From Virtual Reality to virtual restitution: How 3D-Egyptology can contribute to decolonizing the field and the question of digital copies vs the original

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Abstract

3D digital and printed replicas of various ancient Egyptian antiquities, from statues and busts to coffins, stelas and other magical objects, are becoming increasingly popular on the web as well as in museums, but some issues and challenges related to replicas and copies in the study and fruition of the ancient Egyptian heritage remain, which include difficult questions of intellectual property rights and accessibility of the virtual platforms where the replicas are shared. The 3D models of the ancient Egyptian coffins produced for the "Book of the Dead in 3D" project housed at the University of California, Berkeley, will be taken as a case-study to analyze and discuss those issues. Given the importance of annotations on 3D models of an inscribed artifact such as an ancient Egyptian coffin, this article will also discuss the materiality of the text and its

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digital reproduction, and how the metadata of a historical object and its text decoration need to be produced "responsibly" and according to museum ethics, to ensure sustainability and access in the language of origin of the artifact.

The issue of "decolonization" will be analyzed in relation to the use of Virtual and Augmented Reality in the digital reconstructions of archaeological sites, monuments, and artifacts in Egypt, through examples of VR apps such as "From the Museum to the Tomb", a joint project of UC Berkeley and UC Santa Cruz, where a 26th Dynasty's stone sarcophagus is virtually replaced in his tomb and analyzed in its original ritual space.

الملخص

مما لا شك فيه أن النسخ المقلدة الرقمية والمطبوعة ثلاثية الأبعاد للعديد من الآثار المصرية القديمة قد أصبحت شائعة بشكل متزايد على شبكة الإنترنت وكذلك في المتاحف، سواء كان ذلك للتماثيل والتماثيل النصفية أو للتوابيت واللوحات والقطع الأخرى ذات الطابع السحري، ولكن تظل هناك بعض المشاكل والتحديات المتعلقة بالمستنسخات والنسخ المقلدة خلال دراسة التراث المصري القديم. هذه التحديات تتضمن مسائل صعبة تتعلق بحقوق الملكية الفكرية وكذلك إمكانية الوصول إلى المنصات الافتراضية حيث يتم عرض النسخ المقلدة. فى هذا البحث ستتم دراسة النماذج ثلاثية الأبعاد للتوابيت المصرية القديمة التي تم إنتاجها فى إطار مشروع "كتاب الموتى ثلاثي الأبعاد" في جامعة كاليفورنيا فى بركلي ، كدراسة حالة لتحليل هذه المسائل ومناقشتها. ونظرًا لأهمية الملاحظات التوضيحية على النماذج ثلاثية الأبعاد للقطع الأثرية المنقوشة مثل التوابيت على سبيل المثال، ستناقش هذه المقالة أيضًا الأهمية المادية للنص واستنساخه الرقمي، والحاجة الملحة أن يتم إنتاج البيانات الوصفية للقطع التاريخية والزخارف النصية "بمسؤولية" ووفقًا لأخلاقيات المتاحف، وتحقيق الاستدامة وكذلك الوصول لأصل القطعة.

بالإضافة إلى ذلك، سيتم تحليل مسألة "إنهاء الاستعمار" فيما يتعلق باستخدام الواقع الافتراضي والمعزز في إعادة البناء الرقمي للمواقع الأثرية والآثار الثابتة والقطع الأثرية في مصر، من خلال أمثلة لتطبيقات الواقع الافتراضي مثل تطبيق "من المتحف إلى المقبرة" ، وهو عبارة عن مشروع مشترك لجامعة كاليفورنيا في بيركلي وجامعة كاليفورنيا في سانتا كروز ، حيث تم من خلاله استبدال تابوت حجري يرجع للأسرة السادسة والعشرين افتراضيًا في المقبرة التى تم العثور عليه فيها، وتحليله في نطاقه الطقسي الأصلي.

