

## INTERDISCIPLINARY RESEARCH PROJECT ON THE ABBEY OF S. CROCE AT SASSOVIVO IN FOLIGNO, ITALY

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The research project on the Abbey of S. Croce at Sassovivo in Foligno (Italy) started in 2012, based on the studies of Giovanni Carbonara and Lia Barelli from Sapienza University of Rome. The aim of the project was to investigate the abbey complex to understand the different construction phases of the buildings. In particular, the study was focused on the material aspects through the stratigraphic reading of the structures and the analysis of building materials. In this case, the extensive archival documentation is not detailed enough to reconstruct the history of the building phases. Thanks to the particular characteristics of the abbey and the multidisciplinary method of the research, this project has involved an increasing number of Italian and foreign professionals. Following the identification of the size and extension of the medieval church, the first archaeological excavation campaign started in 2014. It was carried out by the Postgraduate School in Architectural and Landscape Heritage of Sapienza University of Rome and supported by the Associazione degli Amici dell'Abbazia di Sassovivo (Association of the Friends of Sassovivo Abbey). The first results exceeded expectations, revealing a much more complex situation, and new archaeological campaigns were planned (2015-2016-2017). During these investigations, we had the collaboration of the Department of Cultural Catholic Heritage of the Pontifical Gregorian University, Department of Physics and Geology of the University of Perugia, the Department of Biological Anthropology of the Eötvös Loránd University of Budapest and the Department of Anthropology of the Museum of Natural History of Budapest. (Fig. 1.)



Fig. 1. Sassovivo Abbey in a 17th century map from the Gerardi Mercatoris *Atlantis Novi Pars III*, published by H. Hondium (F. CASSANO, *Perugia e il suo territorio. Incisioni dal XV al XIX secolo*, Perugia 1990, 56).

### THE SASSOVIVO ABBEY COMPLEX

The Abbey of S. Croce in Sassovivo, founded by Benedictine monks around the year 1080, is located about 6 km from Foligno on Mount Serrone at a strategic site, excellent for its supply of material for construction.<sup>1</sup>

The city of Foligno was built close to Via Flaminia, a road with an originally pre-Roman design which was built by the Romans between the 4<sup>th</sup> and 3<sup>rd</sup> century B.C. (Fig. 2). Since its creation, this road and its respective variations linked the most important cities of Umbria, Marques and Romagna with Rome and Latium, thus shaping the region and allowing continuous exchanges even in times of great crisis.<sup>2</sup> These routes played a crucial role in the central Italian economy and culture during all periods of Late Antiquity and the Middle Ages. In architecture, this cultural continuity is documented by the use of similar and easily recognizable building techniques.

<sup>1</sup> Angela Baldanza: Le Pietre da costruzione e ornamentali del complesso abbaziale. In: Lia Barelli – Roberta Loreti – Maria Romana Picuti – Roberta Taddei (ed.): *Oltre le Carte II*, forthcoming.

<sup>2</sup> Matelda Albanesi: Indagini a Santa Maria in Campis di Foligno: una fase tardo-antica a Fulginia. *Bollettino storico della città di Foligno* XXXVII (2014), 560.

