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STRATA OF GONDWANA FACIES AND ITS TECTONIC SIGNIFICANCE IN WESTERN YUNNAN

Fang RUNHEN, Fan JIANCAI and Qiu LUJUN
Yunnan Institute of Geological Sciences, Kunming - 650011, China

This paper presents the findings of recent research on the stracture, tectonics, sediment characteristics and biotic remains of the Late Palaeozoic deposits of Western Yunnan of China.

The Western Yunnan region is divided by the Langeang River boundary zone into two geological provinces, viz, Yangtse province and Gondwana province. The Yangtse Province, located to the east of Langcang River boundary zone, contains a Palaeozoic equatorial shallow-1sea carbonate face with a faunal assemblage similar with the advanced forms of regional biotic elements of South China. The Gondwana province, lying to the west of the boundary zone, represents Late Palaeozoic cold-water facies, characteristic of high-middle latitudinal belts and consists mainly of clastic litho-components including tillite sequence known to be widely distributed in the Permo-Carboniferous sediments of southern hemisphere. Significant biotic records have been uncovered from this lithic pile. They include faunal assemblage like cold-water coral (*Lytvolasma*), brachiopod (*Stepanoviella*), bryozoa (*Hexagonella*), lamellibranch (*Eurydesma*), fusilinida (*Monoduxodina*) and floral elements like Glossopteris ?

These new findings have been utilised for interpretation and reconstruction of the palaeogeography, tectonic history and depositional environments of Western Yunnan region during Late Palaeozoic by comparison with Permo-Corboniferous sequences of other areas and presented in details.

LATE PALEOZOIC GLACIAL-MARINE SEDIMENTATION IN THE RIO DO SUL EMBAYMENT, PARANA BASIN, BRAZIL

J.R. CANUTO, A.C. ROCHA-CAMPOS and P.R. dos SANTOS
Instituto de Geociencias, Universidade de Sao Paulo,
C.P. 20899, 01498-970, Sao Paulo, SP, Brazil

The Rio do Sul embayment is an area of relatively thick and predominantly fine clastic deposition (over 400 m) of the Rio do Sul Formation, uppermost unit of the Itarare Subgroup (Late Carboniferous-Early Permian), in central-eastern Santa Catarina State, Parana Basin, Brazil. Subsidence of the area in the Early Permian (Palynozone H) controlled by criss-crossed SE-NW and NE-SW faults resulted in a 200 km long and 100 km wide depression adjacent to the eastern margin of the Parana Basin. Two structural highs delimit the NW margin of the basin; moderate relief terrains developed on Precambrian - Lower Paleozoic rocks delimit its basin on the NE, S and SW margins.

Int-Gondwana Symposium, 9: 1994: HYDERABAD

In the Early Permian, a grounded glacial lobe of the Western Gondwana Ice Sheet moving towards NW occupied the depression, as indicated by striae and crescentic marks on crystalline basement rocks, extensively depositing thin patches of lodgement tillite. Rapid retreat of a tidewater glacier margin followed a sea-level rise which flooded the basin from the NW. This left only local deposits of stratified diamictite (debris flows) and regular rhythmites with dropstones (varvites) on the lodgement tillite or the glacially abraded and isostatically depressed basin-floor. The glacial deposits are overlain by thick section of marine deep water, dark shale with abundant dropstones which diminish and disappear towards the middle part of the sequence. Although this may denote a tidewater ice margin, no proximal glacial-marine sediments have been preserved. The persistent deep-water facies is associated with frequent downslope sediment gravity flow of structureless or graded, sandy, coarse conglomerate, chaotic sandstones, massive silty-sandy diamictites, liquefied sands with rare dispersed clasts and thin to thick sand turbidites, which moved from the margins towards the centre of the basin forming large, lobate bodies (fans) fringed by thin turbidites. Flows were probably mostly trriggered by tectonic instability of the basin associated with minor sea-level changes.

Although no direct ice-contact feature has been found, local recurrence of dropstone and intercalation of coarse clastics and thick rhythmites with dropstones in the dark shale, in the upper part of the Rio do Sul Formation, may indicate a short-lived readvance of the ice front. Representative facies include chaotic association of slumped and sigmoidal deltaic sandstone, coarse diamictite, conglomerate and dispersed oversized clasts, or thick section of regular rhythmites (varvites) overlain by flow diamictites or erosionally truncated by chaotic, slumped masses of sandstone conglomerate and sandy diamictite. Besides abundant dropstones, the rhythmites contain frequent till pellets, mounds and lenses of debris released or dumped from floating or grounded icebergs and iceberg scours. The sediments may be assigned to the last retreating phase of the glaciers in the area.

In most parts of the basin, the deep-marine dark shale is transitionally overlain by a sequence of shallow-shelf to tidal interlaminated siltstone, silty-shale and fine sandstone, indicating shallowing conditions prior to the progradation of the deltaic sandstones of the overlying Rio Bonito Formation.

FACIES ANALYSIS OF GLACIOMARINE SEDIMENTS OF TALCHIR FORMATION (PERMO-CARBONIFEROUS), DUDHI NALA, BIHAR, INDIA

G. MUKHOPADHYAY[1] and H.N. BHATTACHARYA[2]
1. Geological Survey of India, Calcutta-700 016, India
2. Durgapur Govt College, Durgapur-713 214, India

The complete Talchir sequence (180m), exposed along the Dudhi nala, northwest of Mandu (lat. 23°48' : long. 35°29'), Hazaribagh district, Bihar is well-known for its spectacular preservation of glacigenic sediments. The present high-resolution facies analysis of the Talchir sequence of Dudhi nala offers a deep insight into the geological events operating at the dawn of the Gondwana sedimentation. Most workers interpret the Talchir sequence to be a product of glacial, glacio-fluvial, and glacio-lacustrine deposits. Reappraisal of the

ABSTRACTS

Bly Hyderabad, Jan 94

9TH INTERNATIONAL GONDWANA SYMPOSIUM

10-14 January, 1994
Hyderabad, India

Published on behalf of the Subcommission on Gondwana Stratigraphy (IUGS) by :
Geological Survey of India,
27, Jawaharlal Nehru Road,
Calcutta-700 016, India.
1994.

Co-sponsored by :
Coal India Ltd. (CIL)
Oil & Natural Gas Commission (ONGC)

Printed in India by :
M/s Colora Offset,
31A, S.P. Mukherjee Road,
Calcutta-700 025