method 1, compares the moment lost after demagnetizing for a fixed time at a given temperature, with the moment gained in a known field after holding for the same time at the same temperature. My new method, method 2 (see ref. 1), also compares the moment lost in zero field on holding the sample for a fixed time at a temperature with the moment gained in the same time period in the laboratory field. In method 2, because the moment of the sample is being monitored continuously, several readings can be made while the sample is hot and, to improve the statistical accuracy, the slope of the best straight line through the points is used instead of simply taking the difference between the first and last reading. Thus, the 'theoretical assumptions' on which our methods depend are, up to this point, identical.

The two methods do differ in the means they use to detect alteration, as discussed in refs 1,2. The important point is that alteration was detected using method 2, but was not detected using the linearity test of ref. 2.

In the event that alteration is complete by the end of the first heating in method 2, it would still be detected as a sudden change in the value of the ancient intensity at that temperature. Method 2, in other words, also incorporates a 'linearity test'.

In any case, the point is not that alteration has been missed but that it has been detected. Almost all the material between 1200 and 300 BC showed evidence of alteration at temperatures below 350 °C. If the altered points were used, high values were obtained for the ancient field in good agreement with refs 2 and 3. If points with no evidence of alteration were used, the increase that Aitken *et al.* report, forming the basis for their dating method, disappears.

It will be useful to compare these results with those obtained using the Shaw method. At present Aitken *et al.* report nine values. Of these, three are dated 1500 BC where there is no disagreement. In assessing the remaining six it is important to consider their internal consistency: results between 1250 and 950 BC are between 58 and 72 μT with the Thellier and 51 and 71 μT with the Shaw method. In the same period, nine lie between 46 and 54 μT. With so few results the difference is hardly significant.

D. WALTON

Physics Department,
McMaster University,
1280 Main Street West,
Hamilton, Ontario,
Canada L8S 4M1

Bullard Laboratories,
Department of Earth Sciences,
University of Cambridge,
Madingley Rise,
Madingley Road,
Cambridge CB3 0EZ, UK

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A Grenville Sm/Nd age for the Glenelg eclogite

SANDERS *et al.*[1] present data indicating that eclogites within the eastern Lewisian inlier at Glenelg equilibrated at ~1,100 Myr BP at temperatures and pressures of ~700 °C and >12 kbar. On the basis that the overlying Moine cover shows no sign of having exceeded conditions for the lower amphibolite facies, they conclude that the Moine was deposited unconformably on a deeply eroded Lewisian basement following Grenville age metamorphism, a view at variance with much recent work which regards the Moine as a series of late mid-Proterozoic metasediments that underwent widespread metamorphism and deformation at ~1,100-1,000 Myr BP[2-5]. Whilst the data produced by Sanders *et al.*[1] is not in dispute, their conclusions relating to the conditions of metamorphism of the eclogites and thus the age of sedimentation of the Moine may be questioned.

We consider the suggestion of Sanders *et al.*[1] that the eclogites were metamorphosed at pressures of >12 kbar questionable on four counts. (1) Mineral parageneses and tabulated phase chemistries are not those of an eclogite in the strict sense but of a medium- or high-pressure granulite. Consequently, deriving a pressure by analogy with Green and Ringwood's[6] eclogite field is inadvisable. More realistic pressures of as low as 6 or 7 kbar could be derived from their granulite field. (2) Although Sanders[7] implies that he has corroborative evidence from the garnet/plagioclase/kyanite/quartz geobarometer, this is as yet unpublished and, in view of the problems inherent in modelling plagioclase and garnet activities, may not be conclusive. (3) We have examined staurolite/garnet/kyanite/biotite/quartz-bearing gneisses from the eastern Lewisian in which, on textural criteria, we are confident that all coexisting phases are of Grenville rather than Caledonian age. At temperatures of 650-700 °C, staurolite and quartz will not be stable at pressures in excess of 8 kbar[8,9]. (4) It has been repeatedly shown that garnet-pyroxenite assemblages comparable to those described from Glenelg are stable at relatively low pressures in rocks undergoing dry metamorphism at amphibolite facies conditions[10-12]. These pressures could well be consistent with both the pressure stability limits of staurolite and quartz and pressure estimates of 6-8 kbar obtained from mineral assemblages coeval with the early pre-Caledonian metamorphism within the Morar division Moine (D. Barr, personal communication), in which case there may be no significant difference between the metamorphic conditions of the Eastern Lewisian and those of the Moine.

In this light a more reasonable explanation is that the ~1,100 Myr BP age[1] dates both the equilibration of the eclogites and the initial amphibolite facies metamorphism of the Moine. Isotope data considered to relate directly to the age of initial metamorphism of the Moine includes Rb/Sr whole-rock ages of ~1,100-1,000 Myr BP on the Morar and Lochailort pelites and the Ardgour gneiss[13-15], which are interpreted by Sanders *et al.*[1] as dating sedimentation and diagenesis rather than metamorphism. Whilst the interpretation of the isotope data relating to the metasediments is equivocal[16], we note that the Ardgour gneiss is now generally regarded as a member of an extensive suite of deformed granitic intrusions where emplacement was coeval with amphibolite-facies metamorphism and widespread deformation within the Moine.[3-5,17]. Given that there is no indication of any major structural or metamorphic break of Precambrian age between the south-west Moine and Glenelg[18], it seems difficult to avoid the conclusion that the initial metamorphism of the Moine occurred at ~1,100-1,000 Myr BP.

R. A. STRACHAN
P. J. TRELOAR

Department of Geology and Physical Sciences,
Oxford Polytechnic,
Headington,
Oxford OX3 0BP, UK

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SANDERS REPLIES—Strachan and Treloar favour contemporaneous (1,100-1,000 Myr BP) metamorphism for both the eclogite-bearing basement and the Moine cover in the Glenelg region. To sustain their view, they suggest that the abnormally high metamorphic pressure