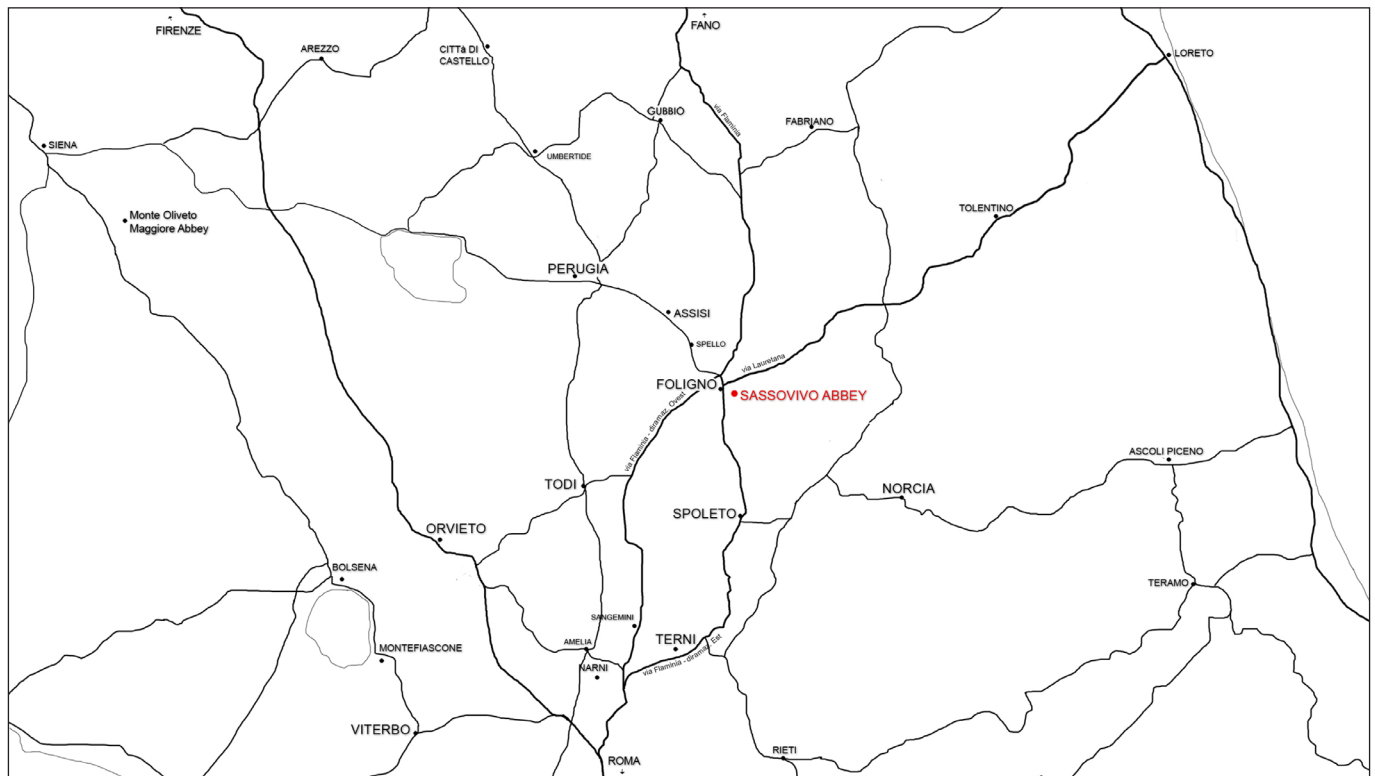


Fig. 2. Sassovivo Abbey in central Italy. Graphic processing by Eleonora Scopinaro

At the end of Middle Ages, the Via Laurentina also had great importance, allowing the pilgrimage from Rome to the sanctuary of Loreto on the Adriatic coast. Via Laurentina started from Via Flaminia at Foligno, close to Sassovivo, and from there it continued to the Valley of Chienti and the city of Tolentino until at last reaching Loreto. Thanks to the opening of this new way of communication in late medieval and renaissance times, there was an intense commercial traffic in the area and a great many products came to Rome through the territories of Marche and Umbria. This process was influenced by contacts with local cities and, through these, with Central Europe and Asia.

The proximity to the city of Foligno and to the Via Flaminia and Laurentina undoubtedly facilitated the growth of the monastery over the centuries. S. Croce abbey was one of the most prosperous ecclesiastic institutions in central Italy, with a large number of possessions in Umbria and Lazio in the mid-14<sup>th</sup> century.<sup>3</sup> Even the basilica of SS. Quattro Coronati in Rome, the official residence of the pontiffs located near the Lateran Palace, was in the possession of the monastery.<sup>4</sup>

The first monastic settlement in Sassovivo was founded during the last quarter of the 11<sup>th</sup> century by Mainardo, a hermit who perhaps came from the monastery of S. Maria di Sitria on Mount Catria, located about 80 km north of Foligno. The crypt of Beato Alano was built as well in these years. This nearby construction was probably the first church in Sassovivo, but it was never completed. According to Ludovico Jacobilli, an Umbrian historian of 17<sup>th</sup> century, the land on which the abbey was built was donated by a wealthy local family that was also committed to protecting the monks (Fig. 3.).<sup>5</sup>

<sup>3</sup> According to Ludovico Jacobilli, the monastery of Sassovivo possessed “92. Monasterii, altre 41.Chiese, et 7.Hospitali” in the dioceses of Foligno, Spoleto, Assisi, Perugia, Todi, Terni, Camerino, Amelia, Bagnoregio, Orte and Rome. Lodovico Jacobilli: *Cronica della chiesa e monastero di Santa Croce di Sassovivo nel territorio di Foligno*. Foligno, 1653, 10.

