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## Chapter 4 Cambrian of South Wales: St David's area

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### Introduction

The St David's peninsula exposes a fairly complete succession of Cambrian rocks from the Comley Series up to the mid-Merioneth, the St David's Series being well represented. Several of the rock units are of distinctive lithologies, and, despite the very extensive faulting in the area, St David's was historically the first area in Britain in which satisfactory early and mid-Cambrian stratigraphical and palaeontological successions were worked out.

The earliest Geological Survey maps of the area, produced in 1857, grouped together the rocks now known as Precambrian, the Caerfai Group and the Solva Group within the 'Cambrian' the overlying 'Lingula Flags' was regarded as 'Lower Silurian'. Harkness and Hicks (1871) established the rock succession much as it is recognized today, placing the base of the Cambrian at a prominent conglomeratic unit; they classified the 'quartziferous' rocks below as 'pre-Cambrian' or 'Laurentian' and the coarse sediments above the conglomerate and below the trilobite-bearing Menevian Group as Lower Cambrian or 'Longmynd Group': In place of the 'Longmynd Group', Hicks (1881b, p. 297) later established the Caerfai and Solva groups, with the conglomerate being at the base of the Caerfai Group. Cowie *et al.* (1972) proposed names for Hicks' informal divisions of the Caerfai Group, but the Solva is still subdivided only into informal units.

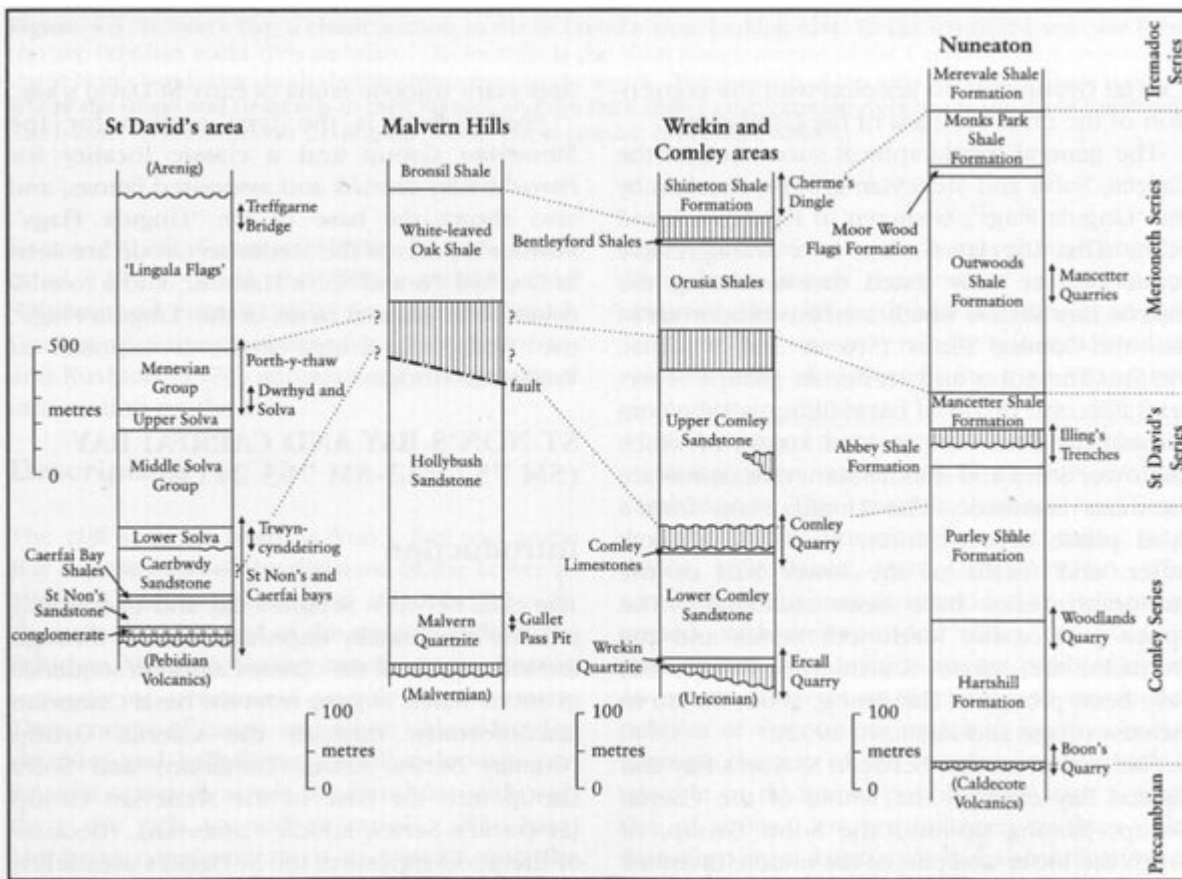
Further study led Hicks (1877) to separate the 'quartziferous' rocks into two divisions, the 'Pebidian' (now interpreted as volcanic rocks) and 'Dimetian' (intrusive rocks). However, Hicks' interpretation of the Pebidian and Dimetian as Precambrian brought him into conflict with Geikie (1883), who would not accept the presence of 'pre-Cambrian' rocks in areas mapped by the Survey as Cambrian. Pearson and Nicholas (1992) tell how this controversy became heated and was resolved only when Green's (1908) detailed mapping demonstrated an angular unconformity at the base of the Caerfai Group and, in keeping with the convention of the time, the base of the Cambrian.

