ISSN 1750-855X (Print)
ISSN 1750-8568 (Online)

Field Meeting Report: The Shelve Inlier, led by Bill Dean 17th May 1987

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BEALE, S. (1988). Field Meeting Report: The Shelve Inlier, led by Professor W.T. Dean 17th May 1987. *Proceedings of the Shropshire Geological Society*, **7**, 8–14. The purpose of the field meeting was to visit key exposures within the Ordovician Shelve Inlier. The primary aim of this excursion was to examine rock types of Arenig and Llanvirn age, as well as lower Silurian strata that were deposited unconformably on the Ordovician rocks, following folding and erosion of the latter during late Ordovician times.

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INTRODUCTION

The Shelve Inlier is an area of about 111 km^2 of Ordovician rocks, surrounded largely by unconformably overlying Silurian strata. It is located west of the upland area of resistant Precambrian rocks that constitutes the Long Mynd, from which it is separated by an important structural line, the Pontesford-Linley "Lineament" (or fault system).

East of the Lineament, the Ordovician succession comprises only rocks of the Tremadoc Series (Shineton Shales) and Caradoc Series.

West of the Lineament, the Ordovician sequence includes the Tremadoc, Arenig, Llanvirn, Llandeilo and Caradoc Series. The large overall thickness (at least 1000 m) is made up of volcanic as well as sedimentary rocks.

The primary aim of this excursion was to examine rock types of Arenig and Llanvirn age, as well as lower Silurian strata that were deposited unconformably on the Ordovician rocks, following folding and erosion of the latter during late Ordovician times.

The inlier is famous for its lead/zinc mineralisation and until a few years ago we would have expected to visit one of the old mine tips to collect such minerals as galena (PbS), sphalerite (ZnS), barytes ($BaSO_4$) and calcite ($CaCO_3$). Many of the more accessible tips have now disappeared but it had been hoped to find a suitable stop.

The geological outcrops and structure are illustrated in Figures 1 to 6.

ITINERARY

LOCALITY 1: Tasker (or Tasgar) Quarry

A once classic locality, subsequently neglected and overgrown, but now once more available. Stapeley Volcanic Group: andesitic tuffs (quarried for roadstone) interbedded with grey shales and silty mudstones in which fossils occur (*Platycalymene*, *Pricyclopyge*, *Stapeleyella*).

Radiometric dating of the tuffs gave an age of 487 ±13 Ma.

LOCALITY 2: Shelve Hamlet

Silty mudstones in the Mytton Flags, and of lower Arenig age, contain dendroid graptolites at the section in the field near Shelve Church. Access, once forbidden, has been granted by Mrs Wyke of Shelve Farm. A new excavation near the farm will also be visited, though the rocks are probably too fresh to provide good collecting.

LOCALITY 3: Bergam Quarry

Grey mudstones in the higher part of the Mytton Flags (and once known as the Tankerville Flags) are well exposed and cut by a dolerite dyke, one of a number of igneous intrusions that cut the Ordovician, but not the Silurian rocks of the inlier.

Fossils are not common but include the upper Arenig zonal index *Didymograptus hirundo* and some trilobites (*Bergamia*).

LOCALITY 4: Cranberry Rock

This prominent feature formed by the Stiperstones Quartzite provides a good viewpoint from which

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to see the main features of the inlier's geology. The rock is a clean, well-cemented, white quartzite and marks the beginning of a marine transgression following a break in sedimentation; the underlying strata, Shineton Shales, are poorly exposed but occupy much of the valley west of the Long Mynd.

LOCALITY 5: Hope Rectory

Hope Shales form the rock unit with the largest outcrop in the inlier, but the strata are usually weak and poorly exposed. In the roadside southeast of Hope Rectory dark grey mudstones are seen, interbedded with so-called "Chinastone Ash", one of a number of fine-grained andesitic tuffs within this unit. The rocks here are conspicuously folded as part of the folding that produced the Shelve Anticline.

LOCALITY 6: Hope Brook

Grey mudstones of the Hope Shales are exposed near the junction of Hope Brook and the road leading south to Santley. The rocks, of lower Llanvirn age, are weaker than at Hope Rectory and have yielded trilobites and small, conical shells (hyolithids) of uncertain position, but probably molluscs.

LOCALITY 7: Hope Quarry

Sited by the north side of the A488 road about 1.3 km northeast of Hope, the quarry is a protected site, though somewhat overgrown by trees nowadays. Hammering is strictly limited.

