BUILDING SCIENCE AND PROFESSIONAL ETHICS IN NINETEENTH-CENTURY ECCLESIASTICAL ARCHITECTURE IN MALTA

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Abstract. This article addresses architectural practice in the nineteenth century through a case study in ecclesiastical architectural history, namely, the Mosta Rotunda, based on primary sources written by the architect. A public technical commission was appointed to assess the design's structural feasibility, especially with regards to the suitability of local stone to build a domed roof. With respect to professional conduct, an incident involving unsuitable work carried out in the architect's absence and his robust response reinforces the architect's responsibility for ensuring on-site masons executed their assignment as directed. The incident also highlights that if the client insisted upon alterations that did not match the architect's design, the architect would be free to officially relinquish his position as the professional liable for the project.

Keywords: Church history, professional ethics, building science, James Fergusson, Giorgio Grognet, Mosta Dome, Malta.

Introduction

After Suleiman I drove the Order of the Knights Hospitallers of St John out of Rhodes, the Spanish King Charles V handed them the Maltese Islands in 1530. They made the archipelago their domain, with Italian as the official language. Their rule came to an end in 1798, when the sovereignty of the islands was handed over to the French Republic. The French stay in Malta, though brief, was marked by landmark political and social reforms, including the abolition of feudal rights and privileges and the abolition of slavery. Public primary and secondary education was introduced and the university was replaced by an "École Centrale" with eight chairs, all scientific in nature, covering disciplines ranging from stereometry to physics and chemistry. The Maltese revolted against the French for closing religious convents and seizing the treasures of the Church, and the French surrendered in 1800 following a blockade by the British, who came over in response to the locals' request. Thus Malta voluntarily became a Protectorate of the British Empire; however Britain failed to leave the islands under terms of the Treaty of Amiens, 1802. The British Crown colony of Malta, officially known as the Crown Colony of the Island of Malta and its Dependencies, was established in 1813 and confirmed through the Treaty of Paris in 1814, and it remained so until Independence in 1964.

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This paper focuses on the Mosta Rotunda, the parish church of Mosta. Its construction started soon after the island became a colony. Its dome is an imposing architectural statement and a feat of building engineering structure in local masonry. Modelled on Hadrian's Pantheon in Rome (118-128 AD), it has the third largest dome of any Christian church in Europe. It was designed in the Neoclassical idiom by the architect-engineer Giorgio Grognet de Vassé¹ (1774-1862) who also supervised its construction. The aim of this paper is to demonstrate the building science and professional ethics underlying the design and construction of this outstanding nineteenth-century church.

Background

The Mosta Rotunda is a significant Neoclassical building by a Maltese architect-engineer.² Mosta is a town located at the centre of the island of Malta. Until the early twentieth century, it was known as Musta, the Arabic word for central.³ The seventeenth-century parish church, erected to the design of architect Tommaso Dingli,⁴ became too small for the spiritual needs of the community.⁵ In 1812 Grognet proposed to build a church in the Neoclassical style modelled on the Pantheon in Rome (**fig. 1**). Others attribute the proposal to the parish priest, who had celebrated his first mass

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¹ Giorgio Grognet de Vassé (1774-1862) was a Maltese architect-engineer of French descent. Initially educated towards the priesthood in Frascati, Italy, he sympathised with the Jacobins and entered the service of Napoleon Bonaparte's army, where he spent 13 years preparing drawings for the Civil and Military Department of Engineers (Schiavone 2009b, p. 989-990). Having disregarded his father's wishes when he joined the French army in Italy, he was considered a disgraced member of the family. His uncle Count Saverio Marchese (1757-1833), an art connoisseur and a man of letters, had excluded him from his will (Azzopardi 1983, p. 37; Farrugia 2011, p. 42; Farrugia 2012, p. 35-36). Grognet returned to Malta after the French campaign in Ottoman Egypt and Syria (Bianco 2018b, p. 3-4). Although the Scottish historian James Fergusson (1808-1886) cast doubt on Grognet's architectural formation (Fergusson 1862, p. 32-33), Mahoney provided evidence that he was indeed well-versed in architecture (Mahoney 1996, p. 218).

² The first comprehensive study on Neoclassical architecture in Malta was undertaken by K. Borg at the former Faculty of Architecture and Civil Engineering, recently renamed Faculty for the Built Environment, of the University of Malta (Borg 1982).

³ Salomone 1911, p. 8.

⁴ Tommaso Dingli (1591-1666) is a Maltese architect and sculptor of the Baroque Age responsible for the design of numerous parish churches in Malta, notably in the old parishes of Birkirkara, Attard and Mosta. The first two still stand; the former underwent restoration a few decades ago (Bianco 2017a) whilst works on the latter will be commencing shortly. Together with Vittorio Cassar, the son of Gerolamo, the resident engineer of the Order of St John, he worked on forts in the Maltese Islands and was responsible for the building of the old Porta Reale Gate and the Bishop's Palace, both in Valletta (Quentin Hughes 1967, p. 208-209).

⁵ Salomone 1911, p. 18.

Building Science and Professional Ethics in Nineteenth Century Ecclesiastical Architecture

there;⁶ certainly the design did address the pressing need felt by the community/parishioners to enlarge the church.



Fig. 1. View of Mosta Church: (left) circa 1860 (after J. Fergusson) and (right) at present

Although opposed by the bishop of the time, the development proposal secured the consent of the British Governor General once the queries raised by local architect-engineers regarding the suitability of constructing such a large dome in local stone were addressed. The erection of the church commenced in 1833 and was completed by 1861. Work progressed rapidly on site. The church bestowed indulgencies upon volunteers who worked on Sundays; the number of workers numbered 2-300 hundred on a given day. "The building was a work of love so practical that after a few years, in 1841, one third of the total height of the church was complete." By 1860, the work was at an advanced stage and the old church was pulled down within days. The dome was closed by a lantern in 1889 not in conformity with Grognet's design. 10

⁶ Malta Penny Magazine 1841a, p. 117.

