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**Electronic version**

URL: <https://journals.openedition.org/bmsap/7121>

DOI: [10.4000/bmsap.7121](https://doi.org/10.4000/bmsap.7121)

ISSN: 1777-5469

Publisher

Société d'Anthropologie de Paris

Electronic reference

Aurélien Mounier, Ann Van Baelen, Federica Crivellaro, Frances Rivera, Alex Wilshaw, Rainer Grün, Robert Foley and Marta Mirazón Lahr, "A new Upper Pleistocene hominin calvarium from West-Turkana (Kenya)", *Bulletins et mémoires de la Société d'Anthropologie de Paris* [Online], 33(S) | 2021, Online since 01 December 2020, connection on 16 January 2025. URL: <http://journals.openedition.org/bmsap/7121> ; DOI: <https://doi.org/10.4000/bmsap.7121>

This text was automatically generated on January 16, 2025.



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- 1 The Upper Pleistocene (UP) African hominin fossil record is extremely scarce. Only two well-preserved specimens dated to 50,000-30,000 years ago are available: the Hofmeyr cranium from South Africa, and the Nazlet Khater 2 (NK2) skeleton from Egypt. Here, we present a new hominin calvarium (NG1) found in 2015 at Ngingolea Idome (West Turkana, Kenya) and directly dated to 30,000-33,000 years ago by U-series. The NG1 calvarium was reconstructed from multiple small fragments which were found on the surface and subsurface of ~2700 m² of the site. The site of Ngingolea preserves both late Middle and Upper Pleistocene sediments that contain Middle Stone Age (MSA) artefacts and fauna. The surface on which the NG1 cranium was found contains eroding fossil fragments of both ages, precluding association of the rich MSA assemblage with any one period of occupation at present. To clarify the phenetic affinities of NG1, we ran a comparative morphological analysis and 3D geometric morphometrics analyses (GPA, PCA and CVA) on a sample of 58 UP specimens from Africa (Hofmeyr and NK2, 12 Ibero-Maurusian, and 12 East-African Humid Period specimens) and Eurasia (n=32) and a group of recent African Khoisan (n=12). NG1 is a large specimen, the calvarium is antero-posteriorly elongated showing a flattening of its superior aspect. CVA results indicate that NG1, along with NK2, share greater affinity with the East-African Humid Period specimens than with Hofmeyr, while the latter presents stronger affinities with Eurasian Early and Middle Upper Palaeolithic specimens and to a lesser extent with Khoisan groups. Our results suggest a possible phenetic relationship between some UP African populations and the East-African Humid Period fossils. However, this affinity pattern is not shared by all Upper Pleistocene African populations, and the populations

that lived in Africa at that time may have shown a high degree of morphological heterogeneity.

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