This section is a classic one, and shows clearly strata of lower Silurian age resting with marked unconformity on Hope Shales. Most of the Silurian strata are unfossiliferous sandstones, but some are calcareous and contain abundant brachiopods.

ACKNOWLEDGEMENTS

Nearly 30 members of the Shropshire Geological Society met on a cool, damp morning at Tasker Quarry. Professor Dean proceeded to take us around the sites and was very informative and impressive when identifying the small imprints and fragments of trilobites and brachiopods that were found at many of them.

For all the members that attended, whether they knew the area or not, it was an extremely good day, with some unusual finds from these rather unfossiliferous rocks.

Disclaimer - The information contained in this account has been prepared from notes taken during the field meeting. Its sole aim is to provide a record of what was seen and provide an insight into the diversity of Ordovician geology exposed across the Shelve Inlier. It should not be used for any other purpose or construed as permission or an invitation to visit the sites or localities mentioned.

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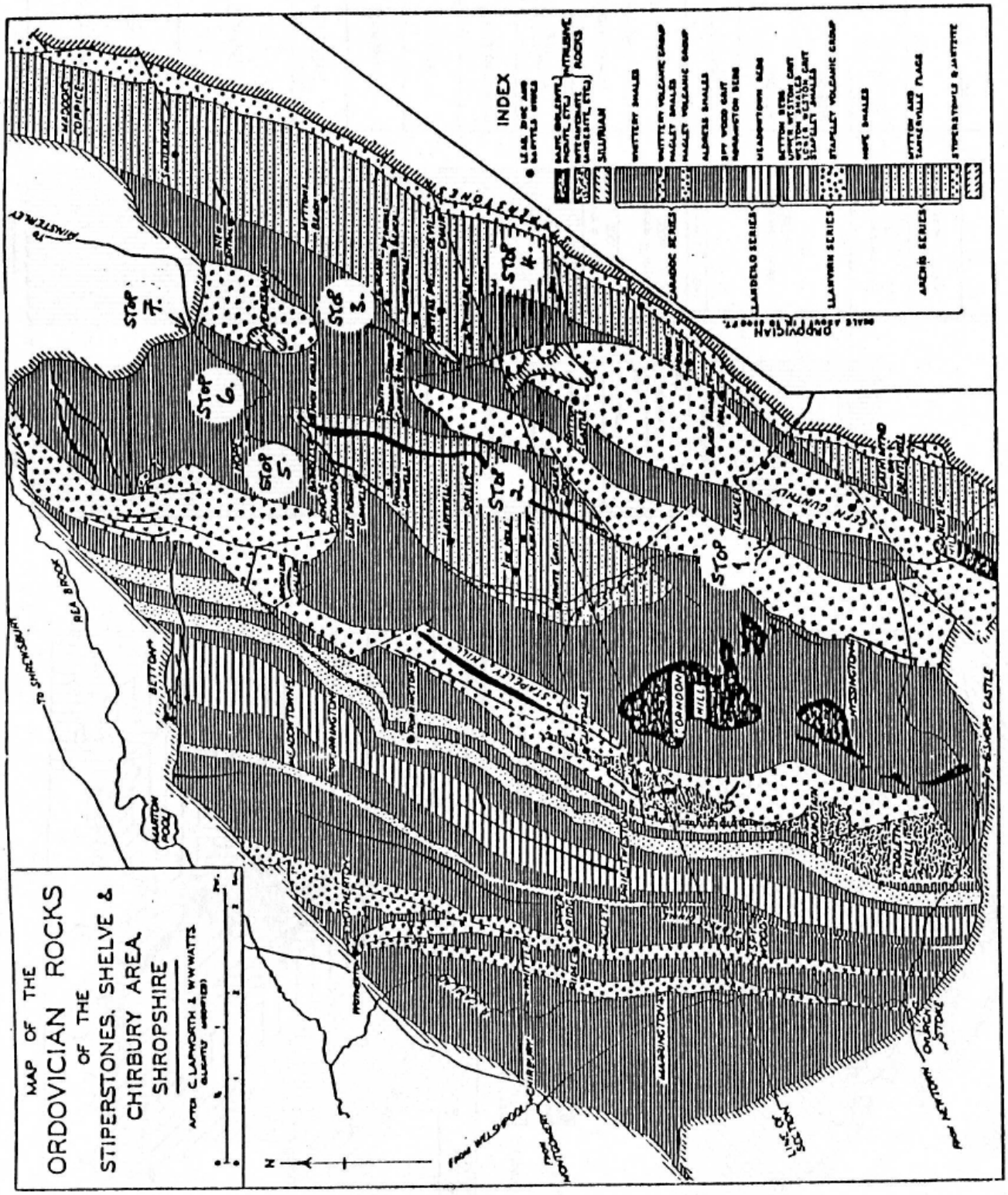

Figure 1: Geology of the Shelve Inlier.

