
Oak Dingle, Tugford

[SO 5656 8712]

Highlights

Oak Dingle in Shropshire has yielded a rich and diverse fauna of earliest Devonian fossil fishes from rocks that show the three-dimensional shapes of channel fills and floodplain deposits. It contains the earliest record of *Weigeltaspis* from Britain, and is so far the best site for *Pteraspis rostrata* var. *trimpleyensis* (Figure 4.12).

Introduction

Fossil fish specimens, mainly osteostracans but also thelodonts and acanthodians, have been reported from several horizons in the stream course in Oak Dingle, with the first reports by White (1935). Since then the geology of the site has been described by Ball and Dineley (1961), Allen (1964) and Collinson (1978).

Description

Several intraclast conglomerates and sandstones exposed in Oak Dingle yield a rich and diverse fauna of lower Ditton Group fossil fishes. Unfortunately, identifiable fossils have only been collected as transported fragments from the prominent sandstone–conglomerate unit (M.A. Rowlands and P. Tarrant collections, 1985–1991). (Figure 4.11) gives the generalized succession as recorded by Allen (1964).

Fauna

(Recorded by M.A. Rowlands)

AGNATHA

Heterostraci: Pteraspidiformes: Pteraspidae

Pteraspis rostrata var. *trimpleyensis* White, 1935

Heterostraci: Pteraspidiformes:

Wiegeltaspidae

Wiegeltaspis n. sp.

Osteostraci: Cephalaspidiformes:

Cephalaspidae

Cephalaspis n. spp.

Stensidpelta sp.

GNATHOSTOMATA

Acanthodii: Climatediiformes: Climatediidae

climatediid spines indet.

Acanthodii: Ischnacanthiformes

spines indet.

The lowermost bed SZ yielded abundant and large *Pteraspis rostrata* var. *trimpleyensis* (White, 1935) and '*Cephalaspis*' sp. (a scolenaspid) (Figure 4.12). The bottom channel S5 is described by Ball and Dineley (1961, p. 232) as their site 75, and it is the main fossil-bearing horizon in the section. Other taxa represented are *Weigeltaspis* n. sp., abundant fragments of '*Cephalaspis*' spp., *Stensiöpelta* sp., a climatiid, small ischnacanthid spines, and a *Turinia pagei* thelodont fauna.

The red intraclast-filled channels S8 and S9 have yielded *P. rostrata* var. *trimpleyensis*, *Weigeltaspis* n. sp. fragments, ?*Stensiöpelta* sp. fragments '*Cephalaspis*' sp., and climatiid spines.

Weigeltaspis n. sp. has previously been recorded from Oak Dingle as *Traquairaspis symondsi* and as *Tesseraspis* sp. (Ball and Dineley, 1961). The material represents a species of *Weigeltaspis* which has yet to be described. This is the earliest record of *Weigeltaspis* from Britain, although earlier specimens occur in Canada.

Stensiöpelta sp. is a genus of cephalaspid erected for *Cephalaspis woodwardi* Stensiö, 1932 by Denison (1951). The examples from Oak Dingle occur in the lower part of the Ditton Group, lower stratigraphically than at any other locality. This fish has a very distinctively shaped cephalic shield, which has long laterally directed cornua that delimit very wide and deep pectoral sinuses. The headshield is ornamented with clusters of rounded tubercles, and is superficially similar to *Mimetaspis* and *Pattenaspis* (Wangsjö, 1952) from Spitsbergen and *Hildenaspis* from Germany (Janvier, 1985a), but studies of *Stensiöpelta* material from Podolia show that it shares the type of ornamentation and shape of nasohypophysial opening with the scolenaspidiforms, but has no synapomorphy with *Pattenaspis* (Janvier, 1985b). *Stensibpelta woodwardi* is recorded from the Ditton Group of Hereford and Worcester and Gwent, with the type locality being the Asylum Grounds, Abergavenny (Stensiö, 1932), now an inaccessible site. The other known species is the closely related *S. pustulata* Janvier, 1985 from the upper Lochkovian of Podolia.

Interpretation

The section from which fossils have been collected lies just beneath the cyclothem described by Allen (1964) as being produced by a meandering and aggrading river complex crossing a floodplain; this is the cyclothem described from the Anglo-Welsh Old Red Sandstone facies in Collinson (1978). Backswamp deposits, soils with caliches, and sandflats are all indicated in this sedimentary complex. As Allen (1964) noted, the cyclothem begins just above the lowest fossil-bearing bed SZ. The section then starts some 30 m above the '*Psammosteus*' Limestone, i.e. well within the lower part of the Ditton Group and in the zone of *P. rostrata*–*P. crouchi*.