<sup>4</sup> Lia Barelli: *Oltre le Carte, dentro le pietre*. In: Lia Barelli – Roberta Loreti – Maria Romana Picuti – Roberta Taddei (ed.): *Oltre le Carte. L’abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale* (Perugia: Fabrizio Fabbri editore, 2014); Lia Barelli: *Il complesso monumentale dei SS. Quattro Coronati a Roma*. Roma, 2009; Lia Barelli: *Il chiostro cosmatesco*. In: Lia Barelli (ed.): *La fontana del chiostro dei SS. Quattro Coronati a Roma. Storia e restauri*. Roma, 2006, 59–67.

<sup>5</sup> Lodovico Jacobilli: *Cronica della chiesa e monastero di Santa Croce di Sassovivo nel territorio di Foligno*. Foligno, 1653, 2.





Fig. 3. The Abbey of S. Croce in Sassovivo.

Satellite image by <http://www.googlemaps.com>. Graphic processing by Eleonora Scopinaro

The Sassovivo architectural complex is additionally interesting because it stands on a possible pre-existing fortification. It consists of a multitude of construction phases that have changed its appearance many times over the centuries.

The greatest period of the abbey was from the 12<sup>th</sup> to the first half of the 14<sup>th</sup> century. The most important structures, namely the church, the cloister and the aqueduct were realized. The church shows several construction phases, which are attributed to the Romanesque and Gothic periods, also confirmed by archaeological excavations. The construction of the cloister and the buildings around it seems to have begun in 1222 with the creation of the southeast dormitory and continued with developing the inner courtyard between 1229 and the second quarter of the 13<sup>th</sup> century.

During the 15<sup>th</sup> century - as a result of political and social changes that weakened most of the monastic institutions in central Italy - Sassovivo Abbey suffered some damage. In 1486 it was given to the monks of Monte Oliveto, on whom it depended until 1834. Olivetan monks made substantial changes to the abbey architectures to adapt the existing environment to their present needs, including the provision of commendatory abbots for adequate living facilities. During the Olivetan administration, changes were also made in the cloister (1623) and within the church (mid-18<sup>th</sup> century). In particular, the church was greatly reduced in size (the measures of the nave were almost halved) and after the reduction it was used for only a very short time because, according to accounts of pastoral visits, the abbey was already uninhabited in 1776.<sup>6</sup> This abandonment was followed by the Napoleonic suppression of 1798 which brought about an even more decisive decline of the abbey. The restoration of the 1814 was not enough to restore its fortunes

<sup>6</sup> Liliana Ninarello: see more about Carlo Murena's restoration actions. In: Lia Barelli – Roberta Loreti – Maria Romana Picuti – Roberta Taddei (ed.): *Oltre le Carte. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale* (Perugia: Fabrizio Fabbri editore, 2014), 94–99.





Fig. 4. The cloister of Sassovivo Abbey in 1879 before restoration activities (M. FALOCI PULIGNANI, *Del chiostro di Sassovivo presso Foligno. Memorie epigrafiche*, Foligno 1879)



Fig. 5. The cloister of Sassovivo Abbey in 2014 after restoration and conservation campaigns. Photo by Eleonora Scopinaro

and it was first abandoned by the monks to be given to the Bishop of Foligno and finally suppressed again and split between the state, the bishop's properties and a private owner.<sup>7</sup>

Since the end of the 19<sup>th</sup> century, the architectural complex was restored several times. In the 1885-1910, the activities were mainly focused on the usability of the site and – especially – on the recently rediscovered cloister (Fig. 4.). The second significant intervention was between 1966 and 1968 and saw the restoration of the cloister again, revealing its 13th-century facies. Other restorations were then carried out following the earthquakes of 1979 and 1997. The last of these actions is still ongoing (Fig. 5.).

### EXCAVATION CAMPAIGNS

From 2014 to 2017, four archaeological excavations were conducted at Sassovivo Abbey by Lia Barelli, Maria Romana Picuti and Raffaele Pugliese for the Postgraduate School in Architectural Heritage and the Landscape of the Sapienza University of Rome and Ottavio Bucarelli for the Pontifical Gregorian University. These excavations involved part of the churchyard and contiguous area on the right flank of the church and sacristy.<sup>8</sup> (Fig. 6.)

