

PALEOMAGNETIC EVIDENCE FOR SEA FLOOR SPREADING
IN THE MURRAY FRACTURE ZONE

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ABSTRACT

The seamounts of the Murray Fracture Zone exist in northeast striking linear chains which continue uninterrupted across the fault zone. The magnetic polarity of the seamounts in each chain is uniform, indicating that there are normal chains and reversed chains of seamounts and that the seamounts of a particular chain are of approximately the same age. The large magnetic anomaly occurring in the vicinity of the Murray Escarpment is found to occur in bands of normal and reversed polarity which agree in every case with the polarity of the corresponding seamount chains. The negative and positive anomalies of east--west tracks published by Raff (1962) align with the northeast trending polarity features showing that the positive and negative banding of anomalies in this area of the Pacific represents normally and reversely polarized segments of the sea floor. The pattern of the polarity segments is not affected by faulting and the large scale strike--slip movement previously described in this area is not indicated. This research supports the hypothesis of ocean floor spreading. In the Murray Fracture Zone the sea floor has spread outward from the East Pacific Rise in an area where the crest of the rise was offset. The offset pattern of the rise is retained as a record in the orientation of the normally and reversely magnetized segments of the sea floor.