

# The Visualisation of Construction Principles of Antic Architecture

## An Antic Amphitheatre Visually Explored

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## Introduction

### Reference

On the last CHNT conferences we illustrated our method of visualisation of hypotheses as a counterposition of presumed virtual reconstructions of architecture. A visualisation of a hypothesis is profoundly different from a virtual reconstruction. The difference lies in the understanding of what is to be shown in the face of what can be expressed scientifically. Reconstruction claims that it is possible to rebuild a lost building. That may be possible in some cases. In the case of ancient buildings such as this amphitheatre, where the findings are less than sparse, this is quite impossible. This is why we developed our method of visualisation of hypotheses. It emphasises that archaeological knowledge consists of a wide range of uncertainty including contradictions rising from multiple equally valid scientific assumptions. Instead of pure diagrams we work with subtle indications, mainly through versatile geometric abstraction. Contrary to the literal meaning this does not mean leaving things away but designing new and evident shapes of representation. Abstract shapes are then compensated by virtual architectural photography.

### Catalyst

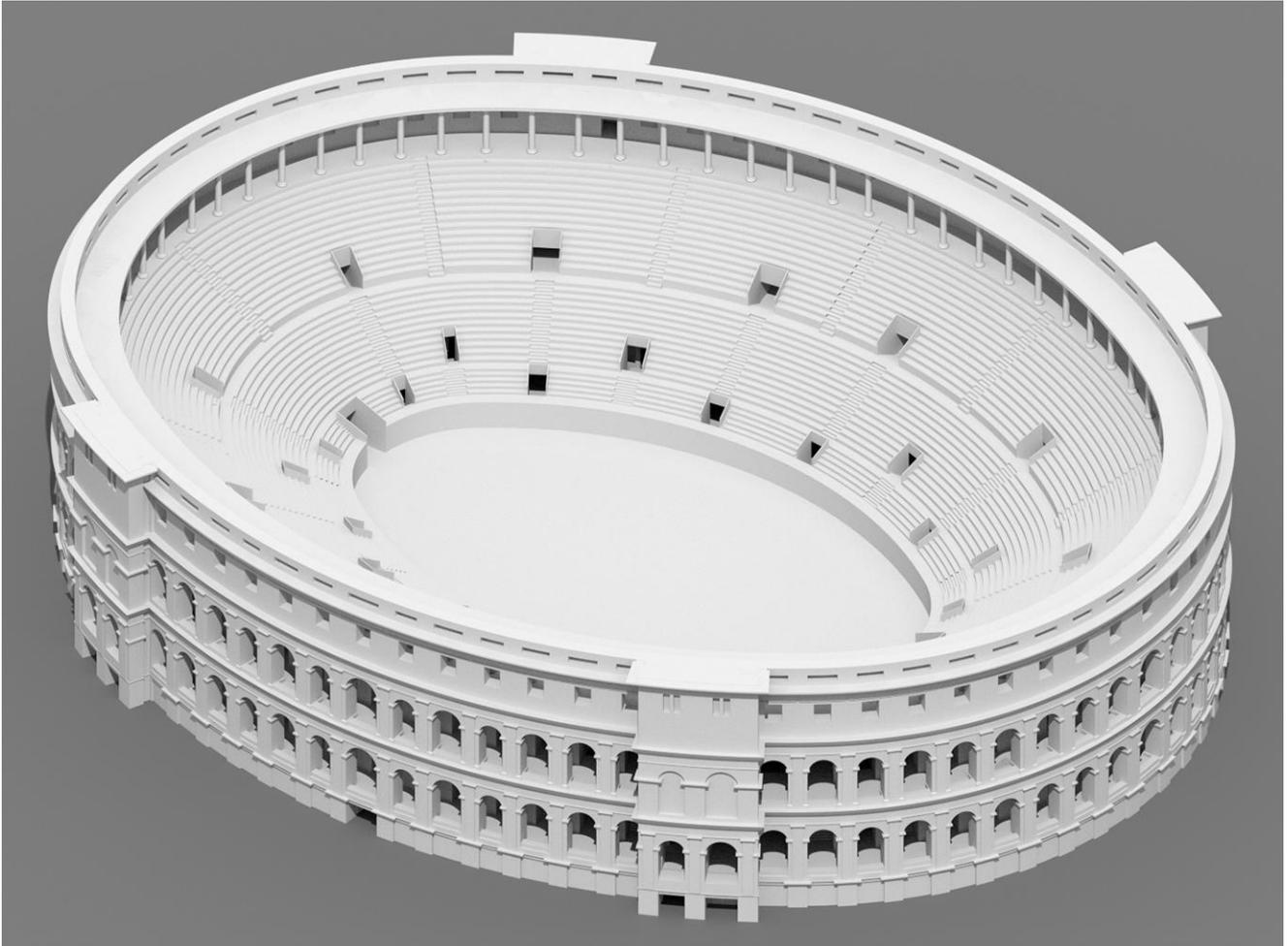
Even this form of visualisation acts as a catalyst, as the three-dimensional synthesis of the most diverse archaeological sources regularly leads to the discovery of missing parts, which turn out to be in the interest of archaeology. But not only that, the results of virtual photography, perspective projection, the perception from spatial positions that were possible in antiquity are also opening up new research questions. The display of architecture, actually of the architectural design idea, is also always the substance of the visualisations. It is precisely the abstraction, the absence of clearly antique attributes from people to clothing to weapons, but also of traces of use and missing technical equipment that always allow a comparative view of the visualisation with our own perception of architecture. The projects shown included works for the German Archaeological Institute (DAI) and several museums e. g. of the State Museums of Berlin and have always accompanied and enriched archaeological research.

