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ARTHUR L. DAY MEDAL: GEOLOGY AND PALEOENVIRONMENTS OF THE PLIOCENE-PLEISTOCENE GALILI FORMATION, ETHIOPIA

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The Galili Paleoanthropological Project area (or GPP) lies on the eastern shoulder of the northern Main Ethiopian Rift as it transitions and broadens into the southern Afar Depression. The GPP encompasses a fault-bounded basin ~100 km^2 in area, which is filled with fluvio-lacustrine deposits interlayered with tuffs and basalts all belonging to the Mt. Galili Formation. Previous and new ^{40}Ar-^{39}Ar dating provides a high-resolution framework for the rich fossil record found in the basin, including numerous newly discovered fossil hominids. The Mt. Galili Formation includes five members and spans most of the Pliocene, from 5.2 to 2.3 Ma. The hominid fossils are most abundant in the fluvio-deltaic facies of the Shabeley Laag and Dhindinley Members, between ~4.1 to 3.87 Ma. This large river system probably represents the paleo-Awash River, as demonstrated the size, northerly paleocurrent direction, and detrital zircon age spectra of its sands. The Awash River is now located ~40 km to the east, where it evidently shifted in the early Pleistocene, probably due to diversion by volcanic barriers. A large lake also occupied the northern parts of this Galili paleo-basin, one of at least four large lake systems formed by impoundment of the Awash drainage in the Plio-Pleistocene.

Session No. 223

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