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The monumental edition in the digital age: creating a sustainable future

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ABSTRACT

This article presents fresh perspectives on challenges monumental editions face in the twenty-first century along with current efforts to address them. It provides a range of viewpoints, approaches, and case studies about the current state of the most emblematic European *Monumenta* collections and how their editorial boards are imagining and creating a sustainable future for these editorial enterprises that had, and still have, a fundamental role in shaping how we see and understand today the history of the European music.

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Introduction

Andrea Puentes-Blanco,¹ Metoda Kokole, and Philippe Vendrix

The authors of the article ‘Editions, historical’ in *The New Grove Dictionary of Music and Musicians* divide the history of music editions into three phases: a first phase until *c.* 1850 in which music editions were mainly devoted to new or nearly new works; a second phase from *c.* 1850 to *c.* 1950 distinguished by the publication of large collected editions in which modern editing criteria began to be established; and, finally, a third phase starting after *c.* 1950 characterised by the reassessment of many earlier complete works and the beginning of new complete editions grounded in modern criteria, as well as in major advances in reprographic techniques (Charles et al., 2001). More than a decade ago we entered a new phase in the history of music editions characterised by the eruption of digital methods applied to scholarly editions, as several publications have already shown (Dumitrescu et al., 2013; Moe & Geertinger, 2008; Stadler & Veit, 2009; Wiering, 2009).

The idea of entering into a new epoch in terms of music editions inspired this article as well as the academic forum from which it grew: a roundtable about the topic of the future of *Monumenta* or *Denkmäler* editions that took place in Barcelona in September 2023 in the context of the European COST Action project ‘A new ecosystem of early music studies (EarlyMuse)’ (<https://earlymuse.eu/>) (COST Action 21161), and particularly of its ‘Working Group 3 (WG3) – Publications’. This event gathered 13 scholars from different European countries (Austria, Croatia, Denmark, France, Germany, Italy, Poland, Slovenia, Spain, and the United Kingdom) to discuss and assess the current state and the future of so-called *Monumenta* or *Denkmäler* collections.²

Rooted in nineteenth-century historicism and in the political and ideological nationalistic backgrounds shaping that century, the *Monumenta* or ‘Musical Monuments’ (also known by the German term *Denkmäler*) were created with the purpose of documenting the musical masterworks or ‘monumental’ musical heritage of a given country (Basso, 1971; Custodis, 2011; Finscher, 1961;

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¹ Puentes-Blanco’s contribution to this article is part of the results of the R&D project PID2021-123990NB-I00, MICIU/AEI 10.13039/501100011033/ and “ERDF A way of making Europe”. Since February 2024, Puentes-Blanco has been secretary of the Editorial Board of *Monumentos de la Música Española*.

² This roundtable was preceded by another meeting of EarlyMuse Working Group 3 ‘Publications’ that also took place in Barcelona (13–14 February, 2023) and addressed in a more general way the state-of-the-art and future strategies for early music editions (see Puentes-Blanco et al., 2023). In addition to the authors of the present article, the following scholars contributed to the September 2023 roundtable: Thomas Betzwieser (Germany), Daniele Filippi (Italy), Marcin Konik (Poland), and Emilio Ros-Fábregas (Spain).

Finscher, 2003; Horn, 2015; Suck, 1960). Towards the end of the nineteenth century, German-speaking countries played a pioneering role with the launch of *Denkmäler Deutscher Tonkunst* (1892), the *Denkmäler der Tonkunst in Österreich* (1893), and the *Denkmäler der Tonkunst in Bayern* (1900), with similar collections starting to appear in other European countries in the following decades, such as *Monumenta Musicae Byzantinae* (1935), *Monumentos de la Música Española* (1941) and *Musica Britannica* (1951), among many others (Basso, 1971).

