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# Hoel Senni Quarry

[SN 9145 2210]

## Highlights

Hoel Senni Quarry in Powys has produced specimens of the fossil fish *Althaspis senniensis*, which is known only from this site. Fossil fishes of uppermost Dittonian are very rare elsewhere, and the specimens enhance the importance of the site, which has also produced important fossil plants.

## Introduction

Vertebrates are extremely rare in the Senni Beds and they are known from only two other sites at this stratigraphical horizon, Primrose Hill Quarry near Crickhowell and Ferryside in Carmarthenshire. The geology and fish fauna of the site have been described by Edwards *et al.* (1978) and by Loeffler and Thomas (1980), who ascribed a Lochkovian–Pragian age to these rocks.

## Description

Hoel Senni Quarry on the northeastern face of the Fan Bwlch Ciwyth, Powys, exposes the Senni Beds, largely green sandstones with subordinate red or green mudstones, nodular mudstones, and intraformational conglomerates. Plant remains, which are abundant at this site, include *Drepanophycus*, *Gosslingia*, and *Zosterophyllum* (Edwards, 1968, 1969, 1970; Loeffler and Thomas, 1980). A well-preserved and distinctive miospore assemblage found in association with the fossil fish specimen is of great stratigraphical significance (Loeffler and Thomas, 1980). *Emphanisporites* and *Apiculiretispora* and over 50 taxa of miospores suggest correlation with the Cosheston Group of south-west Wales. Spores higher in the Senni Beds suggest a Pragian–Emsian age, the latter half of the Early Devonian (White, 1956; Allen, *in* House *et al.*, 1977).

Hoel Senni Quarry is the type and only locality of *Althaspis senniensis* Loeffler and Thomas, 1980 (Figure 4.21), the only vertebrate species found here, which is a typical pteraspid of the Ditton Group and is very similar, and possibly conspecific with *Althaspis leachi*, which occurs throughout north-west Europe at the top of the Lochkovian stage. The type specimen was found in a large fallen block of unlaminated blue-grey mudstone on the floor of the quarry in 1978. *Althaspis senniensis* is based on several plates from one individual found together, and is the best preserved and most complete recovered from the Senni beds. It shows similarities both to forms from Podolia and France, as well as Britain, and it can be considered to be a pteraspid of Dittonian aspect. Its presence in the Senni Beds indicates a level between the Dittonian and Breconian stages.

## Fauna

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Heterostraci: Pteraspidoformes: Pteraspidae

*Althaspis senniensis* Loeffler and Thomas, 1980

## Interpretation

The strata at Hoel Senni Quarry have been deposited rapidly under high water-table conditions, and a braided-meandering stream environment. Stream flow was high but periods of desiccation were frequent. Vascular plants were locally common around the water bodies. From this locality palynomorphs indicate a late Lochkovian to Pragian age and *Althaspis senniensis* is a late Dittonian to Breconian form of pteraspidid. Primrose Hill Quarry, near Crickhowell,

Powys [SO 207 200], yields *Rhinopteraspis dunensis* (= *cornubica*) which occurs in the type area for the Siegenian (Pragian) stage. The evidence of the fossil fishes from Hoel Senni and Primrose Hill quarries show that the Lochkovian–Pragian boundary lies within the Senni Beds between these two fossil-bearing horizons.

At this level throughout the Anglo-Welsh Basin and adjacent mainland Europe there is a noticeable impoverishment of the vertebrate faunas (i.e. within the *leachi* and *dunensis* zones). Blicek *et al.* (1995) suggested that this may coincide with what is perceived as a lowering of sea level in late Lochkovian to Pragian time with some climatic change and concomitant earth movements. While the fishes of this interval are larger in size, the number of species, communities and sites are much reduced.

### **Comparison with other localities**

Intraclast conglomerates, mudstones and sandstones of the types found at Hoel Senni Quarry are widespread in the Senni Beds of South Wales. None, however, has yet produced a comparable pteraspid.

### **Conclusion**

Hoel Senni Quarry has produced only one fish specimen, but it is of great significance as one of the youngest fishes from the Early Devonian of the Anglo-Welsh Basin. The fish, and associated miospores from the site give unique evidence for the dating of the Senni Beds and form the basis of its conservation value.

### **[References](#)**



(Figure 4.21) *Althaspis senniensis*: (A) rostral plate from Hoel Senni Quarry; (B) a ventral disc from Hoel Senni Quarry (after Loeffler and Thomas, 1980), both approximately natural size.