

A NEW LITHOSTRATIGRAPHIC UNIT IN THE LOWER GONDWANA SUCCESSION OF PACHHWARA COALFIELD, RAJMAHAL HILLS, INDIA

Ball (1877) first geologically surveyed the Pachhwarra Coalfield of Rajmahal Basin. According to him the Lower Gondwana exposures are rather incomplete. These are only represented by the rocks of Talchir and Barakar. Ball (1877) considered the Dubrajpur Group of Oldham (in Oldham & Morris, 1863) as representing the part of Upper Gondwana Succession. He further opined that some of the Lower Gondwana exposures might be younger than the Barakars, but this was not stated categorically. Later, this coalfield was surveyed by Hobson (1929) and Raja Rao (1972). The lithologies identified in the coalfield are detailed below :

UPPER GONDWANAS	{	Rajmahal Traps with intertrappean plant beds
	{	Dubrajpur Group
LOWER GONDWANAS	{	Barakars { Coal bearing feldspathic sandstones and carbonaceous shale
	{	Talchirs { Boulder beds and Needle shales
PRECAMBRIAN		Granitic gneisses

Recent geological mapping of the Pachhwarra Coalfield ($24^{\circ} 30' - 24^{\circ} 36' : 87^{\circ} 23' - 87^{\circ} 36'$) has revealed the presence of highly ferruginous beds comprising mainly of hard red ferruginous sandstone, red ferruginous shales, micaceous siltstones and clay with or without thin laminations of carbonaceous matter overlying the Barakar Formation. The thickness of this rock unit varies from 90 to 103 m. It is exposed in an area of about 8 sq km around Pachhwarra, Tattitola, Dangapara, Chirudih and along Bansloi River 1 km west of Tattitola to Pachhwarra (Map 1). The rock unit overlies the Barakar Formation (coal bearing) with erosional unconformity marked by 1.8 m thick conglomeratic bed. Its upper contact with the overlying Dubrajpur Formation is also disconformable which is marked by the changes in dip direction.

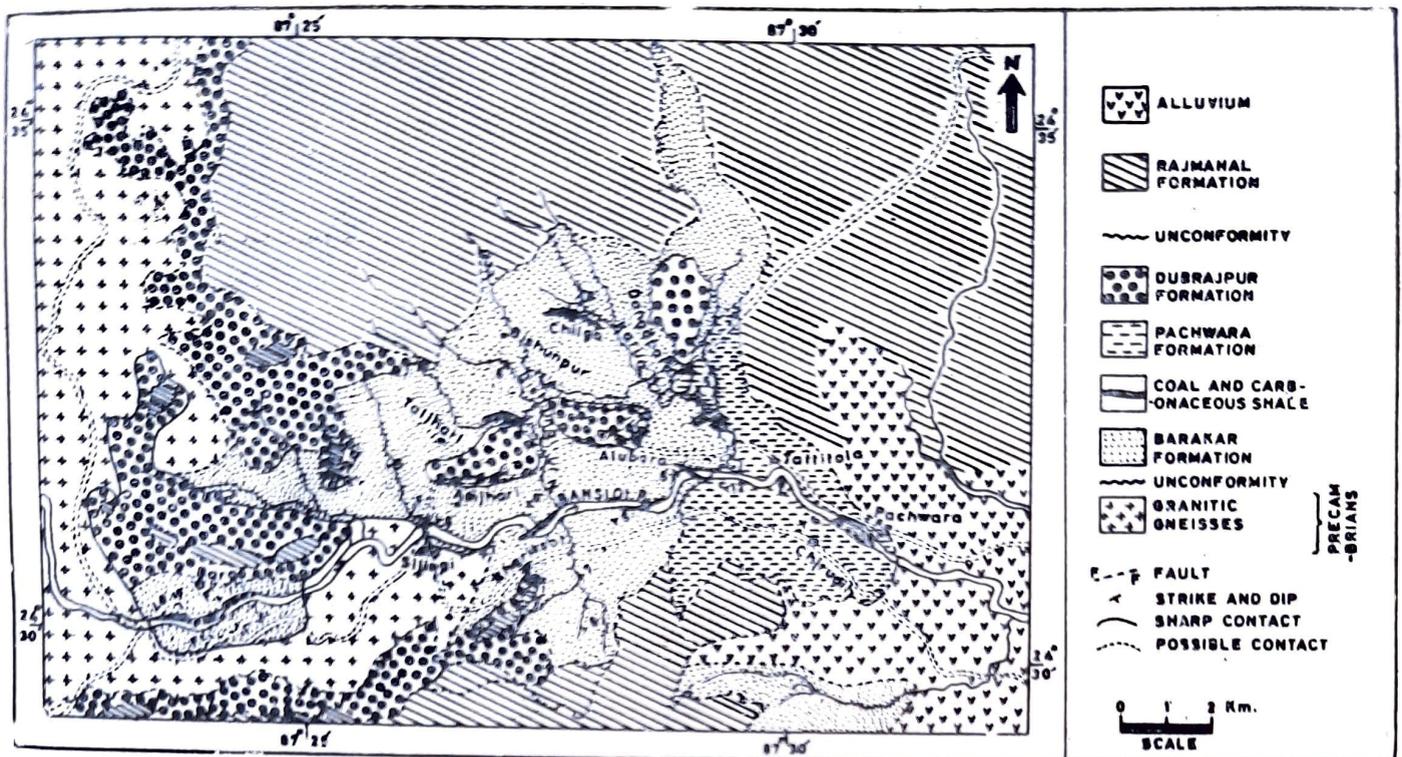
Floristically this rock unit is characterised as detailed below :

Megafossils

- PTERIDOPHYTES — *Schizoneura*, *Phyllothea*, *Stellothea*, *Tryzygia*, *Raniganjia*, *Dizeugotheca*, *Dichotomopteris*, *Neomariopteris* and *Santhalea*
- GYMNOSPERMS — *Glossopteris* (dominated by broad mesh forms) and scale leaves

Miospores

- TRILETES — *Indospora*, *Lophotriletes*, *Microbaculispora*, *Acanthotriletes* and *Cyclogranisporites*



GEOLOGICAL MAP OF THE PACHHWARA COALFIELD, RAJMAHAL HILLS, BIHAR

Map 1

MONOSACCATES — *Densipollenites*

DISACCATES — *Scheuringipollenites, Faunipollenites, Striatopodocarpites* and *Verticipollenites*

This rock unit is comparable lithologically with the ferruginous sandstone and also floristically (megafossils) to the Kamthi Formation. However, Kamthis have distinct white shales and sandstones, which is absent in the present rock unit. Moreover, in Kamthis the coaly shales are absent. The Raniganj Formation also compares floristically with the present rock unit, however, Raniganj has the characteristic presence of calcareous sandstones and thick coal seams. These are absent in the Pachhwara rock unit. Thus the distinct lithology supports for the provision of a new formational name "Pachhwara Formation" for this rock unit according to the Article 11.01 of the International Stratigraphic Guide (Hedberg, 1976) and Article 3.0 and 33.01 of the Indian Code of Stratigraphic Nomenclature, 1971. The name of this formation is derived after the Village 'Pachwara' (87°, 31' : 24°, 31'). The beds exposed along the Bansloi River, about 1 km west of Tattitola to Pachwara villages, are designated as type section and the rock exposures in the Karua Nala near Dangapara are taken as reference section.

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