

# Black Horse Quarry, Telham, East Sussex

[TQ 769 142]

## Highlights

Black Horse Quarry, Telham is the main site of the Telham Bone Bed, a sediment which produced specimens of turtles, crocodilians, pterosaurs, dinosaurs, and a plesiosaur. This bone bed has produced relatively small bones, which supplement the larger elements found in coastal sites.

## Introduction

Black Horse Quarry, Telham Hill, near Battle, east Sussex was formerly a well-known source of Early Cretaceous reptile remains. The dissociated bones were found in a thin bone bed, the Telham Bone Bed ((Figure 8.2), (Figure 8.3)), for which this is the type locality. Although not currently exposed, it could be re-excavated; the quarry is presently 6–7 m deep in parts. The site has been described by Binfield and Binfield (1854), Topley (1875), Woodward and Sherborn (1890), White (1928) and Lake and Shephard-Thorn (1987).

## Description

The section at Black Horse Quarry (Boyd Dawkins, *in* Topley, 1875, pp. 63–4; thicknesses approximate) was:

	ft	in
Surface soil	1	0
Rust-coloured grey and white shales with indurated layers	3	0
Rust and slate-coloured shales with ironstone	3	0
Rust and slate-coloured shales without ironstone ( <i>Cyrena</i> )	6	0
Slate-coloured shales with a layer of a lighter colour ( <i>Cyrena</i> and plants)	3	0
Shale and clay ( <i>Cypridea</i> , <i>Cyrena</i> and vegetable matter)	3	6
Grey clay with nodules; the 'bone bed' [0–4 inches] in its lower part	2	0
Calcareous grit [Tilgate Stone], fine grained and hard, dug for roads	2	6
Calcareous grit [Tilgate Stone], blue on the unweathered surface	2	0

The beds are within the Wadhurst Clay of the Hastings Beds (Valanginian) and the Telham Bone Bed has been regarded as equivalent to the Cliff End Bone Bed as exposed east of Hastings (q.v.; Allen, 1949; Lake and Shephard-Thorn, 1987). It lies above the main 'Tilgate Stone' horizon, and 6–10 m above the Top Ashdown Pebble Bed. According to the section given here, the bone bed is 0–0.1 m thick and occurs about 5.2 m (17 ft) below the soil surface. Binfield and Binfield (1854) noted insect remains 10–13 ft (c. 3–4 m) above the 'Calcareous grit' (Jarzembowski, 1976).

Boyd Dawkins (*in* Topley, 1875, p. 64) described the bone bed as 'composed of a mass of coprolites, bones, teeth, scutes and ganoid scales... It is conglomeratic in character and contains pebbles of white quartz, which vary in size from a pigeon's egg to a pea, and are all much worn and highly polished. Very few organic remains are perfect, but the great bulk of them have been reduced to the conditions of pebbles. The only perfect bones that have been found consist of the

hard and solid phalanges of the larger reptilia... In the interior of one long dinosaurian bone there were fragments of jet... The condition of all these remains is precisely identical with those from the Crag 'coprolite' beds, and the bone-beds of the Rhaetic and Carboniferous rocks'.

## Fauna

Many Wealden reptiles are labelled Tattle' or 'Telham' and Black Horse Quarry must have been the source of most of these. Some specimens (BMNH R2845–6) bear the label 'Lambert's Quarry, Black Horse', probably in reference to the former owner. Boyd Dawkins (*in* Topley, 1875, p. 64) listed reptile remains that he had identified from Black Horse Quarry. In the following list, numbers of specimens in the collections of BGS(GSM), BMNH and HASTM are given as an approximate guide to relative abundance:

### Testudines: Cryptodira

*Plesiochelys* sp. 5

*Tretosternon bakewelli* (Mantel, 1827) 3

Archosauria: Crocodylia: Neosuchia

*Goniopholis crassidens* (Owen, 1842) 8

*Suchosaurus cultridens* (Owen, 1842) 3

### Archosauria: Pterosauria:

Pterodactyloidea

*Ornithocheirus? clifti* (Mantel, 1844) ?

