

THE GEOLOGICAL LANDSCAPE OF SOMERSET IN THE LATE 18th CENTURY: THE OBSERVATIONS OF RACK AND COLLINSON

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INTRODUCTION

The History and Antiquities of the county of Somerset was published by Revd John Collinson (1757-1793) in 1791 in three volumes. It consists of accounts of the parishes of the traditional county of Somerset. Topics include the topography, natural resources, details of the Domesday entries, buildings, especially stately homes and churches, land ownership, and notable families and their ancestry. The Wedmore entry may be taken as an example: there are two short paragraphs on the topography and mineral springs and six pages with details of the hamlets, land use, manors, clergyman and the church.

Collinson says that 'County history may be regarded as a branch, or perhaps as a portion of general history. Though limited from its nature and

its object, and its views, it receives proportionable advantage from the enlargement of scale'. Buried among the text are many references to rocks and quarries, landforms, mineral wealth, springs and much else; in fact there is a wealth of information about geological aspects of Somerset in the late 18th century. This was at a time before William Smith, the Father of English Geology, had made a systematic study of stratigraphy.

The title page of Collinson tells us that it was 'Collected from the authentic recordings of Mr Edmund Rack'. Collinson relied largely on the observations and travels of Edmund Rack. Edmund Rack was born at Attleborough in Norfolk in 1735. His father was a retired preacher and his mother a weaver. Both were Quakers. Edmund was employed in a drapers shop in Essex and married in 1775. He took an interest in farming and belonged to the Bath

GEOLOGICAL PERIOD	STRATIGRAPHIC / ROCK NAME
QUATERNARY	Burtle Beds
CRETACEOUS	Chert
	Greensand and Shaftesbury Sandstone
JURASSIC	Forest Marble
	Bath Stone (Bath Oolite)
	Doulling Stone
	Ham Hill Stone
	Yeovil Stone (Junction Bed Limestone)
	Marlstone (Moolham Stone)
	Clays with Marston Marble
	Blue Lias
TRIASSIC	White Lias
	Mercia Mudstones with North Curry Sandstone
	Budleigh Salterton Pebble Beds
	Vexford Breccias
CARBONIFEROUS	Coal Measures
	Lower Carboniferous Limestones
DEVONIAN	Pilton Mudstones
	Pickwell Down Sandstone
	Morte Slates
	Ilfracombe Beds (with limestones)

Fig. 1 Stratigraphical table showing geological time periods and rock formations

Philosophical Society and the Royal Bath and West of England Society. He began the collaboration with the Revd John Collinson who was a curate in Cirencester, in 1782. He carried out the survey between 1782 and his death in 1787.

Of the two men Collinson was the better educated and had interests in historical sources and landed families; this probably influenced Collinson's selection of Rack's observations. It is fortunate for the present paper that Rack had an interest in rocks, fossils, soils and farming.

Rack's survey is organised regionally by hundreds and parishes. It lends itself to the abstraction of information for particular themes, which in the present case is anything related to the rocks and landforms, hopefully avoiding too much repetition. The aim has been to select varied and informative topics e.g. quarries, mining, landforms, coastal features, fossils, springs and so forth, especially those topics which might engage the reader. Certain items have been taken from Collinson as they are missing in Rack's account. The numbers refer to the parish entries and italics are used for quotations of Rack and Collinson. Rack's spelling has been retained. Explanatory footnotes have been added together with further reading. There is some overlap of topics. Commentaries have been added which either interpret the geology or point the reader to sources of further information. Fig. 1 shows a simplified stratigraphy of rock types mentioned in the text.

BUILDING STONES

443 Clatworthy *'Here are several quarries of excellent slate stone for covering houses, and some white flints'*.

Broomfield (Collinson) *'The soil in general is shallow and abounds with the kind of rag stone, divisibly into thin laminae which is found everywhere in the neighbourhood of Quantocks'*.

The slates belong to the Morte Slates Formation (Devonian Period) and are the result of deep burial entailing heat and pressure which has rearranged the fine sediments so that they tend to split into thin laminae. They were involved in the convergence of tectonic plates during the Variscan Orogeny. These Devonian rocks are very difficult to dress and are mainly used for walling. A good place to examine the Morte Slates in situ is at Hestercombe Gardens (Prudden and White, 2007). The 'white flints' must

refer to the lumps of quartzite that are derived from veins in the country rock.

