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The Lower Pleistocene in the Euphrates Valley of Eastern Turkey and inhabitation of earliest hominine in the Caucasus region

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The Lower Pleistocene deposits (Palu unit) cover large areas in the lower Murat valley around and downstream the town of Palu and downstream junction of the Upper Euphrates and Murat rivers in the western side of the Euphrates valley around the city of Malatya. The age of the unit and the Early Pleistocene environment have been estimated by a combination of paleomagnetic, radio-isotopic and paleontological including pollen methods. The unit overlies (often with disconformity) the Upper Miocene-Pliocene sediments with the mollusk fauna that were deposited in stagnant water, mainly lacustrine conditions. The Palu unit consists of channel and flat-plain alluvium with records of long-distant transportation of clastic material, contains rare mollusk shells and composes the upper terraces of the both rivers. The both river valleys are offset on the East Anatolian fault zone (EAFZ) to the left at about 10 km. Stratification of the unit is usually parallel to the flat terrace surface, and only downstream the town of Palu near the EAFZ, the Palu layers are tectonically dipped 30° to the NW out of the fault zone and are discordant relative to the terrace surface. This means that the deformation occurred in the Early Pleistocene between the unit sedimentation and the terrace formation. The primitive lithic artefacts of the Early Paleolithic with characteristic picks were found within the Palu deposits just downstream the town of Palu and to the NW of the city of Malatya. These finds link the previous finds of the most Early Paleolithic in Armenia, Georgia, and the Greater Caucasus (Daghestan and Taman Peninsula) with the finds in the Euphrates and Orontes river valleys in Syria and the Birecik area in the SE Turkey. The earliest hominine migrated ca. 1.8 Myr ago from Arabia to Armenia and Georgia along the Euphrates and Murat valleys.