This article presents fresh perspectives on challenges monumental editions face in the twenty-first century along with current efforts to address them. The article is structured as five essays by scholars and editors of some of the most emblematic European *Monumenta* collections. We provide a range of perspectives, approaches, and case studies about the current state of those collections and how their editorial boards are imagining and creating a sustainable future for these editorial enterprises that had, and still have, a fundamental role in shaping the history of European music.³ By ‘sustainable future’ we mean, for instance, how to marry the flexibility that nowadays performers require and digital platforms allow, with the strong and solid foundation of critical editing that is characteristic of scholarly editions. We also refer to the monetary aspects of any editorial enterprise within a publishing company, whether private or public: for instance, how to combine the availability of materials online and free of charge with the monetary benefits of the publishing house, or whether other distribution models are also possible for monumental editions. Monumental editions, as well as other types of editions, have an important role in shaping the history of music because of the impact they have on accessibility to musical sources and, consequently on musicological studies and the repertoire that is performed.

María Gembero-Ustárriz, general editor of *Monumentos de la Música Española* (MME), opens this discussion, reflecting on the challenges confronting MME today. Far from concerning only MME, a collection available online in open-access, some of the issues Gembero-Ustárriz addresses are common challenges to most of the currently active European monumental editions. These include difficulties in editing relevant repertoires because of problematic access to certain archives, the gap between current musicological training and the wide range of skills that a music editor needs, and the need for increased academic recognition for critical music editions.

In the second essay, Rebecca Herissone, chair of *Musica Britannica* (MB), focuses on how this collection

is seeking to develop strategies to respond to the needs of today’s performers and adapt to the increasing demand for flexibility of formats for music editions. She starts by analysing the concerns and priorities of performers when looking for music editions versus the characteristics of traditional scholarly editions. She goes on to present some of the actions and plans MB is implementing to ensure the sustainability of its music editions in the twenty-first century.

Next, Christian Troelsgård presents *Monumenta Musicae Byzantinae* (MMB), created in 1935 to publish critical editions (as well as facsimiles of sources and studies) in the field of Byzantine and Eastern Christian chant. As a member of the MMB editorial board, he explains the challenges of bringing Byzantine chant into the realm of digital editions and establishing a uniform encoding practice. He comments on what has already been done, and outlines further steps to develop standard encoding practices within the ‘MEI.neumes’ scheme.⁴

The fourth contribution is by Klemen Grabnar, who is responsible for the digital development of the collection *Monumenta artis musicae Sloveniae* (MAMS). Grabnar describes the process by which the MAMS series has started to develop its digital side since 2020 by publishing digital open-access volumes of earlier MAMS editions, on the one hand, and by creating a platform for new, truly digital editions, on the other.

To conclude our reflections, Birgit Lodes and Kateryna Schöning present the joint effort of the *Denkmäler der Tonkunst in Österreich* collection (DTÖ) – the longest-running musical monument worldwide – and the recently launched *E-LAUTE* (*Electronic Linked, Annotated, and Unified Tablature Edition*) to produce hybrid editions of German lute repertoire.⁵ As they explain, the project is highly innovative since it aims to establish a more productive dialogue between printed and digital editions, where each type of edition meets specific needs.

Finally, the article is complemented by an Appendix compiled by Vilena Vrbanić (researcher and music librarian) entitled ‘Gathering Data on *Monumenta* Collections in Europe: Series with Volumes Published in the Twenty-First Century’.⁶ It presents a brief overview (together with a spreadsheet) of the monumental series published in Europe that have issued at least one volume since the beginning of the twenty-first century, thus providing a snapshot of the current landscape of monumental editions in Europe.

³ We are aware that ‘European music’ is an all-encompassing term. We use it to refer generally to the European music heritage that is featured in monumental music collections.

⁴ For information about the Music Encoding Initiative (MEI), see <https://music-encoding.org/>.

⁵ Birgit Lodes is the current editor-in-chief of the *Denkmäler der Tonkunst in Österreich* collection (DTÖ), and Kateryna Schöning the PI of the *E-LAUTE* project.

