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Francesca Sogliani*, Dimitris Roubis**

The discovery of the monastic settlement of Jure Vetere (S. Giovanni in Fiore, Calabria, Italy): a multidisciplinary project of landscape archaeology

The archaeological research carried out by IBAM-CNR and the Post Graduate School of Archaeology (UNIBAS, Matera) on the site of Jure Vetere discovered a remarkably sized ecclesiastical building that was part of the monastic settlement of Jure Vetere. It was founded by the monk Gioacchino da Fiore at the end of the 12th century and lasted until the early decades of the 13th century. During the multidisciplinary investigations, an intense methodological survey of the surrounding area of Jure Vetere and five excavation campaigns of the monastic complex were carried out.

Keywords: landscape archaeology, GIS, monastic settlement, Calabria

Le ricerche archeologiche condotte dall'IBAM-CNR e dalla Scuola di Specializzazione in Archeologia (UNIBAS, Matera) nel sito di Jure Vetere hanno portato alla scoperta di un edificio ecclesiastico di notevoli dimensioni, che faceva parte dell'insediamento monastico di Jure Vetere. Fondato dal monaco Gioacchino da Fiore alla fine del XII secolo, rimase attivo fino alle prime decadi del XIII. Sono state condotte indagini multidisciplinari, che hanno compreso un intenso survey dell'area circostante e cinque campagne di scavo.

Parole chiave: archeologia del paesaggio, GIS, insediamento monastico, Calabria

to Marco Mucciarelli

1. The research history of the monastery of Jure Vetere through the archaeological evidence

1.1. Introduction

The discovery of the *protocenobio* founded by Gioacchino da Fiore in the late 12th c. on the Sila Mountain represents one of the most interesting archaeological case study for medieval archaeology in Calabria (south Italy). The site, named *Jure Vetere Sottano*, is located 5 km from the town of S. Giovanni in Fiore (CS) (fig. 1).

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Fig. 1. Location map of Jure Vetere monastic settlement (S. Giovanni in Fiore, Calabria, Italy) (elaboration: Dimitris Roubis).

The Institute for Archaeological and Monumental Heritage of the National Council of Research (IBAM CNR) has undertaken the archaeological research, in collaboration with the Post-graduate School of Archaeology of Matera (University of Basilicata)¹. Preliminary investigations in 2001 (GPR prospecting, photo interpretation), identified the first traces of buried structures and of collapses relating to a large rectangular building oriented E-W. The diagnostic investigations were followed by four excavation campaigns from 2002 to 2005².

The geomorphologic landscape consists of a small-elongated hill, oriented E-W and shaped in two terraces, sloping gently to the south at different levels (from 1090 to 1041 m above sea level). It is bound on the north side by the Garga - Ceraso road, by a stream called "Pino Bucato", and towards the south by the path of the stream called Arvo (fig.

¹ The research has been undertaken under the direction of C.D. Fonseca, D. Roubis (the Author of § 2) and F. Sogliani (the Author of §1).

² The research project of IBAM CNR has been supported by a partnership with the Archaeological Superintendence and the Architectural and Landscape Heritage Superintendence of Calabria, the International Center for Joachimite Studies and the Municipality of San Giovanni in Fiore. The National Committee for the Celebration of the 8th centennial of the death of Gioacchino da Fiore and the International Center for Joachimite Studies have provided the financial support. The entire project and the results of the research are published in the monograph FONSECA, ROUBIS, SOGLIANI 2007.

2). Near the northern edge of the upper terrace, just below the ground level, a large building was discovered (Architectural Complex A), built in two phases due to a fire that destroyed most of the buildings in the second decade of the 13th century. Later on the building was abandoned and a new monastic settlement was built in S. Giovanni in Fiore, a site that was climatically more favorable. The old church of the monastery of Jure Vetere, after a hiatus of three centuries, was occupied by shepherds who used it as a shelter during the 17th century.

1.2. Jure Vetere and the medieval Calabrian monasticism

With its absolute novelty, this important discovery has increased our knowledge about the fundamental experience of coenobitic life regarding the monastic “florense” organization. The study of this monastic settlement falls within the national and international debate concerning the research on the monastic settlements of the Middle Age, considering both the historical-architectural aspects and the archaeological ones. The first aspect deals with the detailed debate on the adoption of architectural patterns that were specific to buildings of worship and monastic complexes. This debate unfolds through a more evident articulation in

