
A 55,000-year-old modern human skull from Manot Cave, Israel.

Gerhard Weber^{*1}, Israel Hershkovitz², Ofer Marder³, Avner Ayalon⁴, Bruce Latimer⁵, Philipp Gunz⁶, Hila May², and Omry Barzilai⁷

¹Department of Anthropology [University of Vienna] – Althanstrasse 14 1090 Vienna, Autriche

²Dan David Center for Human Evolution and Biohistory Research, Sackler Faculty of Medicine, Tel Aviv University [Tel Aviv] – Tel Aviv, Israël

³Archaeology Division, Ben-Gurion University of the Negev – Beer-Sheva, Israël

⁴Geological Survey of Israel, Jerusalem, Israel – Israël

⁵Departments of Anatomy and Orthodontics, Case Western Reserve University [Cleveland] – 10900 Euclid Ave., Cleveland, Ohio 44106, États-Unis

⁶Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology – Deutscher Pl. 6, 04103 Leipzig, Allemagne

⁷Israel Antiquities Authority, Jerusalem, Israel – Israël

Résumé

Genetic and archaeological models predict that African modern humans successfully colonized Eurasia in a time frame between 60,000 and 40,000 years before present (ka), replacing all other forms of hominins. While there is evidence for the first arrival in Europe around 45ka, the fossil record is extremely scarce with regard to earlier representatives from this period. A partial calvaria discovered at Manot Cave (Western Galilee, Israel) and dated to ~55 ka by uranium–thorium dating now closes this gap. Both the discrete morphological features observed on the Manot 1 calvaria as well as the metric shape analyses based on a landmark-semilandmark approach document that this partial skull is unequivocally modern. Its cranial shape perfectly clusters with a sample of modern human populations from different geographical origins and times, and is most similar to recent African skulls as well as to European skulls from the Upper Palaeolithic period (Mladeč 1 and Prdmostí 4), but different from most other early modern humans in the Levant. This suggests that Manot 1 probably represents a population that migrated out of Africa and reached the Levantine corridor in a favorable time of warmer and wetter climatic conditions over the Northern Sahara and the Mediterranean. Importantly, it provides evidence that both modern humans and Neanderthals (e.g. Kebara, Amud) contemporaneously inhabited the Levant during the Middle to Upper Paleolithic interface. This would be in support of genetic studies suggesting a gene flow from Neanderthals into Europeans, likely in Western Eurasia, and considerably later than 100ka. Manot 1 foreshadows the first European modern humans. The descendants of its population could have later migrated to Europe and have contributed to the early Upper Paleolithic populations there.

Supported by the Dan David Foundation, the Israel Antiquities Authority, Case Western Reserve University, the Leakey Foundation, the Irene Levi Sala CARE Archaeological Foundation, the Keren Kayemet L'Israel and the Israel Science Foundation, the National Science

*Intervenant

Foundation, the Exilarch's Foundation and the Max Planck Society–Weizman Institute Joint Center for Integrative Archaeology and Anthropology, and the Bertha and Louis Weinstein Research Fund.

Mots-Clés: Manot Cave, Levant, Modern Humans, Morphometrics, Migration