

PALAEOMAGETISM

by

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Abstract

Many igneous and sedimentary rocks have been shown to possess remanent magnetization. The direction of this magnetization can often be shown to have changed little since early in the history of the rock. The directions of magnetization of such "stable" rocks in one continent vary greatly through the geological column. If it is assumed that on the average the geomagnetic field is a dipole then the directions of magnetization may be represented by a slow motion of the dipole axis relative to the sampling site through geological time. It has been found that there are significant discrepancies between the paths deduced from measurements in the different continents, and this is thought to show that continental drift has occurred.

Theory and observation alike suggest that the magnetic axis of the earth when averaged over times longer than a few thousand years coincides with the axis of rotation. Therefore there appears to have been considerable polar wandering at a roughly constant rate through geological time. Some comparison between the palaeomagnetic results and palaeoclimatic evidence is possible.

The geological applications of rock magnetism and the geophysical implications of the results are discussed.

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