lower dale sides.
- Sinuous nature of valley creates a series of overlapping vistas, dominated by the hilltops of Calver, Great Pinseat, Ketley Hill and the high edges of Windegg and Fremington.
- The fast flowing stony beck is rarely visible, frequently hidden by the steep valley sides and the line of trees and woodland that marks its course.

+ Landscape Character

A winding dale forming a northern tributary valley of Swaledale within the Yoredale series (banded limestones and gritstones interspersed by less resistant shales), oriented in a north west/south east direction, drained by Arkle Beck and enclosed by gritstone moors. The south west facing slopes of the dale, which rise to Marrick Moor, Hurst Moor, Booze Moor and Faggergill Moor are steeply graded, while the north east facing slopes are more gently graded up to Reeth Low Moor (including Calver Hill), Reeth High Moor (and the hill of Great Pinseat) and Whaw Moor.

The entrance to the dale (to the east of Reeth) is relatively narrow and enclosed by the moors to the east and Calver Hill to the west, although the valley broadens above Booze to give a more open feel, contributed to by the gentle gradients of the moors to the south west. In many places the road follows the moorside from where the contrast between open moorland (interrupted only by the broken block of forestry on the side of Great Pinseat) and deep, wooded valley is readily apparent; from this vantage point the river is seldom visible.

The boundary between moor edge and valley is generally well defined with an abrupt transition between the walled enclosures of the valley landscape and open moorland, although in certain areas, for example below Fremington Edge and above Fore Gill Beck, the transition occurs via a series of large, regularly shaped moorland enclosures.

While the lower dale is dominated by views of Calver Hill and Great Pinseat, the conical shape of Ketley Hill, with Ketley Hill House close to its summit, lends character to the upper dale. As the dale turns above Langthwaite the vista ends with a glimpse of the moorland enclosing the dale head.

As in Upper Swaledale, the valley sides alternate between farmed gentler slopes above steeper wooded slopes reflecting the variation in underlying geology and effects of glaciation, which in combination with the terraces created by the river, give a terraced appearance to the valley side.

The stony shallow beck, with its platformed rocky bed, meanders across a narrow floodplain which in places narrows to become almost v-shaped, for example at Castle at the entrance to the dale and to the north of Langthwaite. Winding v-shaped tributary valleys including Slei Gill and Great Punchard Gill join the valley from the north and frequent minor gills drain the valley sides, particularly to the south western side of the valley. The beck is marked by linear riverside broadleaved or mixed woodlands, particularly in the lower stretches as far as Arkle town and in the upper stretches above Eskeleth, and riverside conifer planting has occurred at Whaw. Elsewhere a line of trees frequently marks the river. Linear woodlands also occur following the contours on the lower valley side and within gills and tributary valleys, in places extending up the slope as a more scattered pattern of trees amongst fields. Species are similar to those occurring in Upper Swaledale.

There are no ancient woodlands within the dale. Scattered scrub, mainly of hawthorn, occurs below Fremington Edge, and yew clings to the scars on the valley sides.

A marked and distinctive feature of the dale is the extent of scars and devastation left by former mineral exploitation. Of all the dales, Arkengarthdale most preserves the remains of its industrial past. This is particularly noticeable entering the valley where on the northern side the naturally exposed long cliffs of Fremington Edge are intermingled with spoil heaps from lead mining and the effects of chertz quarries high up on the valley side; looking up the dale towards the significant scar of the chertz quarry on the side of Great Pinseat and looking down from the dale head towards the Hungry Hushes, also on Great Pinseat. The greys of bare rock, spoil and scree dominate the upper valley side and exploitation has resulted in notching of the horizon line created by Windegg Scar when viewed from the valley bottom. Slei Gill at Booze is significantly affected by the effects of lead mining. Moving up the valley these effects lessen and become smaller in scale, but occur at lower elevations and often amongst or just above the valley side tree line. Unlike in Swaledale, where the effects of exploitation are more localised and add cultural interest to the dale, the extent of the effects within Arkengarthdale amount to despoliation in some areas and there may be a case for selective restoration here (for example of the lower valley side below Whaw).

