FROM THE NILE DELTA TO KARLSRUHE:
OR HOW TO PRESENT MUD BRICKS IN AN EXHIBITION[1]

By HENNING FRANZMEIER AND SEBASTIAN HAGENEUER

Qantir-Pi-Ramesse – historical importance and extension

The city of Pi-Ramesse ('House of Ramesses') was founded by king Ramesses II at the beginning of his 67-year reign in the early 13th century BC in the north-eastern Nile Delta, about 120 km northeast of modern Cairo.[2] It was located just 1 to 2 km north of the existing town of Avaris, which had been the capital of the Hyksos during the 16th and 17th centuries BC. Already mentioned in the first year of Ramesses' reign, it was this city to which he returned with his army after the famous battle of Kadesh in year 6 of his reign. During the following decades, it served as the royal residence and was enlarged into what has become one of the largest archaeological sites in the Eastern Mediterranean. While the central island with the city centre can be estimated as occupying 4 square kilometres, the total urban area might have reached 15-20 square kilometres.

The city was adorned with monumental palaces and temples. In their construction, extensive use was made of recycled and reused stone material.[3] Other important elements of the residence were military installations, known from both texts, and the archaeological remains of stables that can be connected to the royal chariotry. Pi-Ramesse was the royal residence that witnessed the conclusion of the peace treaty with the Hittite Empire and the subsequent marriage of the king with a daughter of the Hittite king.

During the reigns of the successors of Ramesses II, the city maintained its position, as is evidenced by building activities and texts. This status was obviously retained at least until the reign of Ramesses III in the first half of the 12th century BC, at which time the city was renamed the "House of Ramesses, great in victories". Under the later Ramesside kings, the picture becomes nebulous as they did not leave any traces of monumental construction. With the end of the 20th Dynasty, Pi-Ramesse certainly lost its role as royal residence, which function, as well as most of the monuments, was transferred to Tanis, about 30 kilometres to the north.

While the location was forgotten until the 20th century AD, the city's splendour led to its inclusion into the cultural memory of the monotheistic religions. In the tradition, it serves as prototypical capital of Egypt in the context of the Exodus, even though the relevant Biblical texts were composed centuries later.[4]

The site of Qantir-Pi-Ramesse – present state

The ancient city of Pi-Ramesse is almost invisible today. While most of the stone-built monuments had been removed in antiquity to embellish the new capital Tanis; the tulul (hills

resulting from settlement activities), which were still visible at the end of the 19th century, were levelled during the 20th century[5] (Fig. 1).

Fig. 1: View from the water tower over modern Qantir showing the absence of visible tulul (Photo: Axel Krause).

Fig. 2: The base and feet of a seated statue of Ramesses II during an excavation in its vicinity in 2001 (Photo: Axel Krause).

On the surface, only the base and the feet of a colossal seated statue of Ramesses II (Fig. 2), a fragment of the lap of the same or another statue as well as two column bases bear

an easily visible witness to its great past. All other archaeological features are known only from their remains unearthed during excavations or through the magnetic survey conducted in the years between 1996 and 2012.

Finds and features: The results of the archaeological excavations

The history of archaeological research at Qantir-Pi-Ramesse reaches back to the late 19th century, when Francis Llewellyn Griffith and Édouard Naville visited the site briefly.[6] The first larger excavations date back to the 1920s when Egyptian Egyptologist Mahmoud Hamza discovered a variety of objects related to royal activities and the production of glass, faience, and bronze.[7] Hamza for the first time suggested that Qantir was to be identified with the site of Pi-Ramesse.

While the present whereabouts of many of the early finds is unknown, the objects discovered by Hamza are mainly stored in the Egyptian Museum in Cairo. They primarily consist of small finds and objects related to the production of metal and glass such as tuyères or the only complete ingot of red glass known from Egypt (now in the Luxor Museum).[8] Further work was conducted in the 1940s and 1950s by Labib Habachi (one of the first to suggest that the site was that of Pi-Ramesse) and Shehata Adam.[9]

Since 1980, the Roemer- und Pelizaeus-Museum Hildesheim has carried out excavations at eight areas at the site. The most important discoveries of site Q I, excavated between 1980 and 1987, were the bronze production facilities with a capacity unknown from any other site excavated to this date from the Late Bronze Age. Connected were workshops for bronze weapons.

Fig. 3: The stables in Q IV during excavation. Visible is a box for one horse including the stone pavement, a tethering stone and a small stone-lined pit to collect the urine which most likely was subsequently used for processing leather (Photo: Claudio Fragasso).

