I. INTRODUCTION

A series of changes occured in the Upper Carboniferous bringing a distribution of land masses and sea. It resulted northern and southern continents consisting several land masses which were connected with each other. The southern continent was named as 'the Gondwana Land'.

The term Gondwana was firstly used by H.B. Medlicott in (1872) but was formelly published by Feistmantel in (1876). He desired that it be accepted in the same sense as the Silurian or the Jurassic systems of Europe. Fox (1931) applied the name Gondwana system to deposits of conglomerate, sandstones, shales and coal measures of fluviatile and lacustrime origine which occure in the Indian peninsula. Gondwana should include all those continental and shallow marine sequences in the southern continents showing similar lithological, biological and tectonic aspects (Mc. Elroy 1969).

The Gondwana era in India resumed at the begining of the Upper Carboniferous period and lasted upto Lower Cretaceous, spreading over 120 million years. Similar situation was present in other parts of the southern hemisphere namely South Africa, Australia, S.America, Antarctica and Madagasker. The name Gondwana land is given to this huge southern land mass. It is derived from the brave 'Gond tribe' in central India, whose kingdom was spread in this area. Though the kingdom was taken

over by the Moghul Kings, the name still servives in the chapters of Geology.

In India the Gondwana system consists of Palaeozoic and Mesozoic rocks deposited in river vallies. They are found in the peninsular India. Extra-peninsular Gondwana deposits are also found which are of Marine origin.

In India the Gondwana rocks are developed along two sides of triangular peninsula, they are found in Wardha-Godavari valley, Mahanadi valley and Damodar valley. In addition to these deposits they are also found in Kathaiwar, Cutch, Western Rajasthan and in a series of scattered exposures along the East Coast.

There are many disputes and different opinions about the age and systematic position of different formations of the Gondwanas. The main contravarsy among geologists and palaeobotanists is regarding the divisions of the Gondwana system. According to first view the Gondwana system is divided into two divisions namely (1) Lower Gondwana and (2) Upper Gondwana. This view is supported by Medlicott and Blanford (1879), Oldham (1893), Cotter (1917) and Fox (1931). On the other hand it was divided into three parts such as (1) Lower Gondwana, (2) Middle Gondwana and (3) Upper Gondwana. This view has been supported by Feistmantel (1882), Vredenberg (1910) and Wadia (1953). According to Lele (1968), Surange (1968) two distinct floras had developed in the Gondwana era.

The Glossopteris flora was developed in the Lower Gondwanas and the Ptillophyllum flora was developed in the Upper Gondwanas.

Hughes (1881, 1884) observed the Southern Rewa Gondwana basin and collected plant fossils from several localities in this area. He included the rock formations in the Mahadeva group (Upper Triassic), Feistmantel (1882) studied the fossil flora of this area and called Parsora beds as 'transitional beds'. These beds shows distinct lithological and palaeontological characters. They showed a fossil flora having mixture of Lower Gondwana and Upper Gondwana elements. Therefore, he suggested a new division called as Middle Gondwana in between Lower Gondwana and Upper Gondwana. In this way the three fold division was established. Later on Vrendenberg (1910) also supported this three fold division on the basis of animal fossils. Wadia (1957) accepted the three fold division and stated that the Middle Gondwana has distinct lithology, climate and fauna. Saxena (1952) further studied plant fossils from Pali and Parsora beds and showed that the flora contains members of Glossopteris flora. It also shows presence of Dicroidium and members of Ptillophyllum flora. Hence he stated that it is representing Middle Gondwana. Recently Lele (1955, 1962 a, 1964) made several collections from the Parsora beds and on the Palaeobotanical evidence he has strongly supported three fold division of Indian Gondwana system. He further suggested that Lower Gondwana represents Gangamopteris as an

Index fossil. Middle Gondwana is represented by the index fossil Dicroidium and Upper Gondwana is represented by the index fossil Ptillophyllum. He considered the genus Glossopteris as a hold-over fossil of Lower Gondwana which also enters into Triassic having Dicroidium flora.

The three fold classification of Gondwana suggested by Lele (1964) was further supported by Bose (1966 a, 1966 b), Maheshwari (1966 b) and Surange (1966).

According to Surange (1966) Glossopteris is considered as the index fossil of Lower Gondwana and not the Gangamopteris because in Raniganj stage Gangamopteris is not present. Saksena (1974) quoted Surange suggesting the classification supported by Geological Survey of India, is a bipartite Gondwana system. Here the Panchet series seperates the Lower Gondwana from the Upper Gondwana. Further it is suggested that Lower Gondwana is characterised by the Glossopteris flora and the Upper Gondwana is represented by the Ptilophyllum flora. The distinct flora is developed in between these two called as 'Dicroidium flora'. Hence this three fold division representing three different floras is based on Palaeobotanical data gathered from South-Rewa Gondwana basin.

Mahabale (1966) supported the three fold division of the Gondwana system. Vagyani & Mahabale (1972) have studied the fossil flora of Wardha Godavari valley and described different elements found in it. They showed that the Kamthi

beds found in the Chandrapur, Nagpur and Wardha districts suggests the Lower Triassic age. Chandra and Prasad (1981) described fossil plants from the Kamthi formation of Maharashtra and discussed their biostatigraphic significance. They are of opinion that Kamthi beds are homotaxial with Raniganj and Handappa formations in Orissa. They suggest Upper Permian age to the Kamthi flora. The present investigation is undertaken to clarify this problem. It includes megafossil studies collected from several localities. Plant impressions from Satnaori, Bazargaon and Adhari are studied. The conifers woods found at Nandori, Panwadala and Adhari are also studied hence the morphological and anatomical characters of the megafossils may reveal the proper age and floristic composition of Kamthi formation undertaken in this work. It may help in correlation with fossil floras described by other workers from different localities belonging to Kamthi Stage.

Table 1 : Classification of Gondwana system by Fox (1931)

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

Table 2 : By Feistmantel (1882)

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

Table 3 : By Lele (1964)

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