The end-Ordovician, glacio-eustatic low-stand of sea level was reversed during early Silurian times when an ice cap, centred on the south pole, then located on what is now North Africa, began to melt, causing a worldwide marine transgression. Subsequent fluctuations in sea level were mainly the result of changes in the volume of ice at the poles, but probably there was also some local tectonic contribution related to the closure of Iapetus Ocean. By late Llandovery (Telychian) times, the Midland Platform was totally flooded although slight changes in platform and basin distribution continued to affect the patterns of sedimentation across Wales. Broadly, it was a period of comparative tectonic stability and warm climate.

Silurian strata occupy the core of the Central Wales Syncline and can be traced in a narrow outcrop between the Harlech and Berwyn domes into the Denbigh moors and Clwydian Hills in north Wales. They also crop out on the eastern limb of the Twyi Anticline, and eastwards towards the Welsh

<table>
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<th>Stage</th>
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<td>P690a</td>
<td>519 Ma</td>
<td>Sturtian, graphoasters n. sp.</td>
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<td>llandovery</td>
<td>Llandovery</td>
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<td>Wenlock</td>
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<td>Silurian</td>
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Borderland. Elsewhere, they occur in small inliers, as at Cardiff and Usk, and in folded and thrust slices within the Variscan zone of west Pembrokeshire. It was from these Welsh outcrops and their continuation into the Welsh Borderland that Murchison in 1835 proposed the name of the system, from the ancient tribe, the Silures, and from where the names of three of the four series, Llandovery, Wenlock and Ludlow, were taken. The biostratigraphical subdivisions of the sequence, based on both graptolites and shelly faunas, are well founded (P916228). It is estimated to span approximately 28 Ma, from 444 to 416 Ma, and throughout this time, faunal provincialism on either side of Iapetus diminished because of the closure of the ocean. Closure of Iapetus probably occurred in the mid to late Silurian, but related deformation events continued into Devonian times.

Silurian rocks through most of central Wales are mainly of mudstone and silty mudstone with interbedded sandstones, which on cursory examination appear to be remarkably uniform or repetitive. The sedimentary structures and faunal content determine their basinal character, and a traverse to the east clearly demonstrates their contrast with penecontemporaneous rocks in the vicinity of the shelf in the Welsh Borderland. This marked contrast in facies inhibited a clear understanding for many of the early surveyors, and it was not until O T Jones presented his perceptive Presidential Address, ‘On the Evolution of a Geosyncline’, to the Geological Society in 1938, that the basis was laid for modern interpretation.

More recently, following a long period of research into the shelf areas, there has been a concerted effort by the British Geological Survey and others to unravel the structure of central Wales and to trace the sedimentological changes from shelf to basin. The elucidation of the basinal sequence has been profoundly influenced by the determination of the thickness and sandstone content of the turbidite units, and the amount and type of hemipelagic mudstone. The hemipelagites represent background sedimentation; they comprise black and dark grey laminated mudstone deposited beneath anaerobic bottom waters and pale grey bioturbated mudstone deposited under oxygenated conditions. Many of the formational subdivisions are based on these variations and are thus markedly diachronous.

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