Visual Mediation of Unique Construction and Access Principles of the Amphitheatre of Durrës

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Durrës, situated in today's Albania, is a harbour city on the road between Rome and Constantinople. The questions on the amphitheatre of Durrës have arisen during the last decades of archaeological research. The particular problem is that the orientation of the amphitheatre 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. 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.

Architecture. Archaeology. Visualisation. Hypotheses. Uncertainty. Knowledge. Principles. Idealisation. Catalyst.

1. INTRODUCTION

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 as a counter-position of presumed reconstructions of architecture. 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.

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.

2. THE PARTICULARITIES OF DURRËS

The visualisation of the hypothesis about the amphitheatre of Durrës goes beyond this. It answers questions on the amphitheatre 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 amphitheatre 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. 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 (Figure 1).

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 functionality as similar as possible to the other amphitheatres (Figure 2).

What the excavations have shown was that as little terrain as possible was excavated. Thus, despite all this, the costs were to be kept low. Evidence of tunnels for access indicates a construction method in which the passages to the respective seating groups were dug into the slope, so that this particular amphitheatre was built approximately half additively of walls and half subtractively of tunnels, while the above-ground construction only added what was necessary to obtain the desired overall picture in the end.

Figure 1: The ideal behind the amphitheatre of Pula.

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

This circumstance is illustrated by two different methods of representation. On the one hand, a sequence of five oblique images shows the spatial entities that come together in the earth movements and supporting structures. It is important to point out that this is not a representation of the phases of the construction process, since the movements of the ground and the supporting structures are of course mutually dependent on each other in terms of statics. However, since there are no records of the building process, but the hypothesis does refer to the different components of the construction, the sequence of pictures shows only spatial entities.

The first illustration first shows the original terrain with markings of those areas that will be affected by the coming earthworks. The second shows that part of the original site that will remain unchanged throughout the construction of the amphitheatre. The third illustration shows all the supporting structures necessary for backfilling, but these only. The fourth illustration additionally shows the backfilled terrain, which most likely consists of the overburden that was excavated beforehand. Finally, the fifth illustration shows the fully constructed amphitheatre for comparison at the same scale (Figure 3).

Figure 3: Spatial entities that constitute the construction process.

The second method of representation reverts to the traditional representation of floors and shows in horizontal sections how the theatre was conventionally constructed on one side, while on the other side it only excavates the necessary passages for circulation into the ground. In this representation, neither the earth movements nor the subtractions become evident, but instead the increasing symmetry from bottom to top, the

transition from the absence of regularity in the terrain to the combination of additive and subtractive volumes to the almost completely regular appearance of the visible cavea. It is actually only the irregular arrangement of the exits that reveals the complex access structure between the outer entrances to the amphitheatre and the inner exits to the cavea (Figure 4).

Figure 4: Hypothetical ground plans from the amphitheatre of Durrës.

The tunnel access mainly meant that the short distances possible in most amphitheatres were not possible for most seating groups. Instead, extraordinarily long paths of up to one hundred metres were necessary to reach some seats. Fortunately, it is documented that the social activities did not see any disadvantage in this procession, so that this circumstance, which is strange from today's point of view, was probably considered tolerable in antiquity. Methodically, we have divided the entire cavea into zones, which are assigned to the respective exits that allow the shortest route in each case. Already here the asymmetry is apparent (Figure 5 left). The colour-coded representation of the pathways from ten to over one hundred metres in length (the order according to the warmth of the hue corresponds to the increasing pathway length) shows the

extraordinary imbalance even more clearly (Figure 5 right).

Figure 5: Sections by entrance and by pathway length.

The project will be completed with three-dimensional schematic drawings (Figure 6) and a series of two- and three-dimensional sections that will further illustrate the specifics of the development and construction of the Durrës amphitheatre. All the visual material will be both static and dynamic, from animated diagrams to walkthrough sequences.

Figure 6: Access system

3. CONCLUSION

It is obvious that a visualisation that not only analyses and illustrates the state of science in the form of the hypothetical design idea of the outer appearance, but also the structures behind it in diagrammatic form, provides a much more comprehensible explanation of the archaeological insights. But it also provides a more constructive basis for future research as the reasoning leading to the hypothesis is equally visually revealed. And the hypothesis was by no means completed before the visualisation, but was substantially expanded, further developed and even partially revised with and on the basis of the visualisation process. In this process, the visualisation merely combines traditional discrete methods with each other in an

innovative way. Graphic and spatial schemes, volumes and reference lines, colour coding and shading, axonometries and perspectives, ground plans and sections constructively in dialogue with each other allow for an overall representation that visually conveys the complete framework of the spatial hypothesis. The spoken narration intended for representation as a motion picture can therefore allow for concentrating on background information.

4. REFERENCES

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