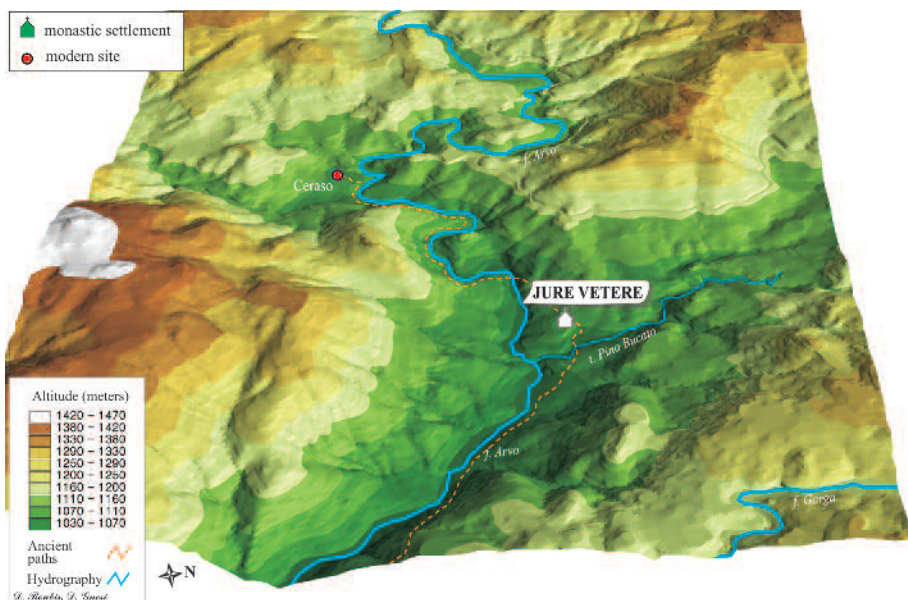


Fig. 2. Jure Vetere: the Digital Terrain Model of the area with the monastic settlement and the surrounding water courses (elaboration: Dimitris Roubis and Diego Gnesi).

early medieval monastic architecture, and, only after the 9th century, does it reach a more organic building structure and a hierarchical distribution of spaces.

At the same time, the second aspect concerns the role that the monastic settlements, Latin and Greek (Sogliani 2015a, 2015b, 2018), played as mediators of power relations in the exploitation and management of local territorial contexts and were investigated by taking into consideration the written and archaeological sources.

The studies on medieval Calabrian monasticism have, up to now, mainly focused on historical-architectural and documentary features relating to the Greek and Latin monasteries, as well as on the relations between the religious, cultural and economic organization of the Greek and Latin priesthoods (Enzensberger 2001; Corsi 2001). The archaeological approach to monastic settlements instead appears to be underestimated. The exception concerns the researches focused on early medieval fortified monasteries of north Tyrrhenian Calabria and the excavations of monasteries in the central and southern part of the region: S. Giovanni Theresti at Bivongi (RC), S. Elia il Vecchio at Curinga (CZ), S. Elia lo Speleota at Melicuccà (RC), S. Angelo in Frigillo at Mesoraca (KR) and S. Maria di Cozzano (CZ) (Roubis, Sogliani 2007). There are so far no archaeological data available for the *ordo florentis* monasteries in Calabria (Zinzi 1992, 1999). The discovery of the monastic settlement of Jure Vetere offered a first consistent set of data, useful in addressing this topic. The overall analysis of the structure, developed over a five year period of research, showed that the location of the monastic structures fits perfectly with the standard requirements for the normal course of monastic life. The valley of Jure Vetere is well suited, from the geomorphological point of view, for the implantation of a monastery close to perennial streams (Arvo River and its tributary). It is located, apart from the built-up areas, in the middle of agricultural and sheep-rearing grounds, enriched by abundant forests allowing the supply of timber for everyday use such as fuel and raw materials for building purposes.

1.3. *Gioacchino da Fiore and the foundation of the monasterium*

The cross reading of the documentary data and archaeological artifacts rescued in the stratigraphic sequence, confirms that the large religious building unearthed on the plateau of Jure Vetere, *inter frigidissimas alpes*, is the first foundation of the *protocenobio* of Gioacchino da Fiore, datable to the last years of the 12th c. (Sogliani 2007a).

Written sources are not suitable to determine the exact year when Gioacchino da Fiore started the construction of the monastery. Some

observations suggest between 1188 and 1194, when the term *monasterium* appears for the first time simultaneously with the mention of Gioacchino da Fiore as *abbas de Flore*. The monastery was already established and was endowed with a wealth of property rights sufficient for its operation.

The documentation consists of biographical sources about Gioacchino da Fiore, written a few years after his death, and of some documents concerning donations and privileges, drawn up, at the beginning of its foundation, by the Emperor, the Pope and Nobles for the benefit of the monastery of Jure Vetere. The physiognomy of the economic and property pattern of the first Florense monastery, reflects the monastic experience of its founder, between "continuity" with the Cistercian order and the new Florense order. The *Vita Beati Joachimi* tells us that the Abbot Joachim moved there from Pietralata in 1188, while he was still the Abbot of the Calabrian monastery of Corazzo, wanting to establish a new monastic order with a few monks (De Fraia 2006).

The first document that mentions the establishment of the community of monks at Jure Vetere is a privilege of 1191. In January 1190 The Norman Tancredi, King of Sicily in Palermo, granted Gioacchino with the possession of the territory "in the place called Fiore" and with "50 annual *some* of grain and 300 sheep for the perpetual maintenance of the monks". In the view of the 12th century, the first Florense foundation at Jure Vetere counted quite a few monks, a property which included cultivation lands, forests and water next to the monastery and some possessions from the other neighboring monasteries. Moreover, rights and freedoms were added such as free grazing in the *tenimentum* of *Fluca* (in the territory of Rocca di Neto), the pasture right *in aliis tenimentis, que sunt per totam Calabriam*, not having to pay *erbatico* and *ghiandatico* and the right to salt extraction from Calabrian *salinae*. A further privilege, a primary source of income, was the freedom to collect incomes of *erbatico* and *ghiandatico* from those who, upon permission of the monks, wanted to graze their animals on lands owned by the monastery.

