4. GEOLOGY AND TOPOGRAPHY OF THE AREA.

IV) GEOLOGY AND TOPOGRAPHY OF THE AREA

Along the east-coast their occur several isolated outcrops of the Upper Gondwana deposits which are placed as a narrow belt on the coastal line. These outcrops are formed by Marine deposits situated near the coastal line. Therefore, when the transgressions of the sea takes place the plant and animals are preserved, which were lived near the coast. These outcrops of fossil plants are called as East-Coast Gondwanas. They range from Athgarh sandstone of Orissa to Sivaganga beds of Tamil Nadu between these two, the Ongole outcrops formed in the Krishna basin are considered as the richest fossiliferous beds. Similarly those near the Madras called as Sriperamatur beds are equally rich in the fossil contents. These beds represents white shales which are light weight. The Sriperamatur beds are further covered by Satyavedu beds which are made up of Coares Sandstones.

The present work deals with the fossil flora of Palar basin which represents the famous Sriperamatur beds. The Sriperamatur beds are made up of 4 major exposures. The first is near Sriperubudar which is a small town 40 Km East-South of Madras City. The second is near Pyanur, third near Alikur and Fourth near Satyavedu which is a hilly region. The rock shows a dip which is some what greater than other Uppe· Gondwana exposures. And the depth reaches upto 40° towards north. The Sriperamatur rocks are characterised by white fossiliferous shales having soft sandstones, grits and micaceous sandy shales.

The basal part of these beds show conglomerates which is loose and less compact. It is suggested that these basal conglomeratic part of Sriperamatur bed is equivalent to the Budavada stage of the Vemavaram beds near Ongole area. However, this basal part is not represented by a particular name. Sriperamatur beds are rich in both Animal and plant fossils. These plant fossils are preserved as impressions and petrifications. Most of the shales are thinner and comparise Ammonites.

The plants are mostly preserved as impressions and represents a flora which is mixture of Rajmahal and Jabalpur plants (Table-I). The silicified coniferous woods are mostly found at Vellum, which is at the distance of 8 Km from Sriperambutar. These woods are preserved in situ and small pieces are scattered over the area of 2 Km around Vellum.

Sahni (1931) made a small note about these woods and describe few pieces. In our recent field visit, we came across several woods and also plant impression at Vellum. It made us to do more exploration around the region. The result produced are promissing and need systematic detail study.

The Upper Gondwana beds of this region is extended both on north-west and west of Madras city. The Southern end of this belt is crossed by a Madras railway at a distance of 64 Km from Madras, near the Arkonam junction. The outcrops are continued from North to South covering the area of 60 Km. The area is interrupted by the sandy deposits of Narnavarm and Nagari rivers. It divides the belt into different parts like Alikur, Pyanur and Satyavedu. These belts are about 8 Km in breadth. It is entirely made up of sandstones of Upper Gondwana systems and partly made up of Cuddaph rocks and laterite.

The Sriperamatur outcrops is situated towards the South-East of Pyanur area. The length of the outcrops from North to South is 24 Km. and width is 16 Km. The Gondwana area is encircled by lateritic gravel. The base of the Gondwana deposits is invisible at some places, but most of the tract is representing a distinct base made up of conglometric rocks.

Number of small outcrops are located towards the South-West of Sriperamatur. One of the patch represent about 30 small exposures which are fossiliferous. It is hardly 5 Km. in length. The larger patches are exposed towards the Madras city. One of the best exposure is near Poonamali. One of the largest exposure which is one the Southern border of Chingalpet is also rich in fossil content. It can be reached along the road by crossing the belt.

Hence the Palar basin appears to be made up of two principle beds and out of these two, the Sriperamatur beds being more richer in the fossil contents needs further studies and desire more attention. In the present investigation the collections were made from those spots which were little known. And hence the information collected adds to the knowledge of fossil flora of Palar basin.

The plant assemblages of the East-Coast beds are listed below :

	Raghava-puram	Vemava-ram	Sriper-matur	Utatur plant beds	Remarks
Pteridosperms :					
Thinnfeldia subtrigons (Feistm.)	..	+	..	..	
Filicales -					
R. Cladophlebis indica (O.& M.)	..	..	+	+	
R.J. ,, denticulata Brongn.	..	+	+	..	"Alethopteris whitbyensis".
Cycadophyta -					
R.J. Taeniopteris (Angiopteridium) spatulata (Morr.),	+	+	+	+	
R. Taeniopteris (Angiopteridium) maclellandi (O.& M.)	+	+	+	..	
R.J. Ptilophyllum acutifolium (Morr.)	+	+	+	..	
R.J. ,, cutchense (Morr.)	..	+	+	..	Including "Otozamites angustatus."
R. Otozamites bengalensis (Morr.)	+	+	+	..	
,, bunburyanus Zign., var. indica Sew. & Sahni	..	+	+	..	
Otozamites parallelus (Feistm.)	..	+	..	..	
J. ,, hislopi Oldb.,	..	+	..	..	

		Ragavapuram	Vemavaram	Sripermatur	Utatur plant beds	Remarks
R.J.	Dictyozamites indicus (Feistm.)	..	+	+	+	
	Pseudoctenis footeana (Feistm.)	..	+	+	..	"Pterophyllum footeanum."
R.	Nilssonia fissa (Feistm.)	..	+	..	..	"Anomozamites fissus."
Ginkgoites –						
	Ginkgoites crassipes (Feistm.)	+	..	+	..	
Coniferales –						
	Elatocladus plana (Feistm.)	+	+	+	..	
R.J.	,, conferta (Morr.)	..	+	+	..	
	,, tenerrima (Feistm.)	..	+	+	..	"Taxites tenerrima."
J.	,, jabalpurensis (Feistm.)	..	+	..	..	
	,, (? Torreyites) Sp.	..	+	..	..	
	Torreyites constricta (Feistm.)	..	..	..	+	"Cycadites constrictus."
R.J.	Brachyphyllum expansum (Sternb.)	..	+	+	..	"Echinostrobus expansus"; close to B.manullare.
R.J.	,, mammillare (Brongn.)	..	..	+	..	"Echinostrobus rajmahalensis."
J.	,, feistmanteli (Halle)	..	+	..	..	Originally assigned to Pachyphyllum (Pagiophyllum) peregrinum.
R.J.	Retinosporites indica (O.& M.)	..	+	..	..	

	Ragava-puram	Vema-varam	Sriper-matur	Utatur Plant beds	Remarks
J. Araucarites cutchensis (Feistm.)	..	+	+	?	
J. ,, macropteris (Feistm.)	..	..	+	?	
Cupressinoxylon alternans Sahni,	+	..	..	..	
,, coromandelinum	..	..	+	..	
Mesembrioxylon parthasarathyi Sahni	..	..	+	..	
Conites sessilis Sahni	..	..	+	..	Cones
,, sripermaturensis Sahni	..	..	+	..	,,
,, verticillatus Sahni	..	..	+	..	,,
Dadoxylon (?) Sp.,	..	..	+	..	
Incertae sedis. -	..	..	+	..	
J. Desmiophyllum indicum Sahni,	+	..	..	..	