Thorne St Margaret (Collinson) *'The stones are mostly siliceous, of the course yellow and reddish agate, liver coloured grit, and black jasper coloured kinds, with quartz pebbles beautifully veined with red and rust colour and in some there is a mixture of green. Many of these kinds are evidently rounded by water. Here is also a soft bluish slate, but very brittle'*.

This is a good description of the conglomeratic Budleigh Salterton Pebble Beds (mainly Triassic Period). The 'bluish slate' is the Pilton Mudstone Formation: mudstone and cleaved sandstones (Devonian Period).

346 Norton Fitzwarren *'At a place called Knowl Hill there is a quarry of an excellent bluish stone used for rough building'*.

This is the North Curry Sandstone (Triassic Period). It has more of a greenish hue with small rounded pebbles and cross-beds; it is a versatile stone used both for walling, ashlar and mouldings. A good place to see this stone is the parish church at Norton Fitzwarren.

124 Chew Stoke *'Here are several quarries of limestone, and another of a kind of granulated stone which works easily for building, but is of a reddish yellow colour. Some broad pennant stone for paving is also found. in these quarries are some few fossils and cornua ammonis'*.

Curry Rivel (Collinson) *'The soil is of the stone-rush kind; there are several quarries of blue lias stone, fit for building, and white lias, in which are found bivalve shells of the venus tellinae, and other sorts. They have likewise here an excellent kind of broad paving stone, which is frequently raised ten feet long and three broad'*.

416 Street *'Most of the houses are built with fine blue lias which chips very even and makes very neat fronts. Of this stone here is a great plenty and it makes excellent roads, being broke very small. Few or no fossils'*.

105 Keinton Mandeville *'It (the stone) is found in an open arable field in the highest ground, and let by the proprietors of the land to those who work the quarries. It is found from 2 to 4 feet below the*

surface (which is a yellowish clay inclining to brick earth) to a depth which has not yet been discovered, laying in nearly horizontal strata or layers from north-east to south-west, the layers being from 2 to 6 ins in thickness. Between each layer of stone is a stratum of earth from 3 to 6 ins in thickness, and of various kinds, increasing in density as they descend. At about 8 or 10 below surface the strata of earth is a blue strong loam or marle. But does not effervesce much in vinegar. The stone is a very hard kind of blue lias or limestone, in which the uppermost layers especially, are a few small cornu ammoni and many species of bivalve shells. Particularly a kind of Venus depressed and striated in so peculiar manner that it appears to be a nondescript. Here are also many of the gryphytes and the small long flat oyster, with some mastras and pectens. Some of the veins of this stone contain pyrites but very little spar. In others a metallic substance of a rusty iron colour is found, which on attrition has a strong sulphurous smell. Great quantities of this stone are raised and sent to considerable distances for paving rooms, walks and grave stones. If suffered to be thoroughly dried before they are put up they stand the frost without scaling for many years. The layers of this stone are so smooth that they require little labour but it will not take a very good polish'.

304 Kingsdon 'On the side of the hill, below the village, there are several large quarries of a kind of slate or rust-coloured stone, which lie in thin lamina one above another nearly horizontally, with thin layers of earth between them. This stone contains few fossil shells of the bivalve kind'.

There were many quarries in the Langport, Somerton and Street area. The Blue Lias (Jurassic Period) has yielded an outstanding number of marine vertebrates in the old quarries in Street and Lyme Regis (Taylor, 2003). The Blue Lias can be used as it comes out of the quarry and is used mainly for walls and flagstones; it is unsuitable for mouldings. Visit Clark's Village to see freshly quarried Blue Lias.

204 Norton Sub Hamdon 'It has been noted for many ages for its quarries of fine stone, whereof there are four on it lying within the precincts of this parish. The surface of the hill, for about a foot in depth, is a light sandy soil, yielding short sweet herbage for depasturing sheep. From thence to about the depth of sixteen or eighteen feet, is a loose small stone fit only for repairing roads. Six or eight feet lower is a stratum of good tile

stone; and under that, for the depth of forty feet, are different strata of a fine hard stone, lying one on another, without any intervening earth. These strata are from one foot to three feet in thickness the lower weighing a hundred and quarter by the solid foot. The perpendicular fissures, or what the quarrymen call gullies, are ten to twenty feet apart'.

