

## Cotswold Field Excursion

G.J. Bradbury<sup>1</sup>

BRADBURY, G.J. (1982). Cotswold Field Excursion. *Proceedings of the Shropshire Geological Society*, **2**, 12-15. An account of the field excursion to the northern section of Leckhampton Hill and exposures along the disused Chedworth railway line, led by Drs. Harpum and Angseesing, both from The College of St. Paul and St. Mary.

Leckhampton quarry is located two miles south of Cheltenham and was first opened in 1793. Approached via Daisy Bank Road the quarries are seen to be of Middle and Lower Inferior Oolite of the Bajocian stage in the Middle Jurassic. After a break for lunch the group spent some time along the Chedworth railway cutting where Upper Middle Inferior Oolite was exposed. Several good fossils were found together with a bed of smectite clay (montmorillonite – ‘Fuller’s Earth’).

<sup>1</sup>Shrewsbury, UK. E-mail: editor@shropshiregeology.org.uk

On the 11<sup>th</sup> July, 1982, 34 Society members and guests were given a conducted tour of the northern section of Leckhampton Hill and exposures along the disused Chedworth railway line. Our special thanks must go to our two guides for the day, Dr. John Harpum and Dr. Joe Angseesing, both from The College of St. Paul and St. Mary.

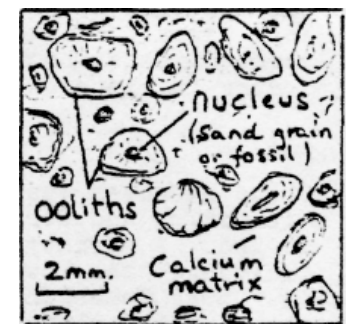
The Cotswold Hills, stretching north-eastwards from near Bath and merging sixty miles away into the uplands of Northamptonshire form a series of steep scarp faces and vales. The hills as well as their fine villages are built mostly of a light-coloured limestone which weathers to rich and varied tints of brown and yellow. Rock-strewn fields are often divided by dry-stone walls, constructed from stone dug from long shallow quarries long ago. Many of the limestones consist of minute rounded spheres of calcium carbonate, massed together to form ooliths (looks like fish roe). Many oolitic limestones show an oblique lamination, indicating that the rounded grains have been arranged by strong currents in shallow water. Many of the limestones also contain masses of shells or shell fragments and these break irregularly and in general can only be used for rough walling. The thicker oolitic beds are much more readily dressed into blocks of building stone of the required size and shape. The Quarrymen thus recognise ‘freestones’ (which can be cut easily) and ‘ragstones’ that are difficult to dress.

The Leckhampton quarry is located two miles south of Cheltenham and was first opened in 1793. Approached via Daisy Bank Road the quarries are seen to be of Middle and Lower Inferior Oolite of

the Bajocian stage in the Middle Jurassic. These rocks sit conformably on Upper Lias Clay of Lower Jurassic. Several clearly defined beds can be seen in the quarry workings and these are shown in the second diagram. [Note: all the grits are ‘ragstones’.]

In the limestone cliffs above the Pea Grit the most striking feature is the rather regular spacing of the horizontal bedding planes and the joints at right angles to them. Many of the joints have opened out over the years due to a camber movement of the blocks downhill. These gaps (‘gulls’) often have infill material. The current bedded sections built up of gently deposited sand/calcite grains were formed in and next to shoals and banks. These beds have a limited use to the quarrymen. It is perhaps interesting to note that the famous Devil’s Chimney, perhaps seen by a few of the more energetic members of the Society, is not a natural formation but a pillar of freestone left by the quarry workers.