Site Q IV, examined between 1988 and 1998, yielded large stables for at least 480 horses (Figs. 3-5). They can be interpreted as a royal stud farm and represent once more a building which had never been excavated from that period. The discovery of the stables also confirmed the statements known from the texts of Papyrus Anastasi III, 7,5-6, which refer to the "stables for thy (the king's) chariotry".

Fig. 4: Plan of the stables in Q IV. Stratum Bb (Drawing Anja Herold).

Fig. 5: Reconstruction of the stables. Visible are the six rows of which four were excavated. The proximity to the canal suggests, that it might have been used to bathe the horses. (Credit: © artefacts-berlin.de).

In later years, three smaller excavations were opened to check the results of the magnetic measurements conducted since 1996. These works resulted in finding two buildings, most probably official, though their exact function was not revealed. The most important find of that work was the discovery of a fragment of a cuneiform tablet in 2003 at site Q VII.[10] In 2016, new excavations were started in site Q VIII in order to unearth information on the largest building complex visible in the magnetic measurements.[11]

Besides the results of official excavations there are a small number of objects in various museums which come from undocumented work at the site. The two largest groups of objects are the so called Horbeit-stelae, most of which are today in the Roemer- und Pelizaeus-Museum in Hildesheim,[12] and the doorway of Seti I, in the Louvre.[13]

It can be concluded that, except for the doorway of Seti I, some of the Horbeit-stelae, and a few further small finds, the vast majority of objects discovered at Qantir is only of interest mainly to scientists and scholars. Most finds are extremely fragmentary. Amongst hundreds of thousands of pottery sherds from site Q I there is only one intact vessel. The appeal for visitors of exhibitions on ancient Egypt, where they would be contrasted with colossal hard-stone statuary, jewellery, or otherwise artefacts with a high aesthetic quality, can be considered comparatively low.

The magnetic survey

In addition to the results of the archaeological excavations between 1996 and 2012 an extensive magnetic survey was conducted in collaboration with the Bayerisches Landesamt für Bodendenkmalpflege (H. Becker and J. Fassbinder).[14] During this work about 1.5 km^2 were surveyed with a caesium magnetometer, showing a large number of subterranean structures.

This area being much larger than what could be excavated over centuries(!), the results of the survey allowed us for the first time to get a glimpse of a larger fraction of the ancient city based on hard data.

Amongst the most important results is the confirmation that the centre of Pi-Ramesse was indeed located on an island in the Pelusiac branch of the Nile, as had already been suggested by the drillings of Josef Dorner.[15] In the south of the island, a large temple and palace complex became visible. This was chosen for the most recent excavations. In the eastern part a number of villas resembling the type fount at Amarna was detected and a long empty strip along the water, which was interpreted as a wide street with trees and thus termed the 'corniche'.[16] In the north, the old idea was confirmed that the fragment of a colossal statue of Ramesses II (see Fig. 2) marked a temple (Fig. 7 and 8), even though the orientation was found to differ from previous reconstructions.[17] In other parts of the surveyed area, a residential quarter with a high density of small buildings was discovered.

Therefore, for the first time different types of buildings can be traced, ranging from temples to domestic buildings and public areas. It has to be borne in mind though that the identification of structures involves a process of careful interpretation of the raw data involving the archaeologist as well as the specialists conducting the magnetic measurements. In the case of Qantir-Pi-Ramesse, the results of the magnetic measurements have been checked by systematic excavation conducted after the measurements involving techniques such as determination of the magnetic susceptibility of materials excavated. All interpretations of unexcavated areas by Edgar B. Pusch were based on the results of these studies (see Fig. 7).[18]

The exhibition and the reconstruction

Between the 17th December 2016 and 18th June 2017, the exhibition "Ramses – Divine Ruler on the Nile" presented the life and the times of Ramesses II in all its facets in the Badisches Landesmuseum Karlsruhe. In Karlsruhe, a wide range of objects are exhibited, ranging from large scale sculpture to objects of daily life. The exhibition is arranged along thematic groups, one of which presents Pi-Ramesse, combining traditional elements such as objects and replicas of finds with modern elements such as a virtual reconstruction of the city.[19]

The virtual reconstruction constituted the central aspect of the presentation of Pi-Ramesse in the exhibition. Based upon excavation data, the magnetic survey and intensely discussed analogies from other Late Bronze Age sites, a team consisting of the excavators, visualisation specialists and museologists developed a reconstruction of Pi-Ramesse of the early 13th century BC. The premise has been to rely on as much factual data as possible, while still creating an appealing model for a broader audience. It was therefore decided to produce a 6-7-minute animation where not only the virtual model was presented, but also the three basic types of sources that were used for reconstruction.[20]