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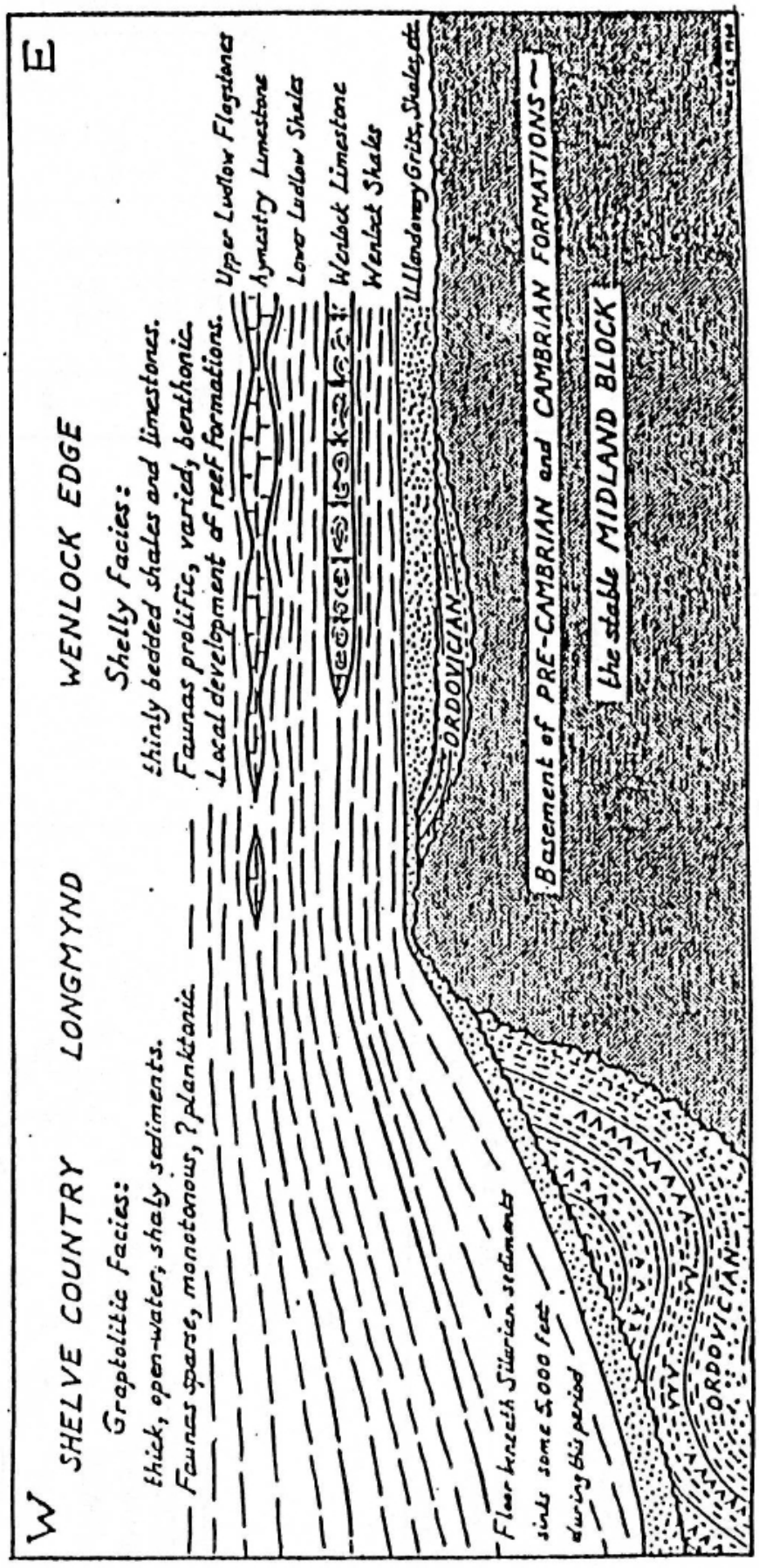

Figure 2: Generalised section to show the distribution of formations across the Church Stretton Disturbance towards the end of Silurian times.