⁷ Ibid. The industrial minerals of the Maltese Islands are mainly sedimentary limestone of shallow marine origin (Bianco 1995). The dimension stones used in the erection of the Mosta Rotunda were extracted from the lower member of the Globigerina Limestone Formation which outcrops at a distance of circa 2 km south of the building site (Bianco 2018a). At the time of the erection of the Rotunda, a corpus of knowledge on the stones of Malta coupled with experience were available and applied during the previous two centuries when the archipelago was governed by the Order (Quentin Hughes 1967, p. 191-199; Bianco 1999).

⁸ Bianco 1995, p. 118.

⁹ Salomone 1911, p. 21.

¹⁰ Ibid., p. 26.

Reviews of the church both during and post construction were positive. A guide for foreigners visiting Malta published in 1839 states that

This temple is certainly the most magnificent, extensive and solid modern building, [...] which certainly, when finished, will be an ornament to the Island, will immortalise the architect, and draw towards the casal every visitor to Malta.¹¹

The weekly publication *Malta Penny Megazine* published an article on the project spread over two consecutive issues: 24 and 31 July 1841. ¹² It gave an overview of the whole design and concluded by "wishing M. Grognet the best success in his undertaking and paying him a just compliment for the manner in which he has so far conducted it." ¹³ The notable negative review was in a publication by the architectural historian James Fergusson issued in 1862, a year after services started in the new church. It attributed the building to the ability of the masons, notably master mason Anglu Gatt, ¹⁴ and defects in architectural ornament to the lack of "a learned architect to look over their design, and correct the details." ¹⁵ A leading twentieth century British historian of German descent, Nikolaus Pevsner, questioned Fergusson's scientific method of assessing historical buildings ¹⁶ and a recent publication notes that he cited no sources to support his claim about Grognet. ¹⁷

Primary sources overview

Three historical primary sources, original documents written by Grognet in Italian, were published unedited by Salomone.¹⁸ In the preface, Salomone argued that these documents, numbered and entitled as follows, disprove Fergusson and vindicate the claim that Grognet was an ingenious architectengineer. The documents are:

1) Relazione Architettonica Teorica, e Pratica scritta dall' Ingegnere-Architetto Giorgio Grongnet relativamente al suo disegno del nuovo Tempio da doversi costruire a Casal Musta posto nella campagna di Malta (Report on the architectural, theoretical and practical considerations of Engineer-Architect Giorgio

¹¹ MacGill 1839, p. 124.

¹² Malta Penny Magazine 1841a, p. 117-119; Malta Penny Magazine 1841b, p. 120-122.

¹³ Malta Penny Magazine 1841a, p. 118.

¹⁴ Anglu Gatt (1796-1875), a son of a Maltese builder from the town of Zejtun, was one of the prominent master masons on the Maltese archipelago. He was introduced to Grognet by the leading Maltese architect from the same town Michele Cachia (1760-1839) (Schiavone 2009a, p. 901).

¹⁵ Fergusson 1862, p. 34.

¹⁶ Pevsner 1972, p. 238-251.

¹⁷ Bianco 2018b, p. 209.

¹⁸ Salomone 1913.

Grongnet with respect to his design for the new Church to be constructed at Musta Village which is situated in the countryside of Malta);¹⁹

- 2) Relazione Dimostrativa della Possibilità ed Eseguibilità Della Rotunda secondo i Calcoli ed il Disegno del Signor Architetto ed Ingegnere Giorgio Grongnet, 1833 (Report on technical feasibility and execution on the Rotunda as per the calculations and the design of architect and engineer Giorgio Grongnet, 1833)²⁰ and
- 3) Ai Signori Deputati per la fabrica della nuova Chiesa di Casal Musta (To the Committee Members for the construction of the new Church of Musta Village).²¹

All documents are signed as Giorgio Grognet, rather than by his full official name Giorgio Grognet de Vassé. Furthermore, he spelled his surname "Grongnet." The first document, dated 18 January 1833, was signed in Valletta, whilst the third document was signed, on the morning of 12 March 1834, in Mosta. In both, Grognet signed as "l'Architetto Ingegnere" (the architect engineer). The second document, the only one which bears a title – namely *Relazione sul mio Progetto per la nuova Chiesa da Fabricarsi di pianta in Casal Musta* (Report on my project for the new Church to be built according to plan at Musta Village) – is dated 1833; it is likely to have been written after 18 January 1833 and definitely prior to May 1833, when building works commenced on site.

Results

The report dated 18 January 1833 is a detailed declaration stating the brief for the project and Grognet's reasons for opting for the design of a rotunda, similar in form and mass to the Roman Pantheon. The internal space of the building is equivalent to the area needed to cater for the population of the village. It further states that:

- 1) doubts were cast on the structural stability of the proposed church and whether, given the inferior quality of Maltese stone, the dome can be supported by the drum;
- 2) due to (1) above, representatives from the village referred their concerns to the British Governor General of the Islands who, in turn, referred the design to four practising *periti* (see definition below) for their endorsement; and
- 3) Grognet had furnished the said *periti* with explanations grounding the feasibility of his design.

¹⁹ Grongnet 1833a, p. 9-12.

²⁰ Grongnet 1833b, p. 15-22.

²¹ Grongnet 1834, p. 24.