1.4. Abbot Matthew and the crisis of the monastic community

With the successor of Gioacchino, Abbot Matthew (1202 to 1234), disagreements occurred in the monastic community about moving to another place because: *Monasterium ipsum positum in montanis usque ventis expositum adeo est, ut pre acerbitate et assiduitate frigoris hyems not solum sibi ver vendicaverit et autumpnum, sed in menses estivos suos terminos dilatari*. The monks addressed a request to Pope Innocent III, concerning an exchange of lands with the Archbishop and the



Fig. 3. Jure Vetere: the monastic church discovered by the archaeological investigation (photo: Dimitris Roubis and Francesca Sogliani).

“Capitolo” of Cosenza, in order to get the territory of Botrano to move to a more favorable site as regards the climatic conditions.

A crisis marked the monastic community and the monastery of Jure Vetere in 1214, when the written sources detected a fire, which destroyed most of the buildings of the monastery. Constance of Aragona, wife of Frederick II, mentions the same fire in two documents dated January 1215 and June 1216. The monastic settlement suffered a traumatic event that perhaps caused the collapse and the destruction of some of its parts, which were subsequently restored, due to the economic help of the Kingdom itself. In a document of Pope Innocent III, dated February 1215 and addressed to Abbot Matthew, the climatic troubles negatively affected the survival of the monastic community at Jure Vetere. The latest mentions regarding urgent displacement needs to a more favorable site, are in a grant by the Metropolita of Santa Severina, in March 1219: *quod in frigidis Sylae locis noscitur esse situm, ubi nec animalia, quorum velleribus monachi vestiuntur, algoris rigiditate yemare sinuntur, nec legumina, cotidiana monachorum cibaria, sufficienter fieri possunt, proposuimus de amplis possessionibus ecclesiae nostrae subvenire tibi et monasterio tuo in aliquo tenimento, ubi eiusdem monasterii praedicta et necessaria quaeque valeant exerceri*. It is prob-

ably between 1215-1216 and 1220 that the first Florense monastic community permanently displaced and moved, but not far away, to San Giovanni in Fiore where the Abbey stands today.

The building work of the monks, who settled in this remote place of the Calabrian Sila in the wake of Gioacchino da Fiore and of those who lived there under the leadership of his successor Matthew, is represented only by the church of the monastery, discovered during the excavation campaign. The archaeological excavation (fig. 3), which covered an area of about 700 sq. m, provided a chronological sequence of life settlement, completed by some considerations on the various diachronic aspects which characterized this area (Roubis 2007a). The first chronological period (Period I), running from the last decade of the 12th c. until about 1213/1214, corresponds to the construction, occupation and destruction of the entire first religious building (*Constructive Unit 1 = CU 1*). Gioacchino da Fiore was responsible for this construction, consisting of a 8.10 m wide and 26 m long large nave, oriented E-W, terminating in a 5.10 m wide and 4.65 m deep straight choir, flanked by a north wing ending with a small semicircular apse (fig. 4). The nave is also flanked on the south side by a small chapel with a second small semicircular apse. The rest of the monastic complex developed beyond this, probably with the eastern wing of the cloister, the construction of which was never completed.

The architecture and the layout of this part of the building refer to planimetric patterns of Cistercian origin, as suggested by the long north wing and the large straight choir that closes the entire complex to the east (fig. 5). In the church yard, a casting pit for a bell was found in the southern part of the structure, near the south chapel, in an area not paved and not covered and where the walls had not yet been built. It was well suited to the needs of a craft installation of this kind (figg. 6-7).

The casting pit for a bell in Jure Vetere is a new discovery and increases the number of known cases dating back to the Middle Ages on Italian territory³. The realization of the bell of Jure Vetere presents strong similarities to some of the practices described in handbooks by Biringuccio, which involves the manufacturing of the bell with the technique of false clay bell, although it differs in some ways from the codified models (Biringuccio 1, 2 and 3) (Neri 2006).

Written sources provide further information to support this discovery: a document from October 1216 records the donation of two bells

³ PISTILLI 1993; SOGLIANI 2007b; LUSUARDI, NERI 2007. The only craft installation published in Calabria is the casting pit in the castle of S. Severina (CS), near S. Giovanni in Fiore, dated thanks to stratigraphic data between the end of 11th c., and the first half of 12th c., and placed within the productive work of Teofilo.

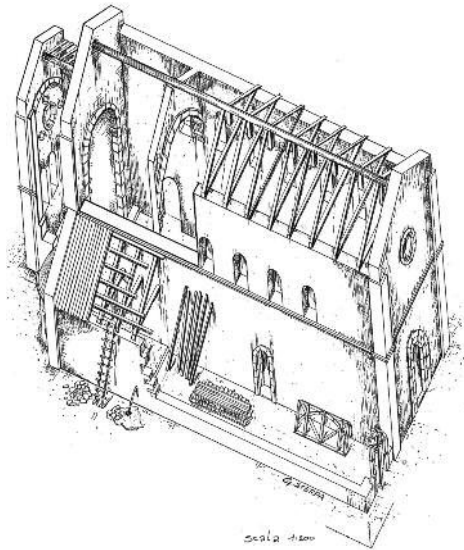


Fig. 4. Jure Vetere: reconstruction hypothesis of Constructive Unit 1 (drawing: Giulia Sterpa).

