Micropalaeontological evidence for the age of the Borrowdale Volcanic Group

SIRS – In a recent letter to the Geological Magazine, Dr N. J. Soper (1987) quoted me, stating that ‘new micropalaeontological evidence...suggests that most of the (Borrowdale) volcanic pile was erupted during Caradoc time’. The micropalaeontological evidence comprises acritarchs from sediments of the Borrowdale Volcanic Group in Holehouse Gill [SD 182 926]. A fuller discussion of the acritarchs and their position in the Borrowdale sequence is currently in preparation (with Dr E. W. Johnson), but in the meantime I would like to respond briefly to Dr Soper’s letter indicating precisely how I now interpret their age.

The acritarchs are poorly preserved and sparse but they occur in one third of the samples collected. Nearly twenty taxa have been recorded but most are either long-ranging species or are determined only at generic level. The Caradoc (as opposed to pre-Caradoc) age relied principally on the occurrence of one species, Veryhachium irroratum Loeblich & Tappan. In Britain, this species has been recorded only from the Caradoc (Turner, 1984). Outside Britain, most records are also from rocks which have been assigned a Caradoc or younger age. These include:

1. Mountain Lake Member, Bromide Formation, Oklahoma, USA (including the type material, Loeblich & Tappan, 1969). According to Sweet & Bergström (1976), most of the member is of Caradoc age but a Llandeilo age cannot be discounted. I still favour a Caradoc age for the acritarch assemblage from the Borrowdale Volcanic Group; but the evidence is not conclusive and a Llandeilo age cannot be discounted. I regret that I may have led Dr Soper to believe that the micropalaeontological evidence was stronger than it now appears.

2. DjefTara Formation, north-west Libya (Deunff & Massa, 1975).
5. Ouaouglout Member, Lower Ktaoua Formation, Morocco (Deunff in Destombes, Hollard & Willefert, 1985, p. 197).
6. Orphan Knoll, offshore Canada (Legault, 1982).
15. Ross, R. J. (& 27 others). 1982. The Ordovician System in the...


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