Among the structures found during excavations, the most ancient corresponds to the facade of the Romanesque church: it is located along the southeast boundary of the current excavation area. It is a rubble wall, most of the core of which is today visible, as well as some portions of the wall facing made with ashlar, with a partial thickness of 115 cm, probably equal to 3/4 of the total section.<sup>9</sup> The different parts of the structure are attached to each other thanks to the trunk-pyramidal-shaped ashlar, which are crudely smoothed to facilitate their friction with the core. Although the individual elements are not homogeneous in size and colour, the work shows accuracy and regularity because the blocks are laid in perfectly parallel lines, even if at different heights. The above-described structure incorporates an *avant-corps*,<sup>10</sup> hypothetically identified

<sup>7</sup> Mario Sensi: Le vicende storiche. In: *L'abbazia di Sassovivo a Foligno* (Silvani, Cinisello Balsamo, 1992), 40.

<sup>8</sup> For more information about construction phases and restoration activities at the Abbey of S. Croce in Sassovivo, see Lia Barelli – Roberta Loreti – Maria Romana Picuti – Roberta Taddei (ed.): *Oltre le Carte. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale* (Perugia: Fabrizio Fabbri editore, 2014), and Lia Barelli – Roberta Loreti – Maria Romana Picuti – Roberta Taddei (szerk.): *Oltre le Carte II* (forthcoming).

<sup>9</sup> Hypothesis from a comparative exam carried out on the church's masonry.

<sup>10</sup> On the surface of the Romanesque facade, in correspondence of the masonry of the forepart -today interrupted - it is still the evidence of a whitish thin layer, probably a trace of mortar left by the structure.

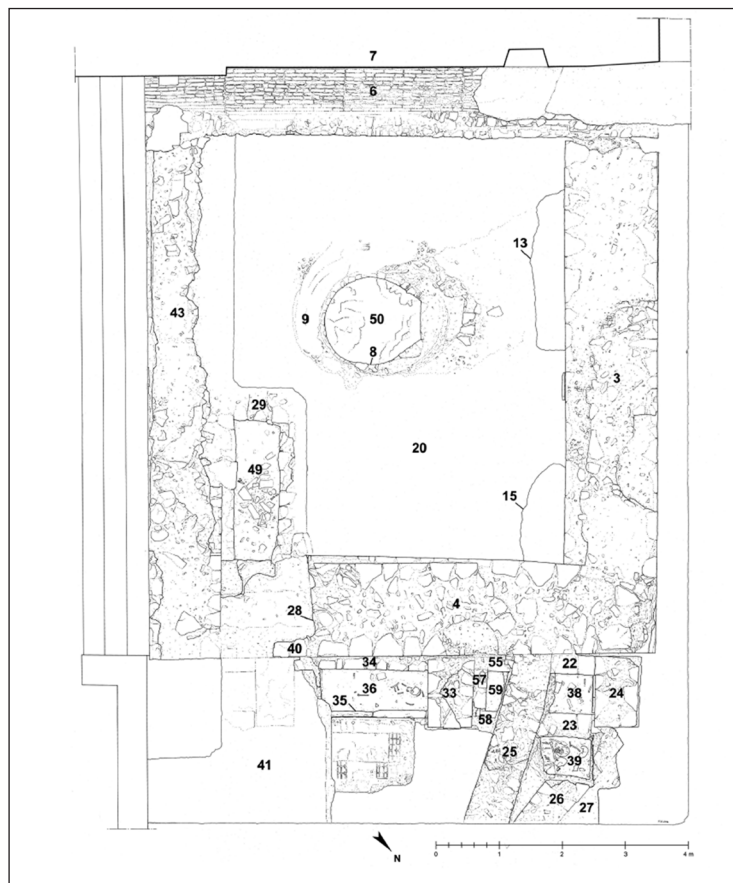


Fig. 6. S. Croce in Sassovivo Abbey. Survey of the structures which emerged during the first archaeological excavation campaign with SU (Lia Barelli, Michele Ascitti, Roberta Loreti, Liliana Ninarello, Maddalena Paolillo, Eleonora Scopinaro, 2014).

with the *paradisus* mentioned in the Sassovivo Archives from 1227.<sup>11</sup> This structure has its northwest and northeast perimeter walls inside the excavation area, whereas the southwest side is embedded in the building that currently delineates the churchyard on this side.<sup>12</sup> The masonry of this forepart is also very thick (150 to 160 cm) and is characterized by three-part sections, in turn formed by an inner core and two curtains. In this case, however, the individual pieces were carved nicely; moreover, the laying process is very refined. These data, together with other stratigraphic and structural data, confirm the posterior age of this structure, which was probably built between the 13<sup>th</sup> and the first half of the 14<sup>th</sup> century.<sup>13</sup> (Fig. 7.) (Fig. 8-9.) és (Fig. 10.)