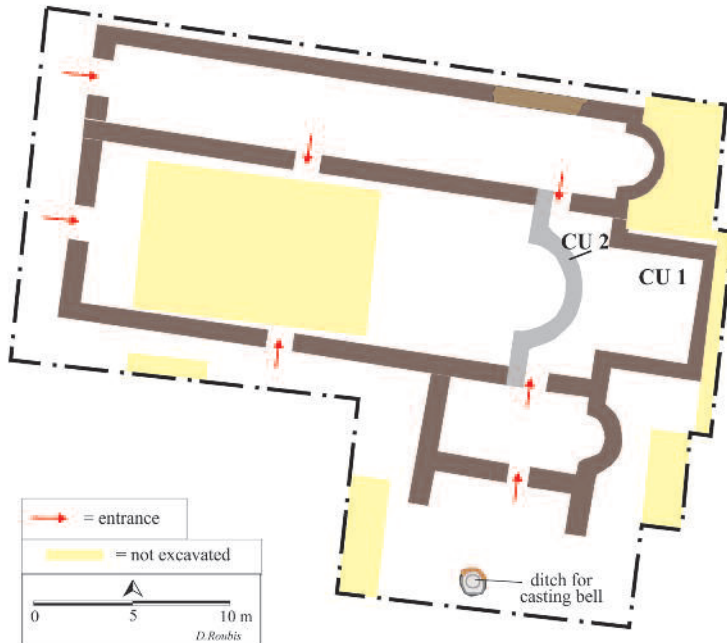


Fig. 5. Jure Vetere: map with the two Constructive Units, the entrances and the ditch for casting bell (elaboration: Dimitris Roubis).

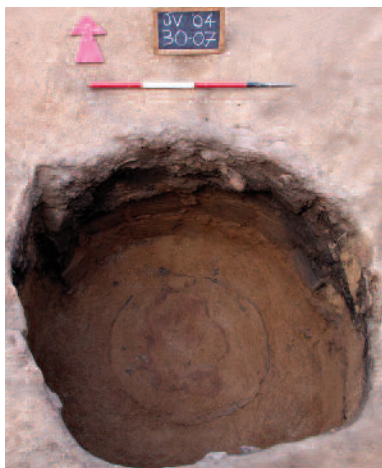


Fig. 6. Jure Vetere: ditch for casting bell; a) last stage of production, b) finished production process (photo: Dimitris Roubis and Francesca Sogliani).



Fig. 7. Jure Vetere: ditch for casting bell; fragments of the mold (photo: Dimitris Roubis and Francesca Sogliani).



from Abbot Matthew, the successor of Gioacchino, in favor of the subsidiary monastery of Calabromaria, located just to the south, to control the salt flats on the River Neto, from which the monastery of Jure Vetere derived the revenues each year: "...Pro aliquibus autem rebus, quae aliquam inde percepimus, damus eis campanas duas, ollam et caldaream de metallo, ut igitur ipsi libere sibi collata distincte possideant et mutua, tamquam reddenda custodiant..." (De Leo 2001, pp. 61-68).

A big fire, pointed out by written and archaeological sources (fig. 8), which probably occurred before October 1214 caused the loss of function of the religious building. With regard to the cause of the fire it is not possible to speculate accurately, however the lack of seismic damage to the structures shows that it was not an earthquake that determined the collapse. After the damage caused by the fire, a second smaller



Fig. 8. Jure Vetere: Constructive Unit 1. Macro charcoals remains (photo: Dimitris Roubis and Francesca Sogliani).

church with apse was built on the ruins of the former building, inserted into the previous structures (Period II: restoration, building and occupation of the church; *Constructive Unit 2*) (fig. 9; see also fig. 5).

In the narrowing of the presbytery, building material from the walls of the earlier construction was used for the creation of the backward apse. This material was also used in the reconstruction of the external walls of the church. This building site returned a lot of archaeological evidence, relating to the storage areas of lime and sand, aimed at the processing of the mortar and postholes for scaffolding. An interesting “architectural indicator”, consisting of an “arched test” relative to the triumphal arch of the semicircular apse, was found in the southern part of the presbytery, which remained undeveloped from its first implementation phase.

The rare archaeological artifacts rescued during the excavation of the monastic site, not exceeding the first half of the 13th century, attest that this last construction activity did not seem to last long. It was, presumably, towards the end of this second phase that the monastic community permanently moved elsewhere and began the desertion of the site. Potteries, metal objects and glass rescued during the archaeological excavation provide a good comparison sample, in the panorama of medieval arti-

fact productions in the Calabria region. The higher percentage is represented by ceramic artifacts, mostly painted and glazed vessels used for the table and a few cooking pots; glassware is represented by “bicchieri a bugne”, a typology very well dated between 12th and 13th c. and well known in archaeological sites in Italy. There is a substantial number of indicators relating to the production of the casting bell (Sogliani 2007c).

It is probably between 1215-1216 and 1220 that the entire monastic community finally moved to the site where the Abbey of San Giovanni in Fiore is located today, in *locus Faraclonus*. It was undoubtedly more a suitable area for the development of monastic life and therefore the prosperity of the florense community. Since then a long hiatus until the post-medieval age (16th-17th c.) affected the monastery. After the abandonment of the site (Period III) the whole building underwent a process of slow decay, up to the post-medieval period, due to the continual exposition to severe weather.

Between the end of 16th and the first half of the 17th c., the collapsing masonry fragments and the seasonal occupation of the ruins, used as a shelter by the shepherds who frequented the surrounding pastures,

Fig. 9. Jure Vetere: virtual reconstruction of the monastic church (Constructive Unit 2) from the north-west (reconstruction: Francesco Gabellone).



produced thicker horizons of collapse. It was not only natural degradation but also the strong earthquake that hit the region in 1638 that accelerated this decay.