Fig. 6: Overview of the reconstruction of Pi-Ramesse. The image shows the complete reconstruction. (Credit: © artefacts-berlin.de)

Virtual reconstructions range from very basic approaches to artistic masterpieces. Recent advances in technology also enabled the growing hyperrealism of such models,[21] as the use of modern 3D software becomes widely accessible and popular. Therefore, the number of decent looking reconstructions is increasing. As beautiful as these are, an obvious disadvantage is the subjectivity involved. To be more precise, it is the unknown amount of subjectivity that was involved in creating them. We simply do not know how much we can rely on them.[22] Additionally, elaborate reconstructions also convey the notion of authority, which suggests a non-existent validity, while scientifically based reconstructions should only be a mere suggestion or proposal. [23] Placed in a museum or on television, these reconstructions often get accepted by the audience without any hesitation.[24]

We therefore decided not only to show a model, but also to explain on what that particular reconstruction is based upon. Simon James once wrote:

> A reconstruction should obey basic rules: It must not contradict the available evidence and should aim to account for as much of it as possible. It should also respect the physical properties of the materials and structures depicted. Even if you follow the rules, the only certain thing about any reconstruction drawing is, that it is wrong. The only real question is, how wrong is it? [25]

It is therefore imperative not only to say that it is a reconstruction, but also to show it. To do so, we decided to present in the animation the three basic types of sources in a way, that the visitor is able to understand the underlying reconstruction process: *Primary sources*, *secondary sources* and *guesswork*.[26]

Primary sources are the remains of ancient architecture found in our excavations, which we try to reconstruct. For example, excavations in the Nile Delta usually reveal plenty of mud-brick walls and, if we are lucky, some remains of plaster, floors, and occasionally the remains of a collapsed roof or secondary floor. Most of the time, we also have to deal with poor preservation of the mud-bricks and are merely able to make out an architectural ground plan of the building. Normally, we have no idea how a building looked above the excavated remains and how tall the building actually was. Nonetheless, the validity of primary sources is very high, as we are talking about actual archaeological facts.

Secondary sources are a much broader field. They cover architectural analogies, texts describing certain features, architectural models or depictions and ethnographic parallels. They form all the indirect sources one can utilise for a reconstruction. Although they are not directly connected to the reconstructed object they can be of high value, especially in these examples of poorly preserved architecture. Here, we talk about lesser validity of the sources, for several reasons: 1. One must know about the source; 2. One must decide to use the source; 3. One has to decide on how to interpret the source. This of course, is highly subjective, as the choice and interpretation of secondary sources depends mainly on the knowledge of the author, the purpose of the intended results and several other influences, such as political or religious views, contemporary research trends or the available technology. Even though we cannot quantify the amount of subjectivity in the choice of secondary sources, we clearly can speak of an interdependency of validity and subjectivity here.

If one has used all available archaeological data (primary sources) and analogies (secondary sources), one must resort to simple guesswork. It is utilised in every reconstruction one way or another, the only problem is that we do not know in what capacity. Here, the subjectivity is the highest of course and we cannot speak of any kind of validity. Of course, the interpretation of primary sources and the choice of secondary sources is also a matter of subjectivity. But I think we can agree that if we have a reconstruction mainly based on primary sources, it is more reliable than a reconstruction mainly based on guesswork.