365 Montacute 'This hill has been remarkable during many ages for its freestone quarries, the produce of which possess the excellent quality of hardening by time, and by that means becoming exceedingly durable, retaining for centuries all the acute points and edges of its workmanship. Most of the churches for many miles round, both in this and the adjacent counties, are built with this stone, and are in general very handsome edifices'.

The two quotations above refer to the quarries on Ham Hill. The Ham Hill Stone is a bioclastic limestone composed mainly of shell debris and coloured with iron compounds. The 'gullies' are thought to be the result of subsidence of the top beds owing to the lower beds being squeezed out when deep permafrost melted in the Ice Age.

428 Doultling 'here are four quarries of fine white limestone much like that of Bath except being a little harder but contains few if any fossils. The stone lies in horizontal strata and the blocks are in general very large'.

This is the famous Doultling freestone widely used in the past and at the present day for buildings and architectural features (Jurassic Period). It is mainly composed of crinoidal debris best viewed with a hand lens.

182 Henstridge 'Plenty of stone of a bluish kind when broken, and almost wholly a composition of broken shells of the Weymouth anomia, and other bivalve kind, of the venus and cochlea kinds. The stone is excellent for roads and rough buildings and is capable of a good polish'.

The Forest Marble (Jurassic Period) is widely used along the outcrop from north of Frome via Long Burton to Hardington Mandeville. It is mainly suitable for walling, tilestones and flagstones.

36 Monkton Combe 'From the stone quarries on Combe Down a considerable part of the best buildings of the City of Bath have arisen. This stone contains few fossils but in the hollow cavities are found clusters of hexagon brown crystals brown

of the quartz kind. In the fissures of the rocks some fine stalactites, curiously frosted . . .

This is the famous Bath (or Bath Oolite) freestone (Jurassic Period). The fissures are the result of landslips. The crystals are probably calcite rather than quartz. Compare the gulls at Ham Hill.

433 Pilton '*. . . the soil is generally a whitish stone-rush on blue lias but in some parts the soil is red, and others a blue clay. There are several quarries of different kinds of stone, viz. Some broad pennant, nearly of the sort dug at Kenton Mandeville; some blue and white lias, breaking of bold-red colour, with black quartz and mica in it. Another sort is soft grit stone, full of red spots mixed with small crystals. And another is bluish and hard, full of small bivalve shells, and some cornua ammonis*'.

It is difficult to say which rock formations are referred to but they seem to include Mercia Mudstone, White and Blue Lias and Lower Lias clays (Triassic and Jurassic Periods). The strata are tilted and displaced with E-W faults with the result that there is a variety of surface rocks.

ROADS

449 Chipstable '*The stone is of three kinds. 1st slate which splits easily into thin laminae and looks as if powdered with sulphur. 2nd a dark liver colored which burns into good lime; and 3^{rdly} a kind of granite, white and beautiful, being full of red, blue and rust coloured veins intermixt with mica and quartz. Of this there are large rocks. It is used for the roads and sometimes pretty christals are found in it*'.

The slates probably belong to the Morte Slates Formation. The second category may be the Pickwell Down Sandstone (Devonian Period) - a very colourful building stone widely used in Dulverton.

327 Brympton D'Evercy '*Here is plenty of stone for the roads which are better than in many parts of the county. The stone is pretty much the same as that raised in Yeovil and contains the same kinds of fossils*'.

This stone is shown on the geological map as Junction Bed limestone, locally known as Yeovil Stone, and can be seen in buildings and walls in the centre of Yeovil including St John Church's (Prudden, 2005) (Jurassic Period).

350 Pitminster '*The stone of this parish is a blue lias very good for building, and is observed to grow very quick in bulk while in the earth. On that part of Blackdown which is in this parish the stone is a coarse yellowish agate or flint in large masses which when broke make good roads. Here is also a fine white sand on the top of the hill*'.

The Blue Lias probably came from quarries around Pickeridge. The agate we know as siliceous chert; both it and the sand would have come from the Greensand hills to the south of Pitminster (Cretaceous Period).

COAL

125 Timsbury '*Here are several large coal works from which, and those at Clutton, the city of Bath is mostly supplied. The price at the pit's mouth 3d a bushel. Varieties of fossils are found here, and some curious lichen and polypodys*'.