In the 18th century (Period IV) only some of the ruins of the monastery were still preserved, still in sight in the first half of the century, as evidenced by a letter from the Prince of Cerenzia of 1774. The letter mentioned a few fragments of masonry and some squared stones "pietra lanova lavorata a scarpello", perhaps appertaining to the walls of the semicircular apse. Over the centuries the abandoned structures became an open-air quarry, as evidenced by the reuse of a substantial part of the collapsed masonry even in the walls of the surrounding houses. Between the 19th and the 20th c. memory of the site was lost, hidden under the protective mantle of cultivations.

(F.S.)

2. The landscape archaeology of Jure Vetere: research strategies and exploitation dynamics in the florense proto-monastery

2.1 Methodology

One of the main objectives of the whole multidisciplinary research project on the monastic site of Jure Vetere, refers to the methods of exploitation of the territory of Jure Vetere during the medieval period, between the 12th and the 13th century⁴.

Thanks to the multidisciplinary approach applied to a landscape archaeology research (fig. 10), together with the archaeological stratigraphic excavation and survey, the research program has integrated the study of written sources, ethnoarchaeological data, photo-interpretations, geological and geopedological research, georadar, geomagnetic and geoelectric prospections, chronotypological and archaeometric analysis of artifacts, pollen and botanic analyses. In this perspective, following a holistic methodological investigation, we established a working group collecting historians, archaeologists, geologists, architects, chemists, paleobotanists, archaeobiologists, engineers and graphic designers looking for an integrated methodological approach, which was able to return the physiognomy of this particular type of settlement and, at the same time, offer a level of interpretation as acceptable as possible (Fonseca, Roubis, Sogliani 2007, pp. 87-104, fig. XII, 7) (fig. 11).

⁴ The multidisciplinary archaeological research highlighted, together with the surrounding medieval landscape, a remarkably sized ecclesiastical construction (Architectural Complex A) that features two different construction phases called construction unit 1 (CU 1) and construction unit 2 (CU 2): see fig. 5.

