

**QUATERNARY STRATIGRAPHY OF THE KORATALLAIYAR-COUM BASINS, CHENNAI** by Hema Achyutnan and Nagalakshmi Thirunavakarasu. Jour. Geol. Soc. India, v.73, 2009, pp.683-696

**Shanti Pappu** Sharma Centre for Heritage Foundation,  
Chennai - 600 004 comments:

This is to draw attention to the fact that several key paragraphs of the above paper are reproduced from the paper entitled 'Reinvestigation of the Prehistoric Archaeological Record in the Kortallayar Basin, Tamil Nadu by Pappu Shanti. Man and Environment, v.XXI(1), 1996, pp.1-23 (<http://www/sharmaheritage.com>) without due citation of references. Man and Environment is a highly respected peer-reviewed journal of the Indian Society for Prehistoric and Quaternary Studies (ISPQS), widely circulated in India and abroad. The reproduced parts lacking citation are listed below:

*In Pappu (1996)*, Page 6, Column 1, sub-heading 'Ferricretes': Para 4, lines 8-10: reads 'Ferricretes are matrix based with a few outsize clasts, generally exhibiting floating contact, while pebble lenses are noted at some sites'.

*In Achyuthan and Thirunavukarasu (2009)*: Page 693, Para 1: 'Ferricretes are matrix based with a few outsize clasts, generally exhibiting floating contact, while pebble lenses were noted at some sites'.

*Achyuthan's reply*: This sentence is referred from Nagalakshmi Thirunavukarasu thesis.

*In Pappu (1996)*, Page 6, Column 2, Para 1, sub-heading 'Ferricretes', beginning line 2: 'Chemical analysis of the ferricretes reveals that in general the percentage of  $Fe_2O_3$  is very low (13.40% to 23.69%) reflective of immature ferricretes with weak mobilization of iron, lithodependency on parent material and pointing to the prominent role of groundwater in a zone with a fluctuating water table (Subramaniam and Mani, 1979, pp.241-242; Tardy and Roquin, 1991). Iron is derived from the ferruginous matrix of the Sriperumbudur and Satyavedu Formations and Tertiary ferricretes. These results compare well with those from Erumaivettipalayam (Achyuthan, 1993) and Vadamadura (Lal, 1973). The principle zones represented are the curirasse and the surficial dismantling horizon. Termite action is thought to have played an important role in ferricrete formation in this region (Tardy, 1991). Subsequent dismantling and transport of the duricrust is attributed to block gliding and thermal breakdown (Goudie, 1973; Tardy and Roquin, 1991).

*In Achyuthan and Thirunavukarasu (2009)*: Page 693, Paragraph 1, Column 1, beginning line 4: 'Chemical analysis of the ferricretes revealed high percentages of  $Fe_2O_3$ , reflecting mobilization of iron, litho dependency on parent material and pointing to the prominent role of groundwater in a zone with a fluctuating water table (Subramaniam and Mani 1978; Tardy and Roquin, 1991).

*Note*: The phrase '*that in general the percentage of  $Fe_2O_3$  is very low (13.40% to 23.69%) reflective of immature ferricretes with weak mobilization of iron,*' (in Pappu 1996:6), has been changed here slightly to 'high percentages of  $Fe_2O_3$ , reflecting mobilization of iron, litho dependency on parent material.....'.

'Iron is derived from the ferruginous matrix of the Sriperumbudur and Satyavedu formations and Tertiary ferricrete. These results compare well with those from Erumaivettipalayam (Achyutan, 1993) and Vadamadurai (Lal, 1973). Termite action is thought to have played an important role in ferricrete formation in the region (Tardy, 1992). Subsequent dismantling and transport of the duricrust can be attributed to block gliding and thermal breakdown (Goudie, 1973; Tardy and Roquin, 1991)

*Achyuthan's reply*: Referred from N. Thirunavakarasu thesis, and also from the original papers of Tardy and Roquin, 1991; Subramaniam and Mani, 1979. The values of  $Fe_2O_3$  is high according to the data we have obtained and so the interpretation is given as high. We have quoted termite action from Tardy (1992) and not 1991 as pointed by Ms. Pappu. Please also see Achyuthan and Federoff (2008). Subsequent dismantling and transport of the duricrust can be attributed to block gliding and thermal breakdown (Goudie, 1973; Tardy and Roquin, 1991) is referred from Goudie 1973 and Tardy and Roquin 1991.

*In Pappu (1996)*, Page 6, Column 2, para 4, subheading 'Colluvial Processes'. 'Colluvial deposits are noted in the foothill zone of the Allikulli hills and their outliers with their source material derived from a reworking of the Upper Gondwana debris flows and Tertiary ferricretes. They range in thickness from 1.5 m to 4-10 m. Contact with the underlying beds is sharp and they can be traced upslope. They are characterized in general by poor sorting, occurrence of outsize clasts and have a clayey matrix. At Rangaveram, the high clay percentages and a maximum particle size: breadth thickness >2 could point to these being reworked

older subareal viscous debris flow deposits (Gloppen and Steel, 1985, pp.313-335).