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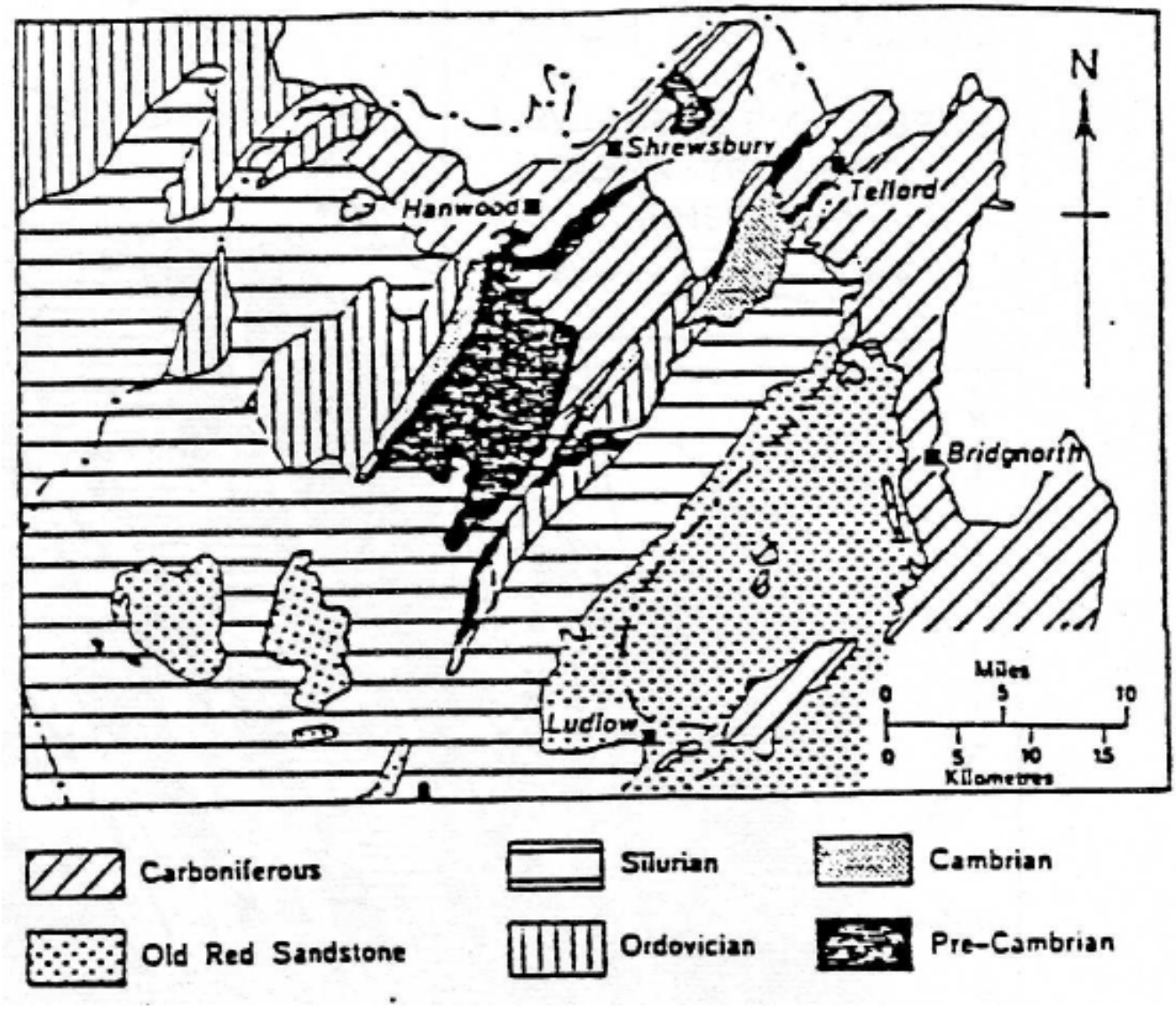

Figure 3: Geology of Shropshire.