Also, a reconstruction depicts two separate moments in time. The first moment is the content of the depiction itself, based upon the three above-described types of sources. For example, it could show the North Temple of Pi-Ramesse in the 13th century BC. The second moment in time is of more interest here. It is the actual time of creation of that reconstruction, in our case the months between February and December 2016. It shows us the current state of research, the availability of the known or used sources and the skill of the creators. Furthermore, research has shown how the decision of which sources to consider, their interpretation and use in a reconstruction process is biased, [27] and how older reconstructions have a long-lasting influence in creating new ones and therefore, creating a kind of inherited error.[28] Depending on these factors, a reconstruction can be changed at anytime by external influences or new data,[29] and hence, is simply a simulation or proposal fixed to that second moment in time. This fact makes it hard for us to understand the reliability of a reconstruction.
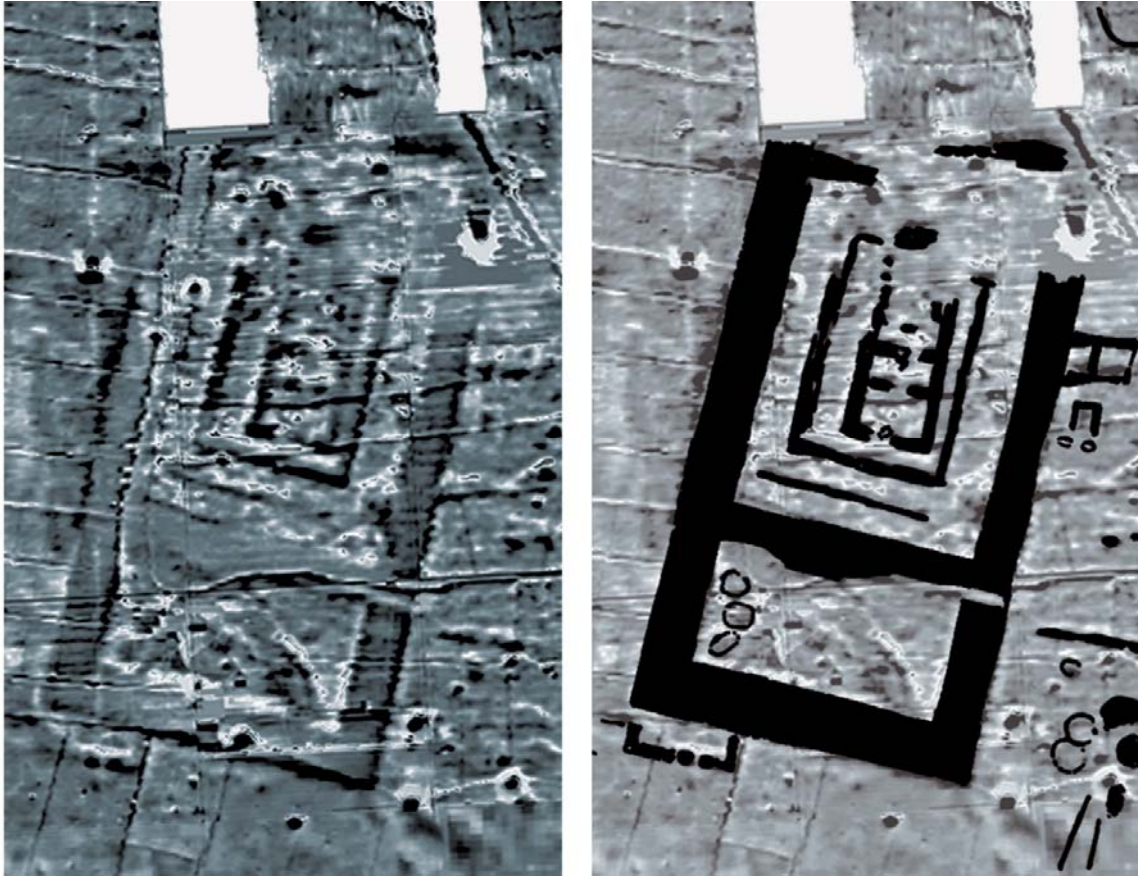
Fig. 7: Magnetic measurement (H. Becker) and magnetic measurement with interpretation (E. B. Pusch) of the North Temple of Pi-Ramesse (after Pusch and Becker, Fenster in die Vergangenheit, Fig. 183-184.).

The animation starts with the geographical positioning of the site as an island between two creeks of the Nile and the dimensions of the area of interest. After that, a coloured representation of the excavation areas is projected on the central island to show how little actual excavation data is available. Only 0.25 % of the area was excavated and constitutes therefore the primary sources. After that the magnetic survey is projected onto the island which represents 20-30 % of the overall area. The animation then shows the reconstructions based only on the excavation and magnetic survey, leaving a vast unknown area free, to visually show these parts that have to be filled by guesswork, until finally, we can see the whole reconstruction of the island. All steps are aided by carefully edited texts to explain the underlying process.

It is only then, that the animation shows us more details of the reconstruction or even begins to zoom into certain areas or present a fly-over. Nearly one third of the seven-minute animation is therefore reserved for presenting to the audience not only a virtual model, but also the basic sources behind it. In our opinion, these two and a half minutes are well-invested in order to explain the nature of the reconstruction and to deliver a feeling on the reliability of our proposal.

Fig. 8: Reconstruction of the North Temple of Pi-Ramesse. This reconstruction is based on the magnetic survey and parallels in Medinet Habu and Thebes. (Credit: © artefacts-berlin.de).