Almost all of the used materials seem to have been extracted locally or within a close proximity. In order to identify their exact origin and to find differences and analogies within the masonry according to their use, the researchers carried out a scientific examination of the elements of the structures, comparing them with the geological context to which they belong. The mortar and the ashlar found in the excavation were sampled: the samples were studied and compared to the stones used

in the abbey's building to identify morphological characteristics and the main components of the building materials.<sup>14</sup>

The analysis of the stone material in the abbey structures was carried out locally. It was deepened in some few cases by taking samples that were subsequently analysed in the thin section laboratory. The reading of the high walls, based on the relief, was done by cataloguing and recording the photographic samples of every constructive typology.

Thanks to the results of the first excavation campaign, it was possible to outline an early chronological concept of the church's medieval construction periods and to integrate the analysis of the written sources with the material data. According to Lia Barelli's study, it is possible to identify a Romanesque construction

<sup>11</sup> "a partire dal 1227 nelle date topiche comincia a comparire con una relativa frequenza - sei volte in quattro anni - un luogo definito *paradisus*, anch'esso aperto agli esterni." Lia Barelli – Roberta Loreti – Maria Romana Picuti – Roberta Taddei (ed.): *Oltre le Carte. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale* (Perugia: Fabrizio Fabbri editore, 2014).

<sup>12</sup> Roberta Loreti: Un esempio di lettura stratigrafica: la parete sud ovest del sagrato In: Lia Barelli – Roberta Loreti – Maria Romana Picuti – Roberta Taddei (ed.): *Oltre le Carte.. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale* (Perugia: Fabrizio Fabbri editore, 2014), 60–68.

<sup>13</sup> In this case the dating of the facade is based on a comparative study carried out on an inter-regional scale.

<sup>14</sup> Sampling campaigns were carried out under the supervision of professors Lia Barelli and Angela Baldanza. The specimens were then analysed in the laboratories of the Department of Architectural History, Design and Restoration of Sapienza University of Rome and of the Department of Physics and Geology of University of Perugia, respectively by architect Elisabetta Giorgi and Professor Angela Baldanza.





Fig. 7. The southwest churchyard facade of Sassovivo Abbey.  
Photo by Roberta Loreti

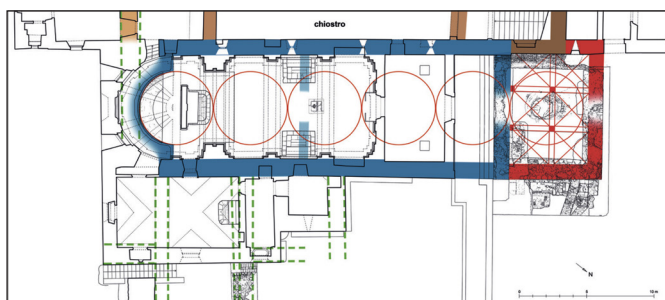


Fig. 10. Plan of the church of S. Croce in the Romanesque phase. Blue: the Romanesque walls of the church. Brown: the dormitory walls. Red: the avant-corps (L. BARELLI, *Lettura delle fasi architettoniche della chiesa abbaziale*, in L. BARELLI, R. LORETI, M.R. PICUTI, R. TADDEI (ed.), *Oltre le Carte. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale*, Perugia 2014, 54.

phase characterized by the presence of a semicircular apse,<sup>15</sup> the diameter of which seems to have been increased by five times to obtain the full length of the building. This proportional system, often used to design medieval buildings, can also be found in the church at S. Maria di Sitria, from which Mainardo, the founder of Sassovivo, probably came. During the 13<sup>th</sup> century, the building of the church was added the forepart, the traces of which are still visible on the southwest prospect of the churchyard. This structure probably had two levels and could be comparable to the French *galilées*. (Fig.11) (Fig.12) (Fig.13)

Subsequently, the church underwent a considerable spatial transformation; the environments of the *avant-corps* and the Romanesque church were merged into a single space by tearing down the facade of the Romanesque church. Based on written documents and the construction typology, the realization of this new building probably took place between the 14<sup>th</sup> and the 15<sup>th</sup> century. This new structure could not coexist with the aforementioned *paradisus*, the presence



Figs. 8-9. Avant-corps structures. Photos by Maria Romana Picuti 2014.

