

LITHOSTRATIGRAPHIC STUDY OF THE BHUBAN FORMATION IN JAINTIA HILLS, MEGHALAYA

The Lower Miocene sediments in north-eastern India are represented by Surma Group. They are well-developed and exposed in Meghalaya, Tripura, Mizoram, Assam, Manipur and a small portion of Nagaland (Director General, G. S. I., 1974). This group attains a maximum thickness of over 5000 metres in Surma Valley and has been divided into (i) Lower Bhuban Formation and (ii) Upper Bokabil Formation (EVANS, 1932, 1964).

During geological mapping of the Tertiary sediments in Jaintia Hills, district of Meghalaya, the author observed excellent sections exposing the Bhuban Formation along Jowai-Badarpur Road between 147.5 and 177.5 km* (toposheet no. 83C/8). This formation, as a whole, consists of numerous, hard, very fine to medium-grained, grey sandstone beds alternating with shales. The middle part of the formation is more argillaceous. On the basis of lithological characteristics, this formation is divisible into three members. The object of dividing the Bhuban Formation into members is to provide physical criteria for the identification and mapping of the various levels within this formation in the field and to establish finer stratal units for the lithostratigraphic correlation of the equivalent strata exposed elsewhere in north-eastern India. The members proposed here are : (i) Lubha Member. (ii) Umkiang Member and (iii) Dona Member (in ascending order). A brief account of these members in accordance with the Code of Stratigraphic Nomenclature of India (1971) is given below :

LUBHA MEMBER

This member is named after Lubha River in Jaintia Hills, Meghalaya and constitutes mainly arenaceous, lower part of the Bhuban Formation. It is made up of fairly thick beds of fine-grained, fawn, grey or brown sandstone with thin subordinate shale bands and lenses. The shale is at places carbonaceous. This member is continuously exposed along Jowai-Badarpur Road between 147.5 and 151.1 km. It rests unconformably over the Renji Formation and is conformably overlain by Umkiang Member. The upper contact was seen exposed near 151.1 km on Jowai-Badarpur Road, where thick shale beds overlying the sandstones of Lubha Member appear first. The thickness of this member is about 500 to 800 metres.

UMKIANG MEMBER

This member is named after Umkiang Village (Lat. 25°04'15" N : Long. 92°22'45" E) in Jaintia Hills, Meghalaya and constitutes mainly argillaceous, middle part of the Bhuban Formation. Umkiang Member is made up of thick, grey shale and sandy shale beds with subordinate brown, fine to medium and occasionally coarse-grained, lenticular sandstones and a few thin intraformational conglomerates and is continuously exposed along Jowai-Badarpur Road between 151.1 and 155 km. On its upper limit, this member is conformably overlain by thick, grey-brown sandstones of the mainly arenaceous Dona Member. The thickness of this member approximates from 500 to 700 metres.

*The distances mentioned in this paper represent the distance of a locality from Shillong along Shillong-Badarpur Highway. The distances are taken from road side kilometrestones and not from the toposheet.

This member is named after Dona Village (Lat. 25°03'15" N : Long. 92°25'0" E) in Jaintia Hills, Meghalaya and constitutes mainly arenaceous, upper part of the Bhuban Formation. It consists of grey to brown, very fine to medium grained, often argillaceous, fairly hard sandstone alternating with thin beds of sandy and carbonaceous shales and is excellently exposed along Jowai-Badarpur Road between 155 and 177.5 km. The upper contact of this member is conformable and has been marked at 177.5 km, where thick sandstone beds of Dona Member are overlain by the argillaceous beds of the Bokabil Formation. The thickness of this member is about 550 to 700 metres.

In Jaintia Hills, the Bhuban Formation exhibits steep southerly dips ranging from 50 to 90 degrees. The 3 members of the Bhuban Formation, as described above, are extensively developed and can be traced along the strike for considerably long distances. A good development of these members was also observed in the northern part of the neighbouring Cachar District of Assam.

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