⁶ See this Appendix here: <https://doi.org/10.6084/m9.figshare.24879048.v1>.

Monumentos de la Música Española and the challenges of editing Hispanic music in a digital context

María Gembero-Ustároz⁷

A reference collection

Monumentos de la Música Española (MME), published since 1941 by the Consejo Superior de Investigaciones Científicas (CSIC) [Spanish National Research Council], is one of the most emblematic, historical series of music editions within the Hispanic world. It was founded by Higinio Anglés with the European *Denkmäler* model in mind to consolidate a national, institutional collection not limited by the individual scope of previous pioneering nineteenth-century initiatives, such as those by Hilarión Eslava, Francisco Asenjo Barbieri and Felipe Pedrell, among others (Gembero-Ustároz, 2014).⁸ MME and other music collections were later developed within the Instituto Español de Musicología (IEM) of the CSIC in Barcelona, also founded by Anglés in 1943. The IEM was for decades the only Spanish institution specifically dedicated to musicological research and music editing.⁹ MME volumes became very influential in building a canon of Spanish early music, being frequently used for concerts, recordings and analytical studies. After several administrative changes, the IEM led to the current Area of Musicology at the Institución Milá y Fontanals de Investigación en Humanidades (IMF) of the CSIC in Barcelona, from where MME is still now scientifically directed and produced, although the series is published in Madrid by Editorial CSIC. In the following, I present briefly some of the challenges I have faced since I took over the direction of MME in 2014, pointing also to future digital developments.

Selection of repertoires

Archives in Spain contain many relevant unpublished works whose edition could contribute to offer broader

musical perspectives on underrepresented historical periods, genres, composers and geographical areas or locations, as well as on performance practices and music reception. Despite the increasing number of original documents available through digital repositories of archives and libraries, it is still problematic to access many Spanish music sources, such as those of uncatalogued and relocated ecclesiastical repositories, the archives of the nobility and other private archives. This problem may increase in the near future, owing to the disappearance of many archivists' posts, particularly in cathedrals, parishes, monasteries and convents. It is urgent to implement a national plan with specific actions to preserve the repertoires, foster their edition and performance, and to avoid losses, deterioration and uncontrolled relocations (Gembero-Ustároz, 2005). Appropriate selection of repertoires to be edited imply ambitious multi-year editorial plans, a difficult goal with the year-by-year planning of Editorial CSIC publications, including MME.

Training and recognition

There is a gap between current musicological training in many universities and conservatories around the world and the technological subtleties needed for working in projects of digital musicology. This general problem is particularly evident in the Hispanic context, where essential skills for music editors, such as knowledge about music notation, palaeography, philology, music editing (traditional and digital) and page layout, are underrepresented in musicological *curricula*. Owing to current national system of scientific evaluation in Spain, it is easier to obtain academic reward from publishing journal articles than through critical editions, even though the latter take much longer to produce. Non-profit academic collections, like MME, do not pay authors, who, in turn, are asked to contribute to open access knowledge. Music editors are not even mentioned in most concert programmes or booklets of recordings, contrasting with the recognised legal rights of performers. All these factors have led in recent years to a decreasing interest among young Spanish researchers in editing music (and particularly early music), compared to their increasing attraction to sociological or contextual studies on music history of recent periods, thus undermining the future of good, cutting-edge music editions.

Exploring the future

The series MME has so far published 86 printed volumes (*Monumentos de la Música Española*, n.d.). From

⁷ This contribution is part of the objectives of the R&D project *Hispanic polyphonic practices (16th-19th centuries) in digital perspective: Music sources, survivals, women* (PID2021-123990NB-I00), funded by the Spanish MICIU/AEI 10.13039/501100011033/ and "ERDF A way of making Europe", PIs María Gembero-Ustároz and Emilio Ros-Fábregas.