<sup>15</sup> The apse was discovered by Matelda Albanesi in 2003 (Matelda Albanesi: *Le indagini archeologiche degli anni 2002-2003*. In: Lia Barelli – Roberta Loreti – Maria Romana Picuti – Roberta Taddei (ed.): *Oltre le Carte. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale* (Perugia: Fabrizio Fabbri editore, 2014).

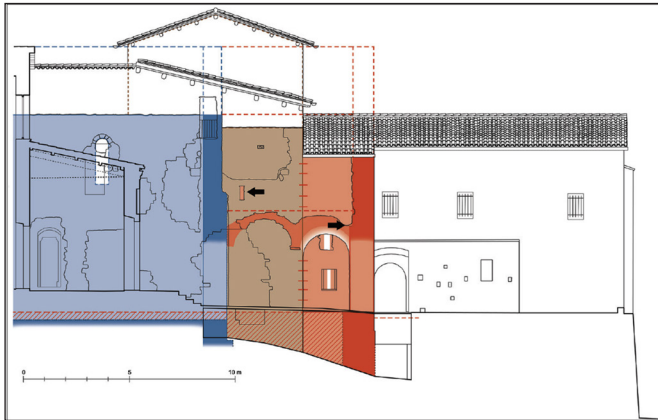


Fig. 11. The southwest facade of Sassovivo Abbey. Blue: the Romanesque church. Brown: the dormitory walls. Red: the avant-corps (R. LORETI, *Un esempio di lettura stratigrafica: la parete sud ovest del sagrato*, in L. BARELLI, R. LORETI, M.R. PICUTI, R. TADDEI (ed.), *Oltre le Carte. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale*, Perugia 2014, p. 64).

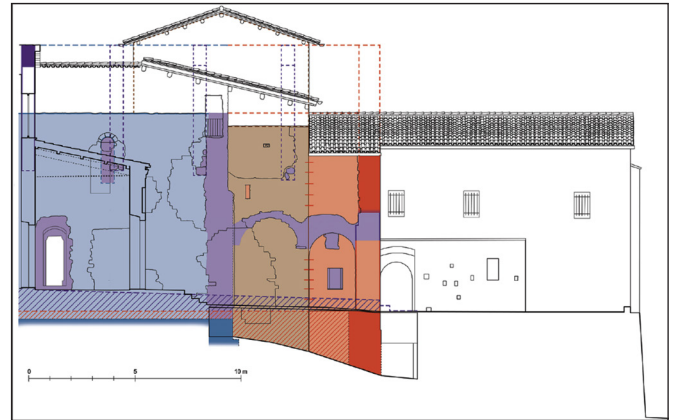


Fig. 13. The southwest facade of Sassovivo Abbey. Blue: the Romanesque church walls. Brown: the dormitory walls. Red: the avant-corps. Violet: the Gothic additional parts (R. LORETI, *Un esempio di lettura stratigrafica: la parete sud ovest del sagrato*, in L. BARELLI, R. LORETI, M.R. PICUTI, R. TADDEI (a cura di), *Oltre le Carte. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale*, Perugia 2014, 66).

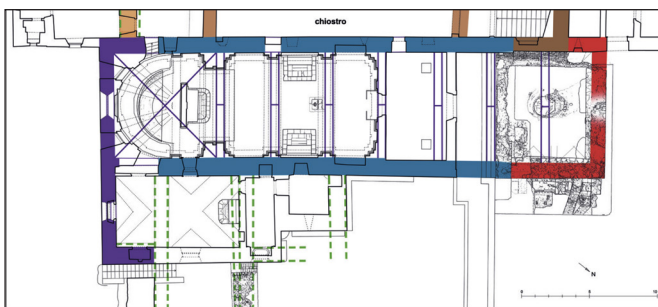


Fig. 12. Plan of the church of S. Croce in its Gothic phase. Blue: the Romanesque walls. Brown: the dormitory walls. Red: the avant-corps. Violet: the Gothic walls (L. BARELLI, *Lettura delle fasi architettoniche della chiesa abbaziale*, in L. BARELLI, R. LORETI, M.R. PICUTI, R. TADDEI (ed.), *Oltre le Carte. L'abbazia di S. Croce di Sassovivo presso Foligno e la sua realtà materiale*, Perugia 2014, 56).

of which is attested until 1307, and had to provide a roof characterized by the pointed arches in use in Umbria from the 13<sup>th</sup> to 15<sup>th</sup> century.

