

With the Eye of an Art Historian

Visualizing the Medieval Abbey of Fleury in Saint-Benoît-sur-Loire (7th-12th century)

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General Issue

Premise.

The “Belvédère” (Centre d’Interprétation) in Saint-Benoît-sur-Loire (France) is a museum devoted to the organisation of cultural activities related to the Benedictine abbey of Fleury. The abbey is one of the most significant buildings of the European Middle Ages, and provides a canonical example of pre-Romanesque architecture.

The architectural history and sculptural elements of the building have been extensively studied by Éliane Vergnolle (2018), who clarified all phases of the building site, from the earliest textual clues in the 7th century to the late medieval phases.¹ Her research has made it possible to gain an in-depth understanding of the 11th-century phase of the church, in which extraordinary architectural changes took place: the eastern chevet with its floor mosaic decoration around the main altar in the “choir,” the hypogeous crypt, and the tour-porche in the west façade. These extant parts of the church are crucial testimonies to medieval architectural experimentation, both in terms of construction and conception.

From the abbey to digital restorations: methodologies of encounter and exchange.

The given premise is necessary in order both to emphasise the privileged point of view from which abbot Gauzlin operated as a patron, and to understand the quality of the choices made in the abbey church he ruled. The opportunity for this reflection was offered by the organisation at the

¹Vergnolle, É. (2018), *Saint-Benoît-sur-Loire. L'abbatiale romane*, Paris: Société Française d'Archéologie (Bibliothèque de la SFA, 1).

Belvédère in Saint-Benoît-sur-Loire of an exhibition on the medieval opus sectile floor², which was commissioned by Gauzlin ca. 1020, and is still in situ³. This floor, however, has undergone numerous transformations that make it difficult to conceive of its 1020 state, both in terms of composition and in relation to its architectural context. Thus, the floor contains a complex history spanning centuries (Fig. 1).

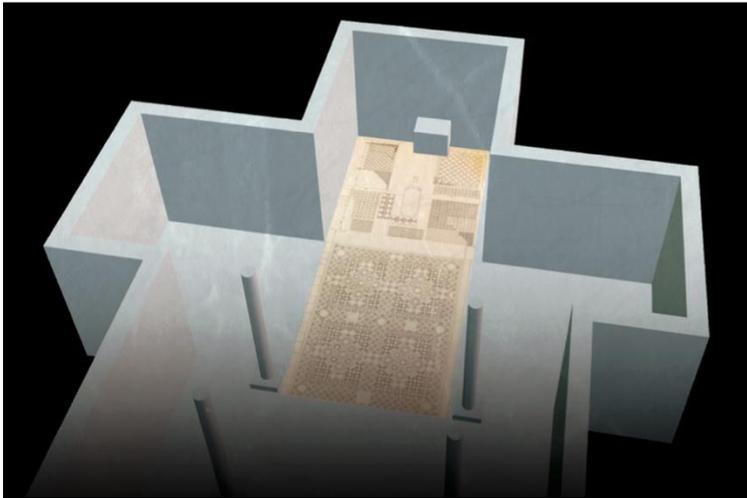


Fig. 1. Saint-Benoît-sur-Loire, 3D restitution: “neutral” shapes for the destroyed church digitally combined with archival documentation of the mosaic.

The complexity of the historical events and of the different uses of the pavement, therefore, raised two methodological problems. Firstly, the floor had not been the subject of focused scientific research. Thus, archival research, historiographical and material data were collected and analysed in wider European cultural frame. Secondly, the large quantity of data and scientific acquisitions had to be combined in a form that could be suitable to a general audience and viewed in the Belvédère museum, which is not in the abbey. A further requirement was to conceive of a way to present the mosaic pavement, which is normally inaccessible to the public, due to its location in the presbytery. Thus, the Research Team settled on building a digital 3D restitution of the monument to visually communicate its transformations over centuries.

The Research Team from the University of Salerno included Maddalena Vaccaro (Project Director and professor of art history) and two engineers, who specialise in the History of restoration and Digital Design for Cultural Heritage⁴. A primary objective of the project was to provide a visualization of the model that could synthesize the complex transformations of the monument

² <https://www.belvedere-valdesully.fr/decouvrir/exposition-temporaire-en-cours/> (Accessed: 17 July 2022).

³ Vaccaro, M. (2020), 'De la Romania à Fleury. Le pavement de marbre en opus sectile du chœur de Saint-Benoît-sur-Loire', *Bullettin Monumental*, 178(2), pp. 211–243.