1. Introduction: (3D) replicas vs the originals

There is a general and widespread agreement, today, about the very useful role that 3D models and prints play for educational and research purposes in museums, universities and research institutions, but also on an individual level, for a more private, "one to one" relationship between the viewer/museum visitor/ digital user, the replica, and the original.[1]

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[1] I wish to dedicate this article to the memory of Marcello Barbanera, whose book *Originale e copia nell'arte antica* (2011) has been of inspiration for my

Techniques of digital capture are in fact closely connected to the issue of copies vs. originals and their fruition in a discourse on cultural heritage preservation, restitution and knowledge production (Di Giuseppantonio Di Franco 2014).

3D visualizations, both digital or printed ones, directly relate to the crucial issue of identity, authenticity, and uniqueness of each artifact (Di Giuseppantonio Di Franco, Galeazzi & Vassallo 2018). A 3D replica, a computer-generated image, could be considered as an avatar of the object in question, in close interrelationship to its original since it conveys information and perception of the latter (Nowak & Rauh 2006). The original, on the other hand, becomes the prototype of a replica, to which one needs to refer in order to justify the creation of the digital replica itself.[2] Such an intimate interrelationship between the original and its copy has been discussed widely within the study of Antiquity and, more recently, according to an anthropological approach (Forberg & Stockhammer 2017). If it is true that 3D replicas are useful in the dissemination of cultural heritage that it is too often not accessible if not to an elite of museum visitors, scholars and students, we should also reflect on the patterns and methods of production,[3] storage and dissemination of those replicas. Questions such as the function and use of copies within academia need to be tackled as well, since they involve issues of copyrights and "knowledge society", namely based on the control of those copyrights (Ribeiro 2017).

The recent growth in 3D visualizations of monuments and artifacts from ancient Egypt provides good evidence for the study of the issues presented above. The art of producing models and replicas has a long history in ancient Egypt itself. We could even claim that the first 3D models were produced in ancient Egypt itself, where tomb and temple models and reproductions of daily activities are well attested. Within a funerary context, these models had a ritual and magical function, aiming at re-activating the life power of the deceased in the tomb and benefit her or him in the afterlife.[4] In temples, scaled models of buildings could have been used also to show how the final architectural work would have looked; these are the so-called *maquette*-projects, namely mini-sculpture projects. As suggested by Davoli (2017), these *ante litteram* 3D models may have also functioned as votive offering at the end of the

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own study of this topic. I also wish to thank Ghada Mohamed for her help with the Arabic version of the abstract of this article.

[2] However, digital replicas can be perceived and recognized as craft objects on their own, because of their agency, especially within a museum context: see Cooper (2019).

[3] On the production of 3D visualizations and the importance of the secondary sources used as references, see Vitale (Chapter 1 in this volume).

[4] This is the case of the 3D reproduction of daily activities for food production found in the tombs of the Middle Kingdom, as well as the so-called "soul houses", namely tomb models of the same period (Tooley 1995).

construction process of the real building or in rituals of temple foundation.[5] The latter includes a scene attested in the temples of the Greco-Roman period in Upper Egypt, where the Pharaoh is delivering a miniature model of the temple to the god after having gone through a purification ritual (Martzolff 2011). In this case, the scaled replica acts as ritual substitute of the original building.

The production of copies relates not only to the world of art but also to written and literary cultures; scribal professionals in different historical periods and geographical areas are skilled in the art of copying, and those copies of literary, historical, and religious texts ensured the continuation of a cultural tradition and had their own identity, occasionally as "variants" of a text (Cerquiglini 1999), connected but at the same time distinguished from their archetype, the handwritten manuscript or the rare book that they copy from. Those copyists did not have to worry about copyright-protected material, but what they were reproducing was rather considered a gift from the gods/God, "...the material manifestation of a divinely-ordered universe. They cried out to be copied in order to bring this manifestation into the world; in this sense, the work of copying was a revered craft" (Beier-de Hann 2010).