⁸ The other relevant monumental series in the Latin American context is *Tesoro de la Música Polifónica en México* (Mexico, D.F.: Instituto Nacional de Bellas Artes, INBA, and Centro Nacional de Investigación, Documentación e Información Musical Carlos Chávez, CENIDIM, 1952-), initiated by the Spanish composer and researcher Jesús Bal y Gay (exiled in Mexico during the Spanish Franco regime). More recent series published by institutions such as the Sociedad Española de Musicología, the Instituto Complutense de Ciencias Musicales (ICCMU) in Madrid, and several autonomous governments in Spain include early music editions.

⁹ The first official undergraduate university degree in Musicology in Spain was initiated in 1985 at the Universidad de Oviedo.

number 76 (2009) onwards, each new volume has appeared simultaneously in printed and PDF formats.¹⁰ Editorial CSIC supported my proposal to digitise in PDF and open access 109 previous volumes of MME and other music series, and these were published online under my supervision in 2015–2019.¹¹ The increasing dissemination of free PDF volumes in comparison with sales of their printed version is striking.¹² Open access to these series has been possible because Editorial CSIC, as the publishing house of the CSIC, a public institution devoted to research in all disciplines, supports free dissemination of knowledge, particularly involving preservation of cultural heritage, as in the case of MME. It is not easy in the near future, though, to imagine an entirely digital edition for MME beyond the PDF volumes. Currently, Editorial CSIC does not have the technical infrastructure nor qualified specific personnel to develop sophisticated ‘true’ digitally interactive, critical editions. Thus, the priority continues to be to attract good originals and skilled researchers to maintain the series academic excellence.

The rich Spanish music heritage deserves new editions that will facilitate a better knowledge of repertoires, and encourage us to question the received canon, and to breathe new light into concert programmes. I believe in the usefulness of good printed critical editions, even in the digital era. As Margaret Bent points out:

there remains a central role for stable published critical editions in hard copy as a point of reference for critical work, alongside the many electronic resources that are now available, and which offer the possibility of varied and transient digital outputs. (Bent, 2013, p. 255)

The repertoire published in MME provides big data for experimentation in digital processes of Optical Music Recognition (OMR) and music encoding. We are currently exploring the linkage of MME editions to the digital platform *Books of Hispanic Polyphony IMF-CSIC (BHP, <https://hispanicpolyphony.eu/>)*, edited by Emilio Ros-Fábregas. Some Spanish polyphonic works are being

encoded (in MusicXML, MEI, **kern and Humdrum) and rendered by Verovio into *BHP*. Critical commentaries about sources, variants, and concordances are also added separately.¹³ Cooperation between traditional monumental printed editions, like MME, and new digital projects seems a fruitful path to follow.

Monumental challenges for *Musica Britannica*: addressing the mismatch between the scholarly edition and performer priorities

Rebecca Herissone

Musica Britannica (MB) was a late addition to the canon of monumental editions. In 1948, responding to the absence of any kind of authoritative national collection of British music, the Royal Musical Association began to plan the edition’s creation, and the first three volumes were published by Stainer & Bell in 1951, timed to coincide with the Festival of Britain (Lewis, 1951). The initial plan was to use a small Arts Council grant to produce just 10–12 volumes (Doe, n.d.), but subscriptions allowed MB to continue, and, as of December 2023, the edition has reached volume 108. Originally described, rather problematically, as ‘an authoritative collection of those classics of English music not yet available in print’ (Lewis, 1951), as Rushton (2017) commented, ‘English was quickly amended to British’, and, although ‘the word “classics” perhaps took longer to erode’ (ibid.), it has evolved into a broad-ranging collection of British music seeking to ‘mak[e] available a representative survey of the British contribution to music in Europe’ (Rushton, 2020).

