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Letter to the Editors

The Relationship between Depth of Burial and Mean Intensity of Magnetization for Basalts from Eastern Iceland

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In a recent publication Wilson & McElhinny (1974) have reported a variation in the mean intensity of magnetization in basalts from a series of lava profiles from eastern Iceland (Dagley *et al.* 1967). They suggested that the observed increase in the intensity of magnetization from profiles 6 to 5 (Fig. 1(a)) might be due to basalts from the younger profiles (1–6) being geochemically distinct from the lavas from the older parts of the succession (profiles 7–21). This possibility remains, but a second explanation should be considered.

Fig. 1(b) shows the approximate position of each of the vertical profiles in relation to the probable top of the lava pile and the underlying zeolite zones. It is noteworthy that profiles 7–13 sample the deeper parts of the pile and that these profiles possess the lowest magnetic intensities. The inverse relationship between the intensity of magnetization and the depth of burial suggests that burial and the associated hydrothermal alteration have been important in partially demagnetizing the original magnetic moment of these rocks. This suggestion is supported by the work of Ade-Hall, Palmer & Hubbard (1971) who showed that significant oxidation of the magnetic phases due to zeolitization occurs at depths below the analcite zone.

The nature, if any, of primary chemical variation within the lava pile is at present under investigation and preliminary work (Wood *et al.* 1976) suggests that the succession as a whole follows a single compositional trend.

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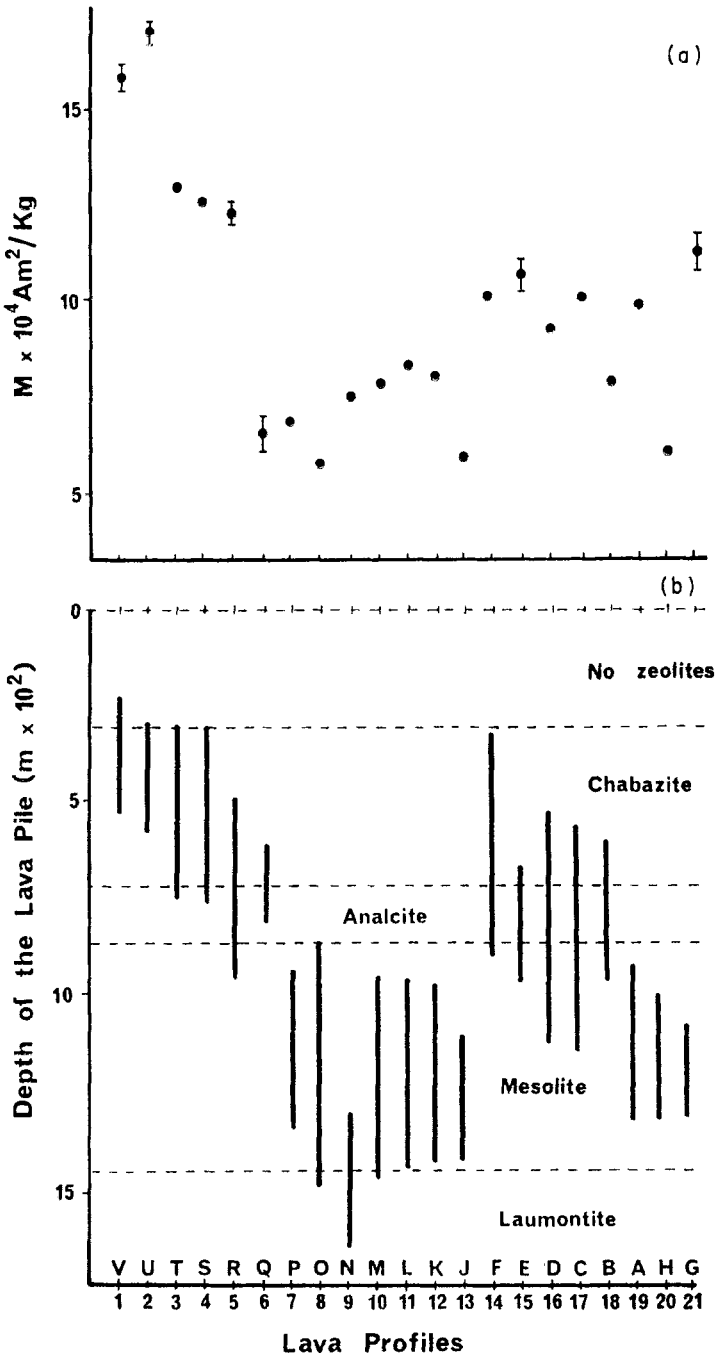

FIG. 1(a) The mean intensity of magnetization of basalt lavas from 21 profiles from eastern Iceland (Wilson & McElhinny 1974, Fig. 6). (b) The position of the vertical profiles in relation to the postulated top of the lava pile and the underlying Zeolite grade metamorphic zones (information after Walker 1960).