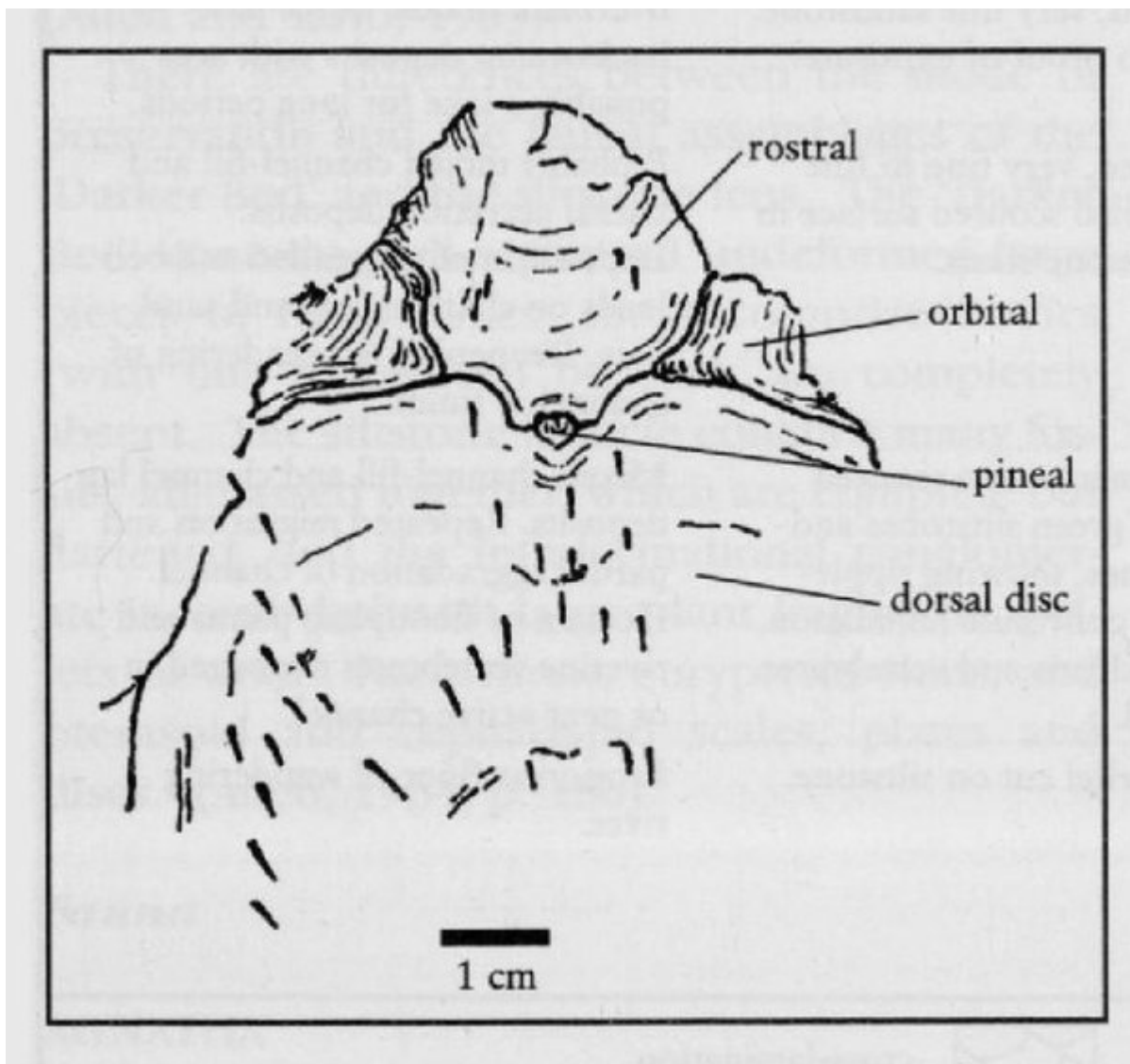
Comparison with other localities

The Oak Dingle site shows many sedimentological features which are found throughout the outcrop of the Ditton Group of the Anglo-Welsh Basin and reveals similarities in the preservation and composition of its agnathan faunules. Similar features have also been recorded by Blicek and co-workers in northern France and Belgium (Blicek *et al.*, 1995).