A *perit* (plural: *periti*) practices the profession of architect-engineer introduced to Malta in the sixteenth century by the Order of St John. ²² By the eighteenth century, *periti* sat on ecclesiastical boards, drew up plans and valuations of immovable property and drafted plans and reports for notarial deeds. ²³

This document includes a comparative study with the Pantheon. Citing Francesco Milizia,²⁴ the leading eighteenth century authority on the history and theory of architecture, to support his claim that the compressive strength of the limestone of Malta is safe for the realization of his design, Grognet moves on to compute the stresses that the drum would be able to endure and the resultant factor of safety for the dead loads imposed by the structure. He also included an estimation of the construction costs. It concludes by giving the following reasons for why the round form is the most fitting for the design of the new parish church:

- 1) To keep the old church within the interior of the new church until the latter is roofed over by the dome, so that the locals are not deprived of a place of worship;
- 2) To cater for the entire population of the village: it is a fact that the circle is the best geometric form as it contains the greatest usable space;
- 3) To avoid tampering with the graves of plague victims located under the floor of the projected church by placing columns on them;
- 4) To cut down on the use of timber beams and labour by using the old church as a formwork for the erection of the dome;
- 5) To make the construction of the new church more economical by not using columns; and
- 6) To build a church whose architecture breaks away from traditional ecclesiastical design, given that "dove tutte quasi le Chiese capiate sono servilmente l'una dall' altra" (almost all the churches are slavishly copied one from the other).

The second document is a detailed technical submission to support the feasibility of erecting the new Church as per Grognet's structural design. It includes a drawing illustrating the superimposition of the catenary curve over a hemispherical one (**fig. 2**). This document reads as Grognet's submission to the commission set up by the British Governor General to examine whether his design was technically feasible given the properties of local limestone. It includes not just his rationale but also his structural engineering

²³ De Lucca 1975, p. 434; Bianco 2017b, p. 1-8.

²² De Lucca 1975; Spiteri, Borg 2015.

²⁴ Milizia 1785, p. 227. Francesco Milizia (1725-1798), who never practised architecture, was the leading authority at the time of Grognet on the history and theory of architecture. His empirical data was derived from the work of the French mathematician, architect and civil engineer Émiland Gauthey (1732-1806).

Building Science and Professional Ethics in Nineteenth Century Ecclesiastical Architecture

calculations. Furthermore, it makes reference to the Pantheon as an architectural engineering case study.

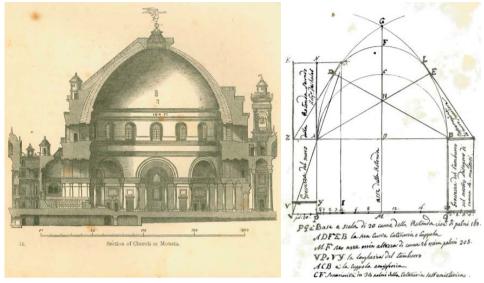


Fig. 2. Design of Mosta Dome by Giorgio Grongnet de Vassè: (left) proposed cross section through the main axis (after J. Fergusson) and (right) structural sketch showing distribution of forces (after G. Grongnet)

The correspondence dated 12 March 1834 is addressed to the "Deputies" responsible for the construction of the new Church. Although Grognet states that it was written in a cordial manner, it is an official and formal protest. It was written the morning after his arrival on the construction site. He had departed from Mosta for few days due to urgent personal matters. It states that prior to leaving he left two alternative mouldings (profil) of the most ideal taste for the jambs of the main door. On his arrival back in Mosta, the evening before he wrote this letter, he went on site and noted that instead of using these profiles, several courses had been erected in "un profile il piu` orribile, e del piu` corrotto gusto Borominesco" (a very horrible moulding and the most corrupt Brominesque taste). He stated his opinion and censored their work univocally: "ne mai avrei creuto che a marcio dispetto dell' arte, e del vero bello avreste lasciato sostituire un simile orrere" (I have never believed that in such corrupt disservice to art and the beautiful you have allowed such a horrible substitute). He further argued that if the Deputies will claim that they are the owners and may do as they please, he will not object. Yet he spelled his position clearly, stating that he:

1) would no longer remain responsible for the supervision of the church if they were permitted to disfigure the design; and

2) would not permit under his supervision any labourer lacking good taste that ran contrary to the theory of architecture by disfiguring with similar *scempiaggini* (stupidity/nonsense) such a beautiful and costly building.

The correspondence concluded with his professional orders:

- 1) Removal of the erected jamb of the door; and
- 2) Confirmation that in the future all work would be undertaken in good taste.

Whilst remarking that he was their architect, chosen amongst others, and that his overarching interest was to be of service to them, he wished, with all due respect, and induced by his pride, to confirm that the contract between him and the Deputies would not have any force should his instructions be undermined by them. Should this happen, he would be set free from any responsibility and they would have the freedom to continue with the erection of the church according to their taste as the owners. The correspondence concludes by stating that if he did not receive a clear and satisfactory reply within three days, he would be able to know how to regulate himself.

Discussions

The art and science of building the Rotunda has fascinated scholars since its erection:

The building of the dome over this church forms by itself a marvel of architecture: for no scaffolding was used and neither stone nor wooden work set up to direct its curvature. It was done by simply notching each course to the one below: in other words, when the circular foundation on which the dome rests was finished, the first row of the dome was built with heavy blocks of stone, having one edge cut off, so as to give the right concavity, and so placed as to overlap their supports by one third of their length: then another layer was built on this, overlapping it in the same way. This process went on until the dome was completed.²⁵

Mosta Rotunda is based on an integrative design approach with particular reference to a realised building, a methodology encouraged in today's architectural design education, and thus a "thoughtful appropriateness of design and intellectual elegance of detail." The Pantheon was used as a comparative study to support Grognet's claim that his design could be realized. His structural design is based on mathematical calculations; he computed the compressive stress generated by the dead loads of the dome and the drum and checked whether local limestone was likely to fail against

²⁵ Salomone 1911, p. 21-22. The latest extensive research to comprehend the erection of the masonry dome was undertaken by C. Cuschieri (Cuschieri 2006). This study includes scaled masonry models to study the dynamics and the construction details of the Rotunda.

²⁶ Fergusson 1865, p. xiii.

the optimal crushing strength of soft stone used by Milizia. He further computed the factor of safety of his design. The detailing of the building construction is impressive. Furthermore, the programme management for the efficient construction of the church without the use of scaffolding and additional labour manifests the ingenuousness of the project.