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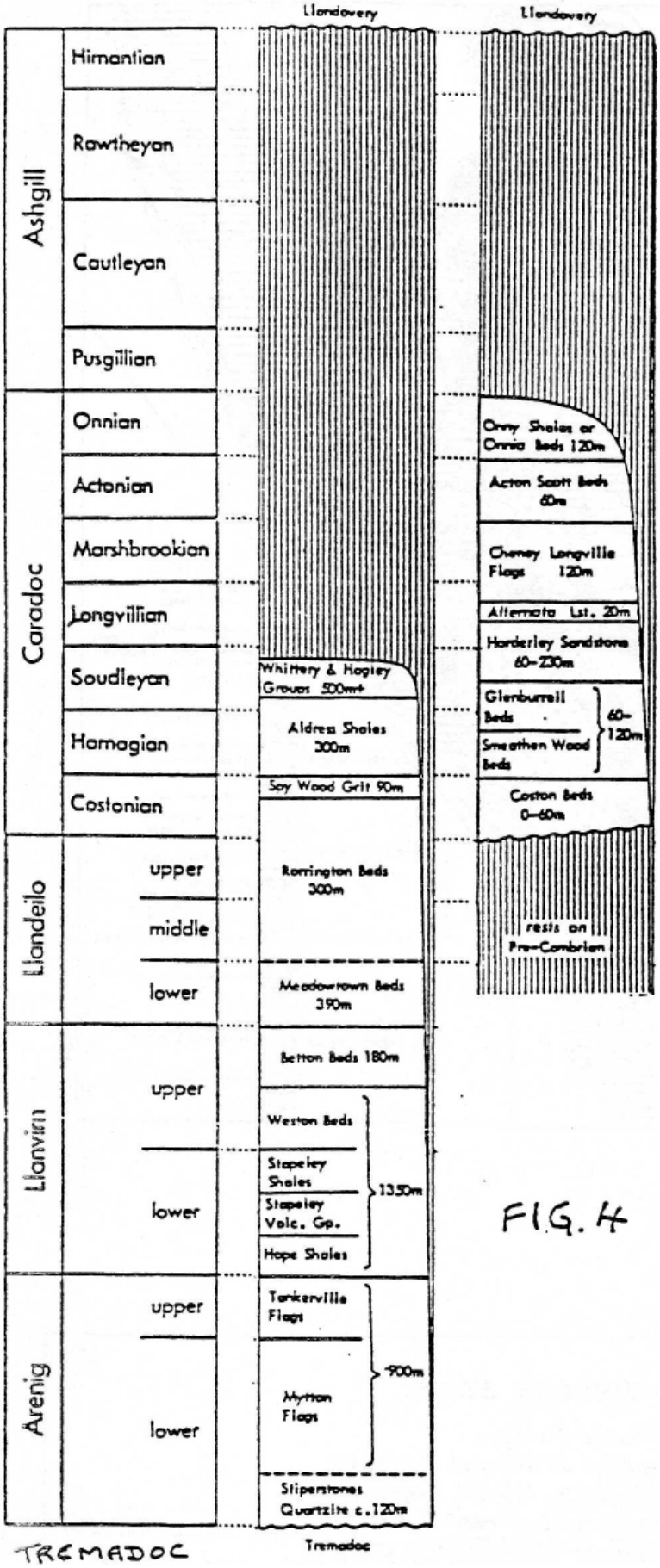

FIG. 4

Figure 4: Stratigraphic column for the Ordovician.

