

The fossiliferous series has highly metamorphosed rocks of pre-Devonian appearance both to the East and West. Baker, Weiss, and others of the Birmingham Expeditions of 1948 and 1951 have been working on the tectonic implications in conjunction with their work in the St. Jonsfjorden area further north.

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#### THE AGE OF THE MALVERN FOLDING

SIR.—Perhaps the provider of part of the stimulant (or irritant according to viewpoint) which encouraged Mr. W. Mykura to produce his note on "The Age of the Malvern Folding" (*Geol. Mag.*, Nov.–Dec., 1951), may be allowed to welcome the new facts now available. Even a suggestion that Middle Coal Measures may be represented in the Abberley district is important, because it shows how unwise it is to assume that Middle Coal Measures cannot be present beneath the Trias on the east side of the Malverns.

I think, however, that Mr. Mykura's treatment of the tectonics obscures the unknown. In his text-fig. 2 he boldly shows at Wallhouse a post-Triassic fault with a minimum downthrow of 750 feet to the east, without any supporting evidence. And between Woodbury Hill and Walsgrove Hill he has shown a most remarkable tectonic phenomenon—a *normal* fault which, according to his map (text-fig. 1) follows the bedding for one mile, parallel to the outcrops to the west, turning a 45° corner in the process. Even if such a fault were probable, it requires the easterly outcrop of Aymestry Limestone to be inverted, which should be readily demonstrable, and also the presence of Lower Ludlow on the east. No evidence is given to support either of these requirements, and I am not aware that any has been published. Without such evidence, Groom's original interpretation of the Silurian structure is preferable.

There appears to be a misprint in the middle of p. 390; the dip of 73° to E. 10° S. in the Coal Seam on Ladywood Common, the most important piece of tectonic evidence in favour of post Morganian folding, is shown on the map directed W. 10° S. This dip is placed immediately east of a fault downthrowing 300 feet to the east. Is this throw firmly based, or has it been introduced to allow sufficient room for the steep dips recorded in the Coal Measures to flatten out to the West?

I have often wondered whether some of the folding on the west side of the Malvern line may not be of post-Triassic age. Professor W. F. Whittard (*Geol. Mag.*, 1949, p. 375 and fig. 1) has described post-Triassic thrust fault towards the north-west in the Chepstow area, and Dr. J. S. Turner (*Proc. Geol. Assoc.*, 1927, p. 372) has published evidence for a post-Permian thrust in the Westmorland Pennines. It seems therefore possible that some of the complications with north-south and north-east-south-west strikes in the intervening area may have been produced by post-Triassic compressive movements.

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