Conclusion

With this article, we have tried to present a way of visualising a major site of which only sparse remains are left. As a possible answer, virtual reconstruction was used, through which we could offer a glimpse into the breadth of that site, in a way that was not possible based on the finds and plans alone. As virtual reconstructions are becoming more popular every year, we have also tried to raise awareness of the educational dangers that are intrinsic to such visualisations.

In our opinion, this should not restrict us in using virtual models in exhibitions or scientific research. With careful reconstruction, documentation and communication, virtual models are an appealing way to present material like the long-lost capital of Ramesses II and also an answer to the initial question on how to present mud bricks in an exhibition.

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[1] The article is based on a lecture given at the CIPEG post-conference workshop at Bologna in July 2016. We would like to thank the organizers of that splendid workshop and the editors of the CIPEG Online Journal for the opportunity to include the article. Last but not least our thanks go to Simon Wigley for checking and enhancing our English.

[2] For general overviews see (in German) H. Franzmeier and E. B. Pusch, 'Pi-Ramesse', in M. Bauks and K. Koenen (eds), *Das wissenschaftliche Bibellexikon im Internet* (2016), stable URL:
http://www.bibelwissenschaft.de/stichwort/32607/ and (in English) E. B. Pusch and A. Herold, 'Piramesse', in D.B. Redford (ed.), *The Oxford Encyclopedia of Ancient Egypt*, Vol. 3, (Oxford, 2001), 48-50.

[3] B. Gilli, 'How to build a Capital? The Second Life of Pre-Ramesside Materials in Pi-Ramesse', in H. Franzmeier, T. Rehren, and R. Schulz (eds), *Mit archäologischen Schichten Geschichte schreiben. Festschrift für Edgar B. Pusch zum 70. Geburtstag*, (FoRa 10; Hildesheim, 2016), 137-176.

[4] For an overview over the discussions on the topic see M. Bietak, 'On the Historicity of the Exodus. What Egyptology Today Can Contribute to Assessing the Sojourn in Egypt', in T. E. Levy, T. Schneider, and W. H. C. Propp (eds.), *Israel's Exodus in Transdisciplinary Perspective*, (Heidelberg/New York, 2016), 17-36.

[5] See, with further references to the older literature, M. Bietak, *Tell el-Dab'a, II* (Vienna, 1975), 33-46.

[6] See E. Naville, *The Shrine of Saft el Henneh and the Land of Goshen*, (London, 1885), 21, and F. Ll. Griffith, *The Antiquities of Tell el-Yahudiyeh* (EEF Memoir 7; London, 1890), 28.

[7] M. Hamza, 'Excavations of the Department of Antiquities at Qantîr (Faqûs District)', *ASAE 30* (1930), 31-68.

[8] E. B. Pusch and T. Rehren, *Rubinglas für den Pharao, 2* (FoRa 7; Hildesheim, 2007), 750–51.

[9] L. Habachi, 'Khataᶜna-Qantir: Importance', *ASAE 52* (1954), 443-562; S. Adam, 'Recent discoveries in the Eastern Delta (Dec. 1950-May 1955)', *ASAE 55* (1958), 301–24, pl. XXVIII.

[10] E.B. Pusch and S. Jakob, 'Der Zipfel des diplomatischen Archivs Ramses' II.', *E&L 13* (2004), 143–54.

[11] For an image, see E. B. Pusch, 'Piramesse-Qantir – Residenz, Waffenschmiede und Drehscheibe internationaler Beziehungen', in: S. Petschel and M. von Falck (eds), *Pharao siegt immer – Krieg und Frieden im Alten Ägypten, Ausstellung Gustav-Lübcke-Museum Hamm, 21. März bis 31. Oktober 2004* (Hamm, 2004), 240–63 (Q1 – Q49).

[12] L. Habachi, *Tell el Dabᶜa, I: Tell el-Dab´a and Qantir. The Site and its Connection with Avaris and Piramesse* (Vienna, 2001).

[13] E. Delange, 'Le décor de palais de Séthi Ier – Porte(s) de Qantir', in E. Delange (ed.), *Monuments Égyptiens du Nouvel Empire* (Paris, 2015), 187–283.

[14] For the complete results see Pusch and Becker, *Fenster in die Vergangenheit*.

[15] J. Dorner, 'Die Topographie von Piramesse – Vorbericht', *E&L 9* (1999), 77–83.

[16] Pusch and Becker, *Fenster in die Vergangenheit*, chapter 9.4.3.

