

AGE RELATIONSHIPS BETWEEN LOW LEVEL ROCKY SHORE PLATFORMS AND THE HIGH COASTAL SLOPES IN JERSEY AND THE SURROUNDING AREAS

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Recent research along the coastal cliffs and embayments of Jersey has revealed new aspects of the geomorphology of the rocky shore platform and its relationship with the steep slopes that link it to the island plateau above. Specifically, a rockhead platform meets a 10-30 m high, near vertical cliff at approximately 8-10 m above Jersey Datum (J.D.= ±0 m Ordnance Datum; likewise Guernsey Datum: G.D.), slopes down-towards mid-tide levels becoming ever more deeply dissected. Generalised contours of this platform show it to be distinct from a lower tidal rockhead platform which is comparatively smooth over large areas as it undergoes continuing contemporary abrasion. This lower platform is generally separated from the higher one by low cliffs, less than a metre high at mid-tidal levels, but two to three metres at the base of the backing cliffs. Both of these platforms are shown to antedate the Last Cold Stage (Devensian) head at a number of localities and this relationship is taken to represent the general situation, not only in Jersey, but throughout the other Channel Islands and adjacent coasts of Armorica. Whether either, or both, of these two platforms are older than Marine Oxygen Isotope Substage (MOIS) 5e (Ipswichian) as well is not known. However the considerable age of the numerous and wide intertidal shore platforms of the Channel Islands and adjacent coasts of America makes a greater age quite possible.

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INTRODUCTION

The southwestern and northern coasts of Jersey (for locations see Figures 1 and 2) are characterised by an alternation of embayments and headlands cut mainly into granites though with substantial stretches eroded out of largely acid volcanic rocks and a conglomerate. These embayments were partially filled with periglacial deposits of head and related Last Cold Stage (Devensian) sediments. These are now partly eroded away, e.g. Beauport and Bonne Nuit/Giffard bays, or almost completely stripped out, Grève au Lançon, Grève de Lecq (Figure 2). The nature of the bedrock and its varying structural components have been instrumental in controlling most of the hard rock erosional detail (Renouf, 1986, 1993), but the major composite slopes linking the low level shore platforms to the island plateau (Figure 3) are considered to have reached their present form by the interglacial high level sea of MOIS (Marine Oxygen Isotope Stage) 5e before the cold stage deposits of the Devensian began to accumulate.

In terms of present day erosion of the bedrock in the different embayments, all the rocks are characterised by strong but variably developed and orientated jointing, with faulting also common at varying scales (Renouf, 1986, 1993). The sedimentary and volcanic rocks were strongly folded during the Cadomian orogeny which ended some 400 ma ago (see Bishop and Bisson, 1989; Helm, 1984; Lees and Roach, 1993). In this paper, the situation at Grève au Lançon (the beach at Plemont) is examined and is contrasted with sites found in Bonne Nuit/Giffard bays. Reference is made to other Jersey and Channel Island localities and a number of sites on the adjacent coasts of Armorica (Brittany and Lower Normandy).

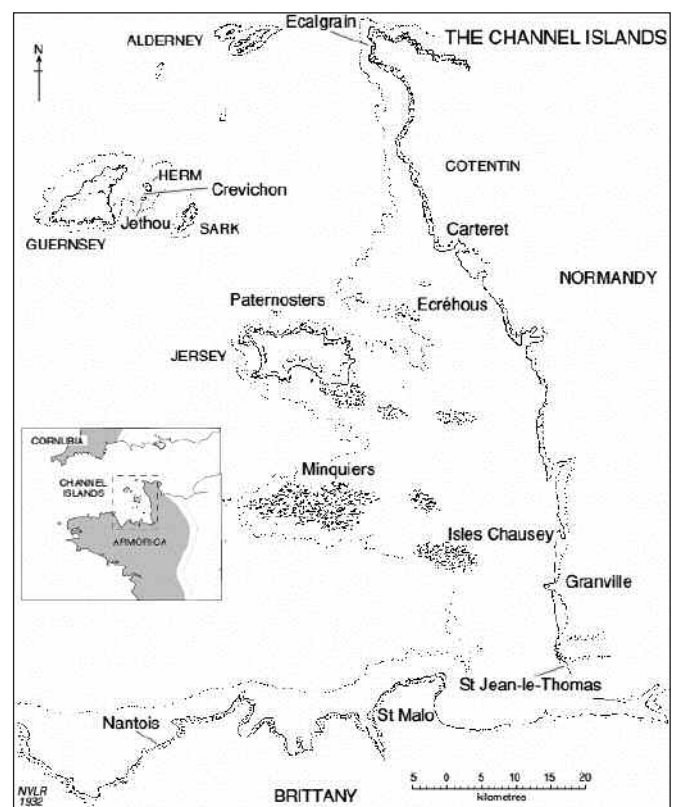


Figure 1. The Rybot bachure map of the Channel Islands to show localities referred to in the text and the extensive, mostly intertidal, reefs (e.g. Minquiers, SE Jersey).