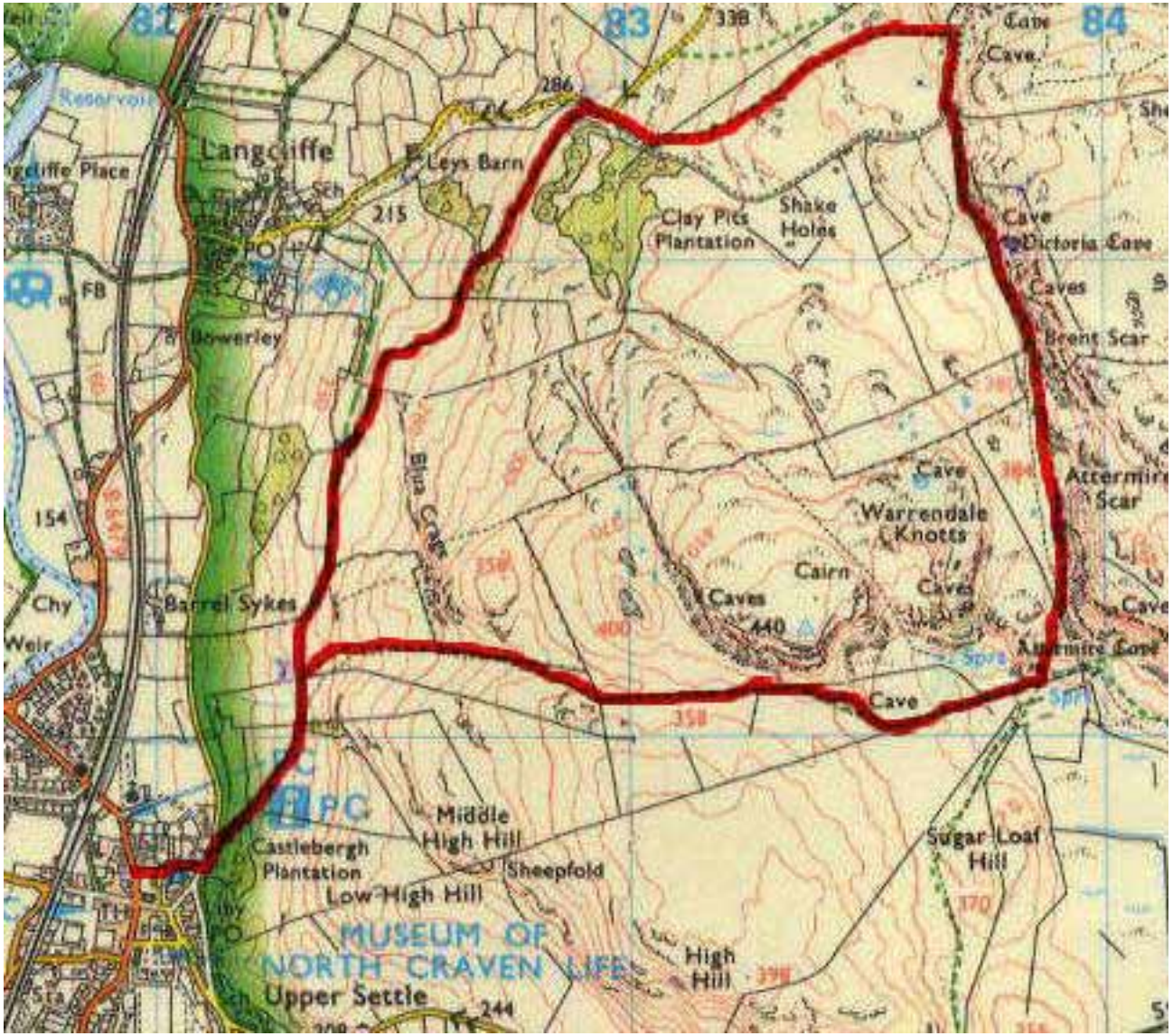

ROUTE CARD 5 – Settle to the Great Crag of Castlebergh

Estimated 2 hrs, 4.5 miles, some climbing, suitable for older children.

