Manuelian, Peter Der: 2017 *Digital Giza: Visualizing the Pyramids*, Cambridge, Massachusetts: Harvard University Press, 255 pp. [MetaLABprojects].

Book review by Martin Odler

The reviewed publication presents a concise history of the Giza Archives and the projects that followed, narrated by their principal investigator. It is a part of the book series MetaLABprojects by MetaLAB at Harvard University, an "idea foundry, knowledge-design lab, and production studio experimenting in the networked arts and humanities".[1] These are fashionable words, indeed, and Manuelian's book is an example of their factual meaning fulfilled in a cooperation between the humanities and the computer science. The book is captivating, inspiring and, in contrast to the deluge of overpriced scientific publications bought only by libraries, available at a reasonable cost. It is worth reading by Egyptologists of varying specializations, not only because of the current possibilities described in a comprehensive manner but also because it openly speaks about the limits and challenges on the way to an imaginable broader synthesis.

The first chapter (pp. 12–27) offers a brief introduction to the Giza plateau, presented as a walk around the site. The second chapter (pp. 28–79) acquaints the reader with the history of explorations at the Giza necropolis from the beginning of Egyptian archaeology, as a research and academic discipline. It prepares the background for the following chapters, explaining how the data on the (not only) Old Kingdom Giza came into existence: how the pyramids and tombs were excavated, documented and how the resulting data was archived. Most prominently, it features the work of George Andrew Reisner, the head of Harvard University – Museum of Fine Arts expedition. Attention is also given to other great excavators of Giza, although new references to the biographies of Georg Steindorff (Voss – Raue 2016) and Hermann Junker (Gütl 2017) might be added now. The history of the Giza research is described almost to the present day. The detailed reference apparatus makes this overview a good outline for the vast landscape of literature on Giza (a few critical remarks are stated below).

The third chapter (pp. 80–123) represents the core of the volume. The author returns back to Reisner's documentation, left at Giza Harvard camp after his death and moved to Boston in 1947. The Museum of Fine Arts successfully coped with the archive and began to gradually publish some unfinished monographs authored by Reisner, followed by the *Giza Mastabas* series. An entirely new stage started in 2000 with the first grant from the Andrew W. Mellon Foundation, marking the beginnings of the site widely known as the *Giza Archives* (http://www.gizapyramids.org/), launched in April 2001. The author describes the objectives, process, problems and challenges encountered in a concise and comprehensive manner. His summarized recommendations are listed in the closing paragraphs of the chapter under the subtitle "Lessons learned" (pp. 118–123).

It needs to be emphasized that for a work of such scale – the transformation of a traditional archive into a digital archive, help is needed from dedicated students and volunteers. It cannot be done by the researchers themselves in their spare time (although it is often the case). Such an assignment requires full-time commitment, management and supervision by professionals. Yet the work of volunteers can significantly contribute in the form of man-hours and gradually acquired expert knowledge about the sources, especially if the data is not suitable for conversion into the digital form and needs to be checked and formatted. In the case of the *Giza Archives*, five hundred people were involved in the work in 2000–2011 (p. 95). It is also important to stress that the digitization of the existing archaeological documentation should follow the already existing system (which is not always perfect, *cf.* Manuelian 2015), rather than producing any intermediary or new set of identification codes. The digitized resources are no better than the original analogue ones and in case of doubts, the original resource must be checked (p. 121). Pre-computer referencing systems were devised to search for information; the added quality of structured and digitized data is the increased power of summaries and analyses involving large volumes of data.

The fourth (pp. 124–153) and fifth chapters (pp. 154–189) continue with the progress of project into a three-dimensional representation of the archaeological structures at Giza, developed in cooperation with *Dassault Systèmes* and launched online for the public in the spring of 2012 (https://www.3ds.com/stories/giza-3d/). Like in the case of *Giza Archives*, the scale of the project was and is pioneering in Egyptology. Research questions formulated by the author need to be taken into consideration in any large-scale reconstruction of past archaeological structures if these reconstructions aim to not only reach the public but also be usable and useful as a research tool. The website *Digital Giza* (http://giza.fas.harvard.edu/) is planned as a continuation of the documentation, the literature database and the 3D models of the site and its structures.

The last, sixth chapter (pp. 190–215) asks important questions for the future. It develops further the topic of 3D modelling, with its use in teaching and public engagement, to research results and technological constraints of presenting 3D models via the Internet. The most important issues concern the sustainability of digital databases, which has become obsolete faster than the traditional ways of documentation that are being digitized. The burden of sustainability of the institutional resources could lay on the institutions themselves, the open question being who and how could aggregate the resources into a broader synthesis. A proper federated synthesis of data, *e.g.* from ancient Egyptian sites, cannot be reached in a foreseeable future (p. 212). The question has at least been postulated, while the data from the larger part of Giza excavations are available as a role model.

The author of this review has only a few critical remarks. The format of the book is very pleasant to read but unsuitable for the presentation of some illustrations and the stunning photos used. Compared to the text and layout of the book, they are significantly smaller but follow the typesetting characteristic for MetaLAB publications.

There is also an inaccuracy in the Giza research overview, a double hook found by Dixon in the Khufu pyramid at Giza, currently in the British Museum (EA 67819), was not made of bronze, as claimed on p. 44. The X-ray fluorescence analysis of its chemical composition has proved arsenical copper as the material of which the artefact was made (Bergdoll 2016: 60). It makes the Fourth Dynasty dating of the object more plausible (for a detailed discussion of the object, see also Odler 2016: 210–211).

The present author would also disagree with the description of Flinders Petrie's approach as an "emphasis on complete documentation" (p. 47). Petrie's methods were revolutionary during his early career but somewhat selective in the documenting, publishing and processing of the sites and finds (*cf.* Stevenson 2012). This makes the contribution of Reisner, his excavation methods and data processing even more important for the development of Egyptian archaeology. Reisner's dating of the so-called Wadi Cemetery as preceding the reign of Khufu, followed by Manuelian in this book (pp. 52–53), has been criticised in recent literature (Lehner – Hawass 2017: 57–58).

A proposed idea of more numerous full-scale replicas of the Sphinx (p. 205) is not particularly good in the contemporary era when visual media can be misused, moreover as the construction of such a replica in China has been motivated by commercial interests. It puts in contrast the importance of world-wide dissemination of research results enabled by the Internet and the importance of the real and irreplaceable sites where it all took place and was documented, which must remain on the original spot (if not being completely removed by a salvage campaign). A way forward has been shown by another recent work of the reviewed author, a release of the application *Dreaming the Sphinx*, with an augmented reality and scholarly presentation of the data in a visually appealing manner.[2]

All in all, the *Giza Archives* and the following projects provide an exemplary approach to dealing with legacy data in Egyptian archaeology while increasing their accessibility and usability by the world-wide community of researchers. Three-dimensional modelling of Old Kingdom structures has a potential of engaging the general public and postulating completely new research questions. *Digital Giza: Visualizing the Pyramids* summarizes the history and prospects of one of the most important Egyptological projects in the early twenty-first century. The number of digital internet resources in Egyptology is slowly increasing (Claes – Keer 2014); let us hope that the digital Giza approach will inspire more similar projects.

Notes

[1] https://metalabharvard.github.io/. Accessed on 17th July 2018.

[2] Available at https://itunes.apple.com/us/app/dreaming-the-sphinx/id1319739945?mt=8. Last accessed on 23th July 2017.

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