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Potemkin Village, reloaded Visualization of Destroyed Synagogues within the Cityscape of Vienna

1. Introduction

In our everyday life, the use of projection media is ever present. At first glance, the theme of this EAEA-conference seems to be in favour of the projected view directed towards to the future. However, a re-reading of the thematic focus does suggest a re-consideration and also allows for viewing in the direction of the past.

What does “projection” refer to? First we must point out the virtual impact the transferred image has on a projection surface. While the physical substance of the surface is not changed, the projection superimposes a motif on it. The resulting conglomerate manipulates the viewers’ personal imagination for the duration of the projection. The motif used may also be of an abstract nature, the only precondition being that the superimposition results in an “image”. A visual connection with the existing object is possible, but not mandatory.

The motif used may be both a static image (stimulus pattern) and a moving picture. If required, transitions between a series of projection images, including the switching on and off of images, may be used for certain types of desired impact or orchestration. Ultimately, we are always surrounded by “images” and exposed to their effect on the imagination. This might also involve the attempt to “improve” or “ennoble” the existing structure. At any rate, it involves perceptible and deliberate modifications.

The growing general interest in projection technology coincides with technical progress. While in the past projection involved mostly slides and films, video projection has become just as significant. Video beamers, a relatively costly device until a few years ago, have meanwhile become quite commonplace in private contexts. This being said, large-scale projection still requires devices with a very high light yield.

The following section explores an exoscopic view (i.e. “viewing from the outside”, the opposite of endoscopy) and considers the use of virtually reconstructed facades and their projection on existing structures. In the third section we will discuss the endoscopic view of building interiors which no longer exist. Conclusions will complete this contribution.

2. Projecting the Past onto a facade

Nowadays, city dwellers are familiar with the technology of facade projection (Fig. 1a-b), as this has become a commonplace



Figure 1a-b: Examples of image projection in an urban context: Kronen-Zeitung office building (Vienna), airport tower (Vienna airport), Café Landtmann (Vienna). For further examples please refer to www.pani.com



Figure 2: St Stephen's Cathedral (Vienna) with covered scaffolding



Figure 3: Site at Kluckygasse 11 with simulated facade projection



Figure 4: Site at Pazmanitengasse 6 with simulated facade projection

method for communicating content. The attention-grabbing effect of – temporary – image variety plays an important role in the process. The substance serving as “screen” is left unchanged and the medium of projection is characterized by a certain degree of non-permanence, since it requires the darkness of night time. All of this warrants an evocative effect. The projected motif can – but does not have to – be in a direct (“logical”) relationship with the projection surface.

We will now present a projection project which is yet awaiting implementation. It concerns the projection of no longer existing synagogue facades. The project was designed for the 70th return of the Nights of Broken Glass (November 1938), but the necessary funds could not be raised in time. The required facade reconstruction material was available, since the comprehensive 3D model reconstruction of all (former) Viennese synagogues has been under way since 1998.

The sacred buildings in question were usually located within a streetscape or sometimes opened out onto a courtyard. After their destruction, the space was usually used for apartment buildings, which rarely preserved the original building height. This situation makes a facade projection of the destroyed buildings a complex undertaking, since the dimensions of the existing buildings are often very different from the “projected” predecessor structure, and sometimes historical turrets or pinnacles would project beyond the present building surface. If no further (structural) intervention is made, these facade elements would have to be projected onto a (sloping) roof or would remain completely invisible if the existing building has a flat roof.

Although it might be feasible to have scaffolding with netting act as projection surface for the protruding elements, the erection of such scaffolding involves a certain (sometimes major) investment. Theoretically, the 1:1 scale could be abandoned, but that raises the question as to whether it would be meaningful, as it would lead to a strangely distorted image (in every sense of the word).

Another alternative would be a curtain-wall type of scaffolding with a large-format facade image. Although it would have the advantage of remaining effective also during daytime, the size of the required structure would be a serious obstacle (Fig. 2).

What are the preparations necessary for facade projections? First one needs to produce a large-format transparency of the

motif which already accounts for the necessary rectification of any distortions produced by the projection site.

