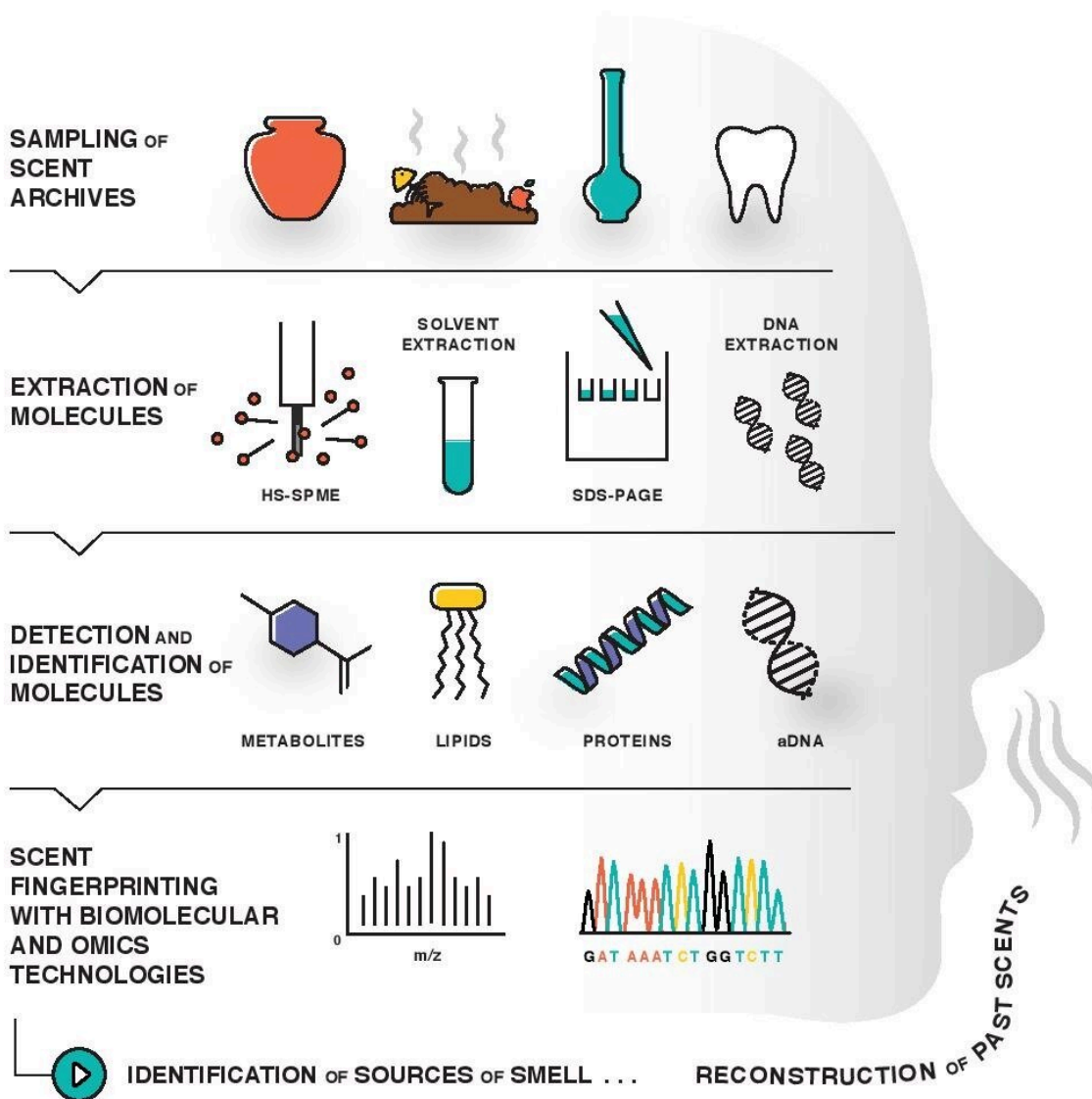


Scientists find ways to study and reconstruct past scents

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Past scents can be recovered from scent archives by extracting molecules using a

variety of different methods. With successful detection and identification of the molecular composition of samples, ancient sources of smell can then be identified. Credit: *Nature Human Behaviour* (2022). DOI: 10.1038/s41562-022-01325-7

