

CHAPTER-IV

GEOLOGY AND TOPOGRAPHY OF THE AREA

Along the East-coast of India the Upper Gondwana deposits are exposed in groups of small patches and distributed as follows :

In Krishna-Godavari district they are found at Raghavapuram, Gollapalli and Rajmundry. In Ongole area they are found at Vemavaram, Budavada and in Madras area they are found at Satyavedu and Sriperamatur. In Trichinapalli area they are found at Naicolam and Tereni beds. Popularly known as Uttatur beds.

In Rajmundry area they are classified into three divisions viz. Uppermost Tirupati Sandstones, middle Raghavapuram shales and lower Golapalli sandstones in Ongole area they are classified as Uppermost, Pavalur sandstones, middle Vemavaram shales and lower most Budavada sandstones. In Madras area they are divided into Uppermost Satyavedu beds and lower Sriperamatur beds hence it appears that Raghavapuram shales and Vemavaram shales are homotaxial with Sriperamatur beds.

Along the Madras coast there are four major exposures first near Sriperamatur a town 40 km. w.s.w. of Madras city which is the rich locality for the plant fossils, second Around Pyamar and third Around Alikur and fourth at Satyavedu. Out of

the four places Satyavedu is included in the Upper division and Sriperamatur in the lower division the exposures shows dip of 40° towards the north. At Sriperamatur the fossiliferous shales are associated with white friable sandstones and micaceous shales. At the base conglomerates which are uncompact showing loose textures are present which suggests that basal conglomerate and sandy parts of Sriperamatur beds are equivalent to Budavada stage of Ongole Area. Above the Sriperamatur stage, coarse beds with compact conglomerates having sandstones and grits are found they are described as Satyavedu stage.

The Sriperamatur shale contain both animal and plant fossils in the form of brittle shales silicified woods are found in some of the beds, for example at Vellum. The animal fossils include Ammonites, lamellibranches belonging to following genera; Leda, Yoldia, Tellina, Pecten, Lyms, the list of the plant fossils is as follows :

FILICALES -

1. Cladophlebis indica
2. C.denticulata

CYCADOPHYTA -

1. Taeniopteris spatulata
2. T.maclellandi
3. Ptilophyllum acutifolium
4. P.cutchense

5. Otozamites bengalensis
6. O.bunburyanus
7. Dictyozamites indicus
8. Pseudoctenis footeana

Ginkgoales -

1. Ginkgoites crassipes

CONIFERALES -

1. Elatocladus plana
2. E.conferta
3. E.tenerrima
4. Brachyphyllum expansum
5. B.mamillare
6. B.rhombicum
7. Araucarites cutchensis
8. A.macropteris
9. Cupressinoxylon coromandelinum
10. Mesembroxylon parthasarathyi
11. Conites sessilis
12. C.sriperamaturensis
13. C.verticillatus
14. Dadoxylon (?) sp.

In Madras area along North-South line 120 miles belt is present on each side of palar river, they are generally included as Sriperamatur outgrowths. They show Archeaeen

gneiss intervening between it and the laterite of the coast or as outliers scattered over the surface of the gneiss or sometimes as an inliners beneath the alluvial gravels. The beds are spread about 50 miles from the coast. The largest exposure to Upper Gondwana beds is at the North West and West of the Madras in the vicinity of Satyavedu. Southern extremity of this tract is crossed by the Madras railway at a distance of 64 Km from Madras, Near Arkonam junction. The outcrop extends from North to South for about 56 Km and interrupted for short distance by the alluvial at Narnavarm and Nagari rivers which divide into three equal portion near Satyavedu, Alikur and Pyamur. These portions are about 10 Km in breadth. The sandstones of the Gondwana system rest on Archean gneiss but at one place it rests on Cuddaph Rocks and disappear towards the East. After Satyavedu the next outcrop is that of Sriperamatur present South-East of the Pyamur area and separated by alluvial of cotteliar river the length of the Sriperamatur outcrop is 24 Km. The weadth is 14 Km in the North and reduces towards the South. The Gondwana area is surrounded by lateritic gravel the entire tract is spread North-ward and shales are found resting upon gritty sandstones but the Southern portion shows coarse sandstones. The plant remains and marine fossils are found in the fine grained sandstones.

The Rock outliers are mainly towards the South and South-West. They are smaller in size about 30 exposures each having

length of 2 miles are present. Some are still smaller and scattered over the region South-East of Conjevaram. Another large group having patches in line spreading from North to South to the West of Madras-Trichinopoly Road. The largest is 4 miles long and close to the border of Chinglepet dist: which is crossed by the road.

SIGNIFICANCE :

The Upper Gondwana beds of East-Coast are significant in having marine fossils including both plants and animals. They were deposited near the sea-shore and the plant beds are mostly lagoon deposits.