PERMIAN BRACHIOPODS FROM PENINSULAR MALAYSIA, THAILAND, AND CAMBODIA: IMPLICATIONS FOR BIOGEOGRAPHY, PALAEOGEOGRAPHY, AND THE TECTONIC EVOLUTION OF SE ASIA

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ABSTRACT

Twenty-six Middle Permian and one Late Permian brachiopod taxa are described, based on new specimens from Cambodia, mainland Thailand, and Peninsular Malaysia. Eight new species, *Schuchertella yanagidai*, *Paraplicatifera thaica, Tyloplecta gobbetti, Tyloplecta pseudogobbetti, Liraplecta khokiensis, Monticulifera khaowangensis, Composita permica,* and *Hustedia indosinica*, are proposed.

A new marine biogeographic province, the Indochinese Province, is proposed for the Early–Middle Permian biota of the Indochina Terrane and adjacent microterranes, which is distinct from the tropical Cathaysian Province. It is characterised by species-level endemism and inclusion of extra-Cathaysian elements, absent from the Cathaysian Province but common in the Cimmerian to peri-Gondwana regions. Permian latitudes of the Indochinese Province are estimated to be around 10°S to 20°S.

Early Middle Permian (Roadian) brachiopods of Sibumasu and peri-Gondwanan affinity occur on the East Malaya Terrane. They probably migrated from shallow waters of the Sibumasu Province across the Palaeo-Tethys seaway, when East Malaya was more proximal to Sibumasu and was in higher latitudes than the Indochina Terrane, and was under temperate climatic influence. The Palaeo-Tethys seaway in SE Asia must have been narrower than previously interpreted by some authors to allow such faunal traffic during the Middle Permian.

The Sukhothai-Eastmal Island-arc System, with a Late Permian to Early Triassic marine succession that is absent from the Indochina Terrane, is proposed for a Permian island arc developed off the western Indochina Terrane. It comprises the Lancang, Sukhothai, Chanthaburi, East Malaya, and West Sumatra terranes. The Lancang and Chanthaburi terranes are newly proposed.

Two parallel tectonic suture zones are recognised in mainland SE Asia; the Palaeo-Tethys Suture Zone for a Middle Devonian to late Middle Triassic vast ocean closed along the Changning–Menglian, Inthanon, Rayong, and Bentong–Raub sutures, and a Permian back-arc basin that was closed along the Jinghong, Nan, to Sra Kaeo sutures. The Rayong and

Jinghong sutures are newly defined. The Nan Suture is no longer correlated with the Ailaoshan Suture of Yunnan, and the extent of the Simao block, defined as a subterrane of the Indochina Terrane, is considerably revised.

Mesozoic, mainly Triassic, granitoids distributed over the western Indochina Terrane are called peri-Indochina granitoids, which are interpreted to be of post-collisional/orogenic origin that may be intimately related to the Indosinian Orogeny. The granitoids are separated from the Permo-Jurassic Eastern Granitoid Province of arc origin; they possibly represent a new granitoid province. The extent of the long-established Eastern Province is revised.

A new model for the Permian tectonic evolution and palaeogeography of SE Asia is presented.

I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree or qualification.

I certify that any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.

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