Polypodys are ferns.

136 Midsomer Norton '*There are two coal works in this parish, in which many of the poor are employed. These coals are sold 4d a bushel at the pit mouth*'.

134 High Littleton '*Here is a very large work belonging to Mr Mogg, in which great quantities of fine coals are raised and sold at the pit mouth for 3d a bushel. The coal is generally dug in valleys or low grounds. The surface in these parts is mostly a red soil, which under the first of second pit degenerates into malm, or loam, and often yields a rock of reddish firestone, until you come to four or five, and many time to twelve, or fourteen fathoms depth, when by degrees it changes to a grey, then to a dark of blackish rock which they call the coal clives*'.

Rack goes into great detail about the various coal seams and their characteristics in the adjoining districts. Collinson omits a great deal of detail from Rack's report. Instead, Collinson remarks that Mr Strachey (1671-1743) has given us the following observations on the strata in coal mines in this part of the country (quoted in part):

'For all coal lies shelving, like the tile of a house, not perpendicular nor horizontal, unless it be broken by a ridge, which is a parting of clay, stone, or rubble; as if the veins by some violent shock were disjointed or broken, so as to let in rubble. This is all I can say in relation to the different veins of coal; and earth in the coal-works in these parts, wherein all agree in the oblique situation of the veins; and

every vein has its cliff or clives rising over it, in the same oblique manner. All of them pitch or rise about 22-inches in a fathom; and almost all have the same strata of earth, malm and rock over them, but differ in respect to their course and drift. As also in thickness, goodness, and use'.

Collinson adds: 'John Strachey introduced a theory of rock formations known as Stratum, based on a pictorial cross-section of the geology under his estate at Bishop Sutton and Stowey in the Chew Valley and coal seams in nearby coal works of the Somerset coalfield; he projected them according to their measured thicknesses and attitudes into unknown areas between the coal workings. The purpose was to enhance the value of his grant of a coal-lease on parts of his estate (Strachey, 1725)'.

The coal seams were involved in the faulting and folding that accompanied the Variscan Orogeny (mountain building episode) hence Strachey's comments that the veins by some violent shock were disjointed or broken, so as to let in rubble between them. Some coal seams were vertical, overturned or even displaced horizontally along thrust faults which made mining difficult. Peter Collier (Collier, 1986) provides a detailed account of the coalfield and provides a series of walks which enable visitors to explore a lesser known but none the less interesting part of Somerset.

137 Paulton 'In this parish are two large coal pits worked by fire engines, the coals are very good and sold at 4d per bushel at the pit's mouth. The parish abounds with white lias stone of which great quantities are burnt for lime which is the general manure used by farmers in this part of the country.'

The White Lias was also an important building stone in this part of the Mendips (Triassic Period).

236 Radstock 'A coal work has recently been opened here which is likely to answer well to the proprietors. Shaft 300 yds deep'.

Clutton (Collinson) 'The country abounds with excellent coals, the veins of which are generally covered with a stony stratum, which the miners call wark. It splits like slate and abounds with impressions of fern and other plants. Over this is another stratum called the thony cliff which is intermixed with arborescent marcasites. In another work near three hundred weight of good lead ore was found growing to a vein of coal'.

ORES

88 Exford 'About a mile and a half east of the church are the vestiges of ancient earthworks in which, tradition saith, all the wood was consumed. Many of the old pits where the ore was dug still remain, and great quantities of the slag, or scoria, are found about them'.

444 Crowcombe 'In the sides of the hill some veins of copper have been discovered, but little advantage has yet been derived from them. The ore is of a pale kind, inferior to the Cornish, and seems to contain a large mixture of pyrites. Whet-stones, pretty much like those of Devon, have been found here in considerable quantities, and are used and sold for sharpening edge tools. Here are also many quarries of rough stone'.

358 West Bagborough 'Some lead and copper have lately been discovered here on the estate of Mr Slocombe and the mines are now working'.

58 Nether Stowey 'A copper mine was formerly wrought under Castle Hill in this parish but has been quite discontinued ever since the year 1760.'

75 Over Stowey 'Considerable quantities of green copper ore has been found here, but much adulterated with pyrites'.

91 Porlock 'The stones, of which most here are composed, is impregnated with iron ore, and pyrites is in large lumps in the roads. Here is also some copper, but not insufficient quantity for working'.

