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Documentation and visualisation of archaeological sites in Yemen: an antique relief wall in Zafār (poster)

INGO BUCHMANN, TOBIAS SCHRÖDER & PAUL YULE

Summary

The powerful Ḥimyarite Confederation (110 BCE to 525–630 CE), with its capital Zafār was once the mightiest kingdom in Arabia and its rise was based on highly developed irrigation technology. In the centuries after its fall, the city has suffered considerable damage. In order better to understand the culture and history of the Ḥimyarites, annual research projects have taken place in Zafār since 1998. The University of Heidelberg Expedition to Zafār is made possible by a grant from the German Research Society (DFG).

Keywords: Ḥimyar, Zafār, Yemen, irrigation

In 2008 a life-size relief figure (Fig. 1) came to light in the eastern interior wall of the excavated so-called “Stone Building” (Fig. 2). The entire wall was recorded using a tachymeter and a digital camera. This preliminary, distorted image was then converted into a scaled image with correct geometric data. Precise measurements can then be obtained from any two points on the digitized image. Thus, the wall can be reconstructed graphically and depicted in new ways.

New Ḥimyarite reliefs from the “Stone Building”, Zafār, Yemen

Zafār is the capital of the ancient tribal confederation known to the outside world as Ḥimyar. From *c.* 270 to 525 CE, for some 250 years, this nation and its allies dominated all of Arabia politically, militarily, and economically. In 2008, the ninth season of excavation at Zafār (110 BCE to 525–*c.* 545 CE) yielded an important discovery: a life-size basalt relief image of a member of the noble class. To judge from its crown, sword, bouquet, and other attributes, this standing figure depicts a king rather than a priest or deity.

Indications for dating are paradoxical: the calligraphic style of the damaged Sabaic *wad^b[b]* (literally, the god Wadd is “father”) begins as early as the fourth century CE (cf. Kitchen 1994: table 63). On the other hand, Byzantine and other stylistic parallels suggest a possible fifth-century



FIGURE 1. *A life-size basalt relief image of a member of the noble class (Ingo Buchmann).*



FIGURE 2. The eastern interior wall of the “Stone Building” (Ingo Buchmann).

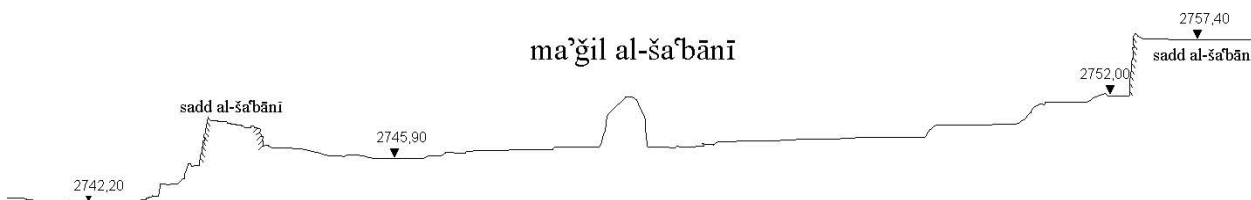


FIGURE 3. The irrigation facility of Ma'ghil al-Sha'bānī (Tobias Schröder).

CE dating. Despite the traditional apotropaic formula, the figure cannot be attributed with certainty to the old polytheistic religion, and on present evidence cannot be attributed with certainty to a Christian or Jewish origin. It appears to date to the threshold of the new monotheistic age in South Arabia, perhaps around 400 CE. The title may be anachronistic, to judge from a parallel inscription (RES 5064) pointed out by A. Multhoff in which the deity Rahman occurs in direct context with *wadʿ[b]*.

Aside from the standing figure, the relief ensemble contains four registers, possibly dating from the turning of the eras, on scant radiocarbon evidence. From bottom to top: a row of *bucrania*, alternating grape bundles and leaves, antithetic animal compositions, and a register of leaf-crosses and rosettes. The reliefs extend over the 10 m long excavated section of this eastern courtyard wall. The royal figure is located at the southern end of the trench, possibly at mid-length of the courtyard, to judge from similar structures.

Further excavations will be undertaken to clear the entire courtyard and entrance.

Visualisation of an ancient water reservoir

The rise of a powerful Ḥimyarites kingdom was based on highly developed irrigation technology. During the rainy monsoon season, precipitation could be stored and used for the irrigation of fields during the subsequent dry season. Ma'ghil al-Sha'bānī with its three dams is such a reservoir.

The irrigation facility of Ma'ghil al-Sha'bānī with its dams (called “Sadd al-Sha'bānī”) near Zafār (Fig. 3), is a typical traditional construction for *sayl* water and was developed in the Ḥimyarite period (110 BCE to 525–630 CE). During the rainy season, huge amounts of water were conducted through channels into large walled fields, which were flooded knee-deep. The amount of water was too high to be totally retained by the soil. The overflow of water reached the fields where fertile soil and the salt from former rainy periods were deposited. Even today, Māgil al-Sha'bānī is 2.4 ha in area and the reservoir retains up to c. 307,000 m³ of water (Fig. 4).

Visualisation was conducted by means of AutoCAD

Civil 3D 2008, which has considerable GIS and 3D functions, in addition to its basic function as a measuring program. The Ḥimyarite irrigation facility was first modelled with the help of lines, DGMs, and 3D surfaces. The use of materials and textures enabled a photo-realistic presentation for the recorded object. Subsequently, successive picture flights were generated.

We mapped the irrigation area by means of a Leica tachymeter. A closed traverse of a length of 3 km guaranteed the connection to the UTM co-ordinate system. Another polygon ring was established around the irrigation facility. The connection and observation points were marked on hills in hard rock.

After determining break lines in the CAD, we constructed a 3D wire-frame model. Textures can be mapped to the triangular surfaces. To handle the insufficient elevation model of Google Earth™ the digital terrain model has to be enlarged manually.

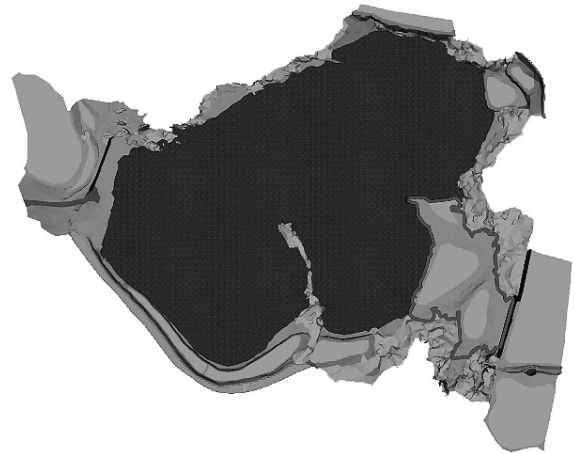


FIGURE 4. Plan of the relief features of Ma'ghil al-Sha'bānī (Tobias Schröder).

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