CHAPTER - IV

GEOLOGY AND TOPOGRAPHY OF THE AREA

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Upper Gondwana rocks of India are developed in a number of distant places in the peninnsular India. They are found the Rajmahal hills in Bihar and continue upto coastal part of Tamil Nadu. The Upper Gondwana out crops are mostly developed in Rajmahal hills, Damuda valley; Satpura hills, Mahanadi and Godavari valley and Cutch. Along the east coast in Krishna Godavari basin, Palar basin and Cauvery basin. The Upper Gondwana are classified as follows -

1) Rajmahal
2) Kota
3) Jabalpur
4) Umia

The present work deals with the Kota stage exposed near boundary of Maharashtra and Andhra Pradesh. Kota Stage is a triangular patch of Upper Gondwana rocks found in the Godavari valley. Particularly on the southern side of Chandrapur district. Kota Stage of rocks having thickness of 610 mtrs. It connsist of highly ferruginous sandstone coal-seams and conglomerates. It is richly fossiliferous having large number of plant and animal fossils. The Kota Stage overlies the Maleri stage, where loosely arranged sandstones and limestones are seen. Animal fossil represents the fishes, crustaceans and recently discovered remains

of dinosaurs. The plant fossils show presence of Cycadophytes, conifers and other groups.

The Kota formation is made up of light brown sandstone, grits, red clays and limestone deposits. The basal part is made up of coarse poorly formed sandstones. The sandstones show band of pebbles, cherts, quartz and quartizites. The Upper part shows less number of pebbles and sandstones. They are white in colour and show a fine grain texture. These sandstones slowly degrade into lateral and vertical red clays. The clays are covered by a limestone beds. The limestones are generally pale grey or reddish in colour. The limestone is further covered by ferruginous mudstone deposits. The sandstones degrade upward into slitestones and fine grain sandstones. The above facts give a lithological sequence of Kota Stage. The important indicator of Kota formation is the limestone horizon which starts from a village Kadamba in the northern region and ends near the village Varidium in the south. The area under investigation shows a district limestone outcrop which lies between village Manganpalli and village Mukalpet. In addition to the district horizon smaller exposures are found near Boparam, Kota, Chitur and Varidium. The basal limestone deposits shows mostly animal fossil. The next region shows Stromatolites which is found near estern part of the village Nagaram. The next gray coloured bed shows fossil fishes. The plant fossils are found near the village Chitur and Kota in Chandrapur district of Maharashtra. They are found

in the stream section which is one Kilometer south east of the Chitur village. Mahabale (1967) and Shah et.al. (1963) have given a list of plant fossils collected from limestone beds exposed near the Kota village.

In the present investigation the petrified gymnospermous wood were collected from stream beds, road cuttings near Kota village. Here the rocks are characterised by brown colour grits associated with red colour sandstone. The woods are particularly found embeded in the sandstone region which indicate a bedding plane some times they are found scattered on the river beds.

The second important locality is the village Chitur and which lies in the south east direction of the Kota at the distances of 32 Kilometers. Both Chitur and Kota yielded petrified woods. The plant impression were collected from a place which is four Kilometer in the south eastern direction of Chitur. The sequence of lithological formations are given in the following table which yielded the plant fossils.

The basal part which is marked as 1) shows black shales.

The next part indicated as 2) shows ash coloured coarse shales.

The next region marked as 3) consist of yellow coloured limestone deposition. It is highly fossiliferous.

4) It represents grey colour clays.

The next one which is 5) represents yellowish hard band of clays.

The next above it is indicated as 6) which show a mixture of yellow and grey clay and shady clay.

The top most indicated as 7) represent yellowish soft and hard sandstones.

Hence it appears that the Kota beds which cover the Maleri mostly consists of coarse loosely arranged sandstone showing subsidary bands of shales and thick limestone beds.

The limestone beds are characterised by animal fossils. The plant fossil mostly occur in the sandstone bands. The exposure on the western side of Sironcha shows all these structure on the eastern side of Sironcha and the areas covering six Kilometers present on the southern side of Dhaba, Further extends south ward to the Pangadi Vagu near the compliance with the Godavari river. The Kota beds show the overlapping of Godavari for 80 Kilometers area which lies both on the northern and southern side of Sironcha. The Kota beds near Sironcha also lies upon Kamthi beds. Hence the cretical distinction between Kamthi and Kota can be made on the basis of lithological as well as palantological data. In the present investigation an attempt is made to verify the floristic composition of Kota which is exposed in a narrow trap on the boundary of Maharashtra and Andhra Pradesh.