87 Luccombe 'Here is plenty of stone which contains some iron and is veined with spar. Considerable quantities of pyrites and iron ore is found here, and some lava, but few if any fossils'.

There is not known to be any lava in the area; Rack may have been referring to slag. The mineral deposits of these vein complexes were precipitated from low-temperature hydrothermal fluids in an extensional tectonic regime at a time when the continents (plates) were splitting up and drifting apart.

395 Mendip Hills 'The inhabitation however are strong, active and healthy and live to as great an age as in other places, except those among them, who if they work in the smoke, are affected with disease which generally becomes mortal. But at

present very few of the lead mines are wrought. In these mines the ore sometimes runs in a vein, sometimes it is found in banks, and sometimes found in the crevices of the rocks. The ore is often surrounded with white transparent brittle spar and chalk, mixt with a white soft mealy kind of stone which the miners call croots. The chalk is also white but its specific gravity is greater than that of the stone itself. The vein generally lies between these two coats, and is of different breadth and thickness. It sometimes lies very near the surface, and at other times very deep in the earth'.

129 Chewton Mendip *'On that part of the parish which lies on Mendip Hills there are many pits where lead ore and lapis calimmaris have formerly been dug in large quantities, but there are only two mines of the latter now wrought. This work belongs Messrs Millard & Co and answers well'.*

132 Emborough *'Here were formerly coal and lapis callammaris mines, but of late the working of them has been discontinued'.*

240 Mells *'Large quantities of lapis calammaris, with some lead ore, has been found here. The stone is of a mostly reddish colour and burns into a very strong lime'.*

Shipham (Collinson) *'There are upwards of one hundred of these mines now working, many of which are in the street, in the yards, and some in the very houses. The usual depth of the shafts is from six to twelve fathoms. This calamine stone is a kind of fossilly bituminous earth, principally used in converting copper into brass. It lies in strata nearly perpendicular, and mostly in a direction from east to west. When the ore is first raised it has the appearance of brownish yellow gravel, and is often intermixed with eyes or small veins of lead. So very lucrative is this subterraneous occupation of the inhabitants of Shipham that a miner with proper assiduity may earn a guinea a day'.*

387 Binegar *'Lapis calaminare was formerly found here in considerable quantities, but there is only one work at present and that is trifling. The rocks here are limestone and great quantities of lime are burned here.'*

Lapis calammaris is zinc ore which, when mixed with copper, makes brass which is a harder metal. Collinson gives a very detailed description of the manufacturing process. Imperial College, London,

did a stream survey and found above average levels of cadmium, zinc and lead in the soils as a result of mining especially at Shipham.

138 Ston Easton *'On Old Down Common are found several varieties of spar and nodules of ironstone which are hollow and filled with fine white amethystine crystals of the same kind as those of St Vincent Rock and King Weston near Bristol. The same red stone contains some pretty varieties of arborescent marcasite and foliated spar, but few if any fossils'.*

ALABASTER

St Decuman's *The coast is rocky; and the cliffs from this town two miles westward abound with fine alabaster both white and red, great quantities of which are burnt into lime'.*

This was an important industry for church monuments in the 18th century. R. J. Firmin, late of Nottingham University, has mapped their distribution throughout Somerset and North Devon. A collection of Firmin's papers has been deposited in the Somerset Heritage Centre (File number MSSHCA/CUR3).

LIME

71 Aisholt *'Lands dressed with lime burnt from a slaty kind of stone found here in great abundance'.*

The 'slaty kind of stone' refers to the Ifracombe Beds; there are still remains of the old quarries (Devonian Period). These quarries were a valuable source of lime in areas with acidic soils. Limestones were widely quarried for lime both in the Quantocks and across Exmoor.

114 Sparkford *'Here is plenty of stone, particularly of the white lys kind, which being burnt into lime constitutes the general manure in these parts'.*

Camel Hill and Sparkford Hill were extensively quarried. The old quarries near the railway still retain some quarry faces and are looked after by the Sparkford Copse Trust.

