

## EVIDENCE FOR STRUCTURAL CONTROLS ON THE LOWER JURASSIC (PLIENSBACHIAN-TOARCIAN) SUCCESSION AT CHAPEL CROSS, SOUTH CADBURY, SOMERSET, UK



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Temporary exposures in 1989, during improvements to the A303 trunk road near South Cadbury, Somerset, U.K. revealed a new section through part of the Dyrham Formation (formerly Pennard Sands), the Marlstone Rock Formation, the Barrington Limestone Member and the base of the Bridport Sand Formation. The Dyrham Formation contained two intraformational pebble beds that have not been observed elsewhere in south Somerset, while the Marlstone Rock Formation is anomalously thin when compared even with the condensed successions of the Yeovil region. In contrast, the Toarcian succession includes bituminous paper shales at its base, succeeded by the typical mudstone-limestone alternations of the Barrington Limestone Member, and is much more like the succession at Ilminster than the more condensed sequence, near Yeovil, that intervenes between these two areas. Tectonic structures exposed at various scales on the site provide further evidence of strike-slip faulting within the Somerset Basin.

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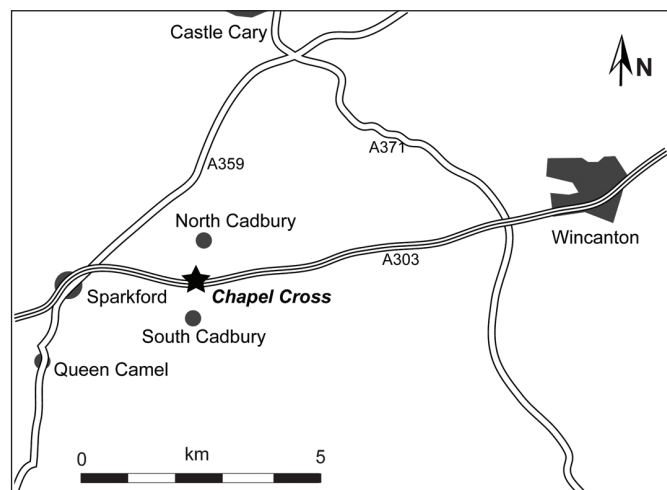
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### INTRODUCTION

The Lower Jurassic stratigraphy of the Central Somerset Basin is known in far less detail than that of the Dorset Basin to the south, where the extensive coastal sections exposing the complete Lower Jurassic succession have been the focus of research for more than two centuries (Simms *et al.*, 2004). There are few natural exposures of the Lias Group in Somerset and much of our knowledge of the succession here has been dependent on artificial exposures, but the numerous quarries that once existed, described by the likes of Charles Moore (1867) or Horace Woodward (1893), have long since become overgrown or been infilled. Across much of inland Somerset recent exposures have arisen only occasionally, and often all too briefly, as a result of civil engineering projects such as road improvements or pipeline trenches. One such exposure occurred during improvements to the A303 trunk road at Chapel Cross (Figure 1), near the village of South Cadbury, in 1989 when it was documented by one of the authors (HCP). It exposed a section from the Dyrham Formation (Upper Pliensbachian) to the Bridport Sand Formation (Toarcian) of the local Lias Group succession. This part of the Lias Group is relatively well documented in the Yeovil and Ilminster area further south, albeit in many cases based on long defunct exposures (Moore, 1867; Wilson *et al.*, 1958; Woodward, 1893; Simms *et al.*, 2004) but more poorly known to the north of Yeovil. Indeed, Woodward (1893) stated that “*of the lower beds [Dyrham Formation of modern terminology] we have little information*”, and commented that “*from South Cadbury*

*northwards...to Doulling and the Mendip Hills we have no sections showing the Upper Lias*”. Consequently any new information from this region can, potentially, add to our knowledge of the history of the Somerset Basin.



**Figure 1.** Location map for the temporary exposure on the A303 at Chapel Cross, south Somerset.