

## CORRESPONDENCE

## THE STROLLAMUS AREA OF SKYE

SIR,—Two recent papers by Sir Edward Bailey published in the *Geological Magazine* present a review of earlier work in this area and offer interesting reinterpretations.

The papers are essentially attempts to reconcile field observations with two assumptions by Bailey:—

- (a) that since the Torridonian of Scalpay appears to be autochthonous, that on Creag Strollamus is likely to be structurally similar, in contradistinction to the undoubtedly allochthonous character of the Torridonian south of Broadford,
- (b) that Tertiary basalts, if normal extrusive lavas, necessarily near on Mesozoics, so that their juxtaposition with Torridonian in the Strollamus area is to be explained otherwise than by unconformity.

In the first paper Bailey concludes that whereas Cambrian outcrops near Broadford are “windows” in the overlying Torridonian, closely comparable outcrops on the south-eastern slopes of Creag Strollamus are klippen resting on Torridonian.

The only direct evidence that Bailey offers for his view is to be found at a locality a mile west of Broadford where he “thinks it practically demonstrated that we have in this case a window which in the past has been mistaken for a group of klippen”. This alone of the “local appearances” is, Bailey considers, to be accepted “as trustworthy”, since it enables the Torridonian of Creag Strollamus and Scalpay to be regarded alike as autochthonous.

In fact, however, in the Creag Strollamus area all the observational data consistently support Harker’s original view. Where the boundaries are irregular in plan, the Cambrian forms well-marked topographic depressions below the encircling Torridonian, the clearest example being seen to the south-south-west of the summit. At the southern end of this “window”, Cambrian occupies the floor and Torridonian the sides of a gully. On the south side of a small gorge formed by the upper course of Allt Fearnna an actual junction is seen between Cambrian and overlying Torridonian.

Faults have not been invoked, as Bailey seems to imply, merely to overcome difficulties in supposing all Torridonian-Cambrian boundaries to be thrust. In many cases the faults can actually be seen and in upper Allt Fearnna both the sub-horizontal thrust-plane and a vertical fault may be recognized in the same exposures. Indeed detailed mapping shows that the faults form a distinct NE-SW pattern, often determining stream courses and minor scarp features.

In the second paper Bailey infers that the Strollamus lavas do not rest unconformably on Torridonian but occupy a “volcanic inbreak”. This he claims as the “obvious alternative” explanation for the elaborate junction between basalts and Torridonian on the steep north-eastern slopes of the hill. That at this junction the lavas are often transgressive in detail was clearly recognized (King, 1953, p. 361), but there are also numerous places at which it can be shown that the lavas are no more than a thin veneer resting on Torridonian. Moreover, on the larger scale the supposition that the basalts irregularly and quite fortuitously cut through the Torridonian is difficult to reconcile with their perfectly regular trap-featuring. The “shattering” which is often seen in the Torridonian and which Bailey (p. 111) cites as evidence that the “Torridonian was upheaved alongside the Strollamus sink” affects basalts, gabbros and granites alike, so that its connection with the volcanic episode is questionable. The analogy Bailey (p. 112) implies between the small, highly irregular penetrations of basalt into Torridonian and the well-defined dykes and boss-like masses farther to the south-west does not represent a fair appraisal of the observational data.

Bailey makes no reference to the innumerable little sheets and occasional dykes of “dark and xenolithic porphyries” (King, *op. cit.*, p. 393) which are prevalent around the Torridonian-basalt boundary throughout the area.

These are light weathering rocks of andesitic affinities, often closely resembling the finer-grained Torridonian rocks in the field and could easily confuse observation during a cursory visit to the area. Even on the large-scale map (King, *op. cit.*, Plate I) it has been quite impossible to represent these minor intrusive masses in their entirety. Bailey (p. 110) having apparently collected and sectioned this material, has concluded that the crag at the summit of the steep face of Creag Strollamus consists wholly of andesite, which he seems to regard as belonging to the lava series.

Why Bailey (p. 113) should refer to the Broadford gabbro as "dolerite" is difficult to understand. Much of it is considerably coarser in texture than many Tertiary gabbros. Perhaps the term is used because it gives an air of greater probability to the interpretation of the narrow belt of gabbro as a dyke. It is apparent from the field relations that this belt is not a dyke in the ordinary sense and the indications that it is bounded by faults are very clear (King, *op. cit.*, pp. 373-4). It is, however, to be emphasized that the form of the gabbro belt and its structural relations with the Broadford gabbro, a relationship which Bailey makes no pretence at understanding, are to be judged quite independently of the *hypothesis* that the gabbros represent metamorphosed lavas (King, *op. cit.*, p. 382).

Regarding Bailey's "speculation" (p. 114) as to the mode of emplacement of the gabbro within the Durness limestone, one can only express bewilderment at such a grotesque solution to the space problem. If it is difficult to understand how a given volume of limestone has been replaced by the *same* volume of gabbro, how much more difficult is it to imagine *very many times* this volume of "subterranean acid water" dissolving the limestone "before or during the arrival of magma on the scene". Apparently the gabbro magma was erupted into limestone caves.

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