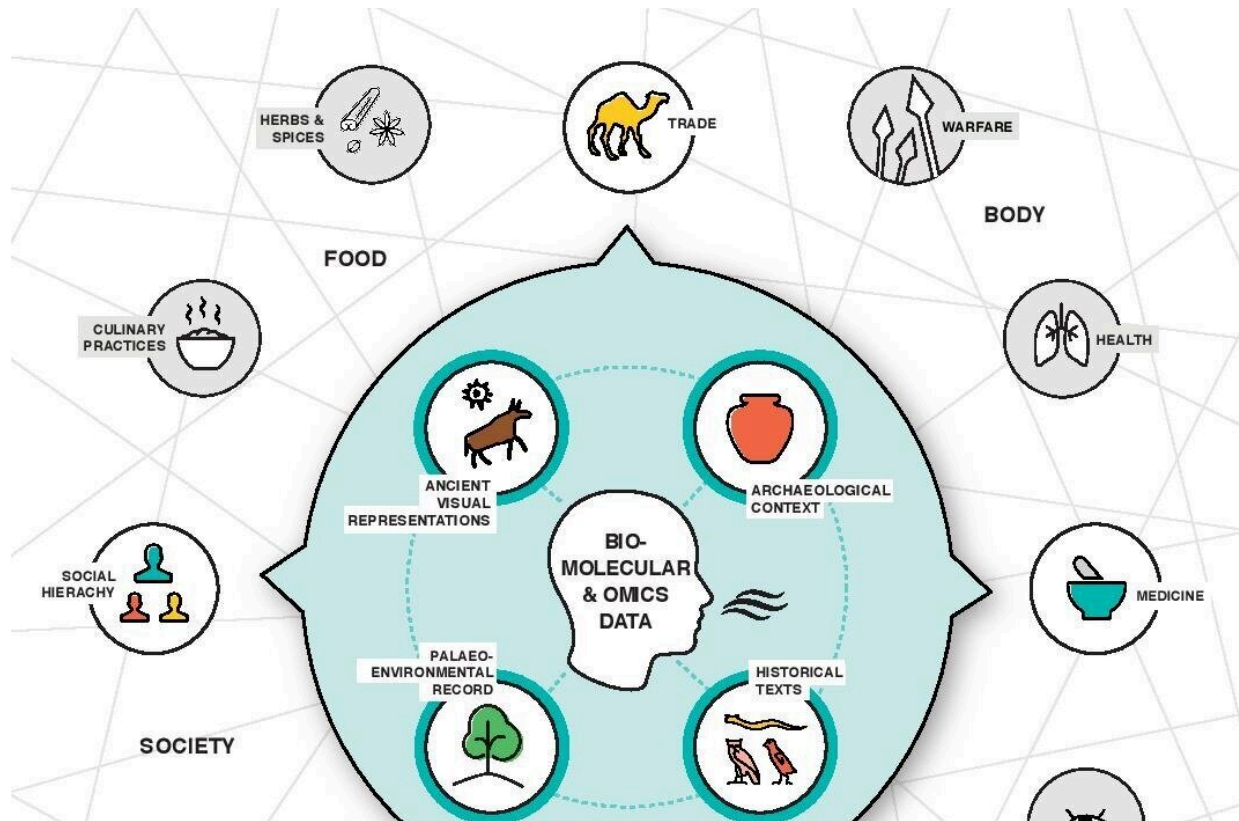
In recent years, millions of people worldwide have suffered the loss of smell due to COVID-19. Even those who have avoided infection with the new coronavirus experience the world of scent differently now due to the very masks that provide protection from the virus. This loss of olfaction has highlighted the important role of smell in how we perceive and navigate the world, and underscored the connections between olfaction and mental and physical health.

Scent has always been an integral component of the human experience, but up until now, the past has remained largely odorless. Most scents come from [organic substances](#) that decay quickly, leaving little for archaeologists to investigate thousands of years later. Now a team of researchers from the MPI for the Science of Human History is looking for new ways to bring the "smellscapes" of the past back to life and using smell to study past experience, behavior, and society.

"Tracking scent in the deep past is not a simple task," says Barbara Huber, the lead author of the paper, "but the fact that history records expeditions of discovery, wars, and long-distance exchange to acquire materials with strong olfactory properties—like incense and spices—reveals how significant scent has been for human kind."

Understanding the sensorial dimension of human history and the use of odorous and aromatic substances can contribute knowledge about many aspects of the past—including ritual, perfumery, hygiene, cuisine, trade and commerce. But because [scent](#) is part of how we experience,

understand and navigate the world, ancient scents can also provide insight into more general aspects of the past, from social hierarchy and social practices to group identity.



Scent data can be contextualized within the framework of relevant historical texts and visual representations, as well as the archaeological and environmental records. Connecting these different sources of information enables the reconstruction of critical aspects of ancient lifeways and society (indicated by arrows emerging from the blue circle). The icons in the outer area of the figure represent examples of some of the themes that can be addressed through this approach (grey boxes indicate broad headings). Credit: *Nature Human Behaviour* (2022). DOI: 10.1038/s41562-022-01325-7

"Scent is a powerful and underappreciated aspect of human experience," notes Professor Nicole Boivin, senior author of the study and Director of the Department of Archaeology at the MPI Science of Human History "Smells reach our brain fairly directly and motivate us in critical ways—whether to avoid danger, identify something that is good for us, or remember something from our past, for example."

"Using only traces of scented substances preserved in archaeological artifacts and features," adds Huber, "novel methods are revealing the powerful odors that were a cardinal feature of ancient lived realities, and that shaped human action, thoughts, emotions and memories."

By leveraging potent new biomolecular and omics approaches, such as proteomic and metabolomics techniques, and linking new data with information from [ancient texts](#), visual depictions, and the broader archaeological and environmental records, researchers stand to open up new aspects of the ancient world, our changing societies and cultures, and our evolution as a species. The authors of the new paper hope that more research into the rich "smellscapes" of the past will provide insight into the sensory worlds of long ago, and the diverse ways that people have captured scents from nature in order to shape human experience.

The study is published in *Nature Human Behavior*.

More information: Barbara Huber et al, How to use modern science to reconstruct ancient scents, *Nature Human Behaviour* (2022). [DOI: 10.1038/s41562-022-01325-7](https://doi.org/10.1038/s41562-022-01325-7). doi.org/10.1038/s41562-022-01325-7

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