

Britain's oldest agnathans

(Plate 1)

SIR – Bulk rock samples of various lithologies from Llandovery and lower Wenlock strata of the Welsh Borderland have been processed by one of us (R. J. A.) for the recovery of phosphatic microfossils. In addition to rich conodont faunas, described by Aldridge (1972), a few samples have yielded a small number of thelodont scales. These occurrences are of importance because they provide new evidence about the early agnathans of Britain and because all the new sites contain species not previously recorded from the Welsh Borderland.

The oldest thelodont scales recovered in this investigation are from two localities in Shropshire where the strata are of probable Idwian (Middle Llandovery) age. The calcareous sandstones of the Venusbank Formation in Hope Quarry, near Minsterley, (SJ/3551 0208) have yielded a single scale (from sample HQ3 of Aldridge, 1972) and a further specimen has been obtained from a band of argillaceous limestone in the mudstone development of the *Pentamerus* Beds exposed at New House Farm, Marshbrook (SO/4341 8982). Both specimens are body scales of *Logania scotica* (Traquair) which has been described fully by Gross (1967). Although the precise ages of these two horizons have not been conclusively established, there is evidence for an Idwian age at each locality (see Aldridge, 1972, p. 138). In any event, the specimens are certainly no younger than lowermost Fronian and, therefore, represent the oldest vertebrate remains recorded in Britain to date. They also possibly represent the oldest thelodont remains recorded in the world, as records of Ordovician thelodonts from Russia (Rohon, 1899) and North America (Stetson, 1931) are of questionable validity. The Llandovery thelodonts found in Siberia (Moskalenko, 1968) may be of similar age to the earliest British specimens.

Argillaceous limestone bands in the *Pentamerus* Beds were also sampled at Hillend Farm, Plowden, Shropshire (SO/3956 8769), where the strata are of Fronian age. The bulk samples from this locality yielded a total of six scales, referable to *Logania scotica* and a new species of *Katoporus*.

The Telychian Wych Beds of the area to the N and W of the Malvern Hills have also yielded thelodont scales. *Logania scotica*, again, is present in a bioclastic limestone near the base of the formation on Old Storridge Common (SO/7438 5114). A fairly rich collection from bioclastic limestone bands in Gullet Quarry (SO/761 381) is dominated by body scales of *L. scotica*, but also includes some transitional and head scales as well as a few scales of *Katoporus* sp. Specimens of *L. scotica* and *Katoporus* sp. were also obtained from richly fossiliferous limestone bands of uppermost Llandovery age exposed south of Ticklerton, Shropshire (SO/481 901).

The only previous record of upper Llandovery thelodonts in the Welsh Borderland is that of Squirrel (1958), who found six scales in the *Petalocrinus* Limestone of Upper Littlehope, Herefordshire. Turner (1973, p. 560) identified five of these scales as *Thelodus parvidens* and suggested that the other may represent a *Logania* head scale.

All the thelodont material previously recorded from the marine Silurian of the Welsh Borderland is, like the Upper Littlehope collection, referable to the *Thelodus parvidens* fauna (Turner, 1973). *Logania scotica* and *Katoporus* sp. nov. are here recorded from the Welsh Borderland for the first time. These new finds indicate that there was a provincial link in upper Llandovery time between the Welsh Borders and Scotland, where *Logania scotica* was first found intact. A possible faunal link between Scotland and Siberia, where scales indistinguishable from *L. scotica* occur in the Llandovery, was suggested by Turner (1973, p. 576).

The scarcity of thelodont specimens in the British Llandovery is indicated by the size of the bulk samples from which the present scales were extracted. For example, the single specimen from Hope Quarry is from a 14 kg sample, and over 100 kg of limestone

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were processed to isolate the six specimens from Plowden. Many large rock samples have not yielded any thelodont material. It is thus apparent that bulk sampling will probably be necessary to recover more information about Britain's early vertebrates, but the possibility must be strong that even older vertebrate material remains to be found.

References

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EXPLANATION OF PLATE

Plate 1. Llandovery thelodont scales.