In designing Mosta Church, Grognet demonstrated his "erudition and knowledge of scientific methods of calculations as against old methods based on experience and tradition," ²⁷ a statement recalled in Schiavone. ²⁸ He technically addressed the concerns relating to the ability of local limestone to take the compressive stresses generated by the structure, and not only was the dome stable but it withstood the test of time, including a German Second World War bomb which penetrated the shell but failed to explode.

Grognet's correspondence of 12 March 1834 offers significant insight into the professional standing of a *perit* in the nineteenth century:

- 1) Approved design was to be complied with during the realisation of a building;
- 2) Building works had to comply with the theory of the art of architecture. Masons lacking in good architectural taste should not be allowed to work on site;
- 3) An architect-engineer was continuously supervising the work and directing the masons. When he needed to absent himself from the building site, he would leave instructions (such as for the ornamentation of the door jambs, as per the case above);
- 4) If his instructions were not complied with, he would order the offending construction work to be removed; and
- 5) He would take failure to comply with his instructions (which was not an issue in this case) as due cause to relinquish his professional responsibility for the work to the owners of the building site.

Grognet's position demonstrates not only a manifestation of his uprightness but his professional ethics. It demonstrates his awareness of the need to not become involved and/or be associated with a design which ran counter to the axioms of architectural design. Corruption of architectural taste and violation of architectural grammar and vocabulary were not tolerated. A significant point is made with respect to professional responsibility. Noting the original spirit of the cited primary source this reference is linked with the legal responsibility of an architect for his work. The architect is liable for the building; he may opt to relinquish his position as the architect of a given project if the client and/or masons do not comply with his discretion and/or direction.

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²⁷ Mahoney 1996, p. 318.

²⁸ Schiavone 2009b, p. 989.

Conclusions

The analysis of this significant case study about nineteenth-century ecclesiastical architecture in the archipelago of Malta, the smallest member state of the European Union, leads to the following conclusions with respect to the art and science of building and the profession of the architect at the time:

- 1. A public technical commission empowered to assess the structural design of a public building could be set up to give a second opinion on the safety of the design; this was a further step in the evolution of architectural-engineering professional practice in Malta;
- 2. The architect made use of an integrative design approach supported by a realised case study relevant to the development project;
- 3. The architect saw himself as responsible for ensuring that the approved design is executed by the building masons; if he did not endorse variations made without his consent, he would order them to be removed;
- 4. Building masons were to follow the directions of the architect; masons who were not knowledgeable and sensitive to good taste were not be allowed to work on the site; and
- 5. If clients or their agents failed to comply with the directions of the architect, the latter had the right to relinquish his professional responsibility for the building.

These rules were significant then and are still today. They are derived from the work of an architect who truly fit the Vitruvian perspective.²⁹ The Roman scholar stressed the importance of philosophy in the education of the architect as it

[...] completes the architect's character by instilling loftiness of spirit, so that he will not be arrogant, but rather tolerant, fair, and trustworthy, and, most important of all, free from greed.³⁰

Acknowledgement

The author would like to thank the late Rev. Paul Caruana for his help in the translation of the original sources from Italian into English and Alessandra Bianco for her assistance in gathering historical photographic material related to Mosta Church.

²⁹ Bianco 2018b, p. 205-206.

³⁰ Vitruvius 1999, p. 22.

Bibliographical Abbreviations

Azzopardi 1983	- John Azzopardi, Count Saverio Marchese (1757-1833): His Picture-Gallery and His Bequest to the Cathedral Museum, in Proceedings of History Week 1982, Malta Historical Society, Malta, 1983, p. 28-45.
Bianco 1995	- Lino Bianco, The Industrial Minerals of the Maltese Islands: A General Introduction, in Hyphen, VII, 1995, 3, p. 111-118.
Bianco 1999	- Lino Bianco, Geocultural Activity in Seventeenth and Eighteenth Century Malta, in GeoJournal, 48, 1999, 4, p. 337-340.
Bianco 2017a	- Lino Bianco, Limestone Replacement in Restoration: The Case of the Church of Santa Maria (Birkirkara, Malta), in IJCS, 8, 2017, 2, p. 167-176.
Bianco 2017b	- Lino Bianco, Cartographic Representations in Early Eighteenth Century Baroque Malta, in GT, 12, 2017, 1, p. 1-8.
Bianco 2018a	- Lino Bianco, A Geohistorical Retrospective Analysis of Cultural Heritage Buildings: The Case of Mosta Dome, Malta, in GeoJournal, 2018, https://doi.org/10.1007/s10708-018-9861-8.
Bianco 2018b	- Lino Bianco, The Realisation of the Rotunda of Mosta, Malta: Grognet, Ferguson and the Episcopal Objection, in EJST, 14, 2018, 4, p. 203-213.
Borg 1982	- Karl Borg, Neo-Classical Architecture in Malta in the 19th Century, BE&A (Hons) dissertation, University of Malta, 1982.
Cuschieri 2006	- Christian Cuschieri, <i>The Mosta Rotunda: Its Structure and Construction Aspects</i> , BE&A (Hons) dissertation, University of Malta, 2006.
De Lucca 1975	- Denis De Lucca, The Maltese 'Perit' in History, in MH, 6, 1975, 4, p. 431-436.
Farrugia 2011	- Krystle Farrugia, Count Saverio Marchese: A Conoscente with Special Reference to His Commentary on Uomini Illustri di Malta, in Proceedings of History Week 2009, The Malta Historical Society, 2011, p. 37-46.
Farrugia 2012	- Krystle Farrugia, Count Saverio Marchese (1757-1833): Art History and Artistic Preferences in Later 18th and early 19th Century Malta, MA thesis, University of Malta, 2012.
Fergusson 1862	- James Fergusson, History of the Modern Styles of Architecture: Being a Sequel to the Handbook of Architecture, London, 1862.
Fergusson 1865	- James Fergusson, A History of Architecture in All Countries from the Earliest Times to the Present Day, vol. 1, London, 1885.
Grongnet 1833a	- Giorgio Grongnet de Vassé, <i>Correspondence dated 18 January</i> , in Edgardo G. Salomone (ed.), <i>La Rotonda della Musta: Relazione architettonica del Grongnet: documenti editi</i> , Malta, 1833, p. 9-12.
Grongnet 1833b	- Giorgio Grongnet de Vassé, Relazione sul mio Progetto per la nuova Chiesa da Fabricarsi di pianta in Casal Musta (1833), in Edgardo G. Salomone (ed.), La Rotonda della Musta: Relazione architettonica del Grongnet: documenti editi, Malta, 1833, p. 15-22.
Grongnet 1834	- Giorgio Grongnet de Vassé, Correspondence dated 12 March 1834, in Edgardo G. Salomone (ed.), La Rotonda della Musta:

Lino Bianco

Relazione architettonica del Grongnet: documenti editi, Malta, 1834, _I).
24.	
MacGill 1839 - Thomas MacGill, A Hand Book, or Guide, for Strangers Visitin	ıg
Malta, Malta, 1839.	
Mahoney 1996 - Leonard Mahoney, 5000 Years of Architecture in Malta, Valletta	1,
1996.	
Malta Penny Magazine 1841a - Colossal Church of Musta, in Malta Penny Magazine, 24 July 1845	l,
p. 117-119.	
Malta Penny Magazine 1841b - Church at Musta, in Malta Penny Magazine, 31 July 1841, p. 120)_
122.	
Milizia 1785 - Francesco Milizia, Principii d` Architettura Civile, vol. 3	3,
Bassano, 1785.	
Pevsner 1972 - Nikolaus Pevsner, Some Architectural Writers of the Nineteen	th
Century, Oxford, 1972.	
Quentin Hughes 1967 - J. Quentin Hughes, The Building of Malta during the Period of the	'e
Knights of St John of Jerusalem, 1530-1975, London, 1967.	
Salomone 1911 - Edgar W. Salomone, Musta: Memories and Charms, Malta, 1913	1.
Salomone 1913 - Edgardo G. Salomone, La Rotonda della Musta: Relazion	1e
architettonica del Grongnet: documenti editi, Malta, 1913.	
Schiavone 2009a - Michael J. Schiavone, Dictionary of Maltese Biographies, vol. 1	Ι,
Pietà, 2009.	
Schiavone 2009b - Michael J. Schiavone, Dictionary of Maltese Biographies, vol. 2	2,
Pietà, 2009.	
Spiteri, Borg 2015 - Mevrick Spiteri, Daniel Borg, The Formation of the Architec	t-
Engineer, Perito and Agrimensore, and Their Regulation by the Order	of .
St John in Eighteenth-Century Malta, in JBS, 1, 2015, 3, p. 129-173	3.
Vitruvius 1999 - Vitruvius, Ten Books on Architecture, Cambridge, 1999.	

LISTA ABREVIERILOR DE PERIODICE

AB - Analele Buzăului. Muzeul Județean Buzău.

Academe - Academe. The American Association of University

Professors. Washington.

ACNLU - Acta Conventus Neo-Latini Upsaliensis. Proceedings

of the Fourteenth International Congress of Neo-Latin

Studies (Uppsala 2009). Leiden.

ActaHASH - Acta Historica Academiae Scientiarum Hungaricae.

Budapest.

ActaMN - Acta Musei Napocensis. Muzeul de Istorie a

Transilvaniei. Cluj-Napoca.

AÉ - Archaeologiai Értesitö a Magyar régészeti, müvésyt-

történeti és éremtani társulat tudományos folyóirata.

Budapest.

AI - Anale de Istorie. Institutul de Studii Istorice și Social-

Politice de pe lângă CC al PCR. București.

AIIAC - Anuarul Institutului de Istorie și Arheologie Cluj-

Napoca.

AIIAI/AIIX - Anuarul Institutului de Istorie și Arheologie "A. D.

Xenopol" Iași (din 1990 Anuarul Institutului de Istorie

"A. D. Xenopol" Iași).

AIIN - Anuarul Institutului de Istorie Națională. Cluj, Sibiu.

Alba-Iulia - Alba-Iulia. Alba Iulia.

AM - Arheologia Moldovei. Institutul de Istorie și

Arheologie "A. D. Xenopol" Iasi.

AnB - Analele Banatului (serie nouă). Muzeul Național al

Banatului. Timisoara.

Antik Tanulmányok - Antik Tanulmányok. Akadémiai Kiadó. Budapest.

AO - Arhivele Olteniei (serie nouă). Institutul de Cercetări

Socio-Umane, Craiova.

Apulum - Apulum. Acta Musei Apulensis. Muzeul Național al

Unirii Alba Iulia.

ArhSom- Arhiva Someşană. Revistă istorică-culturală. Năsăud.ArhMed- Arheologia Medievală. Reşiţa, Cluj-Napoca.

Astra Salvensis - Astra Salvensis. Cercul Salva al ASTRA. Salva.

AT - Arhivele totalitarismului. Institutul National pentru

Studiul Totalitarismului. Academia Română. București.

AUASH - Annales Universitatis Apulensis. Series Historica.

Universitatea ..1 Decembrie 1918" din Alba Iulia.

AUMCS - Annales Universitatis Mariae Curie-Sklodowska.

Uniwersytet Marii Curie-Skłodowskiej. Lublin.

Lista abrevierilor de periodice

AUS - Acta Universitatis Szegediensis De Attila József

Nominatae. Acta Historiae Litterarum Hungaricarum. A József Attila Tudományegyetem-Bölcsészettudományi

Kar. Szeged.

AVSL - Archiv des Vereins für Siebenbürgische Landeskunde.

Sibiu.

Banatica - Banatica. Muzeul de Istorie al Județului Caraș-Severin.