255 Wiveliscombe *'Here is also plenty of blue lime stone, and a whitish kind called popple, in the burning of which into lime three kilns are constantly employd. In these quarries some stylactetes are formed by the dropping of the water''*

A local term for the hard white quartz pebbles is 'popple'. Elworthy discusses the term in his dictionary of local dialects (Elworthy, 1888): *'That there popple lime idn no good 'bout no buildin' work, but 'tis capical for dressin', idn none better (limestone pebbles). They there white popples be the best vor pitchin' of a path like thick there, but they be skeeus (scarce) to get, now (quartz) pebbles'*

The limestone pebbles were probably from the Budleigh Salterton Pebble Beds and Vexford Breccias which contain a large number of Carboniferous Limestone pebbles used for lime. The quartz pebbles are much tougher and come from the Devonian rocks and can be seen in many church paths.

MILLSTONES

Penselwood (Collinson) *'The scene of this last-mentioned action (encounter with the Danes) is supposed to be a waste piece of land near the church, where to this day remain an immense number of pits or hollows noticed, in our maps by the name of Pen-Pits. The ground in which these are, contains about two hundred acres; the soil is gravelly clay. Their form is that of an inverted cone; their sizes various, being from ten to fifty feet in diameter at top, and from five to ten at the bottom. They are in depth slantwise from five to ten feet, and situated at but a short distance from each other. Their number is considerably upwards of twenty thousand; but their arrangement is not regular, as some have asserted; but contrariwise promiscuous and confuse. All these conjectures are ingenious; albeit the pits in question very much resemble the obsolete grooves of the mines of lapis-calaminaris on the Mendip Hills'*

There were many theories as to the origin of these pits such as dwellings, store pits and defence works including that of the Danes. Research among written records has proved that they were dug for millstones, scythe stones and querns at least from the Middle Ages onward (Farmer, 1992). All the pits are situated on the Shaftesbury Sandstone (Cretaceous Period).

SEA LEVEL CHANGES

52 Mark *'Many large oak and yew trees have been dug up in the moors. They lie from 4 to 6 ft below the surface and are very hard and black as ink,*

but after being a little time exposed to the air they become rotten and crumble away to dust. It is very remarkable that in the moors under the south-west ridge of Mendip Hills great quantities of oak and yew trees have been found by labourers in cutting drains and ditches. That they were washed down from Eel Moor, Woden and Mere is very probable from the roots and large branches being still on them. They generally ly with their roots towards the slope of the hill and branches pointing south-west'.

89 Minehead *'On the beach between this town and Dunster, several yards below high water mark, the roots of many large trees are seen 4 or 5 inches above the surface of the sand. They are become very soft and crumble easily with fingers and is nearly black, but the texture of the wood is perfect and the interior parts retain their colour and are perfect wood. But what is very singular, this old wood when broken paralel to the grain contains a number of shells and oak leaves within its very substance. The shells are of the dottle kind and in a semi fossil state but no recent shells of this kind are now found on this part of the coast'.*

Dr Richard Brunning writes (pers. comm.): *'Bog oaks (and remains of other tree species) are common prehistoric finds across most of the peat moors. The oak and yew trunks remain very solid even when exposed to the air, although the oak does split along the rays. The trunks of other species (commonly alder, birch and willow) will shrink and rot quickly upon exposure.*

The trees were growing in wet woodland with the oak examples probably growing on slightly drier areas or during drier spells. They often have very slow growth rates because they are growing in extreme conditions (for oak trees). The inland ones date as far back as the fifth millennium BC but ones from the Severn estuary go back further to the 8th millennium BC. The oak is black and is still very hard. I suspect that one reason for their good preservation is that they fell into waterlogged peat while some of their roots were still in situ that is while they were not yet dead. This would explain why they are better preserved than oak planks from trackways of a similar date'.

Othery (Collinson) *'This parish, and that of Middlezoy last mentioned, are a rich sandy soil, and it is probable, that at the time when the sea overflowed the moors these places were no other than sandbanks; marine shells having been frequently found under the surface of the soil'.*

This is a percipient observation and not without relevance to the present day concerning the possibility of rising sea levels. But these observations should not be confused with the recent post-glacial rise of sea level mentioned by Brunning above. This incursion of the sea was associated with an interglacial rise of sea level and is represented by the Burtle Beds and the raised beach at Middlehope. (See Bulleid and Jackson, 1941 for a detailed account.)

