KAMTHI FORMATION—A PALYNOLOGICAL APPRAISAL

The name Kamthi Formation was given by BLANDFORD (1868) after the rocks exposed near Kamthi military station close to Nagpur. In the type area the Kamthi sediments are characterised by conglomerates, grits, sandstones and shales. Outside the type area they are exposed throughout the Wardha-Godavari Valley where they have been divided into three distinct mappable units (SEN GUPTA, 1970). The Lower Member of the Kamthi Formation comprised medium grained poorly sorted argillaceous sandstones. The Middle Member includes coarse, poorly sorted loosely cemented, argillaceous sandstone. The Upper Member consists of coarse, poorly sorted abundant quartz and quartzite pebbles in the upper part and siltstone in the lower part. The cross bedding is a characteristic structure and also show slabby splitting properties, the cementing matrix being usually high. Dark brown haematitic layers occur characteristically along the joint planes and cross beddings.

Kamthi Formation attains its maximum thickness (± 1,350 m) in Ramagundam area of the Godavari Valley. The average thickness of the Lower Member ranges between 150—200 m containing a coal seam of workable thickness (5.5m). The Middle Member averages from 50-800 m and the Upper Member totals upto nearly 500 m. In Ramagundam area the Kamthi Formation overlies the Barren Measures Formation and underlies the Maleri Formation. There is a gradational contact with the Barren Measures Formation.

The Kamthi Formation is considered equivalent to the Raniganj Formation of the Damodar Valley, Hingir Formation of the Son-Mahanadi Valley, Bijori Formation of Satpura Basin, Pali Beds of South Rewa Basin and Chintalpudi Sandstones of East Coast Godavari district.

The Kamthi flora was studied by BUNBURY as early as 1861 and some wood fossils have been described in recent years from Wardha Valley. The palynoflora has been as yet unknown except for a brief mention of a few taxa by RAMANAMURTY (1979). The present investigation has been undertaken in order to fill this lacuna and the first endeavour has been made in the Ramagundam area where this Formation attains its maximum thickness. The study has been carried out on the subsurface samples (Bore hole No. GGK-20 & 27). The sporae dispersae recovered through these sediments have been assigned to 53 genera. viz; *Callumispora*, *Lophotriletes*, *Horriditriletes*, *Osmundacites*, *Verrucosisporites*, *Microbaculispora* *Brevitriletes*, *Gondisporites*, *Lundbladispora*, *Laevigatosporites*, *Polypodiidites*, *Densipollenites*, *Parasaccites*, *Virkkipollenites*, *Caheniasaccites*, *Potonieisporites*, *Striomonosaccites*, *Platysaccus*, *Alisporites*, *Vitreisporites*, *Falcisporites*, *Vesicaspora*, *Paravesicaspora*, *Aurangapollenites*, *Ibisporites*, *Scheuringipollenites*, *Cuneatisporites*, *Primuspollenites*, *Schizopollis*, *Striatites*, *Circumstriatites*, *Lahirites*, *Faunipollenites*, *Striatopodocarpites*, *Crescentipollenites*, *Verticipollenites*, *Hindipollenites*, *Distriatites*, *Lunatisporites*, *Corisaccites*, *Guttulapollenites*, *Hamiapollenites*, *Weylandites*, *Striasulcites*, *Marsupipollenites*, *Praecolpatites*, *Pretricolpipollenites*, *Distriamonocolpites*, *Leiosphaeridia*, *Pilasporites*, *Inaperturopollenites* and *Singraulipollenites*.

Amongst these only the following taxa show qualitative and quantitative variation at different levels of bore holes:

Geophytology, **14**(2) : 246—247, 1984.

Densipollenites, *Faunipollenites*, *Striatopodocarpites*, *Striasulcites*, *Scheuringipollenites*, *Alisporites*, *Falcisporites* and *Vesicaspora*.

The Lower Member of the Kamthi Formation in bore holes GGK-20 & 27 are characterised by the dominance of striate disaccate pollen grains, chiefly *Faunipollenites* and *Striatopodocarpites*. *Scheuringipollenites* remains subdominant. Trilete miospores are strikingly very low in their percentages.

The Middle Member also contains the dominance of striate disaccates similar to that of the Lower Member. However, *Scheuringipollenites*, which was subdominant so far loses further low giving way to *Striasulcites* in the lower part of the Middle Kamthi Member. In further younger sediments *Striasulcites* also declines and in its place *Densipollenites* attains overall subdominance. In addition to these *Alisporites*, *Vitreisporites*, *Falcisporites*, *Vesicaspora*, *Paravesicaspora*, *Chordasporites*, *Verticipollenites*, *Lunatisporites*, *Guttulapollenites* and *Hindipollenites* appear consistent but in low percentages.

The miofloral associations recorded in the Kamthi sediments in the present investigation show a close comparison in generall with the known miofloras of the Raniganj Formation of Damodar Valley and Suktawa Formation of Satpura Gondwana Basin (Bharadwaj, Tiwari & Anand-Prakash, 1979) in view of the abundance of striate disaccates in the Lower Member and striate disaccates + *Densipollenites* rich association in the Middle Member of the Kamthi Formation. Thus, the Lower Member and partly Middle Member of the Kamthi Formation show upper Permian affinity palynologically. With this rate of progression of the mioflora it should be reasonable that the upper part of the Midle Kamthi Member may transgress into the Panchet Formation of the Damodar Valley.

REFERENCES

Bharadwaj, D. C., Tiwari, R. S. & Anand-Prakash (1979). Permo-Triassic palynostratigraphy and lithological characteristics in Damodar Basin. *Biol. Mem.*, **4**(1 & 2) : 49-82.

Blandford, W. T. (1858). Coal near Nagpur. *Rec. geol. Surv. India*, **2**(2).

Ramanamurty, B. V. (1879). Report on the occurrence of a coal seam in the Kamthi Formation from the Ramagundam area of the Godavari Valley Coalfields, and its stratigraphic significance. *Geol. Surv. India, Misc. Publ.*, **45** : 89-93.

Sen Gupta, S. (1970). Gondwana sedimentation, around Bheemaram. *Jour. Sed. Pet.*, **40**(1) : 140-170.

D. C. Bharadwaj,
Suresh C. Srivastava, B. V. Ramanamurty* & Neerja Jha
Birbal Sahni Institute of Palaeobotany
Lucknow-226 007

**Kothagudem Coll., A. P., India*