ABSTRACT

The ≈75m thick Upper Mesozoic Jabalpur-Lameta sequence occurs in between the Precambrians at the base and the Deccan Traps at the top in and around Jabalpur, Madhya Pradesh, India. The present work redefines its two broad lithostratigraphic units as Formations - the essentially noncalcareous Jabalpur Formation (below) and the essentially calcareous Lameta Formation (above); they have a conformable stratigraphic contact relationship. The green coloured sandstone unit, previously known as Green Sandstone, at the base of the erstwhile Lametas has been removed from the newly defined Lameta Formation and has been incorporated in the newly defined Jabalpur Formation, on the basis of its lithological similarity and stratigraphic relationship with the sediments of the Jabalpur Formation. The subdivision of the Formations into units of lower ranks has been found to be inapt.

Study of the different lithofacies of the Jabalpur and the Lameta Formations reveals that both were deposited by a single river system with varying styles and flowing in an overall southwest-west-southwesterly direction. The bulk of the sediments of the Jabalpur Formation has been deposited in a braided river tract which later developed the characters of an anastomosed river. The bulk of the sediments of the Lameta Formation records deposition in an anastomosed river tract, though the sediments forming its lower and uppermost units are the depositional products of braided streams.

It is confirmed that the calcareous nature of the sediments of the Lameta Formation is not a primary depositional feature but had been imparted by pedogenic alterations. A number of vertically stacked calcic palaeosol profiles have been recognised in the Lameta sequence. The study of the palaeosols indicates that during most of the Lameta time the palaeoclimate of the Jabalpur area was hot and semiarid. The stable isotopic compositions of the Lameta pedogenic car-
bonates has indicated the palaeogeography, the seasonality in the rainfall, the presence of C3 type vegetation and a higher concentration of atmospheric CO₂ in that time.

The contention of a continuous Upper Mesozoic sequence at Lameta brings into light one very interesting problem regarding the Indian Gondwana stratigraphy. In the Satpura Gondwana basin, of which Jabalpur basin is a part, the Jabalpur Formation, on the basis of its *Ptilophyllum* flora, and inferred continental fresh water origin, is treated as an integral component of the topmost part of the Gondwana sequence. On the other hand its overlying Lameta Formation was kept out of the Gondwanas. It is surmised that if the Jabalpurs are treated as Gondwanas, similar consideration should also be accorded to the Lametas. In that case, Lameta Formation represents the youngest Gondwana unit in the central part of India.