In his book *The Culture of the Copy*, Schwartz (1996) discusses the replicability vs the authenticity of the world and how replicas may transcend originals and present ethical issues about the way they are used.[6] Ethical issues are also important to consider when dealing with digital replicas of artifacts that perfectly replicate a prototype and therefore may be considered "real copies" rather than "creative imitations" like those of the so-called *Idealplastik*, "ideal sculpture", namely Roman statues that are Greek in form and content although not replicating a specific prototype (Marvin 2008; Francis 2004).

In Egyptology, there is still some confusion in the use of the terminology surrounding fake and real objects. Only recently the question has been raised, thanks to new studies that analyze terms such as 'fake', 'forgery', 'replica', 'reproduction', or 'facsimile', in order not to use them as synonyms or in such a vague way that forgeries may be taken as "copies" and forgers could use juridical terminology to avoid accusations of any crime (Smith 2018).[7]

Art was a copying process in ancient Egypt anyway, as proved by the large number of artifacts and monuments inspired by archaism; the authority of

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[5] An example of a temple model has been found at Soknopaiou Nesos.

[6] When a digital copy transcends its original artifact, which is dismissed and replaced by the former, we could even think of "digital escapism", as coined and discussed in Stobiecka (2019).

[7] The definition of "forgery" and related terminology is being discussed also in papyrology and manuscript studies and it was a focus of the recently concluded project "Forging Antiquity": https://researchers.mq.edu.au/en/projects/forging-antiquity-authenticity-forgery-and-fake-papyri/fingerprints/. On forgeries of ancient Egyptian papyri, see Choat and Lucarelli (2023).

tradition gave much importance to the copies of statues, monuments and texts from the past (Silverman, Simpson & Wegner 1994; Manuelian 1994, in particular in the Middle Kingdom and in the Saite Period).

When confronting the conception and function of copies in the past with the contemporary digital copies and 3D visualizations of artifacts, the main difference is in the appreciation of a copy as a new original (as for the Saite copies of earlier sculpture in Egypt (Manuelian 1983) or as a sort of avatar of a human or divine figure (in the case of digitally printed copies). The function of such an avatar in the form of a 3D print recalls that of earlier plaster casts: they can duplicate and present the object in places where the original cannot be exhibited. The range of educational and pedagogical uses that can be made by these copies (casts and 3D prints) is vast and also implies some ethical choices on where and how to present a copy, especially when related to an artifact that has been acquired illegally and displaced through colonial extraction (Durgun 2021). Moreover, what a copy makes possible is the tactile experience that museum and heritage sites visitors have loved since Antiquity. Today, 3D prints and reproductions for tactile galleries allow vision-impaired visitors to experience the artifacts (Segalovich 2022). The human need for tactile feeling but also of an immersive experience replicating the sensation of "being there" is in fact a form of understanding and "seeing" more deeply an object or monument; it is what made 3D printed and digital replicas as well as the whole experience of Virtual and Augmented Reality, and more recently of the Metaverse (CUSEUM 2022), so attractive in educational and museum environments. In these environments, standing in front of an original ancient artifact, with its "magic of the past" and the sense of wonder pervading it, is certainly a unique experience. However, generally museum objects cannot be touched or moved around and only a high-resolution set of photographs or even better a 3D replica can help to examine it properly and eventually read the inscriptions on its full surface.

2. Ancient Egyptian coffins and their 3D visualizations

When dealing with heavy and large objects, 3D digital replicas and visualizations are especially useful, as in the case of the ancient Egyptian stone sarcophagi and wooden coffins produced during the Pharaonic and Greco-Roman periods of ancient Egyptian history. These are among the most important sources for our understanding of the ancient Egyptian funerary religion, art and ritual practices connected to beliefs in life after death. Wooden coffins and stone sarcophagi have been inscribed with magical texts and decorated with ritual scenes of protections throughout the millennia; their typological, material, and textual study is central within Egyptology (Taylor & Vandenbeusch 2018).