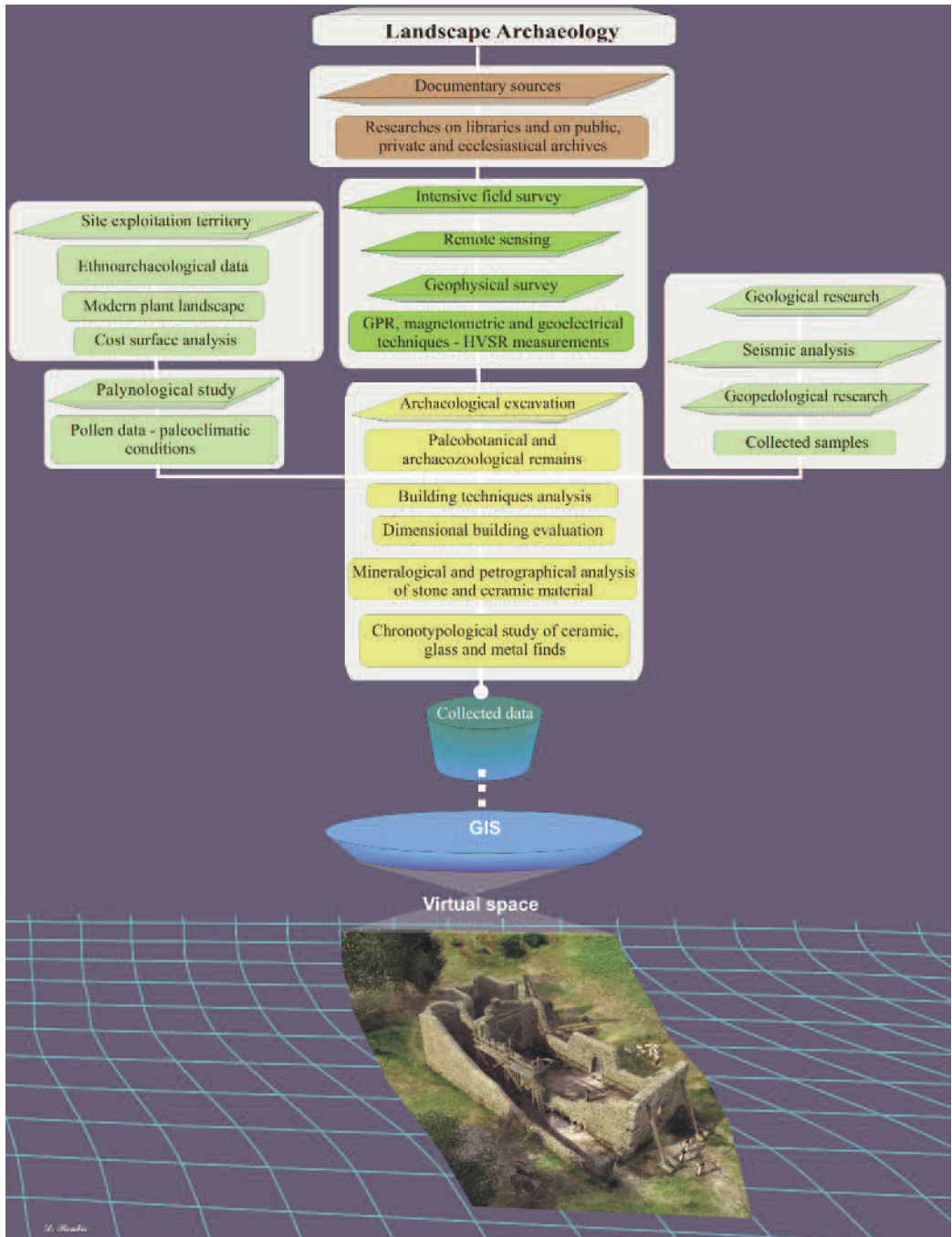


Fig. 10. Jure Vetere: diagram with the archaeological research method used on the site. At bottom virtual reconstruction of Constructive Unit 2 (diagram: Dimitris Roubis; reconstruction: Francesco Gabellone).



Fig. 11. Jure Vetere: some of the research methods used on the site (archaeological excavation, pollen study, geophysical prospections) (elaboration: Dimitris Roubis and Francesca Sogliani).

The discrete amount of written sources, confirming the existence of the monastic settlement of Jure Vetere, has certainly stimulated the questions related to the strategy of the archaeological investigation and therefore the comparison with the material sources. Furthermore, particular attention has been paid to the analysis of pedological horizons, in order to evaluate its main features and define the pedogenetic and geomorphic processes. This study, integrated with climate and geochemical data, allowed us to relate the history of the settlement to the different evolutionary phases of the landscape, closely connected to the local and global climatic conditions coeval to the monastic settlement (Roubis *et al.* 2008; Roubis *et al.* 2010). The geomorphological and climatic medieval context of the monastic settlement was followed by research into the historical seismicity of the area, which highlighted that the earthquakes, and in particular the local earthquake of 1638, were a key element for the 'degradation' of the architectural structure. A series of diagnostic tests were also carried out on the site, aimed at the identification of ad-

ditional anomalies, with the primary purpose of driving with precision the excavation strategies simultaneously applied.

The applications of remote-sensing techniques, based on the use of multispectral satellite images with a high spatial resolution, allowed us to integrate the data of the aerial photo interpretation and to expand the research to the area occupied by the "protocenobio fiorense", where the rest of the monastic complex should have developed. In this area, immediately to the south of the monastic church, four techniques of non-invasive high-resolution geophysical prospections (geolectric, GPR, geomagnetic and HVSR), were used to verify the existence of any other buried structures and to find a response to the anomalies highlighted by the remote sensed images of the area.

The application of this broad spectrum of geophysical methods gave significant answers to the questions expressed by the archaeologists during the excavation, from the optimization of the time of data acquisition, to the investigation cost reduction and ambiguities in the phase of data interpretation. The archaeological excavation was fundamental for the interpretation of layers and structures, functional to the subdivision in periods, phases and activities evidenced by the stratigraphic diagram, such as the construction / occupation / abandonment / reuse of the site, as well as the definition of the absolute chronology of the settlement.

The data resulting from the research carried out on the field and those obtained through the maps elaboration, were computerized in order to be developed with the Geographic Information System (GIS). Of particular interest was the study on the paleo environment, which surrounded the monastery at the time of its foundation and during its life. The archaeobotanical (wood and seed/fruits), pollen and microcharcoal analyses, allowed the reconstruction of the environment and plant landscape of the *plateau* where the protomonastery was founded. They provided the necessary data for an interpretive reading of the dynamics of the surrounding land use, from the monastic community (mainly devoted to pastures) and of the economic exploitation of the territory and, ultimately, the climatic inferences, mainly suggested by pollens.

These studies were able to define the palaeoeconomical characteristics of the site and to provide information on plant use in daily life and in productive activities (Roubis *et al.* 2009; Roubis *et al.* 2010). The chrono-typological mapping of wall textures, concerning the different structural parts of the monastic church, was compared to other recent methodological experiences on medieval architecture in Calabria. Archaeometric analysis was also carried out on building materials and mortars, both functional for the identification of local or other areas that supplied the monastic site.



Fig. 12. Jure Vetere: virtual reconstruction of the medieval landscape from the south. 1) ecclesiastical building; 2) spring; 3) lime kiln; 4) quarry; 5) cultivation land – horticultural gardens and cereal fields; 6) cultivation land – cereal fields; 7) land used for grazing / potentially used for cultivation; 8) woods / land partially suitable for grazing; 9) stream Pino Bucato; 10) river Arvo (reconstruction: Francesco Gabellone).

The state of preservation of the architectural complex gave us a full image of the plan, but only a partial perception of the height of the roof as the walls do not exceed one-meter high. We tried to overcome this criticalness with the application of mathematical estimates of the volumes of building collapse, to calculate the height of the original church. Finally, we proposed the axonometric and 3D reconstruction of the ecclesiastic building. The technical and stylistic-cultural study on the genesis of the architectural building provided useful elements, comparing it to the later Abbey of San Giovanni in Fiore and with other architectural complex of “ordo Florensis”.