E.S.

## ANTHROPOLOGICAL STUDIES

The study of human skeletal remains is of high importance to widen our knowledge on the history of the Abbey of S. Croce in Sassovivo. The anthropological examination incorporates the identification of sex, estimation of age and the evaluation of other aspects of life including health status. Skeletons are biological objects and thus provide an unbiased insight to past demography, health and disease. The frequency and distribution of specific pathological

alterations could be valuable regarding the analysis of socio-economic status or environmental background.

In the interpretation of burial customs, the influence of religious beliefs needs to be considered as well. The strict regulation of the Christianity significantly determined the circumstances of the burial of deceased individuals. Being buried in consecrated ground was one of the more rigorous canonical requirements. Consecrated ground means an area which has been liturgically blessed or is close to a sacred object like a church or the remains of a saint. Given that, these suitable places for Christian burials were fixed with definitive boundaries so that their capacity was also limited. Long-term usage, coupled with spatial constraints, could have led to a particularly overcrowded position of the graves. Eventually this phenomenon resulted in mass grave-like deposits of human remains. On the other hand, secondary ossuaries (bone depositories) could have been made consciously when the remains from earlier graves were moved to a common deposit. Besides, those who had been entitled with exceptional posthumous honour could have been buried in privileged places (e.g. inside the church, under the altar).

During the excavation campaigns carried out in 2014-2015 and 2016 in the medieval Sassovino Abbey, many graves were discovered around the remains of the church's original walls. Although the anthropological examination has not yet been completed, many important observations have been made concerning to

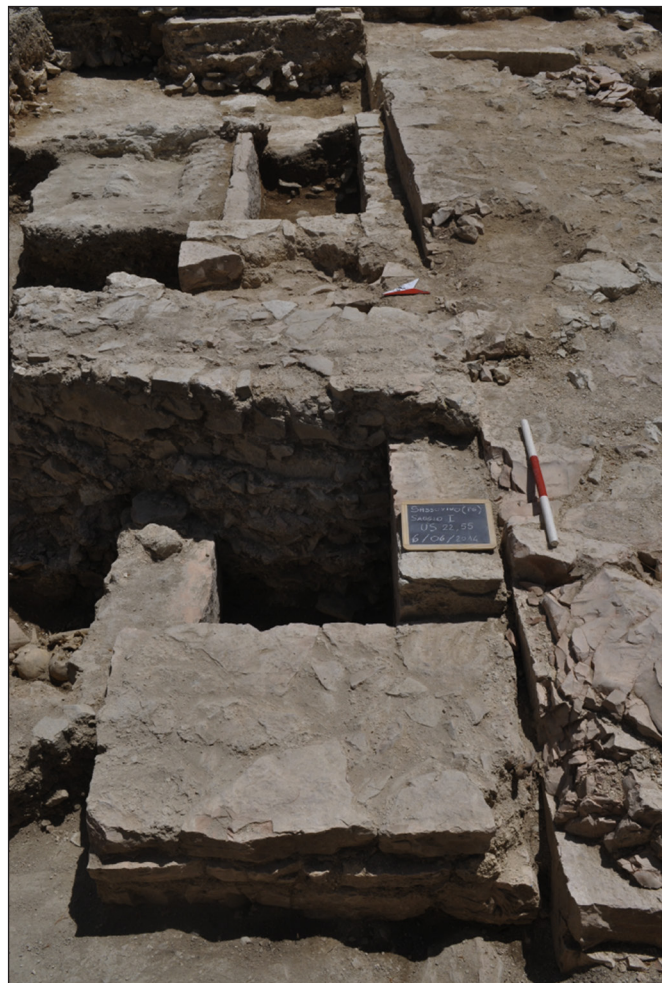


the circumstances of funeral practices and the community buried at Sassovivo Abbey.