[17] For the old reconstruction, see Dorner, Die Topografie von Piramesse, 80. For the new results see Pusch and Becker, *Fenster in die Vergangenheit*, chapter 9.3.4.

[18] J.W.E. Fassbinder, 'Magnetische Eigenschaften der archäologischen Schichten von Qantir', in E. B. Pusch and H. Becker, *Fenster in die Vergangenheit. Einblicke in die Struktur der Ramses-Stadt durch magnetische Prospektion und Grabung*, (FoRa 9; Hildesheim, im Druck).

[19] For the objects, see Badisches Landesmuseum (ed.), *Ramses – Göttlicher Herrscher am Nil*, 106–9 (Horbeit-stelae), 286–89 (architectural elements and finds related to the military), 390–92 (weapons).

[20] This animation may be accessed here: https://vimeo.com/artefacts/pi-ramesse; The exhibition catalogue also contains an article on the reconstruction: S. Hageneuer, 'Die virtuelle Rekonstruktion von Pi-Ramesse', in Badisches Landesmuseum (ed.), *Ramses – Göttlicher Herrscher am Nil* (Karlsruhe, 2016), 268–72.

[21] M. Gillings, 'The Real, the Virtually Real, and the Hyperreal: The Role of VR in Archaeology', in S. Smiles and S. Moser (eds), *Envisioning the Past. Archaeology and the Image* (Oxford 2005), 223–39; Sanders 2012.

[22] L. Adkins and R.A. Adkins, *Archaeological Illustration*, (Cambridge, 2009), 147; J.C. Golvin, 'Drawing Reconstruction Images of Ancient Sites', in: J. Green, E. Teeter, and J.A. Larson (eds), *Picturing the Past. Imaging and Imagining the Ancient Middle East* (Chicago, 2012), 81; J. Green, 'Introduction', J. Green, E. Teeter, and J.A. Larson (eds), *Picturing the Past*, 13.

[23] J. Hodgson, *Archaeological reconstruction: illustrating the past* (Reading, 2002), 16; D.T. Pitcaithley, 'Preface', in J.H. Jameson Jr. (ed.), *The Reconstructed Past. Reconstructions in the Public Interpretation of Archaeology and History* (Lanham, 2004), ix; J. Wittur, *Computer-Generated 3D-Visualisations in Archaeology* (Oxford, 2013), 20.

[24] B. Davison, *Picturing the Past through the eyes of reconstruction artists* (London, 1997), 2; Hodgson, *Archaeological Reconstruction*, 16; B.L. Molyneaux (ed.), *The Cultural Life of Images. Visual Representation in Archaeology* (London, 1997), 3.

[25] S. James, 'Drawing Inferences. Visual reconstruction in theory and practice', in B.L. Molyneaux (ed.), *Cultural Life of Images. Visual Representation in Archaeology* (London, 1997), 25

[26] Adkins and Adkins, Archaeological Illustration, 132; Golvin, in Green, Teeter, and Larson (eds), *Picturing the Past*, 80; Green, in Green, Teeter, and Larson (eds.), *Picturing the Past*, 15.

[27] S. Hageneuer 2016, 'The influence of Early Architectural Reconstruction Drawings in Near Eastern Archaeology', in *Proceedings of the 9th International Congress on the Archaeology of the Ancient Near East* (Wiesbaden, 2016), 359–70; James, in Molyneaux (ed.), *Cultural life of images*; M.G. Micale, 'European Images of the Ancient Near East at the Beginnings of the Twentieth Century', in N. Schlanger and J. Nordbladh (eds) *Archives, Ancestors, Practices: Archaeology in the light of its history* (New York/Oxford, 2008), 191–203.

[28] M.G. Micale, 'Designing architecture, building identities. The discovery and use of Mesopotamian features in modern architecture between Orientalism and the definition of contemporary identities', in: P. Matthiae, (ed.), *Proceedings of the 6th International Congress on the Archaeology of the Ancient Near East* (Rome, May 5-10 2008) (Wiesbaden, 2010), 93–112; S. Pratt, 'The American Time Machine: Indians and the Visualization of Ancient Europe', in: S. Smiles and S. Moser (eds) *Envisioning the Past. Archaeology and the Image* (Oxford, 2005), 51–71; P. Privateer, 'Romancing the Human: The Ideology of Envisioned Human Origins', in S. Smiles and S. Moser (eds) *Envisioning the Past. Archaeology and the Image* (Oxford, 2005), 13–28.

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