The desired result is a faultless orthogonal format. As a projection medium one might use a HMI-high performance projector with a light output of 6 kW and a wide-angle lens ($f=11\text{cm}/1:1.8$). Ideally, the projection is made from the opposite roof. It must be noted that window panes produce “black holes”. If these are found to be too disruptive, they may be covered with fine netting. The below illustrations (Fig. 3 and 4) give examples of projections and demonstrate the planning for the projections at the synagogue sites Kluckygasse 11 and Pazmanitengasse 6 in Vienna.

3. Reconstruction of the interior (endoscopy)

After the “exoscopic” example, we will now turn to the endoscopic – or inside – view. This is required in the case of the Viennese synagogues, since in some instances historical records of interiors are missing. Projective “introspection” might help to establish a connection between outside and inside. The 3D-model reconstructions are available and well suited for this purpose because of their high degree of detail in the modelling.

Simply imagine a virtual building site where the building model is “constructed” with the help of archived plan submissions. As a rule, implementation records are not available. How should one go about closing such an information gap? In this context, we were confronted with more than twenty sacred buildings in Vienna alone, most of them erected around 1900. Since this was more than a century ago, it is appropriate to use buildings with a similar construction repertory as a reference. Moreover, some temples from this era which can serve as reference are still preserved in neighboring countries.

Back to the three-dimensional model. It allows for a multitude of (non-destructive) visualization options. Building parts may be faded in or out as desired, and the virtual viewing can take any desired perspective. In the case of endoscopic viewing it makes sense to opt for an eye-level perspective. In the present example, the model itself is created with the help of “ArchiCAD” (a CAAD software package) with a clear layer structure. It is then exported into “Artlantis”, which offers important benefits when it comes to depicting materials and light effects (Fig. 5-7).

In conclusion we would like to point out the possibilities arising from so-called “rapid prototyping” (Fig. 8). With the help of laser



Figure 5: At the main hall of the temple at Kluckygasse 11, there was only a limited extent of daylight incidence (proximity of neighbouring buildings, no skylights)



Figure 6a-b: Schmalzhofgasse 3: different visualization variants (the texture of wood is quite difficult to visualize, for instance; unimportant parts tend to be overemphasised)



Figure 7a-b: Neudeggergasse 12: visualization of light incidence (different results)



Figure 9: CAVE-environment with stereo-rear projection (J. Kieferle/U. Wössner – www.hlrs.de)

cutting, 3D printing and milling, architectural scale models can be created from the existing data. The methods mentioned can also be combined to draw maximum benefit from their respective strengths. The result has a level of precision that can hardly be achieved with manual model-making.

We would also like to point out the possibility of stereoscopic projection. A so-called CAVE-environment (e.g. stereo rear-projection and the use of “shutter glasses” (Fig. 9) gives the viewer the impression of being directly inside a life-size space. If the active viewer moves his/her position, the projected images are recalculated almost in real time so that the virtual objects seem to stay in their position. Different from the projection onto a facade this method does not require a structural surface, as it relies on the effect of the stereoscopic image alone.

4. Conclusions

Facade projection represents a technically mature medium for “exoscopic” spatial explorations. The present case study involves no-longer existing synagogue buildings in Vienna, and the project objective is to show them temporarily at their original site to the population at large. It must be noted, that the superimposition of a past and a present state involves an intriguing confrontation. The involvement of all stakeholders (property owners, tenants, etc.), however, also harbours a certain risk of tension. Although the impact of a life-size simulation (1:1) by on-site projection is hard to top, so-called “facade plots” might prove a viable alternative. Recreating the historical interiors by means of endoscopic views at the existing buildings is not meaningful, since current use as residential buildings forbids that in terms of spatial layout and accessibility. Nevertheless we would like to emphasise that appropriate inside views can be produced digitally.

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References

- Martens, B.; Peter H.: Die zerstörten Synagogen Wiens. Wien: Mandelbaum Verlag, 2009 [in preparation]
 Tschuppik, W.-M.: Die andere Realität. Wien: ÖKK Verlag, 1999



Figure 8a-b: Rapid prototyping: Examples