Reșița.

BAR - British Archaeological Reports (International Series).

Oxford.

BC - Biblioteca și cercetarea. Cluj-Napoca.

BCSS - Buletinul Cercurilor Științifice Studențești.

Universitatea "1 Decembrie 1918" din Alba Iulia.

BHAB - Bibliotheca Historica et Archaeologica Banatica.

Muzeul Banatului Timişoara.

Boabe de grâu - Boabe de grâu. Revistă de cultură. București.

Brukenthal - Brukenthal. Acta Musei. Muzeul Național Brukenthal.

Sibiu.

București - București. Materiale de istorie și muzeografie. Muzeul

Municipiului București.

Bylye Gody - Bylye Gody. International Network Center for

Fundamental and Applied Research. Washington.

Caietele CNSAS - Caietele CNSAS. Consiliul Național pentru Studierea

Arhivelor Securității. București.

CB - Călăuza bibliotecarului. Biblioteca Centrală de Stat

Bucuresti.

CBAstra - Conferințele Bibliotecii Astra. Biblioteca Județeană

Astra, Sibiu,

Cărți românești - Cărți românești.

CCÁ - Cronica cercetărilor arheologice. cIMeC. București.

CEHF - Cahiers d'Études Hongroises et Finlandaises.

Université Sorbonne Nouvelle Paris 3.

CollMed - Collegium Mediense. Comunicări științifice. Colegiul

Tehnic "Mediensis" Mediaș.

Colloquia - Colloquia. Journal of Central European History.

Institutul de Studii Central-Europene al Facultății de Istorie și Filosofie a Universității "Babeș-Bolyai" Cluj-

Napoca.

ComȘtMediaș - Comunicări Științifice. Mediaș (este continuată de

CollMed).

Contimporanul - Contimporanul. Revistă de avangardă, cu program

constructivist. București.

Corviniana - Corviniana. Acta Musei Corvinensis. Muzeul Castelului

Corvinestilor.

Cumidava - Cumidava. Muzeul Județean de Istorie Brașov.

Čitatel - Čitatel. Matica slovenská. Martin.

Discobolul - Discobolul. Revistă de cultură. Uniunea Scriitorilor din

România. Alba Iulia.

Drobeta - Drobeta. Seria Etnografie. Muzeul Regiunii Porților de

Fier. Drobeta-Turnu Severin.

Drobeta. Artă Plastică - Drobeta. Seria Artă Plastică. Muzeul Regiunii Porților

de Fier. Drobeta-Turnu Severin.

eClassica - eClassica. Centro des Estudos Clássicos. Lisabona.
EF - Einband-Forschung. Informationsblatt des

Arbeitskreises für die Erfassung, Erschliessung und Erhaltung Historischer Bucheinbände (AEB). Berlin.

- European Journal of Contemporary Education.

Academic Publishing House Researcher. Bratislava.

EJST - European Journal of Science and Theology. Gheorghe

Asachi Technical University of Jassy.

EO - Etnograficheskoye obozreniye. Institut etnologii i

antropologii RAN. Moskva.

EphNap - Ephemeris Napocensis. Institutul de Arheologie și

Istoria Artei Cluj-Napoca.

EPK - Egyetemes Philologiai Közlöny. Akadémiai Kiadó.

Budapest.

ER - Exportgut Reformation. Veröffentlichungen des

Instituts für Europäische Geschichte Mainz.

Vandenhoeck & Ruprecht. Göttingen.

ESTuar - ESTuar. Online. București.

EJCE

Familia - Familia (seria I: 1865-1906). Oradea.

FI - File de Istorie. Muzeul de Istorie Bistrita (continuată

de RB).

FM - Europäische Zeitschrift für Mineralogie,

Kristallographie, Petrologie, Geochemie und Lagerstättenkunde. Deutschen Mineralogischen

Gesellschaft. Stuttgart.

Folklore - Folklore. Centre de Documentation et le Musée

Audois des Arts et Traditions populaires. Carcassonne.

Montpellier.

Gazeta ilustrată - Gazeta ilustrată. Literară. Politică. Economică. Socială.

Cluj.

GeoJournal - GeoJournal. Spatially Integrated Social Sciences and

Humanities. Springer Science and Business Media

(Netherlands).

GT - Geographia Technica. Geographia Technica

Association. Cluj University Press. Cluj-Napoca.

HE - Historia Ecclesiastica. Prešovská univerzita. Prešov.
HHCT - History and Historians in the Context of the Tim

- History and Historians in the Context of the Time. Academic Publishing House Researcher. Bratislava. Lista abrevierilor de periodice

HHR - Hungarian Historical Review. Institute of History,

Research Centre for the Humanities. Hungarian

Academy of Sciences. Budapest.

Hierasus - Hierasus. Muzeul Județean Botoșani.

Historica Carpatica - Historica Carpatica. Zborník Východoslovenského

múzea v Košiciach. Košice.

HL - Humanistica Lovaniensia. Journal of Neo-Latin

Studies. Seminarium Philologiae Humanisticae. Leuven.

HQ - The Hungarian Quarterly. The Hungarian Quarterly

Society. Budapest.

HS - Historické štúdie. Historický ústav slovenskej

akadémie vied. Bratislava.

Hyphen - Hyphen. A Journal of Melitensia and the Humanities.

The New Lyceum (Arts), Msida, Malta.

IJCS - International Journal of Conservation Science.

Alexandru Ioan Cuza University of Jassy.

IJHCS - International Journal of Humanities and Cultural

Studies. University of Gafsa.

INT - Istoriya nauki i tekhniki. Izdatel'stvo "Reaktiv". Ufa.

IV - Istoricheskii vestnik. Moskva.

IS - Izvestiya Samarskogo tsentra Rossiiskoi akademii

nauk. Samara.

IYZGU - Izvestiya Yugo-Zapadnogo gosudarstvennogo

universiteta. Yugo-Zapadnyi gosudarstvennyi

universitet. Kursk.

