

THE LITHOSTRATIGRAPHY OF THE SHALES-WITH-BEEF MEMBER OF THE CHARMOUTH MUDSTONE FORMATION, LOWER JURASSIC

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The Shales-with-Beef Member of the Charmouth Mudstone Formation (Lower Jurassic) crops out in almost continuous cliff and foreshore sections over a distance of *c.* 5 km between Pinhay Bay, east Devon and Charmouth, west Dorset. A fault-bounded outlier, 3.5 km west of Pinhay Bay, exposes the lower part of the member. At its type section on the foreshore and in cliffs below Black Ven, Charmouth, the member consists of *c.* 30 m of thinly interbedded organic-rich mudstones and calcareous mudstones with numerous thin beds of fibrous calcite ('beef') and several beds of tabular and nodular limestone. Many of the individual beds of mudstone are richly fossiliferous and this has previously been used, in combination with the lithological variations, to divide the succession into over 100 numbered and lettered beds. However, as noted in the original study, many of the thinner beds are laterally impersistent and few can be recognised with confidence away from the type section. In addition, the type section is separated from the main Shales-with-Beef Member outcrop in the Lyme Regis area by a penecontemporaneously active fault belt that had an effect on sedimentation. Other fault belts at Lyme Regis and westwards from there divide the outcrop into areas with successions that differ in detail from the type section and from one another. As a result, few of the numbered beds can be traced from one of these areas into the adjacent area. A simplified system of bed numbering is described here based on sections that crop out on the west and east sides of Lyme Regis, supplemented by the successions proved in cored site-investigation boreholes drilled at Lyme Regis. The proposed lithostratigraphy provides a framework that takes account of the lateral variations in the member over its full outcrop distance, and enables material collected from any part of the exposure to be placed in its correct stratigraphical context.

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