Because of their large dimensions, coffins often lie in storage rooms due to the lack of gallery space, especially in smaller museums, while if exhibited, they are rarely mounted in a way that makes it possible to observe their tridimensional architecture, both on the exterior and in the interior. When anthropoid in form, they are often exhibited while standing, not considering that when placed in the tomb to keep and protect the mummified body of a deceased, they were resting in a horizontal position.[8]

They are also among the most digitized ancient Egyptian objects; an increasing number of 3D models of coffins kept in museums around the world are becoming available on Sketchfab.[9] Although most of those models are built with high resolution photographs and provide an incredibly detailed digital reproduction of the artifact, when shared through commercial platforms like Sketchfab, they cannot be complemented by a comprehensive set of metadata in order to allow the viewer also to historically contextualize the coffin and learn about his decoration. Sketchfab only allows a limited number of annotations, whose function is instead essential to fully experience the 3D model.[10]

The Book of the Dead in 3D Project aims at providing high resolution 3D models of ancient Egyptian wooden coffins and stone sarcophagi, which are complemented by a complete set of annotations that inform the user about the historical context, owner, decorative and textual program of each coffin (Figure 8.1).[11] The annotations provided for each coffin are user-friendly and intuitive in order to provide an easy and immediate access to the information on the artifacts and so that the annotated 3D model can function as a scholarly publication, at the same time being accessible to a wider and non-specialized audience on the web, where each user can choose what kind of metadata to look at (geographical location and place of origin, prosopography, text translation, iconographic description). Special attention has been given to the annotations related to the text digitization and its translation, which could serve as basis for future electronic or printed text editions.[12] A section providing "Technical Documents" provides paradata explaining the editing and processing of the models and their rendering on the current Javascript Model Viewer.[13]

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[8] See for instance the gallery # 126 at the Metropolitan Museum (NYC): https://maps.metmuseum.org/?screenmode=base&floor=1&feature=LTc zLjk2MjE5ODYsNDAuNzgwMDg3NUBsbUAxMDMyOTgzMTY0MzYy #hash=18.53/40.7800875/-73.9621986/-61 (last accessed May 2023).

[9] https://sketchfab.com/search?q=egyptian+coffins (last accessed May 2023).

[10] For an example of 3D annotations on ancient Egyptian coffins, see Lucarelli (2021).

[11] Book of the Dead in 3D: https://3dcoffins.berkeley.edu/.

[12] On digital editions of text-bearing objects, see Filosa, Gad & Bodard (Chapter 3 in this volume).

[13] On the importance of paradata for 3D reconstructions, see Vitale (Chapter 1 in this volume).
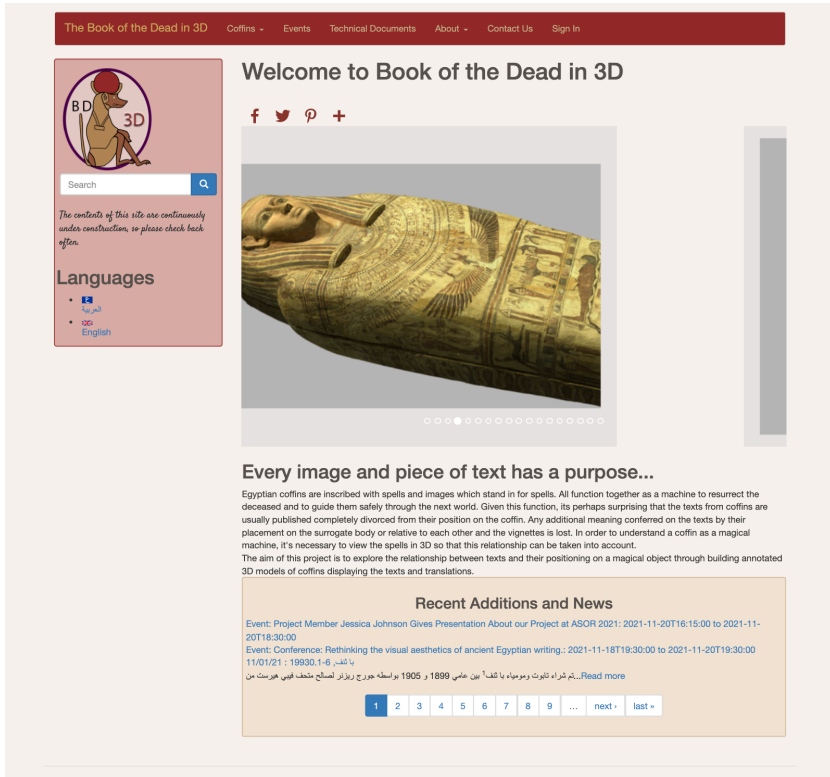
Figure 8.1: Opening page of the Book of the Dead in 3D website.

