

**GEOLOGY AND TOPOGRAPHY OF THE AREA :**

Along the East Coast several Upper Gondwana exposures are found in the form of outliers on the Gneiss or inlier in Pleistocene deposits. They occur sometimes between the Gneiss and marine Cretaceous beds. In addition to above deposits smaller ones are also found. The deposits are rich in their fossil contents and are quite interesting. They show low inclination and dips upto  $40^{\circ}$  near Sriperamatur in Tamilnadu. It is found that the deposits are directly placed upon a floor of Gneiss. In Godavari district, they are found between Rajahmundry and Vijayawada resting upon the Chintal-pudi sandstones. They comprise three divisions, Tirupati Sandstones above, Raghavapuram shales forming the middle and Golapalli Sandstones forming the lower division. The lower division is 350 ft thick and made up of sandstones and grits. The Raghavapuram Shales is 150 ft thick and consists of white and buff shales, sometimes variegated and purple coloured shales. They contain plants and animal fossils. The upper one is 150 ft thick having red to brown sandstones and unforssiliferous.

In Prakasam district there are four patches of Upper Gondwana exposures. They are near Kandukur, Ongole, Vemavaram and Guntur. Among these four, Ongole area is rich in fossil contents and exposures are found at Budavada 24 ml N. by E. of Ongole. The area consists of following 3 divisions:

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Budavada Sandstone is the lower and made up of buff coloured sandstones. Vemavaram shales is the middle and have thin bedded, fissile, purple coloured shales. They are equivalent to Raghavapuram shales in the Godavari district. The upper one is the Pavalur Sandstones having brown and red sandstones and they are unfossiliferous. Among these three Vemavaram shales have richest assemblage of fossil plants belonging to Cycadophytes, conifers, Filicales and other groups.

According to Spath, these beds are referred to the Lower Cretaceous on the basis of animal fossils, such as Pascocites and Gymnoplites. Ammonites are also found in this area. Due to varigated nature it is considered that they are non-marine in nature and show the presence of Otozamites. Presence of ammonites indicates Upper Neocomian age and perhaps equivalent to Kota, Rajmahal and Sriperamatur beds. Within the Ongole area, Vemavaram is the richest in its fossil contents having as many as 22 plant species. Recently discovered locality Uppugunduru have also shown promising flora containing different plant groups by Vagyani (1984, 85, 86). At Uppugunduru, the fossiliferous beds are not exposed at the surface but they are covered by laterite and non-fossiliferous sandstone layer. Hence, the fossils can be collected when the lower layer is exposed in the process of quarry work. Besides Uppugunduru fossil are also found at Nagalauppalapadu, Rachapudi, Prasangulapadu and Chinna-Ganjam. All these localities show similar

sequence of Vemavaram beds present in the Ongole area. At Chinna-Ganjam the fossils are collected in the well-cuttings and nullahs and on the surface of cotton fields. They show characteristic features of the deposits found in the Ongole area.

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