



Introduction

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Gondwana offers a special attraction to Palaeobotanists due to large amount of information present in the form of plant fossils which gives history of the vegetation as well as the sub-continent where it is found. It is also important due to huge deposits of solid fossil fuel viz. 'The Coal'.

Birbal Sahni had special interest in the Gondwana flora of India due to its distinct geological and palaeontological features.

In 1872 the name Gondwana was first used by Medlicott (1872) however, it was not officially reported. Feistmantel (1876) formerly published the term Gondwana suggesting the deposits ranging from part of Palaeozoic and Mesozoic. Fox (1931) used the term Gondwana system for those deposits having sandstones, shales, conglomerates representing lacustrine and fluvial origin. In the Indian sub-continent the Gondwana era resumes from Middle Carboniferous and terminates into the Lower Cretaceous. The period is estimated upto 120 Million years. Along the both sides of peninsular India the Gondwana deposits are found in river basins or grabens. The important ones are Mahanadi basin, Wardha-Godavari basin, Cauveri basin, Palar basin, Krishna-Godavari basin etc.

The Gondwana system holds a special area for the palaeontologist and geologists due to its vast treasure of remains

of plants and animals. Therefore, last 100 years its geology and palaeontology has been studied by several workers. Regarding the systematic position and classification of the Gondwana, there are many controversis. According to first school it is divided into two distinct parts viz. (1) Lower Gondwana (2) Upper Gondwana. This system is termed as 'Bipartite classification'. It is supported by Medlicott and Blanford (1879), Oldham (1893), Cotter (1917) and Fox (1931).

On the other hand the system is divided into three divisions like (1) Lower Gondwana (2) Middle Gondwana and (3) Upper Gondwana. It is called as 'Tri-partite' system and supported by Feistmantel (1882), Vrendenburg (1910) and Wadia (1953). The Tripartite system represents a new group viz. Middle Gondwana which existed between Lower and Upper Gondwana. The reasons are the distinct floristic composition found in South Rewa Gondwana basin and studied by Feistmantel (1882), Hughes (1881, 1884), Lele (1955, 1962 & 1964) and others. Their studies showed that the flora showed a mixture of Lower Gondwana and Upper Gondwana flora. Therefore, the region is described as 'Transitional beds'. According to Surange and Lele (1966) each division represents a distinct flora viz.

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|-----------------|---|------------------------|
| Lower Gondwana | - | The Glossopteris flora |
| Middle Gondwana | - | Dicroidium flora |
| Upper Gondwana | - | Ptillophyllum flora. |

S. D. Saxena

The formation of Middle Gondwana generated lot off interest among the Palaeobotanist. The extent of Middle Gondwana and its exact position in the Gondwana classification has again created different views.

The present work is under taken due to promising deposits found in the Nagpur District of Maharashtra. They hold special interest due to meager work done on them at the same time a large potential possessed by the flora.

**Table 1 : Classification of Gondwana System
by Fox (1931)**

	Umia Stage	
	Jabalpur Stage	Lower
	Chaugaon Stage	Cretaceous
Upper Gondwana	Kota Stage	
	Rajmahal Stage	Jurassic
	Parsora Stage	
	Maleri Stage	
	Pachmarhi Stage	Triassic
	Haripur Stage	
	Maitur Stage	
	Mangli beds	
	Kamthi Stage	
	Raniganj Stage	
Lower Gondwana	Mahadeva Stage	
	Iron Stone Shale	Damuda
	Kulti Stage	
	Barakar Stage	
	Karharbari Stage	Permian
	Umaria marine beds	
	Rikba Plant stage	
	Talchir needle shales	Upper
	Glacial Boulder beds	Carboniferous

**Table 2 : Classification of Gondwana system
by Feistmantel (1882)**

Upper Gondwana	Jabalpur Kota Rajmahal	Jurassic
Middle Gondwana	Parsora Panchet Damuda	Triassic
Lower Gondwana	Karharbari Talchir Talchir boulder beds	Permocarboniferous

Table 3 : Classification of Gondwana system by Lele (1964)

Upper Gondwana	Umia Jabalpur Kota Rajmahal	Jurassic to Lower Cretaceous
Middle Gondwana	Mahadeva Parsora Maleri Panchet	Rhaetic Triassic
Lower Gondwana	Raniganj Barren measures Barakar Karharbari Talchir & Glacials	Permocarboniferous and Permian

**Table 4 : Classification of Gondwana system
by Cotter (1917)
Cotter (1917) also supported the Bipartite
division of Gondwana system**

Upper Gondwana	Jabalpur	Lower Cretaceous
	Tripetty beds	
	Raghavapuram	
	Sriperamatur	
	Vemavaram	
	Budwada	
	Umia	Jurassic
	Kota	
	Maleri	Upper Triassic to Rhaetic
	Persora	Lower Triassic
	Panchet	Upper Permian
Lower Gondwana	Raniganj	Middle Permian
	Barakar	Lower Permian
	Karharbari	Upper
	Talchir	Carboniferous