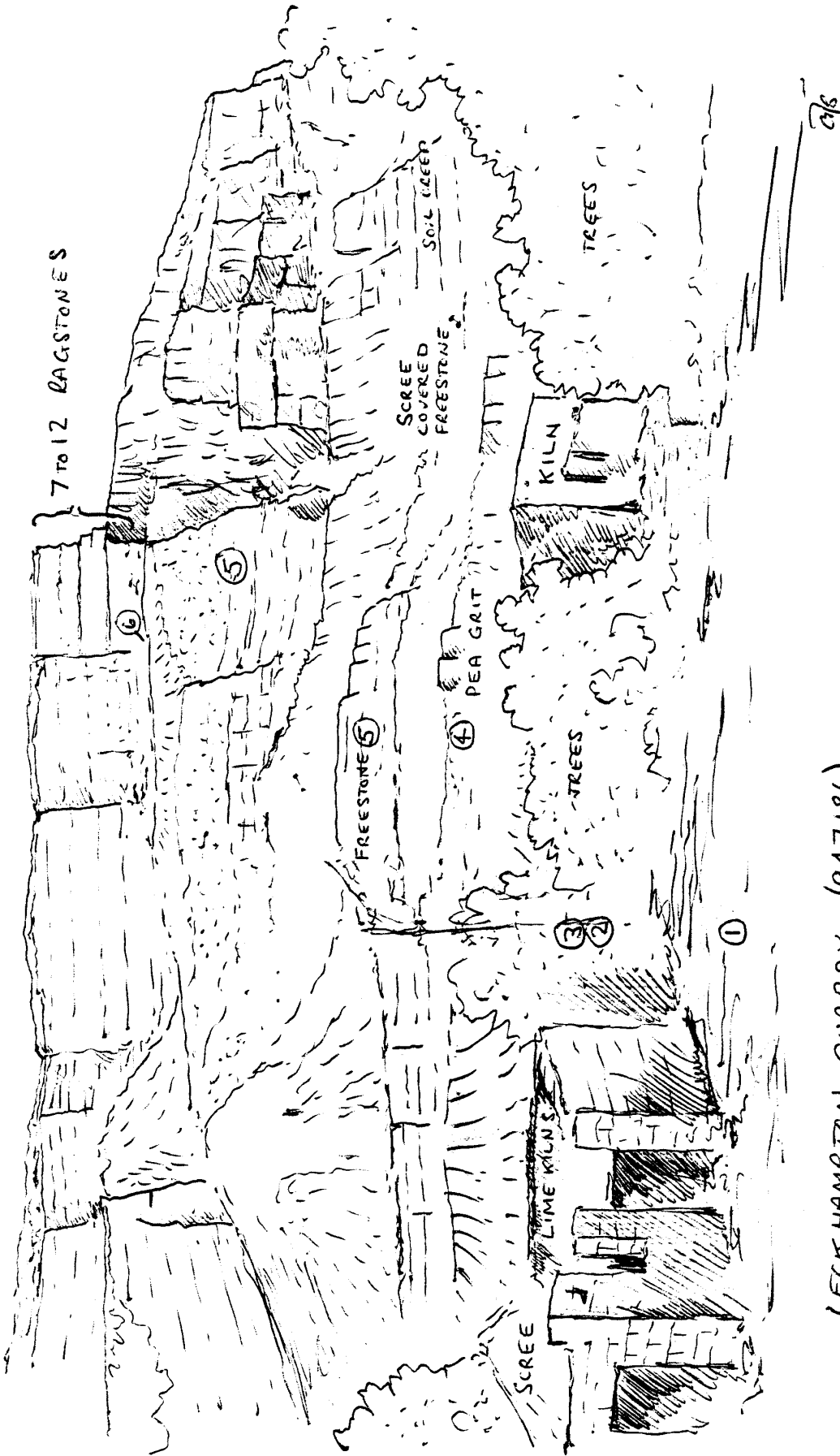
After a break for lunch the group spent some time along the Chedworth railway cutting where Upper Middle Inferior Oolite was exposed. Several good fossils were found together with a bed of smectite clay (montmorillonite – ‘Fuller’s Earth’).



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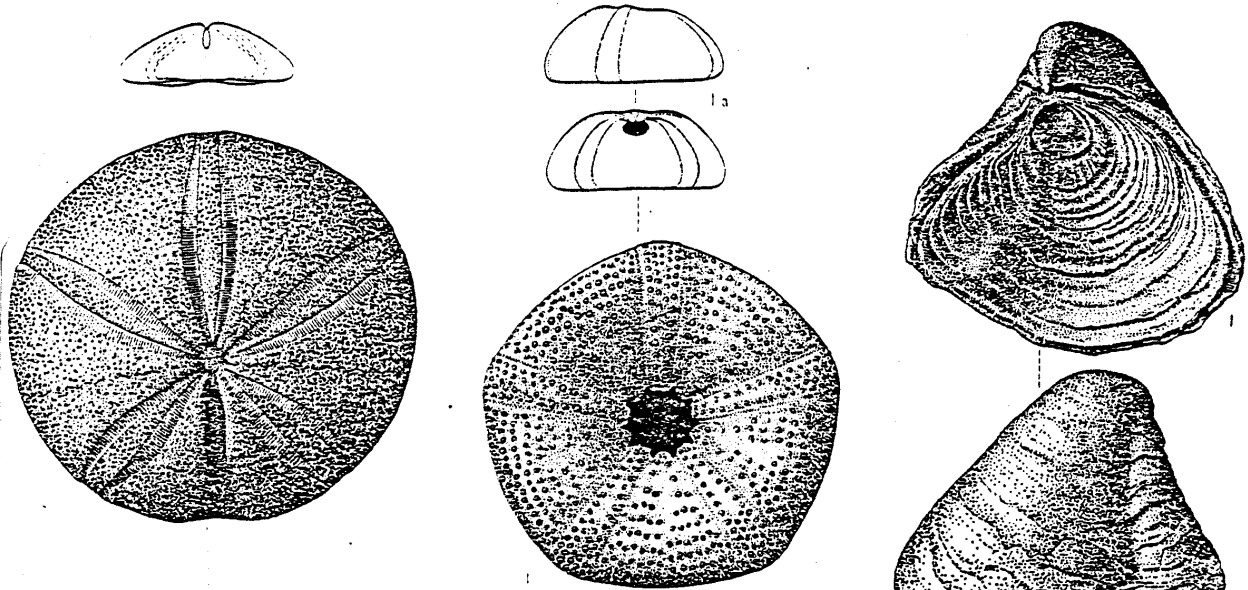
SUMMARY OF BEDS