Izvestiya ANKSSR - Izvestiya Akademii Nauk Kazakhskoy Sovetskoy

Sotsialisticheskoy Respubliki. Seriya obshchestvennykh

nauk, Alma-Ata.

Îndrumător bisericesc - Îndrumător bisericesc misionar și patriotic. Episcopia

Aradului. Arad.

Îndrumător pastoral - Îndrumător pastoral. Episcopia Ortodoxă Română de

Alba Iulia

JBS - The Journal of Baroque Studies. International Institute

for Baroque Studies at the University of Malta.

JIA - Journal of International Affairs. School of

International and Public Affairs at Columbia University.

New York.

JSRI - Journal for the Study of Religions & Ideologies. The

Academic Society for the Research of Religions and

Ideologies. Cluj-Napoca.

Kniha - Kniha. Matica slovenská. Martin.

Knižničný zborník - Knižničný zborník. Matica slovenská. Martin.

LAR - Literatură și artă română. Idei, simțire, formă.

București.

Limba română

- Limba română. Institutul de Lingvistică al Academiei Române "Iorgu Iordan - Al. Rosetti". București.

Luceafărul

MA

- Luceafărul. Revistă literară (1902-1945). Budapesta. - Mitropolia Ardealului. Revista oficială a Arhiepiscopiei Sibiului, Arhiepiscopiei Vadului, Feleacului si Clujului, Episcopiei Alba Iuliei și Episcopiei Oradiei. Sibiu (1956-

1991).

Magyar Nyelvőr

- Magyar Nyelvőr. A Magyar Tudományos Akadémia Nyelvtudományi Intézet. Budapest.

- Magyarország. Budapest.

Magyarország

MCA ME

- Materiale si cercetări arheologice. Bucuresti.

- Memoria Ethnologica. Centrul Județean pentru Conservarea si Promovarea Culturii Tradiționale

Maramures. Baia Mare.

- Melita Historica. Malta Historical Society. MH

- Magyar Könyvszemle. Magyar Tudományos Akadémia MK Budapest. Irodalomtudományi Intézet Országos

Széchényi Könyvtár Budapest.

- Magyar Könyv-Szemle. A Magyar Tudományos MKS Akadémia - Irodalomtudományi Intézet. Budapest.

- Modern Language Notes. The Johns Hopkins **MLN**

University Press. Baltimore.

- Muzeul Național Muzeul Național de Istorie a MN

României. Bucuresti.

MP - Magyar Pedagógia. A Magyar Pedagogiai Társaság.

Budapest.

Muzeum - Muzeum. Muzejní a vlastivedná práce. National

Museum. Prague.

- The National Library of Wales Journal. The National **NLWI**

Library of Wales. Aberystwyth.

- Noema. Comitetul Român de Istoria și Filosofia Noema

Științei și Tehnicii. București.

NNI - Novaya i noveishaya istoriya. Rossiiskaya akademiya

nauk. Moskva.

- Novoe proshloe. Yuzhnyi federal'nyi universitet. NP

Rostov-na-Donu.

NS Nasledie i sovremennosť. Rossiyskiy nauchno-

issledovateľskiy institut kuľturnogo i prirodnogo

naslediya im. D. S. Likhacheva. Moskva.

- Nauchnye vedomosti Belgorodskogo universiteta. **NVBU**

Seriya Istoriya. Politologiya. Ekonomika. Informatika. Belgorodskiy natsional'nyy issledovatel'skiy universitet.

Belgorod.

OK - Orvostörténeti Közleményel (Communicationes de

artis medicinae). Budapest Semmelweis historia

Lista abrevierilor de periodice

Orvostorteneti Muzeum Es Konyvtar And Magyar

Orvostortenelmi Tarsasag. Budapest.

Orizont - Orizont. Timișoara.

ORP - Odrodzenie i reformacja w Polsce. Instytut Historii

Polskiej Akademii Nauk. Warszawa.

PA - Patrimonium Apulense. Direcția Județeană pentru

Cultură Alba. Alba Iulia.

PB - Patrimonium Banaticum. Direcția Județeană pentru

Cultură Timiș. Timișoara.

Pediatria - Pediatria de Atención Primaria. Publicación Oficial de

la Asociación Española de Pediatría de Atención

Primaria.

PH - Prace Historyczne. Zeszyty Naukowe Uniwersytetu

Jagiellońskiego. Uniwersytet Jagielloński w Krakowie.

Poarta Inimii - Poarta inimii. Alba Iulia.

Programm Mühlbach - Programm Mühlbach. Programm des evaghelischen

Untergymnasium in Mühlbach und der damit

verbundenen Lehranstalten. Sebeş.

PS - Protestáns Szemle. Magyar Protestáns Irodalmi

Társaság. Budapest.

RA - Russkii arkhiv. Academic Publishing House

Researcher. Bratislava.

RAPPS - Revista de Administrație Publică și Politici Sociale.

Universitatea de Vest "Vasile Goldiș" din Arad.

RB - Revista Bistriței. Complexul Muzeal Bistrița-Năsăud.

Bistrița.

RE - Revista economică. Lucian Blaga University of Sibiu.

REF - Revista de Etnografie și Folclor. Institutul de

Etnografie și Folclor "Constantin Brăiloiu". Academia

Română. București.

Revista Arheologică - Revista Arheologică. Centrul de Arheologie al

Institutului Patrimoniului Cultural al Academiei de

Stiinte a Moldovei. Chisinău.

RFR - Revista Fundațiilor Regale. Revistă lunară de literatură,

artă și cultură generală. București.

RH - Roczniki Humanistyczne. Towarzystwo Naukowe

Katolickiego Uniwersytetu Lubelskiego Jana Pawła II.

Lublin.

RHSEE/RESEE - Revue historique du sud-est européen. Academia

Română. București, Paris (din 1963 Revue des études

sud-est européennes).