Kingston Seymour *'From its situation, this place has frequently been overflowed; and we learn from a tablet in the church, that on January 20, 166, there was a terrible inundation in this and many other adjoining parishes. The sea banks were broken down, many persons drowned, and a great number of cattle and good carried away by the violence of the waves, and entirely lost. The water in the church was five feet high, and the greatest part lay on the ground for ten days.'*

There have been suggestions in a TV broadcast that this event was the result of a tsunami. However, Horsburgh and Howitt (2006) have concluded that severe atmospheric conditions and a high tide could have generated a storm surge similar to that on the east coast in 1953.

LANDFORMS

Cheddar (Collinson) *'Beyond the springhead, the entrance opens into a chasm, which is in many places very narrow, and scattered over with rude loose fragments of fallen rocks. The stone is of various kinds; some almost black, and extremely hard and ponderous, containing a considerable quantity of iron; others a coarser kind of marble veined with a dusky red, which burns into a strong lime, and a third sort appears to be coral in a fossil state, of which, there are several sorts, some full of small stars, and others in large buds finely striated from the centre.'*

In general the swelling projections on one side stand opposed to corresponding hollows on the other; which is a strong indication that this immense gap was formed by some convulsion of the earth . . .

. . . In doing this there will be ten points of view, which are grand beyond description, and where the prospects exhibit that wild and tremendous magnificence beyond description which cannot fail impressing the mind of the spectator with awe, and astonishment of the works of that power, whose

voice even the obdurate rocks obey, and retire'.

The various rocks described now form subdivisions of the Carboniferous Limestone (Carboniferous Period). This was a time when wild landscapes were beginning to be appreciated by the aristocracy. We now know that the Gorge was formed by fluvial erosion and mass wastage of hillsides during the Ice Age.

393 Wookey *'Ebor Rocks are about half a mile north-west of Wookey Hole. These rocks are a hard grey iron stone, in the fissures of which is some fine spar and crystals of a dirty white colour. This chasm exhibits many grand views, being very narrow at bottom, and the rocks on each side are from 50 to 400 feet high, many of them nearly perpendicular, and in several parts finely shaded by the shrubs and trees which grow out of the fissures. The bottom of the valleys almost covered with loose grey stones and fragments of rocks which for many ages have been falling from the cliffs. This vale is very winding, and at the north end very steep and bears evident marks of having been occasioned by some dreadful convulsion of nature in early ages.'*

Ebbor Gorge is worth exploring in spite of the shrubs. There is indeed evidence or a 'dreadful convulsion' although unhappily obscured. Geologists have discovered that older sedimentary rocks have been thrust over younger rocks during the Variscan Orogeny. This was the time when the Mendip rocks were folded to form the periclinal and, in some cases involved thrust faults). An information panel at the entrance to the Gorge explains this in more detail. Rack also gives detailed descriptions of the Wookey Hole caves.

307 Somerton *'On the east side of the hill above Hurcoat are considerable quantities of fine white alabaster. The south-west declivity of this range of hills, which extends 4 miles to the north, bears some evident marks of there having in some early period, been a bold rocky boundary to the sea. It is steep, finely indented and in some places deeply guttered; and there are many plants similar to those usually found on the coast. If Kings Sedgmoor was once a part of the sea (and that it was so little doubt can remain in the mind of an attentive observer) it would naturally flow into and form a bay under this beautiful ridge of hills.'*

172 North Wootton *'The slopes of the hills are very steep and those to the south are in many places deeply guttered down by currents of water from their*

tops. The gutters or chasms are too deep to have been formed by land floods and bear evident marks of antiquity. On the edges and slopes of them are old pollard trees and shrubs, deep channels within the stone, and seem to be the venerable vestiges of the general deluge'.

