
Sumburgh Head

[HU 407 078]

Highlights

Sumburgh Head has produced one of the youngest of the Middle Old Red Sandstone fish faunas of Shetland, and perhaps of the whole Orcadian Basin. This is the only site at which the distinctive placoderm *Asterolepis thule* Watson, 1932 occurs (Figure 6.31).

Introduction

The steeply dipping Sumburgh Head 'Limestone' is exposed immediately south of Sumburgh Lighthouse, on high precipitous cliffs. It is accessible in a small quarried hollow at the top of the cliffs.

Description

The Old Red Sandstone elastic rocks at Sumburgh Head (Figure 6.29) are grouped in the Brindister Flags. At this locality; 5 m of south-easterly dipping, fine-grained, thinly bedded and partly laminated calcareous siltstones with some thin bands of dark sandstones are exposed. The siltstones contain abundant plant fragments. In the basal few centimetres of some of the fine sandstone units are patches of coarse gritty sandstone with fish fragments.

Fauna

Placodermi: Antiarchi: Asterolepidae

Asterolepis thule Watson, 1932

Osteichthyes: Sarcopterygii: Osteolepiformes: Eusthenopteridae

Tristichopterus sp.

Osteichthyes: Sarcopterygii: Dipnoi: Dipteridae

?*Dipterus* sp.

A specimen of *Asterolepis* was recovered by Geological Survey officers from Sumburgh Head, and named *A. thule* by Watson (1932). The headshield is long (40 mm) and narrow, and Watson (1932) described it as closely allied to *A. ornata* from the Lower Frasnian of the Baltic, and to *A. maxima* from the Frasnian of Nairn (Figure 6.31). Asterolepids occur in the Eifelian of the Baltic, and the Upper Givetian and Lower Frasnian of the Baltic, East Greenland, Spitsbergen, Australia, Nairnshire and the Orkney Islands. Paton (1981) lists from John o'Groats a fragment of *Asterolepis* cf. *thule*, which may be a mis-identification. Sumburgh is therefore the type and only locality for *A. thule*, but *Asterolepis* sp. is recorded from Voe of Cullingsburgh, Bressay, in the lowermost Frasnian (Woodward and White, 1926).

Interpretation

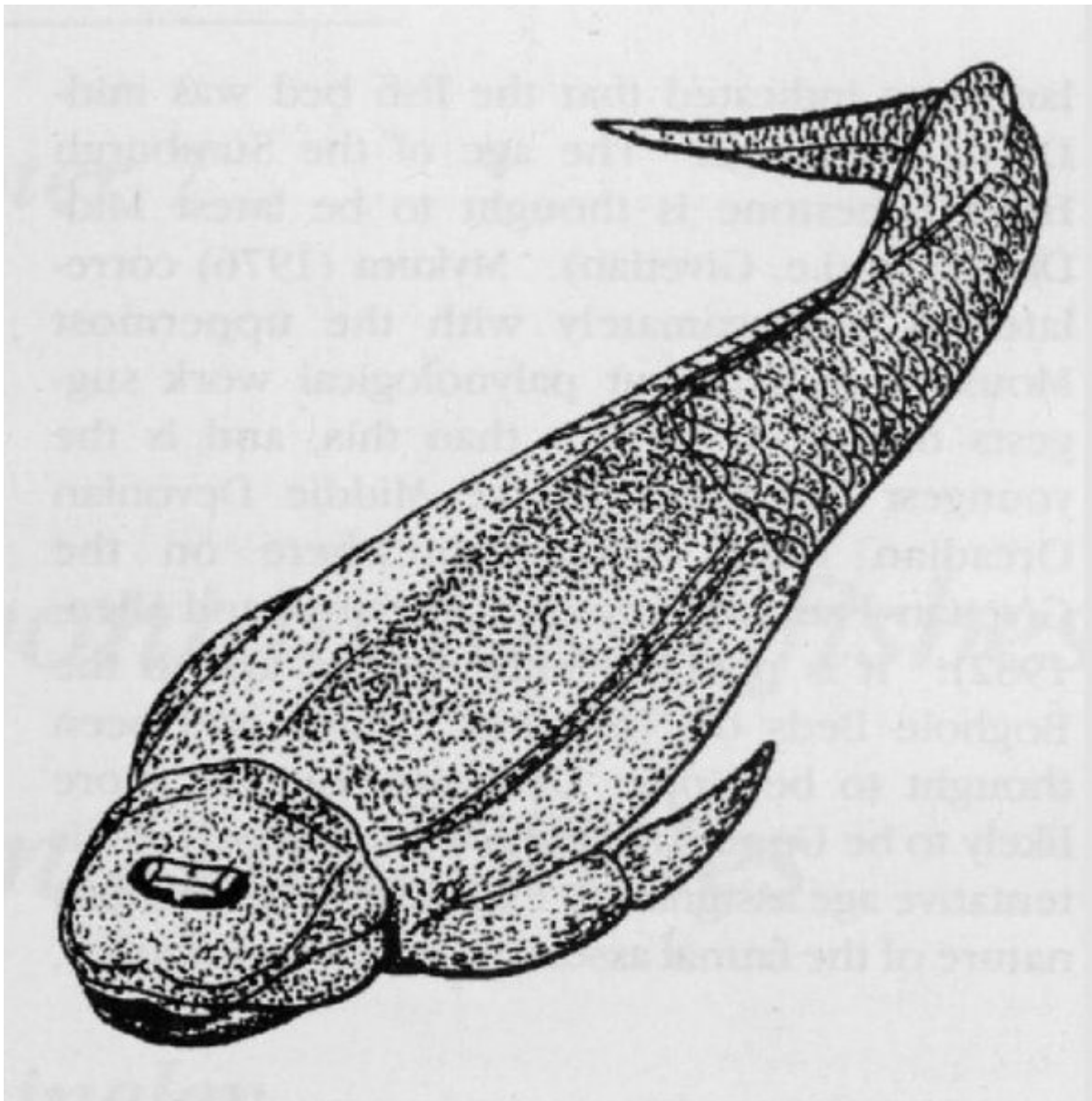
If it had not been for the associated fauna, Watson (1932) would have regarded *Asterolepis thule* as a typical Late Devonian form, but instead he assumed that the presence of *Dipterus* sp. and *Tristichopterus* sp. in lacustrine laminites indicated that the fish bed was mid-Devonian in age. The age of the Sumburgh Head Limestone is thought to be latest Mid-Devonian (i.e. Givetian). Mykura (1976) correlated it approximately with the uppermost Mousa Fish Bed, but palynological work suggests that it is younger than this, and is the youngest fish fauna of the Middle Devonian Orcadian

