

# Resilient Rethinking - How Virtual Archaeology Helped Transforming the Special Exhibition "Death by Salt" into the Digital Space

## Digital Documentation and Exhibition of the 'Salt Men of Zanjān'

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## Introduction

*"Salt Man 4' has been on the move for weeks now with a group of other guys from his village. His name is Farshid. He is 15 years old. The headman of his village threatened to take their fields away if they didn't join the bandaka, the labour programme decreed by the Shahanshah (the king of kings). Tomorrow they'll arrive at the salt mine. [...] They say it's a dangerous job. But Farshid is eager to get started..."*

With these words the graphic novel at the climax of the German Mining Museum's special exhibition "Death by Salt. An Archaeological Investigation in Persia" starts. In this graphic novel, the visitors are encouraged to engage with the research results presented in this special exhibition in an unusual and intimate way.



Fig. 1. Mummy of Salt Man 4, Zanjān, Iran. (© Klaus Stange)

From 1993 onwards, human remains have been discovered in the salt mine of Chehrābād, Province of Zanjān, Iran. This led to the declaration of the site as a cultural heritage site. An interdisciplinary and international research project was started in 2007. The scientific results of this research are presented to a wider audience for the first time in this special exhibition.

## Death by Salt. A digital Exhibition.

The visitors follow the scientists as they investigate the salt mummies, their working place - the salt mine - and its surrounding area. In different exhibition areas the results, hypotheses and working methods of numerous disciplines such as textile archaeology or palaeomedicine are displayed. The different exhibition areas are connected by black and white drawings that visualise the research results. Combined, they result in the hypothetical last day of 'Salt Man 4', shown in a graphic novel.



Fig. 2. Excerpt from the Graphic Novel: Salt Man 4 tries to escape from the collapsing mine. (© Sasan Saidi)

The scientific results presented to the visitors allow reimagining the hardships the workers had to endure to extract the salt. Like the salt miners, the exhibition team had to face various obstacles and was forced to adapt to the Covid-19-induced circumstances. By doing so, ways to make future exhibitions more resilient against external influences were explored and (successfully) put to an acid test.

The main reasons for for being able to quickly adapt to the entirely new circumstances was the exhibition's orientation: instead of focusing on the archaeological finds, archaeology and its methods itself were given the lead in the exhibition, with the 'Salt Men' being used as an example for those methods.

It was the exhibition team's endeavour to making research methods accessible to the visitors. Augmented Reality (AR) and 3D-prints were used as supplements to the analogue exhibition. While some finds such as the equipment of 'Salt Man 4' had already been 3D documented during the excavation campaigns, most of the objects now being on display were digitized in a joint effort by an Iranian-European team. These models are not only used as digital or 3D printed objects in the exhibition, but are also used in the team's scientific research.

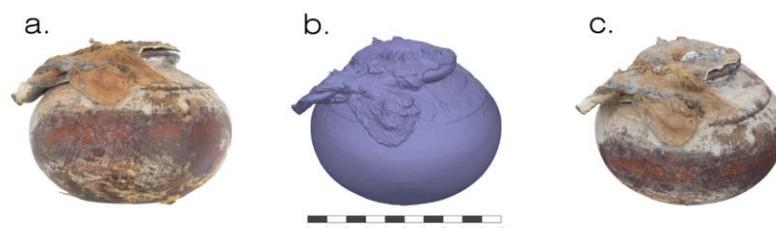


Fig. 3. Ceramic Vessel found with 'Salt Man 4'. a) Photo of the ceramic vessel. b) Solid 3D model of the ceramic vessel. c) Textured 3D model of the ceramic vessel. (© Nicolas Schimerl, Deutsches Bergbau-Museum Bochum)

The analogue exhibition room was 3D scanned and thus a digital copy created. This was partly motivated by the closing of cultural institutions for visitors, but also by the endeavour to make the exhibition accessible to a wider audience. In the digital version of “Death by Salt” visitors can move freely and regardless of location and time. The exhibition was also extended with a new information layer offering more in-depth insights into research as well as the 3D models. As a positive side effect, the digitalized exhibition will be available after its analogue run.

While the analogue was transferred into the digital space, this process happened vice versa. Objects that are indispensable for a thorough understanding of the exhibition’s narrative such as the Salt Mountain or ‘Salt Man 4’ could be integrated into the analogue exhibition using data deriving from virtual archaeology.

The Salt Mountain was 3D printed as a scaled model based on photogrammetric datasets. Visitors can explore the model in the exhibition and dive one level deeper by using the specifically developed augmented reality app to explore the finding places of the salt mummies. Furthermore, they can learn about the site’s stratigraphy and the mining techniques employed.

By using this app, visitors can also see a virtual model of ‘Salt Man 4’. They can engage with the mummy at their own pace. They can learn about the palaeomedical research results as well as about the garments he wore at his untimely end and the information textile archaeologists were able to derive from them.

## Conclusion

Being forced to adapt to an unforeseeable situation in spring 2020, the exhibition team had to rethink the concept behind ‘Death by Salt’. Relying heavily on an extensive library of virtual assets created during the field work that led to the exhibition itself, new ways of presenting research results were tested. By embracing the innumerable possibilities offered by modern technology, a concept for more resilient exhibitions was developed. This led to the digital version of ‘Death by Salt’, which also acts as a blueprint for further exhibitions of the German Mining Museum. Going digital has helped to create a long-term perspective for “Death by Salt” as well as allowing a worldwide audience to learn about the unique world heritage that the ‘Salt Men of Zanjān’ represent.

Digital visitors have hardly been a target group for museums. The pandemic situation in 2020 led to a reassessment in this regard. Cultural institutions are increasingly forced to rely on digital offers. “Death by Salt” is a first try of an exhibition enmeshing both analogue and digital ways of presenting archaeological research results.

Since the launch of the digital exhibition in April 2021 more than 55.000 individual visitors have visited the virtual version of “Death by Salt”, a number that could never have been achieved by relying solely on an analogue offer. Future plans involve a continuing enhancement of the digital exhibition by adding new research results and keeping the additional information layers up to date.

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## Conflict of Interests Disclosure

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