## Architectural Principles

With this paper we are going to present a project that goes beyond this. Funded by the Gerda Henkel Foundation for the Humanities, it answers questions on the amphitheater of Durrës that have arisen during the last decades of archaeological research by the Rome department of the DAI. Durrës is situated in today's Albania, a harbour city on the road between Rome and Constantinople. The particular problem is that the orientation of the amphitheater negates the supply provided by the topography. Its axes are indeed twisted.

Antic amphitheatres follow common principles in order to provide a common external appearance. Durrës deviated from the common way and required new solutions for construction and access. The findings are too rare to build a certain reconstruction upon. Still, the findings suggest that there must have been a special and individual solution, principles that pursue the single goal to provide an appearance and a functionality as similar as possible to the other amphitheatres.

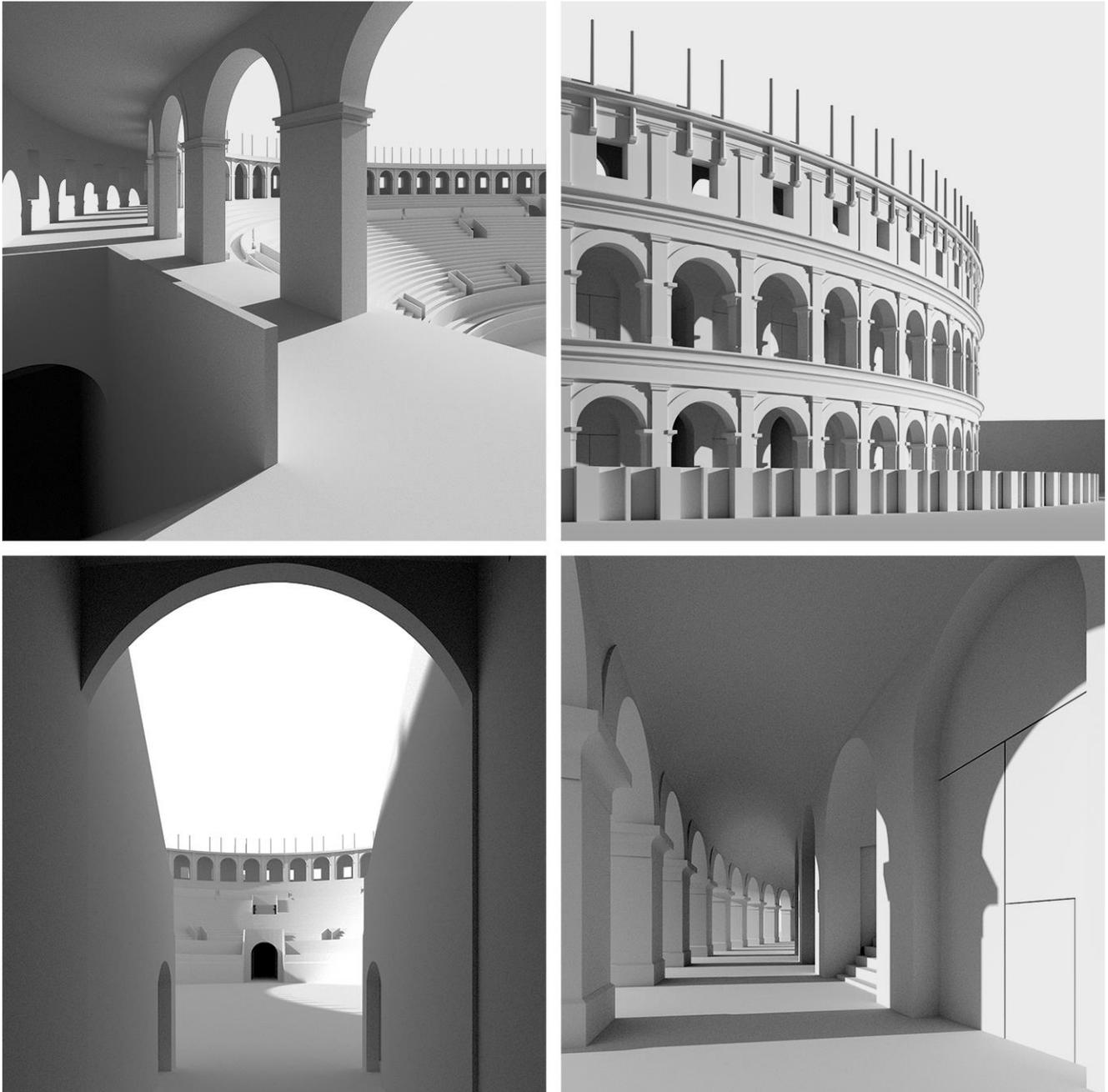
For this reason, the amphitheatre that was built shortly before in Pula, which has very similar dimensions, was used as a reference, as a starting point, in the assumption that it must also have served as a reference for the builders and architects of Durrës at that time. Pula, however, has a specific yet symmetrical embedding in the topography, but also unusual features such as exterior staircases, for which there is no evidence in Durrës. Consequently, while Pula forms the historical reference, its idealised version, i.e. the hypothetical principal disposition of Pula, forms the starting point for Durrës (fig. 1).



*Figure 1: The ideal behind the amphitheatre of Pula*

### **Hypothetical Adaptation**

Durrës deviated from the usual path and did not position the amphitheatre in the terrain in such a way that a symmetrical construction was possible, but oriented it to the urban street grid. Why this was done is not documented, but it required new solutions for construction and access. The findings are too rare to build a certain reconstruction upon. Still, the findings suggest that there must have been a special and individual solution, principles that pursue the single goal to provide an appearance and a functionality as similar as possible to the other amphitheatres (fig. 2).



*Figure 2: The regular outer appearance of the hypothetical amphitheatre of Durrës*

## Conclusion

Based on scientifically based hypotheses created to an important extent during the common research project and their mutual consideration, the project demonstrates how a complex geometrical system has been analysed and synthesised and is being mediated visually by a set of complementary visualisations of different pictorial methods and architectural segmentation. The project is a joint research project with those two distinguished scientists by the DAI who were working on the site for several decades. The team promised deep insights and an important outcome not only for the sci-

entific community in archaeology but also for the community of visualisation in scientific cooperations. Last but not least, the presence of architects stands for a result that also meets the demands in spatial and visual design.

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