ROUTE CARD 5- SETTLE TO THE GREAT CRAG OF CASTLEBERGH

USE OUTDOOR LEISURE MAP 10 - YORKSHIRE DALES AND SOUTHERN AREA, SCALE 4CM:1 KM

NOTE: ALL BEARING ARE GRID NORTH NOT MAGNETIC BEARINGS

NAME	DISTANCE	COMMENTS	APPROX TIME
CAR PARK SETTLE 820 636	0.2 KM	FROM CAR PARK TURN RIGHT TO MARKET SQUARE – BEARING 344	3 MIN
JNCTN WITH STEEP LANE 819 637	0.2 KM	FOLLOW STEEP LANE UPHILL, FOLLOW AROUND BEND TO LEFT UNTIL REACH TRACK UPHILL TO YOUR RIGHT. BEARING 72.	3 MIN
JNCTN RD & TRACK 821 637	0.4 KM	FOLLOW TRACK UPHILL UNTIL YOU REACH FORK IN PATH – BEARING 18.	12 MIN
PATH FORKS 822 641	0.5 KM	FOLLOW TRACK STRAIGHT ON – BEARING 4, TILL PATH FORKS – BEARING 14	10 MIN
PATH FORKS 823 646	0.9 KM	FOLLOW TRACK – BEARING 32, UNTIL TRACK REACHES ROAD	18 MIN
JNCTN PATH & RD 828 653	0.4 KM	TAKE TRACK – BEARING 114, PAST PLANTATION UNTIL TRACK CHANGES DIRECTION	9 MIN
TRACK CHANGES DIRECTION 833 651	0.5 KM	AS TRACK CHANGES DIRECTION YOU ARE IN AN AREA OF SHAKE HOLES (SEE ATTACHED SHEET) FOLLOW TRACK BEARING 54, UNTIL YOU REACH A JUNCTION OF PATHS.	10 MIN
JNCTN TRACKS 836 653	0.3 KM	TAKE TRACK BEARING 156 TO VICTORIA CAVE	4 MIN

VICTORIA CAVE 838 650	0.8 KM	ALMOST OPPOSITE THE LINE OF A RUINED WALL TAKE FAINT TRACK CLIMBING LEFT ON SCREES TO THE CAVE. AFTER VISITING THE CAVE FOLLOW THE TRACK BACK DOWN THROUGH THE SCREES BACK REJOIN THE ORIGIONAL TRACK. FOLLOW THIS TRACK BEARING 164 TO JUNCTION OF TRACKS.	12 MIN
JUNCTION TRACKS 838 642	1.7 KM	TAKE TRACK BEARING 262 WALKING BELOW WARRENDALE KNOTS UNTIL JUNCTION OF TRACKS.	22 MIN
JNCTN TRACKS 822 641	0.8 KM	TAKE TRACK DOWN HILL FOLLOWING STEPS 1-3 IN REVERSE BACK TO THE CAR PARK.	15 MIN

DIRECTIONS TO SETTLE FROM ESHTON GRANGE

FROM ESHTON TURN LEFT TOWARD GARGRAVE. AT T-JUNCTION TURN RIGHT ONTO THE A65. FOLLOW A65 THROUGH CONISTON COLD, HELLIFIELD AND LONG PRESTON.

AT SIGNS FOR SETTLE TURN RIGHT OFF THE A65 ON TO THE B6479 TO SETTLE.

ON ENTERING SETTLE FOLLOW THROUGH TO THE VILLAGE CENTRE AND LOOK FOR CAR PARK SIGNED NEAR TOWN SQUARE.

SETTLE

Over seven centuries old, Settle derives it's name from the Old English word ***setl*** , meaning seat. A market charter granted by Henry III in 1248 established Settle as the commercial centre for the Ribblesdale Valley. Many of it's buildings date from the 17th and 18th century.

VICTORIA CAVE

Discovered in 1838 by Micheal Horner a Settle Man who was puzzled when his companions dog disappeared into the hill and reappeared several yards further up hill. Buried in layers of clay on the cave floor archaeologists have found the remains of elephants, bison, rhinoceroses, bears, hippopotamuses and hyenas which would have roamed the area in prehistoric times.

The cave has also yielded the remains of stone age men dating about 10,000 BC whilst the presence of various artefacts such as pottery, coins, brooches and spindles suggest that the cave was also inhabited by Celtic peoples, probably during the period of Roman occupation.

The entrance to the cave has been much altered and enlarged since these times.