OLDER BEDS ↓	(13) OLYPEUS GRITS	Very little evidence except occasionally in fields above the quarry. Named after the echinoid Olypeus.	
	(12) UPPER TRIGONIA GRIT	Named after the Bajocian bivalve Trigonia this bed should not really be termed a grit as this is normally applied to quartz not calcium fragments.	
	(11) NOTGROVE FREESTONE	Vertical borings in oolite	
	(10) GRYPHEITE GRIT	Gryphaea bivalves in crystalline calcite.	
	(9) BUCKMANI GRIT	Bioclastic - made of broken fragments of shell material	
	(8) LOWER TRIGONIA GRIT		
	UNCONFORMITY - SEVERAL BEDS REMOVED FROM SEQUENCE		
	(7) UPPER FREESTONE	Well bedded colitic limestones with softer bands. contains the fossil brachiopod Plectothyris fimbria.	
(6) OOLITE MARL	Scattered oolites, fragmental material and including burrowing bivalves, Rhynchonellids and Plectothyris fimbria.		
(5) LOWER FREESTONE	Well sorted oolites with large scale cross bedding. The lower freestone has root traces.		
(4) PEA GRIT	Composed of ovoidal bodies about the size of a pea known as pisoliths. Larger than ooliths their origin though debatable is probably from calcareous algae formed around a nucleus. Fragments of crinoids, corals, echinoids and brachiopods are fairly common in this bed.		
(3) LOWER LIMESTONE	Massive oolitic limestone.		
(2) SCISSUM BEDS	Alternative layers of fragmental limestone and softer marly bands - evidence of burrowings and fossiliferous (brachiopods, bivalves and small ammonites - FIRST BED OF THE MIDDLE JURASSIC		
(1) UPPER LIAS CLAY	Dark grey clay - disturbed - not readily exposed in the Leckhampton Quarry.		

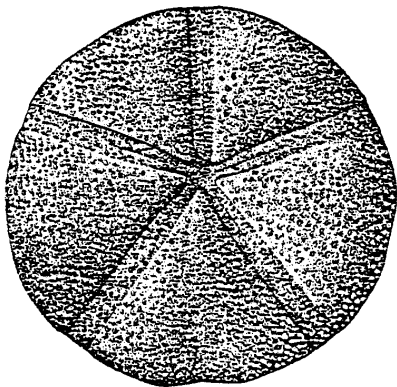


LECK HAMPTON QUARRY. (947186)

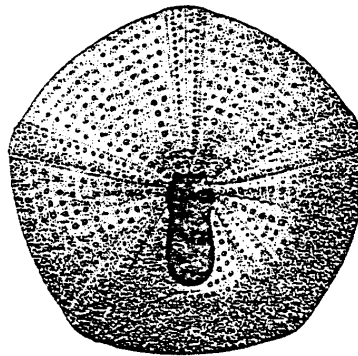
for Key see notes.



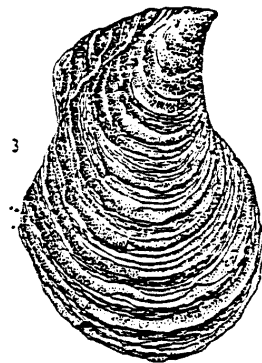
Gryphaea bilobata



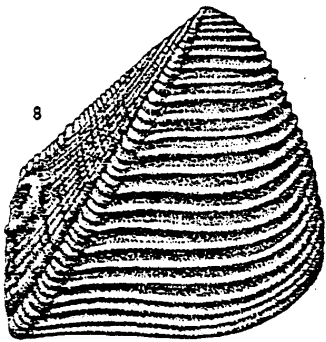
Clypeus Plot;



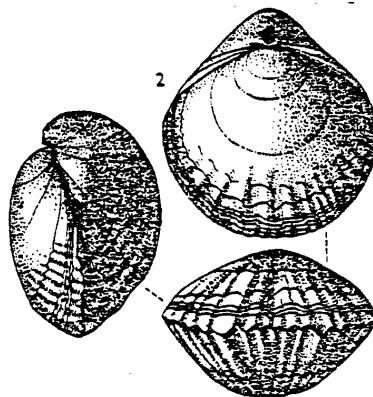
Plesiechinus ornatus



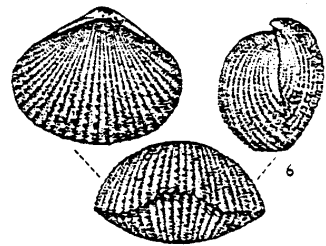
Isognomon isognomonoides



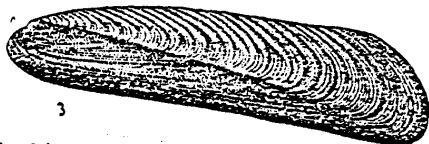
Trigonia costata



Plectothyris fimbria



Acanthothyris spinosa



Modiolus sowerbyanus

Some of the fossils found in the Cotswolds