From the outset, the Editorial Committee aspired to make the edition usable by both scholars and performers, as its founding Chair, Anthony Lewis, explained:

‘Musica Britannica’ is not designed to be merely a library edition, to sit on a shelf for the reference of scholars. Its contents are intended to be played and sung, and enjoyed in performance. So, although the Editorial Committee feel that their first duty is to provide the best composite reading of a given text, ... it is proposed also to do as much as possible to facilitate modern performance without detracting from the integrity of the text. (Lewis, 1951)

Despite these intentions, the edition’s editorial policies, format, production values and financial structures have always been unequivocally those of the scholarly critical edition:

- The edition uses text-critical methodologies, the aim being to produce a single, authoritative musical

¹⁰ The volume MME 82-2, in PDF format only and free access, contains the parts of *La fontana del placer* by José Castel, an eighteenth-century zarzuela edited by Juan Pablo Fernández-Cortés, the score of which appears in the previous volume MME 82; the publication of parts was a pilot experience to encourage performances of this kind of large theatrical works.

¹¹ Besides MME, the other digitised music series published by Editorial CSIC in open access are: *Cancionero Popular Español* (5 vols., 1951–1987), *Música Hispana* (20 vols., 1952–1998), and *Cancioneros Musicales de Poetas del Siglo de Oro* (7 vols., 1975–2013).

¹² Taking as an example MME 7 (1949), with Emilio Pujol’s edition of Alonso de Mudarra’s *Tres libros de música en cifra para vihuela* (Sevilla, 1546), we know that, up to 19 September 2023, 357 of the 400 printed copies were sold, but the digital reedition in PDF (2015) had 2385 downloads and 29919 visits. Similar proportions can be observed for other volumes. I would like to acknowledge the information about number of copies, sales and downloads provided by Pura Fernández (Director of the Editorial CSIC), Enrique Barba (responsible for editorial production), Ignacio Pérez Alcalde (responsible for digital editions), and Inés Sánchez (responsible for distribution).

¹³ See Ros-Fábregas (2022); and, for example, a hymn by Francisco Guerrero edited by Antonio Pardo-Cayuela (n.d.).

text for each volume, with comprehensive textual commentaries comparing extant sources and their variants; academic study takes priority over assistance to the performer (Doe, n.d.).

- MB remains primarily a print publication. Volumes are produced on high-quality paper at folio size and bound in hardback; they sit proudly on a library shelf, but less comfortably on a music stand.
- While MB's pricing structures remain very competitive in relation to other monumental editions, and some individual volumes sell in quantity, it is sustained financially by institutional subscriptions, which require subscribers to make a substantial long-term commitment to the edition.

These policies and priorities have hitherto served the scholarly community well, and, as a charitable trust, MB remains financially healthy. But, as with other monumental series, its reliance on the traditional model of institutional subscriptions must surely be precarious in the long term. If monumental editions are to remain financially sustainable and musically relevant, they clearly need to adapt and diversify so that they reach out more effectively to a broader group of users, most obviously to performers. For MB, this aim is not only pragmatic, but also ideological, helping it to fulfil its original objective 'to facilitate modern performance'. It also acknowledges a broader underlying issue: the immense scholarly labour that goes into producing critical editions arguably has limited impact on the way performances are carried out in practice, because there is a fundamental mismatch between the priorities of scholarly editions on the one hand, and the diverse and complex needs of today's performers on the other. We can sum up these tensions as follows:

Digitisation presents many possibilities for making the collected edition a more usable resource for performers, while simultaneously giving the next generation of musicians easier and more flexible access to the scholarly work that goes into producing a critical edition, catering better for the wide-ranging needs of today's diverse performing communities, and for differing levels of skill and experience. Like several other scholarly edition publishers, Stainer & Bell currently uses off-prints to facilitate performers' access to material included within MB editions. These fall into five genre-based categories (Stainer & Bell, n.d.; *Musica Britannica*, n.d.):

- (1) Printed performance parts can be purchased for pieces from 19 instrumental consort- and chamber-music volumes, and for 5 volumes containing vocal consorts, partsongs or motets.

