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# Category:Lithology of the Chalk Group

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Lithologically, chalk is typically a very fine-grained, relatively soft, white limestone. It was formed in a marine environment and consists predominantly of the disaggregated skeletal remains (coccoliths) of tiny planktonic algae. The Chalk Group is composed of almost pure calcium carbonate in the form of low magnesian calcite, except the lower part which contains up to 30% clay and includes intercalated clay-rich horizons (marls) and spongiferous limestones. Flints are a conspicuous feature of the higher part of the Chalk, occurring as bands at regular intervals and giving an indication of the natural bedding. At some levels coarse-grained bioclastic chalk predominates, and the name 'Grobkreide' is sometimes used to describe this facies.

Clay-rich horizons, called marls, are a conspicuous feature in the lower part of the Chalk Group (lower Grey Chalk Subgroup), where they may form beds up to 0.6 m thick (Ditchfield and Marshall, 1989), and are regularly intercalated with limestones. At higher levels, they more typically range from less than 10 mm to 0.15 m. These typically medium to pale grey horizons may occur as sharply defined marl seams or as more diffuse concentrations of anastomosing thin marl wisps.

At some levels in the Chalk, hard, nodular beds are characteristic. The hard nodules formed by early, syn-depositional cementation of the Chalk at times of reduced sedimentation rates. Current-winnowing, caused by submerged massifs, proximity to basin margins, tectonic uplift or eustatic fall in sea-level, is probably a significant influence on their development (Hancock, 1989). Horizons of more indurated nodular chalk, locally iron-stained, glauconitised and phosphatised have been interpreted as hardgrounds.

Trace fossils are common throughout the Chalk Group, and at some levels form important marker-beds for correlation. Burrows made by soft-bodied burrowing organisms were the favoured sites for nodular flint formation, explaining their often irregular shapes.

Beds of phosphatic chalk, typically pale brown in colour, occur at several well known localities in southern England (e.g. Taplow (Berks), Boxford (Berks.) and Stoke Clump (Sussex)), and in many if not all cases, their development appears to be related to the presence of local tectonic structures (Mortimore, 1986).

## References

**DITCHFIELD, P & MARSHALL, J.** 1989. Isotopic variation in rhythmically bedded chalks: Paleotemperature variation in the Upper Cretaceous. *Geology*, **17**, 842-845.

**HANCOCK, J. M.** 1989. Sea-level changes in the British region during the Late Cretaceous. *Proceedings of the Geologists' Association*, **100** (4), 565-594.

**MORTIMORE, R N.**1986. Stratigraphy of the Upper Cretaceous White Chalk of Sussex. *Proceedings of the Geologists' Association*, **97**(2), 97-139.

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