### Archosauria: Dinosauria: Saurischia:

Theropoda

'*Megalosaurus*' *dunkeri* Dames, 1884 1

*Megalosaurus*' sp. 2

### Archosauria: Dinosauria: Saurischia:

Sauropoda

?*Cetiosaurus* sp. 1

*Pleurocoelus valdensis* Lydekker, 1890 1

### Archosauria: Dinosauria:

#### Ornithischia

*Iguanodon* sp. 10

*Hylaeosaurus armatus* Mantel, 1833 1

### Sauropterygia: Plesiosauria:

'*Plesiosaurus*' sp. 4

## Interpretation

Allen (1949, pp. 279–82) interpreted the Telham Bone Bed as a river deposit, pebbles and bones of which were rolled along for some distance before deposition. Allen (1976, pp. 393, 406) equated the Telham Bone Bed tentatively with either the Broad Oak Top Pebble Bed or the Cliff End Pebble (Bone) Bed (both low in the Wadhurst Clay Formation). The Bone Bed facies all appear to occur in 'the muddier parts of the shoreface, beneath a metre or so of water'.

The turtles *Plesiochelys* and *Tretosternon* are represented by broken carapace and plastron pieces not adequate for proper identification. These turtles were moderate to large in size (0.3–1 m plastron length). They are both classed as chelydroids (M1ynarski, 1976, pp. 55, 60), or *Plesiochelys* may be a chelonioid (Gaffney 1975b).

The crocodylians *Goniopholis* and *Suchosaurus* are based on fairly common teeth and vertebrae. These were both long-snouted aquatic forms, although the latter genus is essentially known only from teeth.

Both Topley (1875, p. 64) and Woodward and Sherborn (1890, p. 255) noted a pterosaur in the Black Horse Quarry fauna, but the specimen(s) have not been located. *Ornithocheirus clifti* was initially interpreted as a bird because of its hollow limb bones and its exact relationships are uncertain (Wellnhofer, 1978, p. 58).

The carnivorous dinosaur *Megalosaurus* is represented by vertebrae and teeth. Most of these have been named *M. dunkeri*, a species known also from the Wealden of Hannover (Germany), as well as other places in the south of England. *Megalosaurus* is typical of the Mid Jurassic, and Huene (1926) renamed this species *Altispinax* on the basis of the high neural spines on the vertebrae.

Herbivorous dinosaurs include the large sauropods *Cetiosaurus* and *Pleurocoelus*, the former represented by vertebrae, the latter by teeth from Black Horse Quarry. These generic assignments are probably incorrect — the Wealden sauropods urgently require restudy (Ostrom, 1970). *Iguanodon*, the commonest Wealden dinosaur, is recorded from Black Horse Quarry on the basis of teeth, vertebrae, limb bones and phalanges. *Hylaeosaurus*, an armoured ankylosaur has been identified tentatively on the basis of a vertebra.

## Comparison with other sites

The nearest exposures of the Telham Bone Bed are at Rackwell Wood, Crowhurst ([TQ 764 124]; Sweeting, 1925; White, 1928, pp. 65–6; Lake and Shephard-Thorn, 1987, p. 38), in Crowhurst Park ([TQ 781 138]; R.D. Lake, pers. comm. to M.J.B., 1982), and at Maplehurst Wood ([TQ 8100 1307]; Lake and Shephard-Thorn, 1987). Allen (1949, pp. 279–82) noted further exposures at Baldslow [TQ 80 13], Brede (Post Office; Kicker Wood; Reyson's Farm; Cat's Nest; Broadlands, [TQ 826 183]; ?[TQ 83 20]; [TQ 832 192]; ?[TQ 837 192]); Peamarsh (Waterfall Wood; [TQ 86 21]); Udimore (Knelistone; TQ 8819); Stone (Stone Hole Quarry; Tighe Farm; ?TQ 9428, [TQ 936 266]). The Telham Bone Bed is apparently equivalent to the Cliff End Bone Bed (Allen, 1976) which is seen in blocks on the foreshore at Cliff End, Pett ([TQ 887 130]).

Most of the turtles, crocodilians, pterosaurs and dinosaurs in the Black Horse Quarry fauna are common in the Wealden of southern England, and indeed many of them in Early Cretaceous sediments elsewhere in the world. New excavations are required, and more extensive series of specimens are needed, for more precise identifications, and for fuller comparisons, of the taxa present.

