
The first chopper in Asian late Pliocene silts, Masol, Northwestern India: bio-lithostratigraphy, magnetostratigraphy and dating evidences

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Résumé

The survey conducted since 2009 in the sub-Himalayan Quranwala Zone, Masol, has enabled us to collect fossil bones with cut and percussion marks (Palevol, 2016, 15: 279-452). The taxa has been described since 1964 with assemblages characteristic of the Asian Late Pliocene (*Hipparion-Equus*, *Stegodon-Elephas*) and located below the Gauss-Matuyama Reversal (> 2.588 Ma) (Ranga Rao 1993). The fossils are scattered on the slopes of an inlier made up of fluvial sands and silts tilted by the tectonics and washed by the monsoon. The

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fossils (n = 1500) have been collected on the surface of the anticline and in 12 localities in association with artefacts in quartzite : choppers, flakes, anvils, hammer stones and cores. The artefacts have been collected only on the fossiliferous layers. Given the permanent erosional context, it was not surprising to find artefacts in the vicinity of the cut and percussion marks. The first tool *in situ* was spotted at Masol 1 at the top of the anticline by Dr. Mukesh Singh (SAAR), 50 meters far from the cut-marks and in the same silty horizon. Masol 1 (450 meters long x 50 meters width) had provided 387 fossils and 17 artefacts. These silts referenced c3 in our lithostratigraphic log are three meters thick without dip at the top, wine coloured at the base and yellow in the upper part. The cut-marks came from the yellow level, whereas the tool was in the wine colour band. The normal polarity has been checked (Chapon-Sao et al. 2016). In 2017, an excavation in steps of 4 m² on 80 cm in height was carried out, the tool was in the first lower third of c3 already described, compact at the base and then bedded. The artefact was horizontally placed on the cortical face in the bedded silts. Archaeologists from the "Archaeological Survey of India" have checked its location *in situ*. The tool is a split quartzite pebble shaped according to the technique of bipolar percussion on anvil followed by retouches of its edges. The result is a unifacial chopper whose dimensions are 91 x 75 x 30 mm. Mineralogical analyses are in progress to understand the erosional process of these silts (GEOPS). The most recent sands of the inlier located 140 meters above the cut-marks and the *in situ* chopper of Masol 1 are still in the normal polarity (Chapon-Sao et al. in preparation). New datings of Masol 1 deposits are in progress by Electron Spin Resonance (UMR 7194) and Al²⁶/Be¹⁰ cosmoclock are planned at the Inter University Accelerator Centre, New Delhi, with the consent of Dr S.B. Ota, Joint Director General, "Archaeological Survey of India".

Mots-Clés: Masol, technotypology, biolithostratigraphy, magnetostratigraphy, dating, Late Pliocene, India