PERTEMUAN PERSATUAN
Meetings of the Society

Ceramah Teknik (Technical Talk)

Recent advances in tectono-sedimentary models and paleogeography of Gondwana Basins of peninsular India

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Laporan (Report)

Dr. R.C. Tewari, Senior Lecturer, Department of Geology, D.S. College, Aligarh, 202001, U.P., India, has worked on the Gondwana Basins of India for the last 18 years. He gave the above talk on Wednesday 2 March 1994 at the Department of Geology, University of Malaya, to an audience of 14.

Abstrak (Abstract)

The late Paleozoic-Mesozoic intracratonic Gondwana Basins of India represent about 5,500 m thick sediments lying unconformably upon Upper Archean/Middle Proterozoic basement. These sediments are largely clastic assemblages characterised by the glacial and glacigene rocks at the base followed by a coal-bearing sequence and finally by red beds. Besides minor marine invasion in the early Permian, there is no direct evidence of marine influence throughout the Gondwana sedimentation.

Integrated analysis based on geological and tectonic setting, lithofacies characters and dispersal and paleoflow attributes in different sedimentary formations through space and time suggest that Gondwana sedimentation commenced in reactivated Proterozoic lineaments and rifts in the Early Permian. Initially narrow linear Gondwana basins were filled by Upper Carboniferous glacigene Talchir and Early Permian braided alluvium of the Karharbari-Barakar Formations, and expanded areally as sedimentation progressed through Middle-Upper Permian Barren Measures and Raniganj Formations and Early Triassic Panchet Formation without any marked break in sedimentation. A minor tectonic uplift is, however, observed close to the Permian-Triassic boundary in the Satpura basin of central India. The Middle Triassic Epoch witnessed non-deposition in the Koel-Damodar, Satpura and Son-Mahanadi Basins of eastern and central India, whereas the sedimentation went on uninterruptedly in the Pranhita-Godavari Basin of south-central India. The reappearance of graben facies in the Upper Triassic Mahadeva and Early Jurassic Kota Formations suggest rejuvenation of braided stream deposition style, which in turn implies riftogenesis.

The Gondwana sedimentation in peninsular India took place in the northwesterly sloping paleo-valleys of Koel-Damodar, including Rajmahal, Son-Mahanadi and Pranhita-Godavari and Satpura Basins, which were drained by respective river systems from southeast to northwest. The paleogeography established at the onset of Gondwana sedimentation in Upper Carboniferous remained practically unchanged throughout Permian, Triassic and Early Jurassic times. In the Late Jurassic/Early Cretaceous the Indian subcontinent fragmented from eastern Gondwanaland. The Permian-Triassic Basins were overlain by small isolated intracratonic and pericratonic basins characterised by alluvial fan facies and a reversal in paleoslope towards the southeast and southwest.

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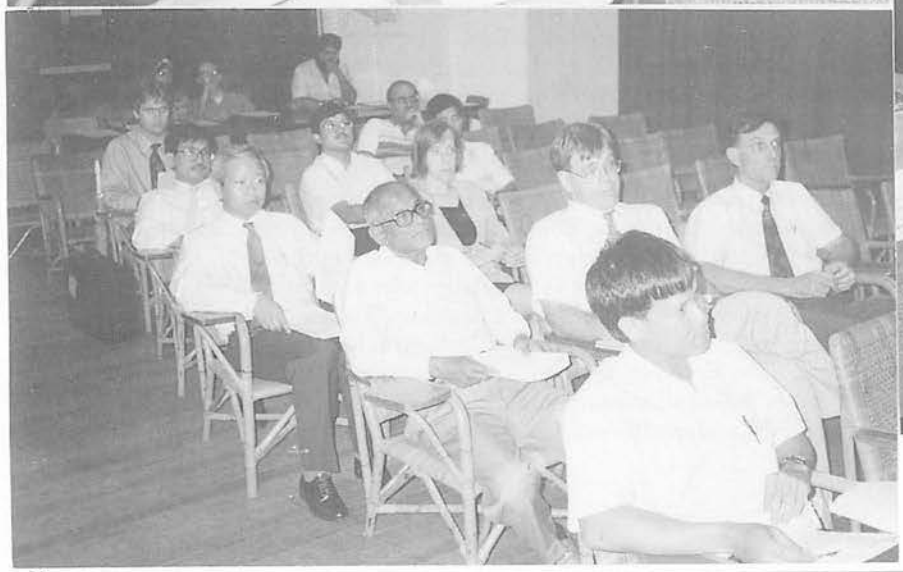
Discussion after the talk.



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