

Ceramah Teknik (Technical Talk)

Chairman's Lecture IV

**Saturday, 28 February 2004
Bilik Mesyuarat Program Geologi
Universiti Kebangsaan Malaysia**

Deformation history of the Eastern Belt, Peninsular Malaysia

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Laporan (Report)

Satu lagi ceramah teknik dalam siri Chairman's Talk Persatuan Geologi Malaysia telah dilangsungkan pada Hari Sabtu 28 Februari 2004, jam 10.00 pagi bertempat di Bilik Mesyuarat Geologi, UKM. Ceramah teknik bertajuk "*Deformation History of the Eastern Belt of Peninsular Malaysia*" telah disampaikan oleh Pengerusi Kumpulan Kerja Geologi Struktur dan Tektonik Persatuan Geologi Malaysia, Prof. Madya Dr. Ibrahim Abdullah. Ceramah teknik telah dipengerusikan oleh Ketua Program Geologi UKM, Profesor Dr. Abdul Rahim Samsudin. Ceramah teknik ini telah dihadiri oleh seramai 21 peserta. Sesi soal-jawab tamat pada jam 11.20 pagi.

Abstrak (Abstract)

It was believed that the oldest rock formation in the Eastern Belt of Peninsular Malaysia are Carboniferous to Permian age; consisting mainly of clastic and volcanic rocks with minor limestone. Continental deposits of the Late Permian and Jurassic-Cretaceous ages unconformably overlie this rock formation. The area was intruded by mafic to intermediate igneous, followed by biotite granite of the Late Permian-Early Triassic, Late Triassic granite and finally by doleritic dykes of Jurassic-Cretaceous age.

The supposed Carboniferous-Permian rocks show rather complex structures and had experienced at least two phases of folding. In certain areas, these rocks show three phases of folding, characterised by inclined to recumbent folds and thrust faults. The late Permian continental deposits were folded into open fold while the Jurassic-Cretaceous sediments are gently tilted. Apart from thrust faults, strike-slip (striking NNW and N-S) and normal faults are commonly observed. Doleritic dykes in this area are aligned in either N-S or ENE direction. Some of the N-S dykes are cut and displaced by the ENE dykes or dextral strike-slip faults. The N-S strike-slip faults are also displaced by the ENE dextral or ESE sinistral faults.

From structural point of view, it is believed that some of the interpreted Carboniferous-Permian rocks, which indicate three phases of folding, are older (pre-Carboniferous age). Based on the structural relationships observed at several areas in this belt, it is interpreted that the rocks in the Eastern Belt were subjected to two major episodes of deformation. The earlier (Episode-A) was dominated by ductile and the later (Episode-B) by brittle deformations. Further, each episode could be divided into three phases. For Episode-A; phase-1 was responsible in the development of inclined to overturned folds in the pre-Carboniferous rocks, trending ENE and probably related to mid-Devonian orogeny. Phase-2 and phase-3 were



related to the Permo-Carboniferous and Triassic orogeny respectively, producing inclined to recumbent and open folds, both trending approximately to NW-NNW. For Episode-B; Phase-4 was related to the formation of NNW to N-S dextral faults. Phase-5 corresponds to the formation of conjugate ENE dextral and ESE sinistral faults. Phase-6 was related to the displacements of the doleritic dykes and the Jurassic-Cretaceous continental deposits by the SSE sinistral or NE-SW reverse faults. The post Jurassic-Cretaceous stress system was also responsible for the reactivation of the NNW dextral faults that were developed during phase-4 and as a result these faults had moved sinistrally.

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