PALEOMAGNETIC INVESTIGATIONS OF THE BASEMENT COMPLEX OF WRIGHT VALLEY, SOUTHERN VICTORIA LAND, ANTARCTICA

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Abstract: The basic magnetic properties, as hysteresis, AF demagnetization, thermal demagnetization and thermo-magnetic curve, of samples from five kinds of formations in the basement complex of Wright Valley (77.53°S in latitude and 161.63°E in longitude), southern Victoria Land, Antarctica have been measured. The results suggest that every sample has a stable component of natural remanent magnetization (NRM): the directions of NRM distributed on a meridian gathered gradually to low in latitude by thermal demagnetization up to 500°C: NRM distributed in high in latitude dispersed by thermal demagnetization less than 500°C: these characteristics are related to the Curie points of the samples.

The overall results are summarized as follows. The rocks now forming the floor of Wright Valley were heated to 500°C in the Jurassic by a hidden Ferrar dolerite body. Consequently primary magnetization was remagnetized for the samples which have a Curie point lower than 500°C, but survived for the samples included in magnetite grains. Virtual geomagnetic pole (VGP) positions obtained for samples of Cambro-Ordovician age rocks consistent with previous data from rocks of the same age in East Antarctica, the VGP being situated near the equator of Africa on the present continental distribution. The differences in the declination of the Cambro-Ordovician from East Antarctica are consistent with an angular rifting of 20°–30° having occurred subsequently with in East Antarctica, probably along the line of the Amery Ice Shelf and Lambert Glacier. The Transantarctic Mountains are a part of East Antarctica and the boundary between and East-West Antarctica may be located in Ross-Weddell Sea.

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