*In Achyuthan and Thirunavukarasu (2009):* Page 693, Paragraph 2, subheading Colluvial Processes: 'Colluvial deposits were noted in the foothill zone of the Allikulli hills and their outliers with their source material derived from reworking of the Upper Gondwana debris flows and Early Quaternary ferricrete. They range in thickness from 1.5 m to 4-10 m. Contact with the underlying beds is sharp and it can be traced upslope. They are characterized in general by poor sorting, occurrence of outsize clasts and have a clayey matrix. At Rangavaram, the high clay percentage and a maximum particle size: breadth thickness greater of two points to these being reworked from older sub areal viscous debris flow deposits (Gloppen and Steel, 1985).

*Note:* The words *Tertiary ferricretes* in Pappu (1996) has been changed to *Early Quaternary ferricretes*. The rest of this paragraph also is a direct copy from Pappu (1996) although here the reference has been given at the end.

*Achyuthan's reply:* Early Quaternary ferricrete is our observation and dating from the field notes Nagalakshmi Thesis. We have also referred to Ms. Pappu's work as acknowledged by her.

*In Pappu (1996),* Page 8, Column 1, Paragraph 1, subheading 'Reworked Colluvial Deposits (Stream Channel Gravels'. Beginning Line 4: Stream laid deposits in particular channel gravels were deposited by both the Old Palar and by numerous braided channels. Source material is derived from reworking of older debris flow and colluvial deposits. The Nambakkam odai has evidently played a major role in this process. In particular the region lying adjacent to the hill ranges represents an alluvial fan type of deposition (Muralidharan et al. 1993:3; Rajaguru *pers. commn.*). Stream channel deposits (Bull 1985:345) representing those that backfill stream channels are noted with sand and silt percentages ranging from 10.38%-20.03%. Distinct orientation and imbrication of clasts are noted. Clast lithology, size, orientation and inclination noted at Rangaveram, Poondi and Neyvelli also point to these being palaeochannels of the Old Palar. Smaller cut-and fill features point to the existence of braided tributaries of the main river. The fact that these gravels overlie coarse sands and silts representing Old Palar deposits indicates that this phase in river gravel deposition could correspond to the youngest phase of river channel migration which is dated on archaeological ground to the Late Middle Pleistocene.

*In Achyuthan and Thirunavukarasu (2009):* Page 693, Column 1 last 3 lines and Column 2, 1<sup>st</sup> paragraph: Subheading: Fluvial deposits and Facies: 'Stream laid

deposits; in particular channel gravels were deposited both by the Palar and by numerous braided channels. Source material is derived from the reworking of older debris flow and colluvial deposits with iron oxide pisoliths and oolites. The Nambakkam Odai has played a major role in this process. In particular the region lying adjacent to the hill ranges represents an alluvial fan type of deposition (Muralidharan et al. 1993). Stream channel deposits (Bull 1985), representing backfill deposits are noted with sand and silt percentages ranging from 14% to 18%. Cut-and fill-features were observed at Poondi. Clast lithology, size, orientation and inclination noted at Rangaveram and also at Poondi reservoir exposures also point to these being palaeochannels of the Palar River. Smaller cut-and fill features point to the existence of braided tributaries of the main river. The fact that gravel overlies the coarse sands and silts representing the Palar deposits indicates that this phase in river gravel deposition could correspond to the youngest phase of river channel migration. This is dated on archaeological grounds to the Late Middle Pleistocene'.

*Achyuthan's reply:* Interpretations have been based on several papers including Achyuthan (1996), Achyuthan and Pappu (1997), Achyuthan et al. (2001), Achyuthan and Federoff (2008). The last references have not been quoted in the paper as it was under print.

*In Pappu (1996),* Page 6, Column 1, last paragraph, subheading Ferricretes, beginning line 2: 'Older ferricretes contain Acheulian to Middle Palaeolithic tools. The overlying younger ferricretes contain Middle Palaeolithic to microlithic artefacts and are a redeposited ferricrete lag. The thickness of these beds ranges from 1.5 to 2.5 m.

*In Achyuthan and Thirunavukarasu (2009):* Page 694: Conclusions, lines 11-13: 'Older ferricretes contain Acheulian to Middle Palaeolithic artifacts. The thickness of this bed ranges from 150-250 cm.' The overlying younger ferricretes are reworked ferricrete gravel that contains Middle Palaeolithic to microlithic artefacts'.

*Note:* The last sentence is mildly modified. The thickness details have been changed from 1.5 -2.5 to 150-250 cm, and the placement of sentences has been changed.

*Achyuthan's reply:* This is referred from the Nagalakshmi thesis and field notes. These sentences do not match. We have written reworked ferricrete gravel and not redeposited ferricrete lag. These are genetically two different modes of ferricrete deposition. In the first, the sentence represents a simple deposition of reworked ironoxide rich nodule of gravel size and the latter represents a ferricrete lag that has been redeposited.