3. 3D replicas in museum environments

In museums, exhibitions where 3D replicas—printed and digital—play a main role are becoming increasing popular; from the exhibition *Replica Knowledge – An Archeology of the Multiple Past*, held in Berlin in 2018, exploring the use and function of copies of archaeological finds and their worldwide distribution, to the most recent exhibition on the tomb of Tutankhamun made exclusively of replicas of the tomb's funerary equipment within a virtual tomb reconstruction (Malek 2009), "history is continually being constructed; between the fragmentary originals and (re)construction, between truth and myth" (Simandraki-Grimshaw & Sattler 2017–2018).[14] In other words, replicas create new narratives on the originals, for which they become new media; they play a role in

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[14] https://www.interdisciplinary-laboratory.hu-berlin.de/en/content/rep liken-wissen-eine-archaologie-vervielfaltigter-vergangenheit_2/index .html (last accessed April 2022).

forming scientific narratives in museum and collection contexts. They are composites of 'original' and additional knowledge, and this knowledge can often be embedded in their materiality (Sattler & Simandiraki-Grimshaw 2018).

4. Digital Egyptomania

The possibility of digitally (re)constructing the past has been increasingly fascinating Egyptologists and Egyptophiles who apply Digital Humanities methodologies and tools to the study of ancient Egypt and of archeological sites, monuments, and material culture. Such a fascination for a new digital Egypt can be interpreted as a new form of Egyptomania, which feeds itself on 3D models on the web, VR and AR apps that make ancient sites accessible from home as well as Egypt-inspired videogames on the model of *Assassin Creed. The Origins*, where the user gets a glimpse of life in Ptolemaic Egypt, while on a hyperreal quest for vengeance and victory over a series of inimical encounters on the way (Casey 2021). Digital Egyptomania generally follows the same tropes traceable in traditional Western Egyptomania: ancient Egypt becomes a sort of timeless dimension where pharaohs, queens, warriors, mummies, priests, and jackal-headed powerful gods live in a hyperreal dimension, in between a landscape made of temples and tombs mainly, with only a few glimpses on ordinary people and households. Those digital reconstructions are easily accessible through the web and gaming platforms, therefore being able to reach a wide audience that values playing as a learning experience. The value of archaeogaming (Rassalle 2021) and storytelling techniques for engaging the user to learn about history and archaeology has been widely recognized by the scholarly community (Reinhard 2018)[15] and should be taken into consideration when building new scholarly digital projects.

5. Virtual restitutions

Against an unhistorical "digital Egyptomania," Digital Humanities, 3D, VR and AR technologies can be used to create a counternarrative that presents historically sound replicas within a reconstructed archaeological context that could virtually bring back an artifact to its place of origin. Peter der Manuelian was a pioneer in this field at the Harvard Museum of the Ancient Near East: the replica of the so-called Dream Stela at the Harvard Museum is an example of how replicas are an optimal pedagogical and educational tool. The original artifact lies in between the paws of the Great Sphinx of Giza and tells the story of Pharaoh Thutmosis V before his coronation, when the young prince fell asleep at the feet of the Sphinx and had a divine encounter with the god Harmachis in a dream,