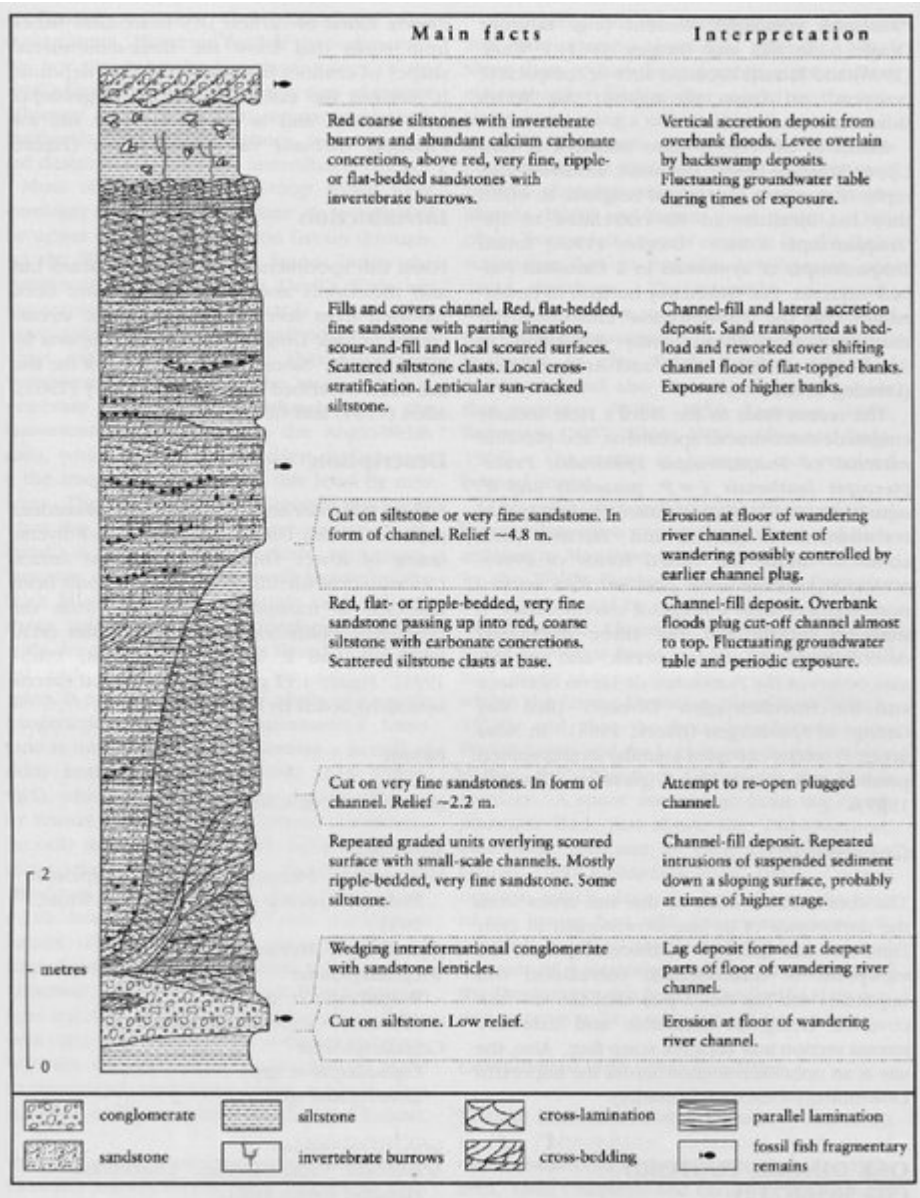
Conclusion

The Oak Dingle exposure follows the strike that is uncommon for Old Red Sandstone fossil-bearing streams in the Welsh Borders. This provides the conservation value of the site because it shows the three-dimensional relationships between the sedimentary channels, lag deposits and overbank deposits. It has produced a varied fish fauna in recent excavations, and some of the taxa are the earliest instances of their groups, a result of the basal Devonian age of the site. It has considerable potential for further collecting.

[References](#)



(Figure 4.12) *Pteraspis rostrata* var. *trimpleyensis* White, common fragments occur in Oak Dingle, Bouldon, and the adjacent Bouldon ford. This specimen from Bouldon figured by White (1961).



(Figure 4.11) Section through the cyclothem in the Lower Ditton Group at Oak Dingle, Tugord (after Allen, 1964, and M.A. Rowlands MS).