Basin, lying somewhere on the Givetian–Frasnian boundary (Marshall and Allen, 1982). It is possibly equivalent in age to the Boghole Beds of Nairnshire, which had been thought to be Upper Devonian, but are more likely to be Upper Givetian (Weston, 1979). This tentative age assignment explains the anomalous nature of the faunal assemblage from Sumburgh, which contains Frasnian and Middle Devonian elements.

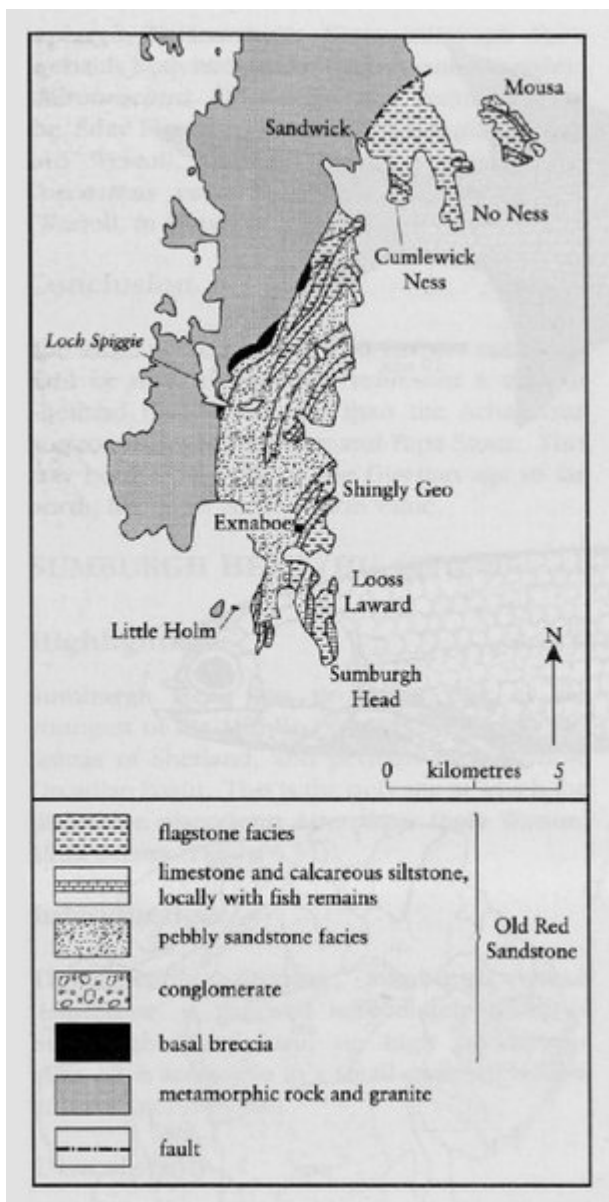
Conclusion

The fossil fishes from Sumburgh Head are sparse, but they represent an instant in time, perhaps close to the Middle and Upper Devonian boundary, hence the site's conservation value. Two of the fishes are typical of earlier Middle Old Red Sandstone assemblages, but *Asterolepis thule* has more in common with Late Devonian fishes from elsewhere. The fish-bearing rocks at this site are well exposed, and more finds may be made.

References



(Figure 6.31) The antiarch *Asterolepis thule* Watson from Sumburgh Head, c. x 0.2. Reconstruction after Janvier (1996).



(Figure 6.29) Sketch map of the geology of south-east Shetland, including Exnaboe and Sumburgh Head (after Mykura, 1976).