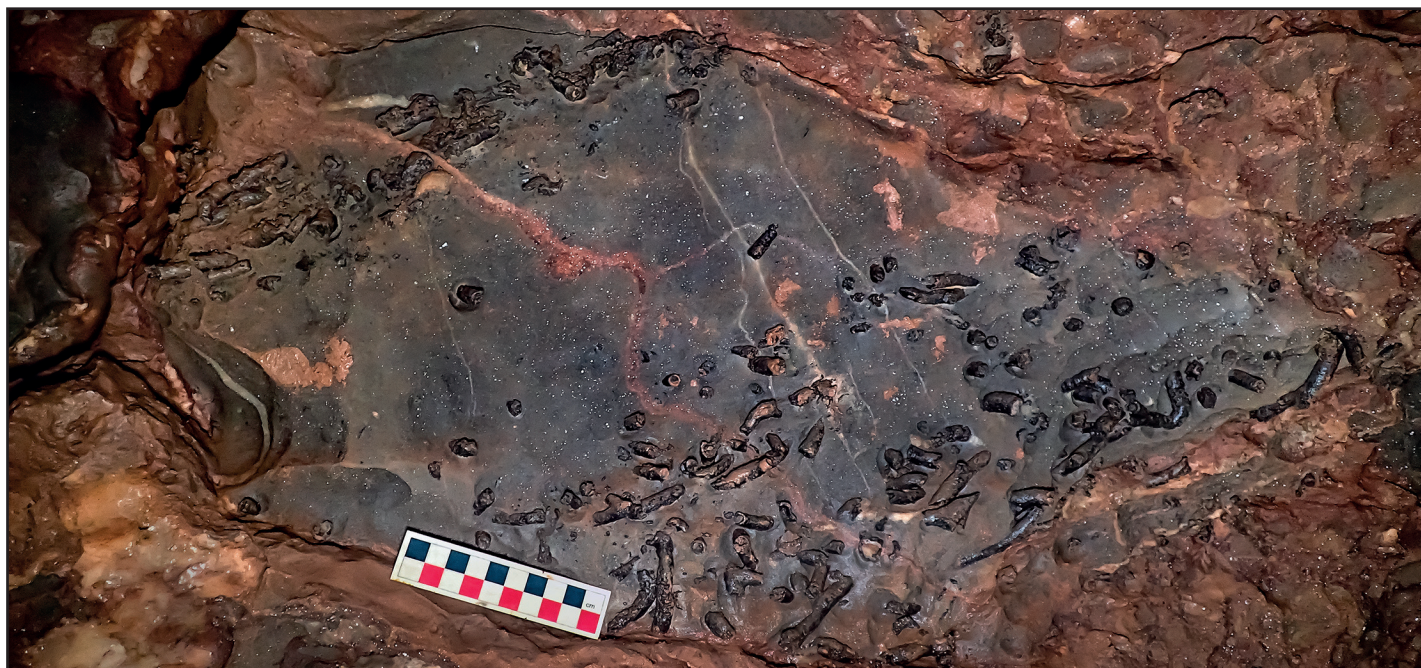


Photo Feature

Derived or “unconformable” corals, exposed in *Land of Hope and Glory*, Wookey Hole, Mendip, UK

Vince SIMMONDS



Reworked boulder of fossiliferous Lower Carboniferous Clifton Down Limestone Formation (with partly silicified fossil corals) as a clast within beds of the Triassic Dolomitic Conglomerate (Scale Bar = 10cm).

Most of the cave passages of Land of Hope and Glory (LoH&G) in Wookey Hole, near Wells, in Somerset are formed within beds of the Triassic Dolomitic Conglomerate. Overall, this comprises coarse gravel, cobbles, and boulders bound together by finer-grained sediment. Clasts of Devonian sandstone and Carboniferous limestone, some of them angular, are common locally among the coarser fractions, and some of the limestone clasts as well as parts of the finer matrix are dolomitized. The conglomerate represents debris derived from older rocks that were deformed, uplifted and denuded during the Variscan (also known as the Hercynian or Armorican) Orogeny. During this episode in the Late Carboniferous to Early Permian periods, mobile tectonic plates converged to create the super-continent Pangaea, with mountain building taking place as rocks crumpled along the collision zone.

Within the conglomerate exposures seen in LoH&G there are numerous boulders derived from beds that were originally part of the Early Carboniferous Clifton Down Limestone Formation. The boulders include fine-grained, dark grey limestone with common nodules and bands of chert, along with many partly silicified fossil coral remains.

The Clifton Down Limestone Formation (BGS Online A) was deposited during the Arundian and Holverian substages of the Early Carboniferous, and it includes a rich but low-diversity fauna

of which the most notable feature is the common presence, in mid-Formation, of the partly silicified remains of the colonial rugose coral *Siphonodendron* [formerly *Lithostrotion*] *martini*. This coral-rich interval, known as the “Lithostrotion Beds”, forms a conspicuous marker-band that can be traced across the Mendip Hills region (BGS Online B).

Strictly, in geological terms, an “unconformity” represents a break in the stratigraphical record, where no sediment deposition occurred (Kearey, 2001). The relationship of the blocks of fossiliferous Carboniferous limestone within beds of Triassic age might thus be viewed as showing an unconformable relationship, because there are no rocks of Permian age between them. However, this usage is not a perfect fit to the definition. Terms such as “reworked” and “derived” could also be applied to the limestone blocks and the fossils that they contain, though normally these terms would be applied to fossils that had been weathered free from their original matrix before being incorporated into younger sediments, not to fossiliferous rock clasts.

References

- British Geological Survey, BGS Online A [accessed 05 March 2023]: <https://data.bgs.ac.uk/id/Lexicon/NamedRockUnit/CDL.html>
 British Geological Survey, BGS Online B [accessed 08 March 2023]: https://www2.bgs.ac.uk/mendips/fossils/Fossils_carboniferous.htm
 Kearey, P, 2001. *The New Penguin Dictionary of Geology*, 2nd Edition. [London: Penguin Group.]



*The partly silicified, broken, remains of the colonial rugose coral *Siphonodendron martini*.*



Although locally the rock has a thin covering of fine-grained sediment, the silicified fossils still stand out.