The general stratigraphical succession of the Caerfai, Solva and Menevian groups, overlain by the 'Lingula Flags', is shown in (Figure 4.1) and (Figure 4.2). The Caerfai Group is a transgressive sequence, the only dated division being the Caerfai Bay Shales, which contains bradoriids of the mid-Comley Series (Siveter and Williams, 1995). The Solva and Menevian groups represent a second phase of basin-filling; all the constituent divisions have yielded fossils, of which the lower Solva and middle Menevian faunas are the most diagnostic. The 'Lingula Flags' form a third phase of deposition, mainly in shallow water, and fossils of the lower half of the Merioneth Series have been collected. The upper part of the Merioneth Series and the Tremadoc are unknown around St David's but have been proved at Llangynog, about 50 km to the east (Cope and Rushton, 1992).

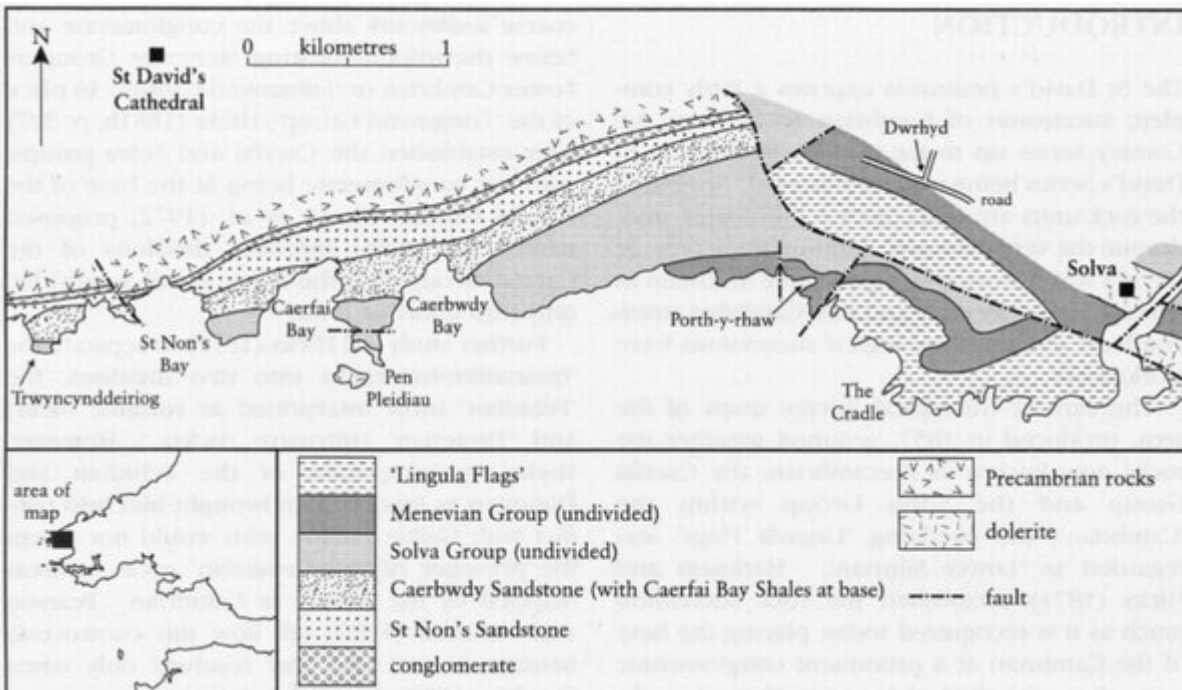
The coastal section between St Non's Bay and Caerfai Bay exposes the whole of the Caerfai Group, passing up into the Solva Group, of which the lower and part of the middle divisions are seen. The contact of the Caerfai and Solva groups is well exposed to the west of St Non's Bay at Trwyncynddeiriog and there yields an important trilobite fauna of early St David's age.

Porth-y-rhaw is the type section for the Menevian Group and a classic locality for *Paradoxides davidis* and associated faunas, and also shows the base of the 'Lingula Flags'. Further aspects of the Menevian Group are seen at Dwrhyd Pit and Solva Harbour, and a fossiliferous, finer-grained facies of the 'Lingula Flags', the Treffgarne Bridge Beds, is exposed at Treffgarne Bridge.

### [References](#)



(Figure 4.1) Correlation of the principal Cambrian sequences in South Wales and England, modified from Rushton (1974, figs 2, 3). The stratigraphical ranges of the GCR sites are indicated. For the location of Treffgarne Bridge, see (Figure 8.1).



(Figure 4.2) Sketch of the Cambrian geology between St David's and Solva, south-west Wales, after the British Geological Survey (1973), with locations of the GCR sites.