Finally, thanks to the archaeological data, it was possible to realize a virtual reconstruction of the medieval monastic complex merged in its coeval landscape (fig. 12) emphasizing the first evidence of the archeology of medieval landscape investigated in the Calabrian Sila (Roubis *et al.* 2011, fig. XII,8). The detailed study of spatial analysis based on GIS, the archaeobotanical analysis and the study of pollen samples taken from different points of the excavation area, informed on the existence of horticultural gardens and open sown cereal fields (fig. 12, nn. 5 e 6), land used for grazing (fig. 12, n. 7) and woodlands (fig. 12, n. 8), together with the existence, in the surrounding area, of several springs, quarries, lime kilns and ancient paths which were detected during the field surveys. Even the flora and fauna were derived from the painstaking and detailed study of the

bioarchaeological samples from various points identified inside the excavation area. The recovery of seeds, particles of charcoal and other charred material was achieved by means of micro-excavation in order to determine not only the types of *species* present, but also their concentration.

2.2. The medieval landscape reconstruction

The landscape archeology of the site of Jure Vetere, thanks to the integration of all these data, proposed a model of the territory of Jure Vetere exploitation during the monastic settlement life (end of the 12th century – first decades of the 13th century). The GIS platform returned the results of the exploitation, following the method of the “site exploitation territory”. The processed data helped us to recognize the two main areas where the primary (raw) and secondary materials came from, that were necessary for monastic life (Roubis 2007b; Roubis *et al.* 2009; Roubis *et al.* 2011): (fig. 13) an inner area (A), lying with a radius of 1 km (about a 20 minute journey) characterized by intensive exploitation of resources, and an outer area (B), lying with a radius of 2.5 km (between a 20 and 60 minute journey) for subsidiary production activities of a more extensive nature. There was a functional internal basin that thoroughly exploited the resources available and an external basin necessary for the extensive complementary working activities. The analysis carried out on the GIS enabled us to calculate the cost of shift referred to time and to understand the dislocation of the different types of soil that could be exploited around the site. Regarding the period of monastery life, the GIS-based processing of the geographical and territorial information concerning the different types of soils, made it possible to identify various potentially exploitable Environmental Units (= EUs) (fig. 14). The units were identified using: a) the distance from the monastic site and b) the land slope. The analysis of the spatial distribution developed on GIS suggests that the lands suitable for the primary activities of the monastery (activities that were performed almost exclusively by the monks every day), were included within these Environmental Units. In the Unit closest to the site (EU 1 = agricultural soils suitable for growing vegetables and cereals) lands used for seasonally horticultural cultivation - from April to October might be included. Other units are detectable outside the environment of the hill, at a distance of more than 5 minutes walk from the religious building (EU 2 = area shared in agricultural soils). These areas are located beyond the rivers flanking the hill and during the Middle Age it is likely that they were used for intensive cultivation. Using the same procedure on GIS data processing, the perimeter of the site exploitation around the monastery, to be covered up to a maximum of 60 minutes,

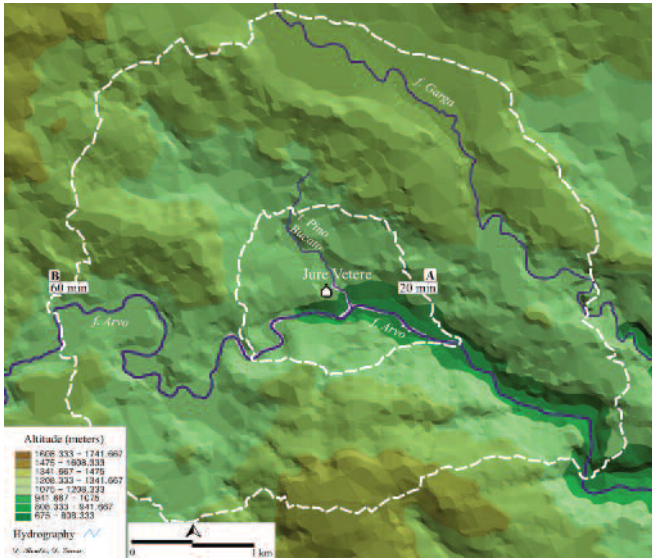


Fig. 13. Jure Vetere: cost surface analysis of the potential exploitation territory around the monastic site (elaboration: Dimitris Roubis and Diego Gnesi).

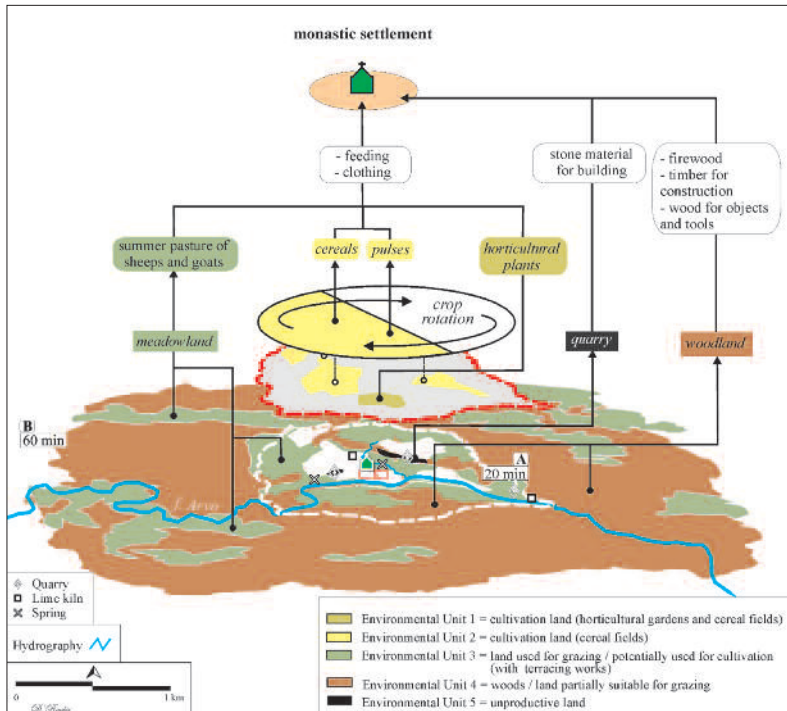


Fig. 14. Jure Vetere: graphic representation of the Environmental Units of the potential exploitation territory around the monastic site (elaboration: Dimitris Roubis).