In sharp contrast with the grey colours of the despoiled landscape, the bright colours of the hay meadows are a dominant feature of the valley floor and lower valley sides, enclosed by a pattern of small irregularly shaped fields that tend to approximate more to a square shape in contrast with the narrow rectangular shapes often found in Upper Swaledale. Barns are present and occur in increasing density in the upper dale. Drystone walls are frequently quite high and are particularly large in scale on the sides of Ketley Hill. Some walls have fallen into disrepair and there is loss of pattern in limited areas. Occasionally fragmented hedges replace walls.

The complexity of the dale, its small size and the concentration of tree cover on the lower slopes of the valley result in a pattern of barns and walls that is significant but less dominant than in many parts of Upper Swaledale. Other land cover includes areas of bracken at the dale head and rough grazing higher on the valley sides.

The dale is sparsely populated and the settlements of the dale are limited to a few small-scale hamlets marked by trees, including Castle, Booze, Arkle Town, Langthwaite, Eskeleth Bridge and Whaw either on the riverside or higher on the valley side beside streams and scattered farms. The settlements, with the exception of Langthwaite which is clustered and comprises small scale houses, with a narrow entrance across a small bridge, and Eskeleth, which forms an unusual triangular arrangement on the valley side and appears to have been purpose built as a mining settlement, are still relatively scattered and strung out along road sides, and many contain non-conformist chapels. The inn known as the CB Inn is in a prominent valley side location and is painted white, making it a landmark with the dale, and other white painted properties occasionally occur within the dale. The church with its tower at Langthwaite, which is sited at the top of the river terrace away from the village, and Scar House, with its backdrop of mixed woodland are further landmarks within the dale.

There is little modern development within the dale, a factor that contributes to its remote and slightly forgotten feel, and with the exception of the CB Inn, little provision for the visitor. While a number of properties in the dale are used as holiday cottages, these properties are seldom discernible as such and where restoration of properties has occurred it has been careful.

Although a single and fairly open and straight road follows the valley side moving north from Reeth, within the upper valley the roads proliferate linking the valley with the former mining areas and former packhorse and drove roads on the moors to the north and south. Many tracks strike off the road to derelict mines or isolated farmhouses.

The main detractors to the valley are the quarries and spoil heaps, their scars being clearly visible. Minor detractors include occasional large agricultural sheds and electricity poles.

3. Mid Swaledale

+ Key Characteristics

- Relatively broad, winding, u-shaped valley within Yoredale series, narrowing in places, particularly above Richmond.
- A terraced appearance to the valley sides, steeper slopes and scars wooded and gentler slopes and valley floor farmed.
- Upland edges are visible but there are few views to distant moor tops, except in long views up the valley.
- Valley side scars are frequent but sometimes hidden with woodland. Yew trees cling to the scars in places.
- Floodplain alters between flat and broad to very narrow and almost v-shaped, with steep wooded slopes extending down to the river often hiding it from view.
- Well wooded, with deciduous, mixed and coniferous woodland following the line of the valley side contours. Steep banks of ancient woodland are a particular feature above Richmond.
- Significant tree cover in association with settlements along riverside, on field boundaries, roadsides and within hedgerows.
- Generally medium sized regularly shaped fields of improved pasture and silage, walls intermixed with hedges and fences such that the wall pattern is diluted. Hay meadows infrequent.
- Strong estate and monastic influences, including parklands, farms, deer parks, halls and abbeys. Hutton's Monument forms a feature on the hilltop near Marske.
- Lush and green with a strong sense of enclosure.
- Settlements few and limited in extent, situated on river bends or on elevated positions on valley sides. Farmsteads relatively dispersed.

+ Landscape Character

Mid Swaledale, defined by a line across the valley to the east of Grinton and extending east to the National Park boundary to the west of Richmond, is a relatively broad winding u-shaped valley within the Yoredale series (banded limestones and gritstones interspersed by less resistant shales), narrowing in the stretch above Richmond. The cross sectional form of the dale is similar to that found in the upper dale, with a terraced appearance to the valley sides, the steeper slopes and scars wooded and the gentler slopes and valley bottoms farmed. The valley has many of the characteristics associated with lower elevations elsewhere in the dales, including a lush greenness and a sense of enclosure (as a result of well-wooded valley sides with some commercial forestry), more intensively developed pastoral agriculture and larger more regularly shaped fields.