⁴ Vaccaro, M., De Feo E. and Ferreyra C., 'Gli arredi liturgici dell'O'abbazia di Fleury dall'età merovingia al XII secolo: indagine storico-artistica e restituzioni digitali', *Hortus Artium Medievalium*, 27, 2021, in print; Bruzelius, C., et al. (2018), 'L'eco delle pietre: History, Modeling and Gpr as Tools in Reconstructing the Choir Screen at Sta. Chiara in Naples', in Vitolo P. (ed.), *Progetti digitali per la storia dell'arte medievale - Digital Projects in Medieval Art History*. Firenze: All'insegna del Giglio, pp. 81–103.

and its décor. To create the model's visualizations and animations, the team used the open-source software Blender and Adobe AfterEffects. The project's emphasis on making research and visualizations accessible to a broad audience coincides with the objectives of the session.

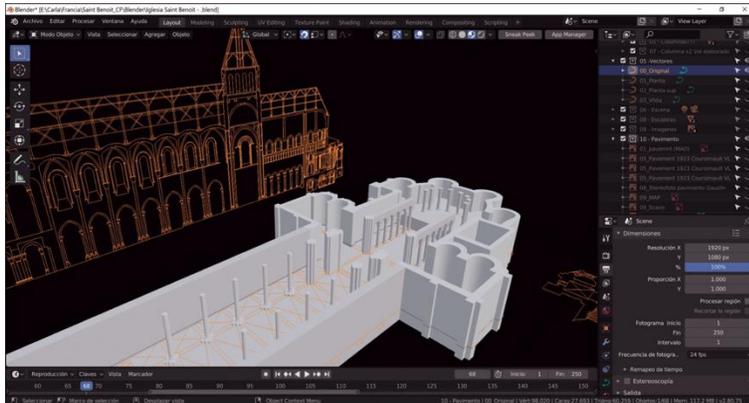


Fig. 2. Modeling with Blender software by C. Ferreyra.

The process of integrating art-historical research and the building of a 3D digital model required the constant verification of the critical hypotheses acquired by the research, with particular attention to the relationship between decoration, artifacts and space. Moreover, the opus sectile floor posed specific challenges due to the heterogeneity of its materials and how these materials were used. The team imposed resolutions that always met scientific criteria and, at the same time, were consistent with the needs of the visual narrative.

The process of narrative elaboration reached methodological results that have value beyond the specific case study, and that can be refined for future research. These results include:

Attention to the reliability of the historical and historiographical data, and how the digital 3D restitution allowed their 'real' encounter. This proved critical when considering that data were the result of methodologically discontinuous approaches (e.g. the criterion of the archaeological excavations carried out at the beginning of the 20th century does not correspond to modern scientific criteria of recent decades)⁵;

Digital modeling allowed us to visualise the intermediate, hypothetical, and even ephemeral phases, providing iconographic materials to support their visualization. The collected graphic and photographic materials were included in the visual storytelling in a way that made these various phases accessible to a non-specialist audience.

A scientifically verified, concise and easy-to-read timeline was reconstructed, simplified in the narrative but not in the quantity and quality of the historical data.

⁵ Chenesseau, G. (1923), *Le mausolée de saint Benoît dans l'église abbatiale de Saint-Benoît-sur-Loire*, Saint-Benoît-sur-Loire; Dom Berland, J.-M. (1968), 'Le pavement du chœur de Saint-Benoît-sur-Loire', *Cahiers de civilisation médiévale*, 11(42), pp. 211–219; Bautier, R.-H. (1969), 'Le monastère et les églises de Fleury-sur-Loire sous les abbatiats d'Abbon, de Gauzlin et d'Arnaud (988-1032)', *Mémoires de la Société nationale des Antiquaires de France*, 4, pp. 71–156; Jesset S., Étienne M. (2004), 'Le sépulcre de saint Benoît à Fleury au Moyen Âge', Bosc-Lauby A., Notter A. (dir.), *Lumières de l'an mil en Orléanais. Autour du millénaire d'Abbon de Fleury*, Turnhout: Brepols, pp. 173–178.

Considering the reaction of non-specialist audience, we can still ask questions to identify the limits of this elaboration process:

Concerning the 'verbal' narration: how much can we sacrifice data in favour of simplification?

Concerning the 'visual' narration: how effective are "neutral" shapes that communicate effectively without proposing falsehoods? The public's demand for 'visual realism' - constantly solicited by contemporary society - can be answered considering the wide absence of medieval materials or iconographic data?

Can/must the scientific limit of research be the criterion of limits in digital storytelling?

In conclusion, it is essential to firmly assert that it is the monument that must dictate the narrative: the voice of the cultural heritage is the art-historical research, which provides its critical interpretation within a broader cultural frame (in this case, Medieval Europe). The digital restitution of the abbey church requires the intersection of cultural heritage, art history, and digital humanities. In addition to multidisciplinary research methods, the resulting research product—the 3D model—must be sustainable.

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