a taphrogenic phase and thus has retained much of its original buoyancy.

We also suggest that the continent-ocean transition is sharp, occurring at a near vertical cleft in the crust toward which the continental crust thins rapidly. The evidence for a region of thin continental crust under the continental rise is, however, disputable, and we suggest that the continent-ocean boundary lies about mid-way up the Plateau slope.

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Mode of Emplacement of Papuan Ultramafic Belt

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*Expanded Abstract**

The Papuan Ultramafic Belt (Figure 1A) is one of the best preserved peridotite-gabbro-basalt complexes in the world. The Belt is considered to be an overthrust sheet of oceanic crust and mantle with a thicker than normal oceanic crust.

Earlier workers have described the overthrust as resulting from north-south compression produced by the northwards movement of the Australian Plate, and a northeasterly dip is indicated by:

(a) the sequence of rock types; ultramafic rocks at the base overlain to the northeast by gabbroic rocks which are in turn overlain by ocean basalts.

(b) a gravity high offset northeast of the main outcrop of ultramafic rock, indicates the presence of dense rock at shallow depth to the northeast.

The age of formation of the complex is regarded as Jurassic or Cretaceous, and overthrusting occurred some time before the Miocene when shallow water tuffs and agglomerates were deposited on the Belt.

The Belt is cut by one major left-lateral fault and several smaller ones. Reversal of the movement along these faults (Figure 1B) suggests that the Belt was originally aligned north-south. Theoretical cross-sections of the Belt in its present configuration were constructed by assuming that it originally dipped at a shallow angle to the east and was subsequently sheared along northwest-trending strike-slip faults. The computed gravity and magnetic anomalies over these theoretical cross sections match the observed anomalies closely. Only small changes in the model are required to produce an acceptable final fit. The good agreement between the theoretical and computed cross sections support the idea that the Belt when originally emplaced had a north-south strike.

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*A full paper is in preparation for publication in *BMR Journal of Australian Geology and Geophysics.*

The oceanic basalt layer was assumed to produce the pronounced magnetic anomaly which is associated with the Belt. Magnetic models suggest that the inclination of remanent magnetism is about -60°, much steeper than the present field inclination of -31°. The conclusion from the study is that the Papuan Ultramafic Belt was emplaced by overthrusting from the east rather than the north, and that formation and emplacement occurred some 30° south of the present position.

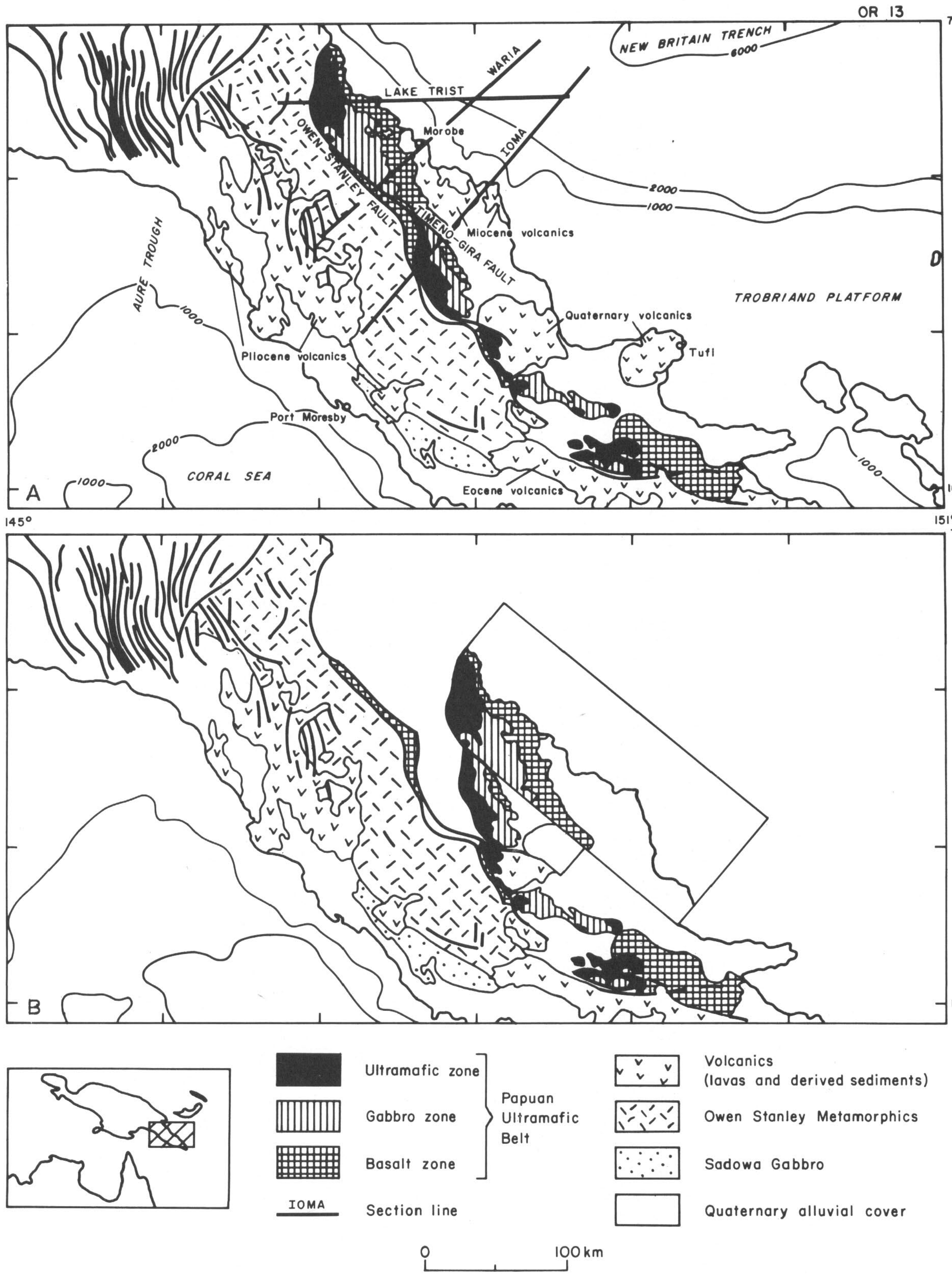

FIGURE 1(A)

Geological and locality map of the East Papua Region.

FIGURE 1(B)

Reconstruction of the Papuan Ultramafic Belt prior to shearing.