These gullies are actively eroding at the present day which is an unusual feature in the present day landscape. The features are thought to be the result of the steep gradients, weathering of the red Mercia Mudstones, animals grazing the vegetation and trampling the soil, heavy rainfall, slumping and hillwash. Note the reference to 'the general deluge'. It is of historical interest that these features date at least from the 18th century. There is no evidence that the sea actually undermined these hillsides but there was a popular but unfounded assumption at this time escarpments were the result of wave erosion. An interesting study of the vegetation and land use history was made by Parrott (Parrott, 1976)

349 Otterford *'The country is rough and hilly, but has some good land, mostly arable. A great deal is common covered with furze and heath, and full of coarse yellow and reddish flints which render the roads rough and disagreeable. Here is one public house and near it some boggy land in which are some curious mosses'.*

The character of the Blackdown Hills owes much to the underlying rocks. Beds of chert and rolled cobbles give rise to stony acidic soils. The angular chert is widely used as ragstone for buildings. Rainfall infiltrates the Greensand which caps the plateau and emerges where it meets the Liassic clays which crop out below the Greensand hence the bogs on the lower parts of the escarpments and in valley bottoms. Otterford Lakes is an open access nature reserve. At Staple Hill car park there is a wooden sculpture showing the geology of the Blackdown escarpment. The Blackdown Hills are explored in 'Geology and landscape of Taunton Deane' (Prudden 2001).

FOSSILS

185 Marston Magna *'About the year 1778 on opening a marle pit several masses of very curious calcareous blue stone was discovered here. It seems to be an indurated marle intirely filled with a new type of cornu ammoni, which are covered with the original white pearl, refracting the prismatic colours They are generally small, being from a*

quarter inch to an inch diameter, and a purpleish violet colour. This stone was raised in masses sufficiently large to make sideboards of 4 ft by 2½. It takes a fine polish and is extremely beautiful'.

This is the famous Marston Marble. These shells were probably wafted together by ocean currents and covered by a protective layer of sediment.

9 Ilminster *'Here are many quarries of hard dark yellowish stone abounding with fossils and pyrites. The fossil shells are cornu amonis, nautili, pectin, anomia, cardium and venus kinds, with a great number of belemnitae'.*

14 Whitelackington *'In an open arable field in the road to Ilminster are some large quarries of a very hard rough ragstone which contain great number s of fossil shells, cornu ammonis, belemnitae, pyrite balls and coarse mundic. The shells are mostly of the bivalve kind, but the stone is so hard that they can rarely be got out whole.'*

The Marlstone (Moolham Stone) is a ferruginous sandstone and not be confused with the shelly Ham Hill Stone (Jurassic Period). Buildings in the centre of Ilminster, local churches and the kitchen gardens at Barrington Court are good places to examine the Marlstone. The following are more common names for the fossils: anomia (oysters), cardium (cockles), mactras (clams), pectans (scallops), venus (salt water clams) cornu ammoni (ammonites), belemnitae (belemnites – a kind of cuttle fish). This is the area that Charles Moore made famous through his researches and fossil collections. His findings are documented in an important paper in SANHS *Proceedings* (Moore, 1867) and are well worth reading today especially his descriptions of marine ichthyosaurs, insects, fishes and bivalves.

SPRINGS AND WELLS

197 East Chinnock *'Here also is a salt spring about a mile west of the church, famous in Camden's time and still used for manufacturing salt. It is in a meadow of deep rusty red and yellowish rich loamy earth covered with a thick fine turf. The spring forms a round pool of water about 12 ft in diameter in which are reeds and other aquatic plants, with divers species conferas, but none of them are of the marine kinds. The insects and animalcula found here are those common to fresh water, and in summer here are plenty of clusterd polypee. It never fails in dry nor overflows in wet seasons. From this*

pool narrow drains are cut near 100ft long to a house erected for the purpose of making salt with the water. At 3 ft depth is a rock of yellowish rust coloured stone'.

Alford (Collinson) *'It is only memorable for a mineral spring, situated about three quarters of a mile from the church, at a farm called Alford Well, and inclosed within a shed locked up. It is now quite neglected, although formerly it had such repute for its medicinal virtues, being used with success in case of scurvy, jaundice and obstructions, that it was sought after from very distant parts.'*

308 West Camel *'Here is a fetid black spring which tinges silver black immediately on immersion.'*

365 Montacute *'Mr Phellips has in his Pastures at Socke Farm about three miles from Yeovil a large pool in which Pidgeons resort, but which cattle will not drink or even when there is a great Scarcity of water. To the taste it is not only brackish, but in other respects very disagreeable. In a Glass it looks clear but greenish. On boiling it in a bell-metal vessel, it suddenly yields a thick froth, having something of a vitriolik taste, and when evaporated leaves a vitriolic taste on the sides of the pan.'*

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EDITOR'S NOTE

Sadly Hugh Prudden died after submitting this article.