



Press Release

Iron Age kohl in Iran according to a previously unknown recipe

International research team led by the University of Tübingen discovers unusual black eye make-up at excavation site dating from the 7th to 9th century BCE

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An international research team has found that black eye make-up used between the ninth and seventh centuries BCE in the northwest of today's Iran contained natural graphite and manganese oxide – unlike the typical kohl of the time used across the Ancient Near East, which was often based on lead. The team, led by Dr. Silvia Amicone from the Archaeometry working group at the University of Tübingen, discovered the unique formula while analyzing samples from the Kani Koter cemetery on the eastern border of the former Assyrian Empire. The results provide an insight into cosmetic practices in the Ancient Near East and into the material culture of the fringes of the Assyrian Empire. The study has been published in the latest edition of *Archaeometry*.

Kani Koter is a cemetery where the dead were buried during the Iron Age. "The graves include early elite burials with rich grave goods," says Dr. Shelir Amelirad of Heidelberg University. Objects for personal grooming such as mirrors and kohl application tools were found, as well as a ceramic vessel containing a black powder. The objects featured elements of an Assyrian style. The research team analyzed the black powder using a range of scientific techniques.

Using local resources

"What we found revealed a completely new kohl formula," says Silvia Amicone. "Instead of lead or organic ingredients, which are typically found in the formulas of the time, graphite was used here, which adheres well to the skin and may have given it a strikingly shimmering metallic appearance." No organic substances were discovered in the make-up mixture. "We cannot say today whether such ingredients were deliberately omitted or whether they decomposed over time," adds Amicone. The use of manganese oxide and natural graphite points to the

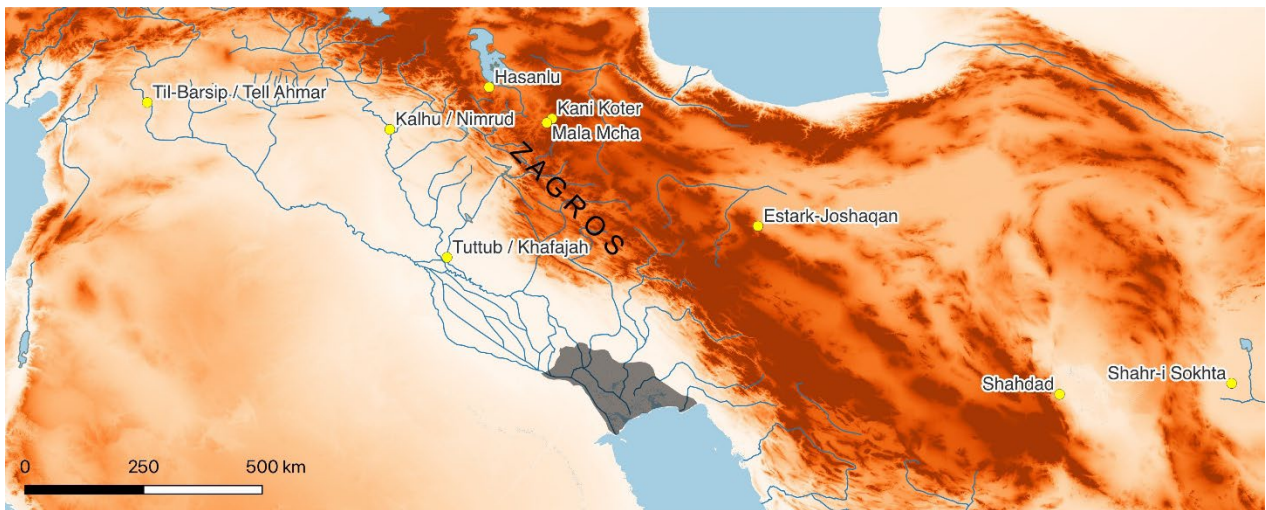
creative use of locally available resources in the mineral-rich Zagros Mountains.

“This discovery adds new details to our knowledge of personal adornment and appearance in the ancient world. In particular, we learn more about the cultural life of the elites in the area between Assyria and Iran,” Amicone says.

Professor Dr. Dr. h.c. (Dōshisha) Karla Pollmann, University of Tübingen president, commented that the discovery opens a window into an earlier world. “By using modern scientific methods, our researchers are constantly adding new building blocks to our knowledge of the cultural development of mankind,” she said.



A cosmetic jar from the Kani Koter site. Image: Amelirad & Azizi (2021), Kani Koter, Iron Age cemetery from Iranian Kurdistan, Iran, 59(1), pp. 57–76, fig. 22.



Map showing the Kani Koter site (top center). Image: A. Squitieri

Publication:

Silvia Amicone, Baptiste Solard, Shelir Amelirad, Eghbal Azizi, Lara Maritan, Maxime Rageot, Christoph Berthold, Karen Radner: Eye makeup in Northwestern Iran at the time of the Assyrian Empire: a new kohl recipe based on manganese and graphite from Kani Koter (Iron Age III). *Archaeometry*, <https://doi.org/10.1111/arcm.13097>

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