The edges of surrounding heather clad gritstone uplands are visible on the south side of the valley in the upper reaches of the character area, but to the north are hidden from view by topography when viewed from the valley floor. Views are available up the valley to Calver Hill to the north of Upper Swaledale.

Scars, including White Scar (within Side Bank Wood), Ellerton Scar, Garnless Scar (within Garnless Wood) and Whitcliffe Scar (just east of the National Park boundary) are prominent features of the valley side and where they occur within woodlands can be occasionally glimpsed through the trees. At Glittering Scar above Abbey Farm there is a marked contrast between the abrupt riverside scar and the flatness of the valley floor.

An obvious feature of the landform of the dale is How Hill, a rounded green knoll at Downholme, which is topped by a late Bronze Age or early Iron Age hut circle, which would have commanded the gateway to Swaledale. The sides form part of extensive medieval ploughlands that are visible as a pattern of strip lynchets.

The floodplain, sometimes fringed by obvious river terraces, alternates between relatively broad, particularly in the upper reaches, to quite narrow. Occasionally, steep wooded slopes extend down to the river to both sides (eg south of Marrick Park), giving a steep v-shape to the valley and hiding the river from view. The valley is joined by a number of winding wooded v-shaped tributaries including Clapgate Gill, Oxque Gill and Marske Beck. Smaller gills are straighter but often wooded, and a number of springs occur on the valley sides.

The steep wooded banks of ancient woodland adjacent to the river above Richmond and the extensive areas of deciduous mixed and coniferous woodlands tend to follow the valley side contours although the coniferous woodlands in particular often have a blocky appearance. A shelterbelt of trees that crosses the valley at right angles to the east of Ellerton Abbey interrupts the flow of woodland along the valley. In addition to the woodlands, trees occur along the line of the river, mark settlements and farms, and occur on field boundaries, within copses, along roadsides and within the hedgerows that are a frequent feature of this part of the dale. Species present include pedunculate and sessile oak, ash, alder, birch, sycamore, wych elm, hawthorn, hazel and planted Scots pine and larch. Dead elm trees are obvious within the valley side woodlands and undergrazing has resulted in some loss of woodland, now being counteracted by areas of sympathetically sited new planting eg at High Park. Scattered hawthorn scrub occurs on the valley sides in some areas and yew clings to the rocky valley side scars.

Fields are of medium size and regularly shaped, an exception to the general pattern occurring on the valley side near Marrick where the pattern of long narrow fields, often with an 'L' shaped plan, and with limited areas of a coaxial pattern, is similar to earlier field patterns found in the upper dale. Walls of Yoredale stone are intermixed with hedges and fences in the lower dale, although become more prevalent in the upper dale, their pattern diluted by the larger scale of the fields. In some areas the pattern of walls has become broken through agricultural intensification, particularly around Marrick, although the walls that remain are generally well maintained. In many areas the pattern of fields extends beyond the valley sides into adjacent uplands. Barns occur but their density is relatively low.

Agriculture is pastoral, with grazing for Swaledale sheep and cattle, but hay meadows are infrequent, most of the fields having been improved for grazing or to be cut for silage.

Settlements in this part of the valley are few and limited in extent, possibly due to the historic domination by the priories at Marrick and Ellerton, and the influence of Abbeys such as Easby and St Martin downstream at Richmond. With the exception of the small monastic settlements of Marrick Priory and Ellerton, sited on bends in the river, the other principal settlements of Downholme and Marrick are situated on elevated terraces high on the valley sides adjacent to becks or on the springline.

Many of the farmsteads, which are relatively dispersed, have the appearance of estate farms and often include large sheds and occasional silos. Large country estates such as those at Cogden Hall, Marske Hall and Ellerton Abbey, together with remains of their associated parklands and deer parks and the landmark Hutton's Monument, above the Deer Park Wood, give a sense of historic prosperity to this part of the valley.

Detractors include the extensive Swaleview Caravan Park, in the lower part of the dale, the mast on Whitcliffe Scar, large farm sheds, silos and overhead lines and cables.