### BURIAL PRACTICES

The excavated burial types at Sassovivo Abbey correspond to Christian burial practices. The majority of the skeletal remains were discovered within the *avant-corps* and around its encompassing walls. (Fig.14-15.) The number of grave goods was very low which was typical among Christian funerals. The remains were mostly found in ossuaries, while the number of single graves were underrepresented. Based on the anatomical order and the laying of the corpses, all the ossuaries found at Sassovivo Abbey were secondary deposits of human remains. The boundary of the ossuaries was marked by stone walls, so that the space was limited and the remains were laid above each other. The largest ossuaries were unearthed near the church, beside the northeast wall of the *avant-corps*. The multi-layered filling of these deposits indicates that the deceased were placed there in several phases. Anatomical order of complete skeletons was not the situation; intact preservation was observed only in case of body parts (e.g. vertebral column, upper limbs, lower limbs, pelvic girdle). This phenomenon suggested that the remains were relocated in the ossuaries only several years after of the primary burial. What could be the reason behind that? The lack of space might have been reason enough to relocate “relatively” recent graves. On the other hand, the transformation of the church could have resulted in the emergence of bone deposits from graves found on the construction sides.

Ossuaries found in the *avant-corps* were characterized by substantially fewer skeletons, found mainly in anatomical position. Individual graves were discovered both in the *avant-corps* and outside of the church. The most notable grave belonged to 25-35 years-old male who had been buried beside the ossuary at the northwest wall of the *avant-corps*. The man was inhumed with a key of remarkable size. This type of objects was seldom found; it is noteworthy considering the key is a symbol of the position of the deceased within the medieval community.



Figs. 14-15. The tombs built outside the *avant-corps*.  
Photos by Maria Romana Picuti

### HEALTH AND DISEASES

Anthropological examination of mass-graves is particularly hard due to the commingled nature of the skeletons. In many cases only the minimum number of individuals could be estimated. Nevertheless, it was possible to state that children, juveniles and adults, both female and male, were buried around the church.



The age and sex distribution, however, did not meet with the demographical criteria of a human community, since the males, especially the older age groups, were overrepresented. It is presumable that Sassovivo was a privileged location for funerals so that only clerks and the members of the upper social class could afford to be buried there.

The majority of the observed paleopathological alterations is considered typical among historical populations, since they were related to the lifestyle or the generalised ageing process. Many diseases which also occur among older individuals in the modern world, like inflammation of the joints and vertebral discs, were identified on the remains. The frequency and the level of the degenerative diseases corresponded to the estimated age of the individuals.

There are alterations which could be attributed to the nutritional status as well as affluence. Diffuse idiopathic skeletal hyperostosis (DISH) is a well-known disease nowadays, mostly affecting physically inactive older males with obesity and diabetes. As far as historical populations are concerned, it is presumable to relate the presence of DISH to wealthy, upper-class individuals. Moreover, in the anthropological literature, high incidence of DISH has been showed among monks and priests. At the site of Sassovivo, four DISH cases were found. All of the individuals were buried in the ossuaries outside of the *avant-corps* so these individuals probably belonged to the secular members of the upper-class community.

Traces of medical interventions on human remains provide a valuable insight into the medical practices of the past. As well, certain surgical procedures, which needed special equipment and/or expertise, could also be related to the upper-class. In two cases from Sassovivo, surgical trephination (cranial drilling) of the skull has been noted. This unique intervention is seldom found on anthropological material, so it could be assumed that the interventions were made by the same professional individual. The respective reasons behind the surgery could have been distinct since the location and the size of the trephinations were different. Based on the edges of the lesions, and the lack of evident healing signs, the patients either did not survive the intervention or died soon afterwards.

Although cancer is often taught to be a modern phenomenon, its antiquity is validated through numerous historical cases. However, the number of cases is low. One of most fundamental limitations to studying cancer in anthropological material is imposed by the fact that only primary bone tumours and bone metastases manifest on skeletons. This pathological background makes the incidence of cancer even lower on the studied remains. Metastatic bone cancer was identified in one case of an older individual from Sassovivo. The abnormal porous bone-formations inside the clavicle, scapula and rib fragments suggested bone metastases.

The study of the skeletal remains from Sassovivo Abbey has not been finished. Further investigations may shed lights on the social stratification of the community buried at Sassovivo. As well, detailed paleopathological analysis can help us to apply biocultural and epidemiological approaches on the reconstruction of past life and health. (Fig. 16.)



*Fig. 16. Skull of a 35-40 year-old male. Sassovivo Abbey, stratigraphic number (US) 146. Photo by Tamás Hajdu*

## ACKNOWLEDGEMENT

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