ATTERMIRE SCAR

The Limestone bedrock of this area formed around 300 million years ago in the Carboniferous era, and are composed of the outer "shells" of countless millions of sea creatures, piling up upon each other as they died to form a sediment on the sea floor. Under immense pressure's this sediment has formed Limestone and subsequent movement of the earth's crust has lifted the sediments above sea level.

As such Attermire Scar formed part of a gigantic subterranean cliff face which arose from the sea approximately 200 million years ago. This and other striking features of the area are the result of numerous "faults" or shifts in the geological strata. Attermire Scar forms part of the Mid-Craven fault which runs from east - to - west across the region and is responsible for many of the geological features of the area.

LIMESTONE PAVEMENTS

Limestone pavements are the product of glacial action during the last ice age approximately ten thousand years ago, the movement of the glaciers stripping away the surface layers of soil to leave the underlying limestone bedrock exposed. The scouring action of the glacial ice created the level gently sloping platforms we see today whilst continued erosion by acidic rain and ground water has widened and deepened cracks and fissures in the rocks, to form the characteristic channels called **Grikes**.

The Limestone bedrock itself formed around 300 million years ago in the Carboniferous era, and are composed of the outer "shells" of countless millions of sea creatures, piling up upon each other as they died to form a sediment on the sea floor. Under immense pressure's this sediment has formed Limestone and subsequent movement of the earth's crust has lifted the sediments above sea level.

Limestone pavements are home to 16 species of rare or endangered plant species, and the deeper grikes provide sheltered and moist conditions suiting a range of plants more commonly associated with woodland e.g. Herb Robert, Dog's Mercury.

Limestone pavements are very rare and in Britain only occurring in small pockets of North Yorkshire, Lancashire and Cumbria. Altogether there are only some 2600 hectares in Britain of which 97% has already been damaged. Help protect our environment and do not buy water worn Limestone.

SHAKE HOLES

These are depressions in the ground formed through water erosion of the underlying limestone. Limestone has natural cracks, through which surface water can drain. These are made larger, as water actually dissolves away the rock and small streams form in horizontal cracks under the surface. Shake holes form where the ground above these shallow, underground streams has caved in.

CHEMISTRY OF LIMESTONE

Limestone itself is composed of Calcium Carbonate $CaCO_3$, which is practically insoluble in water. In the presence of dissolved Carbon Dioxide from the air however, the limestone dissolves to form Calcium bicarbonate.

$CaCO_3 + CO_2 + H_2O = Ca(HCO_3)_2$

The resultant bicarbonate solution decomposes, slowly in cold and rapidly on boiling or warming, to produce a precipitate of Calcium Carbonate.

$Ca(HCO_3)_2 = CaCO_3 + CO_2 + H_2O$

It is this decomposition of the bicarbonate which is responsible for the formation of stalagmites and stalactites in underground caves and water ways, and for the furring of kettles.

HOW CAVES ARE FORMED

A cave is a natural hollow in the ground which is large enough for a person to enter. Most caves are found in areas of Limestone rock.
The process of making caves takes thousands of years. It starts when surface water trickles down through tiny cracks in the rock. The water contains a gas called Carbon Dioxide which is absorbed from the air and this forms a mild acid that eats away at the Limestone.
Deep under ground is an area known as the Water Table. Here, instead of Limestone, there is another type of rock which already full of water. It cannot hold any more water, so the water from the surface begins to flow along the line of the water table, forming an underground river.
The level of the water table may vary over a period of hundreds of years. Each time it does so, the river has to carve out a new route. Air fills the old passages and chambers and, in this way, cave systems are formed.

ROCK FORMATIONS

As water seeps through the cracks in the Limestone, it dissolves a mineral called Calcite in the rock. Once it has eaten through the Limestone and hollowed out a cave, the water continues to dribble down the cave walls. Some of the water evaporates and a thin layer of Calcite is left clinging to the rock.
Over thousands of years, the layers of Calcite build up. In places they form smooth coverings over the cave walls. Elsewhere, they build up into oddly shaped rock formations or **speleothems.** The best known speleothems are **stalactites** and **stalagmites.** Stalactites hang from the ceiling like icicles. Stalagmites are pillars which rise from the cave floor. Sometimes stalagmites and stalactites join and form a column.