was also drawn. Within this basin we can put extensive supplementary activities (breeding and exploitation of forests), that were conducted periodically for a few months each year, mostly by families or single persons employed by the monastery. The main activity was summer grazing on mountain slopes (EU 3 = terrain which, when free of woods and maquis or adequately deforested, could be exploited mainly for short-range grazing). Some other important activities for the economy of the monastery, were related to the exploitation of forests (EU 4 = terrain suitable for intensive exploitation of forest).

Finally, according to the complementary exploitation of the basins, which were located far away from the site, we can consider the use of these basins for winter grazing, for cultivation and as a place of rest during the long journeys that took the travellers from one place to another (fig. 15). Indeed, according to written records from the early years of its foundation, the monastery of Jure Vetere was equipped with landscape estates located at a lower height and for this reason better climatically. They were at a distance from the monastery ranging from a two-hour walk to one or more days of travel and were used for the exploitation and supply of subsidiary resources.

The landscape archaeology of the Jure Vetere site suggested the construction of a settlement pattern of a monastic type built on the high mountain of Sila, which can be defined through specific ways of land occupation and exploitation. The site of Jure Vetere, during its occupation period in the middle Ages, had an exploitable area of a limited extent, that was however able to maintain a small monastic community.

The economy of the monks was based on the exploitation of the local surrounding area for crops, and, especially, for herding. The various analyses (like ancient sources, geopedology, pollen: to respond to what there was), as well as the spatial distribution of lands on the GIS (to respond where they were)⁵, show that the soils suitable for pastoral use prevail to those suitable for agriculture, and then reveal that the monastic economy was mainly based on breeding. Life in the monastery found itself caught up in a particularly uncertain situation during the most severe winter months, when the system of sustenance based nearly exclusively on the supplies, hardly guaranteed a level of self-sufficiency over the collapse threshold. The traumatic event of the catastrophic fire of 1214, gave a hard blow to the monastic life, determining the degeneration of an already compromised situation on the environmental and economic side⁶.

⁵ For other case studies of spatial analysis and GIS applications, see WALSH 1999; FARINETTI 2011; ROUBIS, GNESE 2015.

⁶ See the final remarks in FONSECA, ROUBIS, SOGLIANI 2007, pp. 427-433.

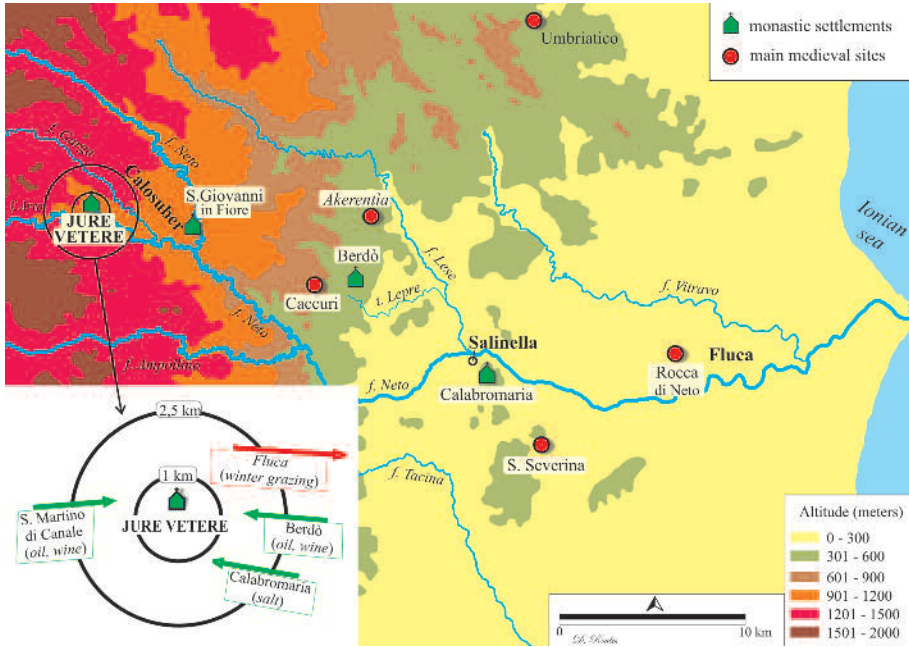


Fig. 15. Jure Vetere: hypothesis of the supplying resources, located far away from the site (elaboration: Dimitris Roubis).

To conclude, thanks to the multidisciplinary and integrated study of all the data, it was possible to provide the information required for an interpretation of the exploitation dynamics of the surrounding territory of the monastic community. Moreover the investigations allowed us to comprehend the economic aspects and the ways the monks exploited the land by and, above all, the climatic conditions. Finally it was possible to explore the “success” (or rather the misfortune) of this particular monastic foundation, observed through the landscape archaeology.

(D.R.)

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