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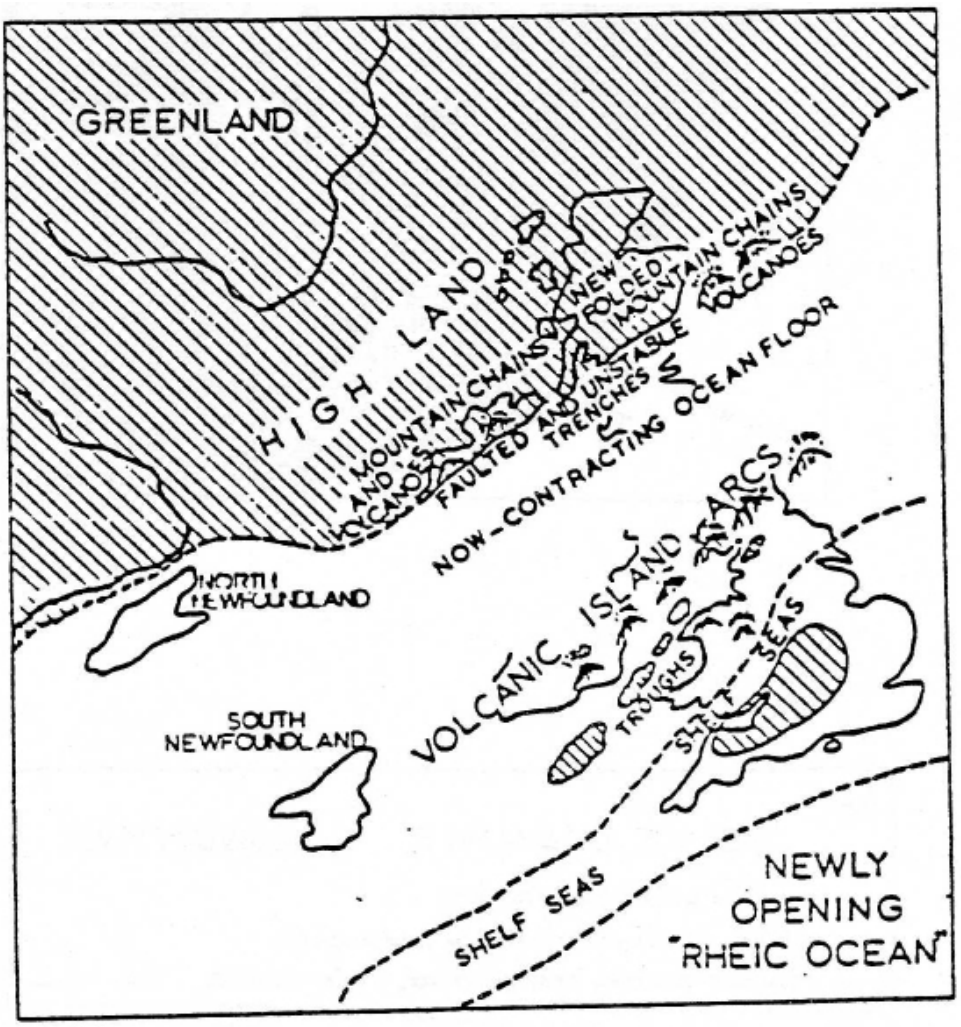

Figure 5: Palaeogeography for the British Isles during the Lower Ordovician.

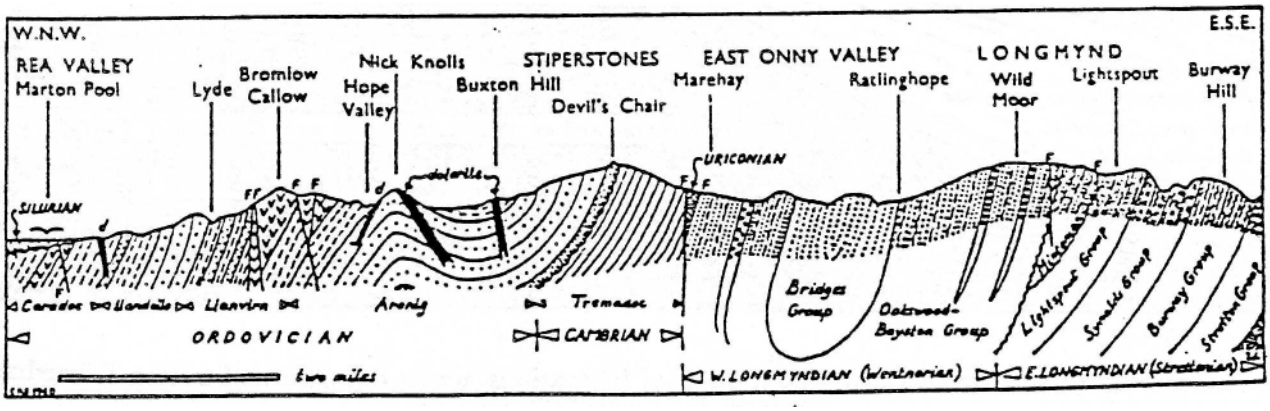

Figure 6: Section across the Shelve and Ritton Castle folds, and the recumbent syncline in the southern part or the Longmynd (partly after James). vertical exaggeration *ca*. x3.

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ISSN 1750-855x