1–3. *Logania scotica* (Traquair) from Hope Quarry, Shropshire. Dorsal, ventral and lateral views of body scale; specimen no. G39.50. × 100.

4–6. *Katoporus* sp. nov. from Plowden, Shropshire. Dorsal, ventral and lateral views of transitional scale; specimen no. G39.51. × 70.

7–8. *Logania scotica* (Traquair) from Gullet Quarry, Malvern Hills. Dorsal and ventral views of body scale; specimen no. G39.52. × 70.

9. *Logania scotica* (Traquair) from Gullet Quarry. Body scale; specimen no. G39.53. × 70.

Photographs by Mr D. J. Jones. Figured specimens housed at the Hancock Museum, Newcastle-upon Tyne.

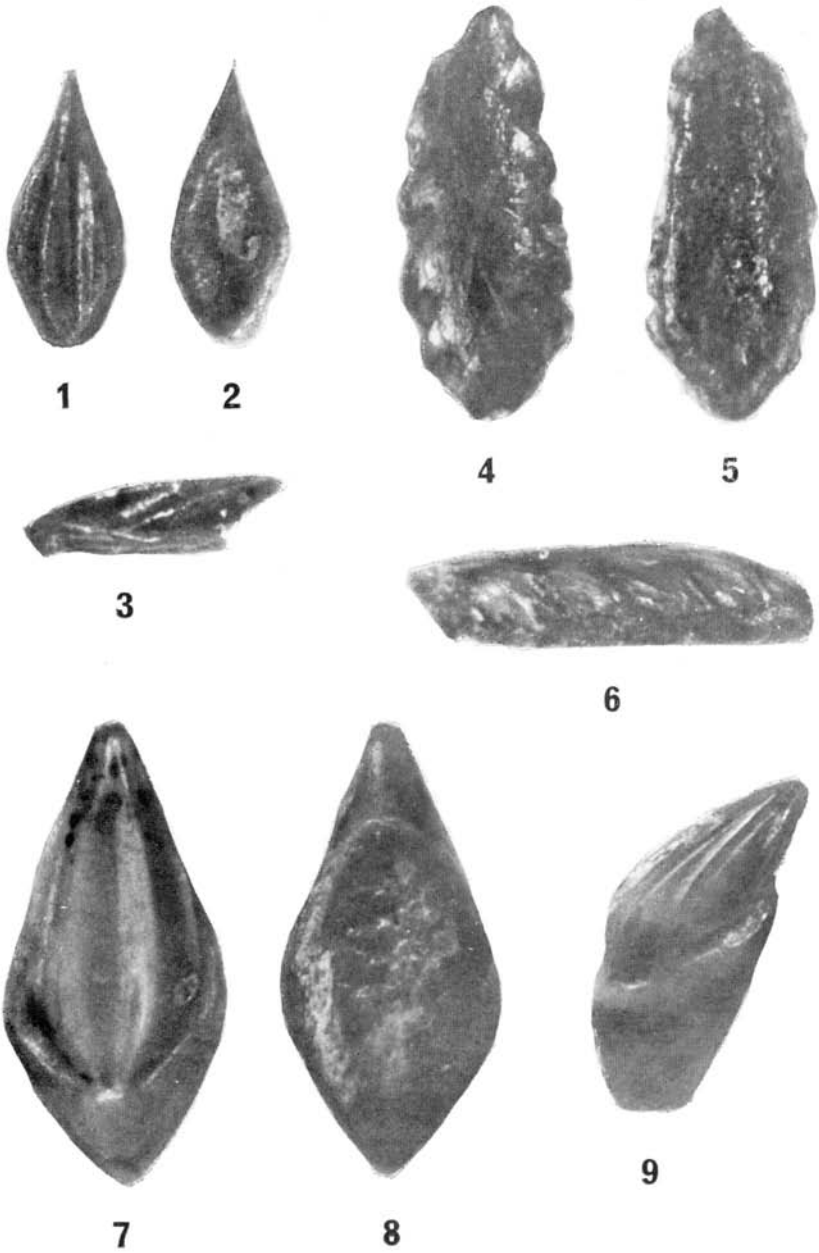


Plate 1. Llandovery thelodont scales.