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## Earliest Human Occupation of North Africa: New Evidence from Ain Boucherit Early Pleistocene Deposits, Algeria

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Archaeological investigations at Ain Hanech and El-Kherba (Algeria) have shown the significance of this research area for understanding the expansion of ancestral hominins to North Africa circa 1.8 million years ago (Ma). Recent fieldwork at the nearby Ain Boucherit locality has resulted in the recovery of stone tools and animal fossils spanning from 2.3 to 2.0 Ma, much older than those already known at Ain Hanech. The new archaeological materials come from two stratigraphic units: Unit P/Q and Unit R. The Unit P/Q is stratigraphically situated 13m below the Ain Hanech and El-Kherba Oldowan bearing deposits, which also corresponds to the Ain Boucherit fossil bearing stratum from which both Pomel (1895) and Arambourg (1931) collected fossil bones. Within this same unit, in addition to fossil animal bones, we also collected in situ Mode I stone artifacts encased in a fine silty matrix. A diverse fauna including gastropods, fish, turtle, rodent, carnivores, proboscidian, equids, rhino, suid, hippo, giraffes, and bovids were associated with the artifacts. The artifacts include core-tools, flakes, and retouched pieces. Furthermore, fragments of a large bovid upper limb bone with evidence of hominin-inflicted cutmarks were recovered. Excavations in the Unit R, stratigraphically located 7m above the Ain Boucherit stratum (Unit P/Q) and 6m below Ain Hanech and El-Kherba Oldowan localities (Unit T), yielded animal fossils associated with a rich Mode I lithic assemblage encased in a floodplain deposit. The fauna collection shows more affinities with Unit P/Q and comprises frog, proboscidian, equid, suid, hippo, and bovids. The lithic assemblage includes core-tools, flakes, and fragments. The mammalian fauna preserves several cutmarked and hammerstone-percussed bones. A 22m thick magnetostratigraphic section was studied beginning just below Unit P/Q from the bottom all the way up to the calcrete deposit which caps the formation. Both normal and reversed polarities were documented allowing a solid correlation of the local magnetic polarity stratigraphy to the Global Polarity Time Scale, using temporally associated vertebrate faunal biochronology. The successive archaeological localities at Ain Hanech are placed along the magnetostratigraphic sequence, from bottom to top, as follows: 1) Unit P/Q, located 7m below the base of the Unit R in Matuyama Reverse Chron; 2) Unit R, situated at the base of the normal polarity, at the onset of Olduvai Normal Subchron, 3) Ain Hanech and El-Kherba in Unit T at the Olduvai Subchron to Matuyama polarity reversal, and the calcrete deposit (with Acheulean artifacts) below the Jaramillo Subchron. Based on the biochronological evidence, the age of these localities is estimated to 2.3 Ma for Ain Boucherit (Unit P/Q), 2.0 Ma for Ain Boucherit (Unit R), 1.8 Ma for Ain Hanech and El-Kherba, and >1.0 Ma for the calcrete deposit. To tighten up the dating, sediment and fossil tooth samples were collected for Electron Spin Resonance (ESR). Thus, Ain Boucherit currently represents the oldest archaeological occurrences in North Africa with evidence of cut marks slightly younger than, but roughly contemporary with, the earliest evidence in East Africa, showing that ancestral hominins inhabited the Mediterranean fringe much earlier than previously thought.

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