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[15]   Archaeogaming Blog: https://archaeogaming.com/.

telling him that he would become a king after restoring the Sphinx to new life by uncovering it from the sand (lines 8–13; Szpakowska 2003). The Dream Stela actually dates back to 1401 BCE, a millennium after the time when the Great Sphinx was erected and it is an important example of prophetic literature from ancient Egypt, beside showing how pharaohs respected the monuments of the past. The replica at the Harvard Museum has been created by a student team based on a cast that dates to the 1840s; the work is now on display on the museum's second floor (Kinnaer 2014). As already mentioned, it shows how casts can be considered as a sort of predecessors of the current 3D replicas and how they create a new ontology of objects with their own digital narratives (Durgun 2021). Particularly useful, in the case of the replica of the Dream Stele, is the augmented-reality app "Dreaming the Sphinx",[16] which allows the visitors of the museum to learn about the Great Sphinx and the way it changed through history, interacting with the replica as well as reading the text of the Dream Stela in English translation (Figure 8.2) (Radsken 2018). The whole process of building the replica has been described in the *Harvard Magazine*, including the
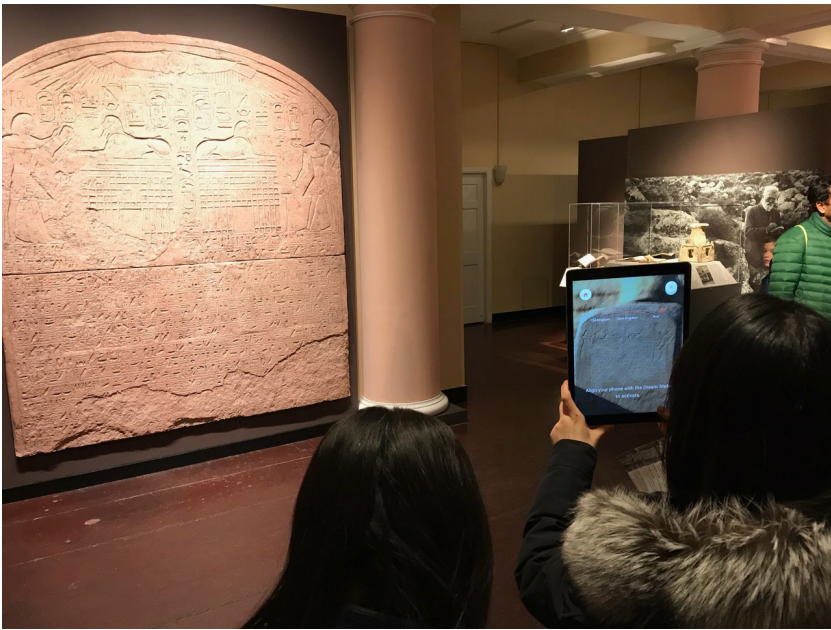

Figure 8.2: Looking at the replica of the "Dream Stele" at the Harvard Museum of the ancient Near East through the "Dreaming the Sphinx" VR App (courtesy of Peter Der Manuelian).

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[16] https://play.google.com/store/apps/details?id=edu.harvard.fas.semiticmuseum.sphinx&hl=en&gl=US.

story of the casts of the museum, which were bought at the beginning of 1900 from major museums such as the Metropolitan Museum of Art in NYC and the Museum of Fine Arts in Boston (Nguyen 2017).

