J.C. Briden: Palaeomagnetism and tectonic displacement

Professor Briden of Leeds University, and who has recently taken up the post of Earth Sciences Director at NERC, took the opportunity of presenting this talk (on 20 March 1986) while in Malaysia as an external examiner at the Geology Department of University of Malaya.

Professor Briden reviewed the achievements and state-of-the-art of palaeomagnetism in which he is a leading figure. The role that palaeomagnetism has played in tracking the motions of the continents across the surface of the earth was clearly presented along with the palaeomagnetic signatures of continental collisions and fragmentations. Professor Briden pointed out that few significant revisions have been made to the apparent polar-wander paths of the major continental units over the last ten years, and that current research is shifting to the problems of tracking motions and rotations of smaller "displaced terrains" such as those accreted onto the western coast of Northern America. Throughout his talk Professor Briden explained the importance of petrological studies to understand the mode and history of the magnetisation of a rock and to the careful relating of that direction to any isotopic age determination. This was illustrated with several examples, many from his own research group at Leeds. One such study was a determination of the peak resetting temperature for a magnetization due to the nearby intrusion of a dyke. These temperatures were determined at different distances from dykes of varying width, and could be related to modelled temperature profiles. Professor Briden cautioned however that rarely are pure thermoremanent magnetizations measured, because generally the iron oxide grains which carry the remanence are altered during the temperature changes, and that this gives rise to a chemical remanent magnetization. During the lively debate that followed the talk it was clear that the audience was appreciative of a geophysicist who is attentive to the geological complexities of the system he works with.

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