RI - Revista de Istorie (din 1990 Revista istorică). Academia

Română. București.

RJMH - The Romanian Journal of Modern History. Alexandru

Ioan Cuza University of Jassy.

RM - Revista Muzeelor. București.

RMM - Revista Muzeelor și Monumentelor. București.

RMV - Revue de médecine vétérinaire. Ecole Nationale

Vétérinaire de Toulouse.

România literară - România literară. Săptămânal de literatură și artă.

București.

Rossiiskaya istoriya - Rossiiskaya istoriya. Akademicheskiy nauchno-

izdatel'skiy, proizvodstvenno-poligraficheskiy i

knigorasprostranitel'skiy tsentr Nauka. Moskva.

RRH - Revue Roumaine d'Histoire. Academia Română.

București.

RT - Revista Teologică (între anii 1956 și 1991 a apărut sub

denumirea de Mitropolia Ardealului). Mitropolia

Ardealului. Sibiu.

SA - Sovetskaya arkheologiya. Akademiya Nauk SSSR.

Moskva.

SAI - Studii și articole de istorie. Societatea de Științe Istorice

și Filologice a RPR. București.

Samus - Samus. Muzeul Municipal Dej.

Sargetia - Sargetia. Acta Musei Devensis. Muzeul Civilizației

Dacice și Romane Deva.

SCA - Studii și Cercetări de Antropologie. Institutul de

Antropologie "Francisc I. Rainer". Academia Română.

București.

SCIA - Studii și Cercetări de Istoria Artei. Seria Artă Plastică.

Bucuresti.

SCIV(A) - Studii și cercetări de istoria veche (din 1974, Studii și

cercetări de istorie veche și arheologie). București.

Slavyanskii al'manakh - Slavyanskii al'manakh. Institut slavyanovedeniya

Rossiiskoi akademii nauk. Moskva.

SMIC - Studii și materiale de istorie contemporană. Institutul

de Istorie "Nicolae Iorga" al Academiei Române.

București.

SMIM - Studii și materiale de istorie modernă. Institutul de

Istorie "Nicolae Iorga" al Academiei Române.

București.

Sovremennik. Sankt Petersburg.

SPST - Sovremennye problem servisa i turizma. Russian State

University of Tourism and Service. Moscow.

SS - The Social Sciences. Western Social Association.

Dubai.

Studia - Studia. Transilvania Express. Braşov.

Studii - Studii. Revistă de istorie (din 1974 Revista de istorie si

din 1990 Revista istorică). Academia Română. București.

Lista abrevierilor de periodice

SUP - Studi Umanistici Piceni, Istituto Internazionale di Studi

Piceni, Sassoferrato,

Századok - Századok. A Magyar Történelmi Társulat. Budapest. - Terra Sebus. Acta Musei Sabesiensis. Muzeul Terra Sebus

Municipal "Ioan Raica" Sebeş.

- Trudy Instituta Istorii, Arkheologii i Etnografii. THAE

Sovetskov Akademii Nauk Kazakhskov

Sotsialisticheskov Respubliki. Alma-Ata.

TNK - Trudy NII kul'tury. Ministerstvo kul'tury RSFSR.

Moskva.

TR - Transylvanian Review. Centrul de Studii Transilvane al

Academiei Române. Cluj-Napoca.

- Transilvania. Centrul Cultural Interetnic Transilvania. Transilvania

Sibiu.

- Theologiai Szemle. A Magyarorszagi Egyhazak TS

Ökumenikus Tanacsa. Budapest.

- Testimonia Theologica. Evanjelická bohoslovecká TT

fakulta Komenského univerzity v Bratislave.

- Unirea. Alba Iulia. Unirea

UR - Ungarische Revue. Magyar Tudományos Akadémia.

Budapest.

VAH - Varia Archaeologica Hungarica. Budapest.

- Valori bibliofile din patrimoniul cultural național. Valori bibliofile

Cercetare, valorificare. Consiliul Culturii și Educației Socialiste. Muzeul Județean Vâlcea. Râmnicu Vâlcea.

Chelyabinskogo gosudarstvennogo **VChGU**

universiteta. Chelyabinskii gosudarstvennyi universitet.

Chelyabinsk.

- Vestnik Evropy. Sankt Petersburg. **VE** - Verbum. Revista catolică. București. Verbum

- Vestnik Tverskogo Gosudarstvennogo universiteta.

Vestnik Tverskogo

Seriva Istoriva. Tver.

Vestnik VEGU Vestnik VEGU. Vostochnava ekonomiko-

yuridicheskaya gumanitarnaya akademiya. Akademiya

VEGU. Ufa.

VI - Voprosy istorii. Institut russkoy istorii Rossiyskoy

akademii nauk. Moskva.

- Viața Românească. Revistă literară și științifică. Iași. Viața românească

- A Veszprém Megyei Múzeumok Közleményei. **VMKK**

Veszprém.

Vox libri - Vox libri. Biblioteca Județeană "Ovid Densusianu"

VS Voennyi Sbornik. Academic Publishing House

Researcher, Bratislava.

 $\mathbf{V}\mathbf{V}$ - Vestnik vospitaniya. Moskva. Zalai Múzeum - Zalai Múzeum. Zala. Múzeumok Igazgatósága.

Zalaegerszeg.

ZfE- Zeitschrift für Ethnologie. Deutsche Gesellschaft für Völkerkunde und Berliner Gesellschaft für

Anthropologie Ethnologie und Urgeschichte. Berlin.

ZfhWK - Zeitschrift für historische Waffen- und Kostümkunde.

Dresdner Verein für Waffenkunde. Berlin.

ZfTZ - Zeitschrift für Tierzüchtung und Züchtungsbiologie: Organ der Reichsarbeitsgemeinschaft Tierzucht im Forschungsdienst (continuă: Zeitschrift für Züchtung.

Reihe B, Tierzüchtung und Züchtungsbiologie). Berlin,

Hamburg.