The AR app built for the Dream Stela is one of the very few VR and AR apps that have been created by Egyptologists to contextualize artifacts kept in museums. Another example of the potential of VR apps as educational tools is the reconstruction of the burial context of a 26th Dynasty sarcophagus kept at the Phoebe A. Hearst Museum of Anthropology of the University of California, Berkeley, entitled "Return to the Tomb". This project is a cooperation of the author of this article with the digital Egyptologist Elaine Sullivan of UC Santa Cruz, with the collaboration of Digital Cultural Heritage scholar Eiman Elgewely and a team of other IT specialists, librarians and students (Lucarelli & Sullivan 2021).[17] The aim of the project is to create a cultural context for immersive visualization of the user who is brought into the ancient Egyptian necropolis of Saqqara and successively into the tomb of Psamtek, the High Official who lived in Memphis around the second half of the First Millennium BCE and whose tomb contained the empty sarcophagus (the body of Psamtek never reached its final resting place) whose inscribed lid is now at the Hearst Museum in Berkeley (Figure 8.3).[18] Through this app, landscape reconstruction, study of the funerary culture and its sacred spaces are combined into an immersive experience, currently accessible on the HTC Vive Cosmos and Oculus VR headsets, that allows the visitor to experience the dimension of death in ancient Egypt through a new medium: the 3D model of the sarcophagus lid, virtually returned to its tomb in Egypt (Figure 8.4).

In the study of the ancient world and of ancient Egypt in particular, immersive visualization technologies such as those employed for the "Return to the Tomb" and the "Dreaming the Sphinx" apps are designed according to a main aim: making "real" (Forte 2010) ancient Egypt accessible to a wider audience and decolonizing our view of ancient Egypt, whose heritage preservation and restitution are still too often discussed according to the same eurocentric view that dominated at the time of the first archaeological expeditions following the "rediscovery" of ancient Egypt from the West after the Napoleonic campaign (Reid 2003). Such a "rediscovery" has been implicitly hiding the ancient Egyptian people, the diversity and unicity of their human

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[17] The project has been supported by a seed grant offered by CITRIS and the Banatao Institute of the University of California, Berkeley (https://citris-uc .org/).

[18] The sarcophagus lid has been also the first case-study of the Book of the Dead in 3D project and its 3D annotated model is available on the project's website: www.3dcoffins.edu. An article with a more complete text edition of this sarcophagus lid is in course of preparation by the author.

Figure 8.3: The sarcophagus of Psamtek (PAHMA 5-522).

Figure 8.4: Visualization of the interior of Psamtek's tomb from outside through the VR app "Return to the Tomb".

cultural experience because of the exclusive focus on elite culture and the "wondrous curiosities" that were given major exhibition spaces in museums in Europe (Moser 2006).

3D and VR technologies today provide instead a tool for disseminating Egyptological content to the public and for museum visitors to engage in meaningful ways with content that promotes scholarly research, at the same time visualizing and describing it in an easily accessible and jargon-free way. VR and AR techniques are in fact powerful tools for reproducing not only a "potential past" (Forte 2010) but also for re-enacting an emic perspective of the monuments and their spatial context according to the way the ancient Egyptians viewed and experienced their sacred spaces.

6. Conclusions

The kind of knowledge that a 3D replica generates in the viewer/user creates a new "epistemology of the copy", related to but distinguished from the original artifact, influencing the perception of the latter and its function, and the ways to reconstruct it or restore it. The 3D replica becomes a new medium with its own life and adapted to the role its creator wanted it to play, from educational tool to protest symbol, as in the case of the controversial "Nefertiti Hack" or "the other Nefertiti", as the digital artists (Nora Al-Badri and Jan Nikolai Nelles) who created it call the 3D replica of the famous bust of queen Nefertiti (Figure 8.5).[19] The aim of this 3D replica, which after a digital exhibition has been printed and buried in the sands of the desert, is clearly stated on its artists' website: *"Nefertiti is returning to the place where it was found. For the first time since the sculpture was excavated and stolen over 100 years ago, the iconic artefact will be shown in Cairo."*[20] This performance, which was made possible through a data leak of the photos of the bust owned by Neues Museum in Berlin, where the bust is kept since 1923, becoming a cultural symbol of the city,[21] was intended as part of the counter narrative used to *"activate the artefact, to inspire a critical re-assessment of today's conditions and to overcome the colonial notion of possession in Germany"*.[22]