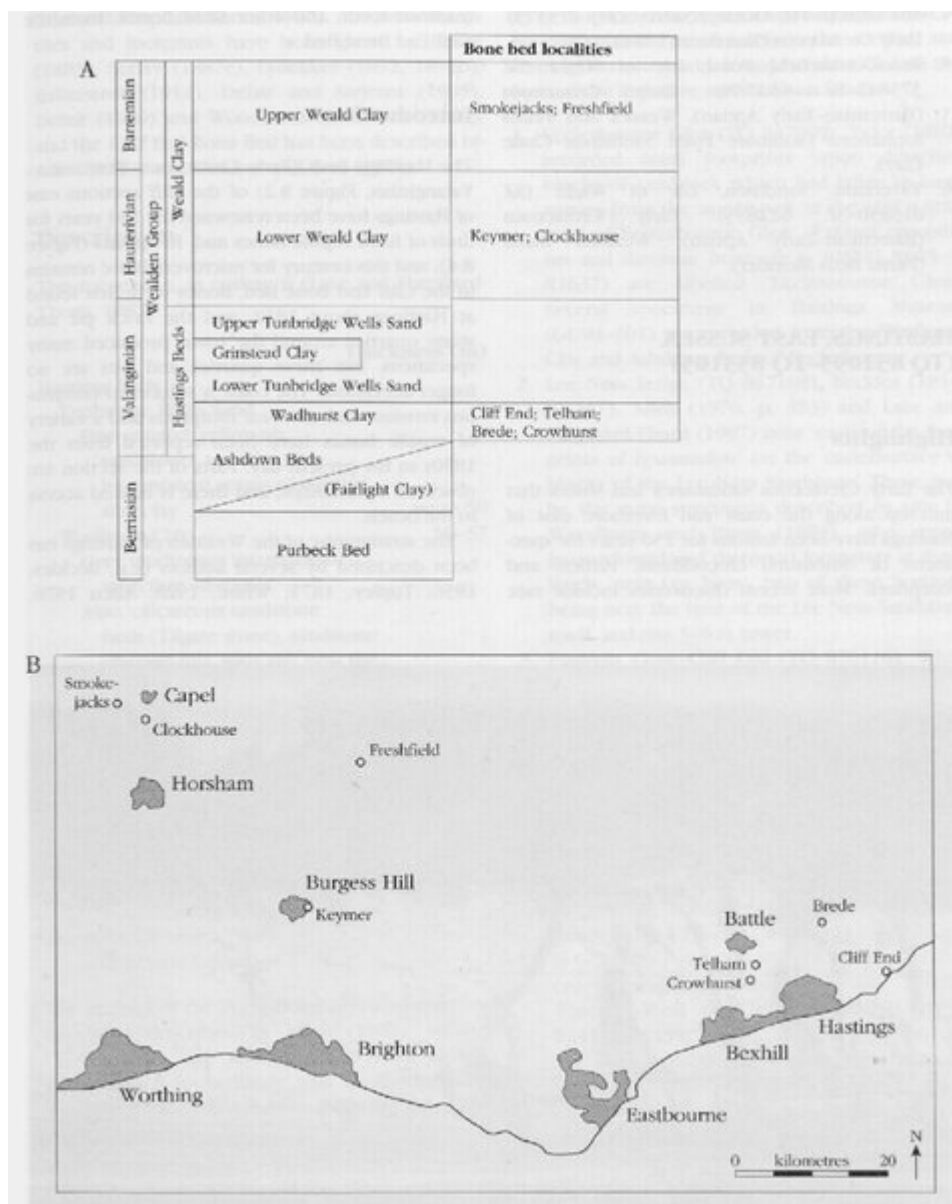
## Conclusions

Black Horse Quarry, Telham has provided good collections of Wealden reptiles. Although the bones are disarticulated, and generally waterworn, the remains are relatively abundant in the thin bone bed. This is the type locality of the Telham Bone Bed, and it is the best site for fossil reptiles in that unit, an attribute that in combination with its potential for re-excavation gives the site its conservation value.

## [References](#)

System	Stage	Ma	Wessex and Isle of Wight	Weald
<b>Palaeogene</b>	Danian			
<b>Cretaceous</b>	<b>Late</b>	<b>Senonian</b>		Absent
		Maastrichtian		
		Campanian		
		Santonian		Upper Chalk
		Coniacian		
		Turonian		Chalk Rock
				Middle Chalk
		Cenomanian		Melbourn Rock Plenus Marls Grey Chalk Chalk Marl Glaucconitic Marl
	<b>Early</b>	Albian	Upper Greensand	Gault
		Aptian		Lower Greensand
		<b>Neocomian</b>		
<b>Jurassic</b>	Portlandian			

(Figure 8.2) Summary of Cretaceous stratigraphy, showing global stage nomenclature and some major southern British formations. Based on Harland et al. (1990).



(Figure 8.3) The Wealden of the Weald. (A) Summary stratigraphic succession, showing the relative temporal position of the bone beds; (B) map of some key Wealden reptile sites. Courtesy of E. Cook.