

DORSET LOCAL GEOLOGICAL SITES SURVEY

Site number G SY97/12

Site name Swanworth quarry, Worth Matravers

Summary description

Jurassic, Portland Sand, Portland Limestone Cherty Series and Freestone Series, and Cretaceous Lower Purbeck.

This site exposes the most complete section on the Isle of Purbeck from the Portland Sand on the quarry floor, through the Cherty Series and Freestone Series of the Portland Limestone and into the Lower Purbeck. The Lower Purbeck exposed here consists of the lower evaporitic limestone, with 9m of blue shale in which insects have been found. The Portland Freestone Series includes the Shrimp Bed containing crustaceans, the Blue Bed containing a rich ammonite fauna, and the Pond Freestone and Under Freestones. Below this is a 25m section of the Cherty Series, with the chert veins more frequent towards the base. The Portland Sand is a dark coloured dolomitic sand, only rarely exposed.

Site description

Jurassic, Portland Sand, Portland Limestone Cherty Series and Freestone Series, and Cretaceous Lower Purbeck.

The most complete, accessible, section on the Isle of Purbeck from the Portland Sand, only rarely exposed on the quarry floor, through the Cherty Series and Freestone Series of the Portland Limestone (Dancing Ledge and Winspit Member of Townson) and into the Lower Purbeck. The Portland Sand is a dark coloured dolomitic sand. There is 25m of the Portland Cherty Series, with the chert veins more frequent towards the base. The Portland Freestone Series includes the Under Freestone and Pond Freestone, both of which are cut for building stone elsewhere, but in Swanworth they have been much shattered by fault movements. These are followed by the Blue Bed (known as the Titanites Bed) containing a rich ammonite fauna, and the Shrimp Bed containing crustaceans.

The Lower Purbeck exposed here consists of the lower evaporitic limestone, with 9m of blue shale in which insects have been found. In 2006, as part of the Purbeck Keystone Project the Purbeck Beds were studied in detail, as far as safety permitted. Stratigraphic sections were drawn describing the Lulworth Formation, Caps, Dirt Beds and Broken Beds Member, the Cypris Freestones Member, Hard Cockle Member and part of the Soft Cockle Member. This study has been published in the Dorset Proceedings. A small collection of insects was identified.

Published references: -

Ensom PC 2009: Lithostratigraphic sections through the Purbeck Limestone Group. Dorset Proceedings 131, p 130-131.

Townson W.G. 1975: Lithostratigraphy and deposition of the type Portlandian. Journal of the Geological Society of London, vol. 131.

DIGS 2009: Powerpoint presentation for Purbeck Keystone Project.