3D and VR can therefore become powerful tools for cultural activism and digital repatriation against notions of colonial possession, orientalism and Western fetishization of the past. These 3D copies also raise the important
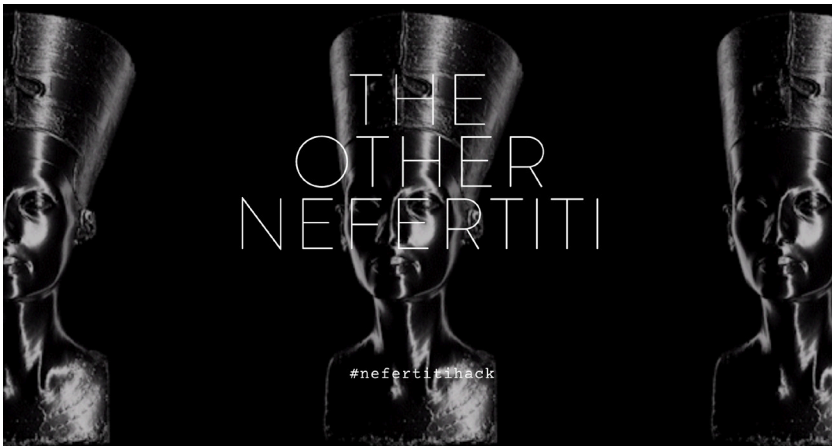

Figure 8.5: The digital replica of the bust of Nefertiti on the website of the authors (https://alloversky.com/puzzlepieces/the-other-nefertiti).

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[19] The Other Nefertiti: https://alloversky.com/puzzlepieces/the-other-nefertiti.

[20] Nefertiti Hack: https://nefertitihack.alloversky.com/.

[21] See Siehr (2006), particularly on the afterlife of the bust of Nefertiti and its role in the Age of Imperialism and later in Germany and Europe.

[22] https://aksioma.org/the.other.nefertiti.

issue of who owns the objects of the past, how accessible its data should be and whom to attribute the copyrights for a replica. In the digital 3D modeling communities, such as among the 3D creators posting daily on Sketchfab, sharing and making the files available to all for download, in addition to details about the scanning and photogrammetry techniques used, is becoming common practice (Pavis & Wallace 2019; Magnani, Guttorm & Magnani 2018).

The scholarly and museum communities can learn from the work of today's digital artists about accessibility and shareability of those digital replicas that too often are instead kept inaccessible to the public, its value as artwork becoming as relevant as that of the original artifact.

"Why worship the original, while we have all the beautiful remixes as of today?" (Voon 2016).[23] The aura of authenticity[24] *vs* the awe of the replica is becoming an unavoidable issue to deal with for museum curators and scholars in the age of the metaverse. When creating narratives around digital replicas, one becomes responsible for recreating authenticity within a replica knowledge and heritage discourse (Jones, Jeffrey, Maxwell et al. 2018).

Building biographies of these digital replicas helps to better understand the original objects they come from and their historical context; to do that, we need to negotiate our traditional concept of authenticity: "replicas can work for us if we let them" (Foster and Jones 2019).[25]

Objects on display give viewers "a perception of power over the object" (Riggs 2014), which is at the basis of the colonial perception of the ancient Egyptian heritage exhibited in museums around the world. Digital replicas can instead be used to educate viewers/users to engage with those objects by analyzing their materiality in a new, non-invasive way, experiencing a previously unthinkable sense of authenticity.

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[23] The "other Nefertiti" is still available for download on Sketchfab: https://sketchfab.com/3d-models/what-is-the-genuine-nefertiti-1295e14c5e634465aa2438004bb8886c.

[24] On the "aura" of the original and its "authenticity" see the pivotal essay of Benjamin (1935) (also available online: https://www.marxists.org/reference/subject/philosophy/works/ge/benjamin.htm).

[25] An example of a beautifully made replica re-contextualized in a museum setting is the one of the famous gilded throne of Tutankhamon, currently being prepared for exhibition at the Harvard Museum of the Ancient Near East by Peter der Manuelian (Simon 2022).

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