Ceramah Teknik (Technical Talks)

Kenneth J. Hsü : Tectonics of South China – Keystone between Southeast Asia & West Pacific

Laporan (Report)

Professor Kenneth J. Hsü of the Swiss Geological Institute (ETH Zurich) presented the above talk to audience of about 30 on the 9 October 1991, Department of Geology, University of Malaya.

Professor Hsü began his talk by emphasising that South China is post-Caledonian platform, but a composite of orogenic belt. This late Proterozoic/Mesozoic orogen is a collage of three continental fragments. The three blocks are Yangzi. Huanan, and Dongnanya, and they are separated by the Banxi-Nanpanjiang (formerly Xianggangzhe) and Gunanhai Suture zones (Fig. 1).

Yangzi was separated from Gondwanaland during Late Precambrian when an open ocean, called Banxi, was present between the two continents. Tectonic processes at an active margin during Sinian and Early Paleozoic time led to the genesis of an accretionary wedge complex, the Banxi Melange and the Huanan Flysch Nappes, on the northern margin of Huanan, which was then the northern margin of the Gondwana Continent. Recorganization of plates during the Devonian suspended subduction at the Huanan active margin. Huanan was uplifted and unconformably overlain by transgressive deposits of Devonian and/or Carboniferous age. A remnant ocean, the Nanpanjiang Sea, still existed between Yangzi and Huanan, and deep-water sedimentation continued both at the southern margin of Yangzi and at the northwestern margin of Huanan. The latter again became an active margin during Late Paleozoic, when Permian and Triassic flysch sediments were deposited in foredeeps ahead of advancing nappes. Huanan and Yangzi collided during the Triassic, and resulted in the deformation of the passive margin of the latter to form the Yangzi Deformed Belt.

Huanan was separated from a more southerly continent, Dongnanya, in the Devonian by seafloor spreading which created a Late Paleozoic and early Mesozoic ocean (Gunanhai Ocean). A continuously deposited sequence, ranging in age from Devonian to Triassic, was laid down on the southern passive margin of Huanan. On the other side of the ocean, the Dongnanya Permian strata include glacial marine deposits of Gondwanaland affinity. Dongnanya became separated from Gondwanaland during the Late Permian, when it marched northward to be reunited with Huanan. The Huanan passive margin sequence was deformed by folding and overthrusting after the late Mesozoic collision of Huanan and Dongnanya. Scattered outcrops of the Suture melange resulting from this collision occur at a few localities in coastal Fujian.

Dongnanya, was the Mesozoic continent of Southeast Asia, peripheral to mainland Asia. This may or may not have been the eastern continuation of the microcontinent Sibumasu [Siam (Thailand)-Burma-Malaysia-Sumatra]. The collision of Dongnanya and Asia gave rise not only to the Gunanhai Melange of coastal Fujian, but also to the ophiolite melanges, parts of which are present in Taiwan (Tailuko), the Philippines and western Malaysia.

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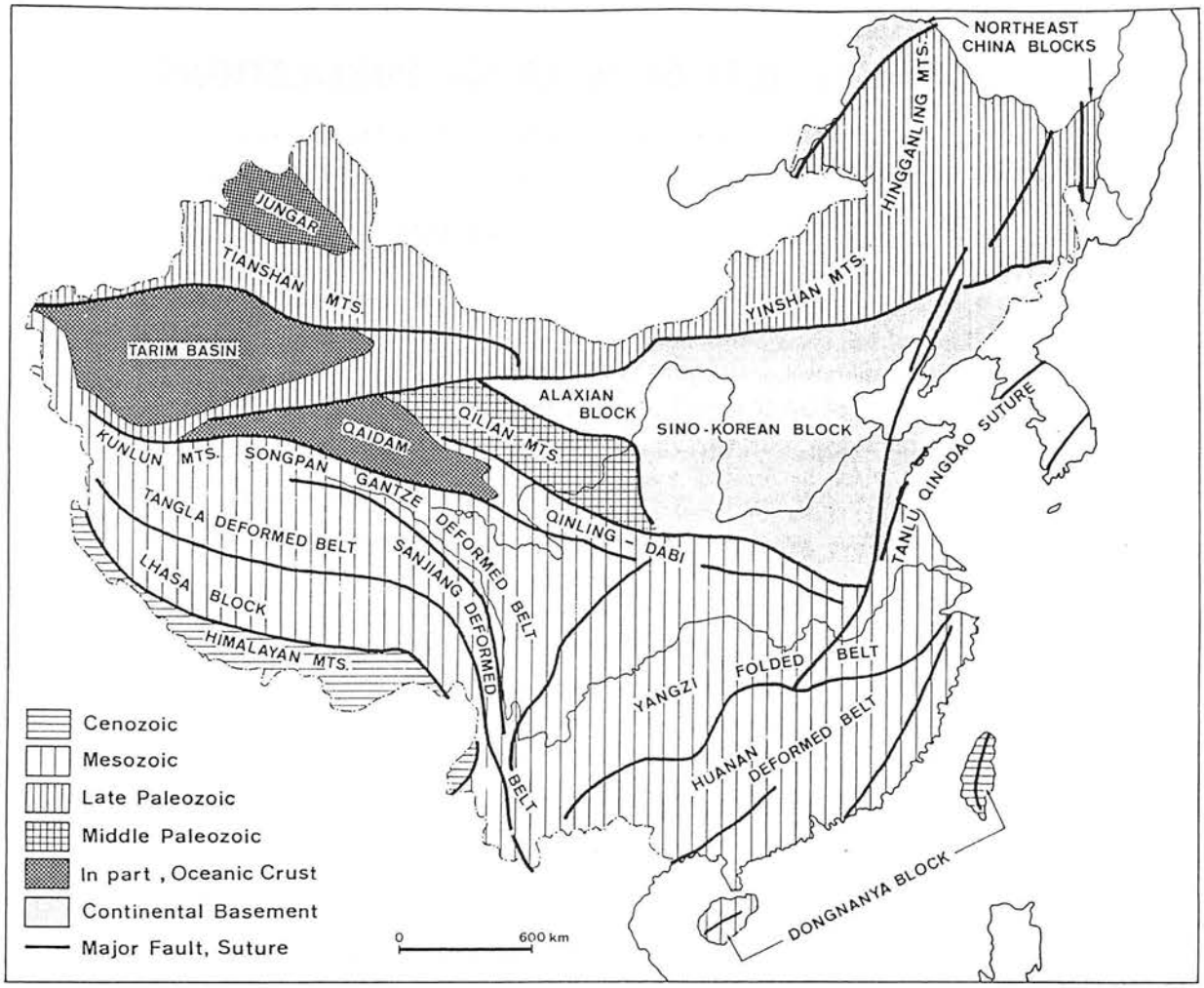

Fig. 1. Tectonic subdivisions of China and some notable tectonic features. This map shows that China is a collage of orogenic belts. The Yangzi Block is separated from Sino-Korean Block by the Qinling-Dabi Mountains and by the Tanlu-Qingdao Suture. Yangzi is also separated from Sungpan-Kantze and from Huanan by suture zones.

Kenneth J. Hsü