Performer Priorities	Characteristics of Scholarly Editions
Ease of access: immediately downloadable editions preferred	Primary output usually published in paper form, with limited access to PDF files; full volumes rarely downloadable, though some off-prints may be.
Free to access; downloads preferred	Single printed volumes expensive to purchase; readily accessible only to those with access to subscribing institution. Downloads often charged separately.
Practical to use in performance: downloaded files allow flexible printing or access directly from tablet or similar device	Usually published in full score, bound as large folio volumes. Offprints, including parts, are designed for performance, but are not usually included within subscriptions.
Easy to find via search engine: direct link to individual works provided	Often catalogued as part of the collected edition, without items listed separately, so individual works are difficult to find via electronic searches.
Performance decisions facilitated by de-emphasising complications within and between sources	Seeks the highest scholarly editing standards. While the music edition provides a definitive text for the user, a detailed and sometimes complex textual commentary explains the decision-making for the performer and may offer multiple alternative possibilities for interpretation.
Editorial quality less important than ease of access; distinction between poor- and good-quality editions may not be fully understood, or may be of lower priority than accessibility	

- (2) Printed performing material can be hired for works from 4 orchestral-music volumes; in addition, solo parts and a reduction of the orchestral parts are available for volume 94, *eighteenth-century Keyboard Concertos*.
- (3) For 2 large-scale choral-orchestral works, printed vocal scores and performing materials can be hired.
- (4) Extracts of works from 10 keyboard volumes are available for sale as printed anthologies; there are 3 similar compilations of songs and violin sonatas.
- (5) Digital offprints of individual items from 13 choral-music volumes, mainly containing anthems and other liturgical sacred music, can be purchased as PDF files.

Stainer & Bell's PDF offprints from these choral volumes represent an important step forward for the edition. So far, however, this is the only digital-format copy being produced and – while this is not far out of step with similar scholarly series – there is clearly much to be done if MB is to adapt to the requirements of the

modern performer. With this goal in mind, the Trustees and Editorial Committee have three broad objectives:

Objective 1: Increasing digital availability of the edition

As several of the scholarly projects outlined elsewhere in this article demonstrate, the technical possibilities of digitalisation are extensive, but even the basic task of making existing editions available in PDF format requires considerable time and effort, and a pragmatic strategy is necessary: MB aims to increase digitisation in a manner that focuses on performance-related formats and is financially sustainable for the Trust, so does not rely on funding from one-off research grants. For this reason, the initial priority is to increase the proportion of the edition's content available as PDF files that can be accessed via individual purchases, and/or made available via subscription-based digital apps. As new editions are produced, the editor's role will clearly need to evolve to enable increasingly flexible presentation formats, such as works presented both as 'clean' scores, as in a scholarly edition, and in a version with editorially added performance guidelines.

Objective 2: Increasing the visibility of the edition

In common with most monumental editions, marketing of MB material focuses primarily on the edition's volumes, rather than the repertory contained within them. In consequence, using a search engine to look for an individual work contained within the edition does not always result in MB being identified. The same is true for performing parts, since these are marketed as supporting materials to the main scores. This is a historical legacy of the monumental edition as an entity, rather than an inherent part of its identity, but rectifying this barrier to access in the internet age again requires time and resource. As MB products become more digitally available, the Editorial Committee will need to work with Stainer & Bell to improve (a) internet visibility of performing materials and offprints; (b) advertising of digitally available material; and (c) marketing of the scholarly pedigree of the edition and its high production values as USPs, particularly within the context of popular sheet-music downloading platforms.

Objective 3: Protecting income

As digital availability increases, it should be possible to offer a more flexible suite of options for users to access material extracted from MB editions, increasing both practicality and cost effectiveness for performers. We

anticipate that this will result in new income streams. The Trustees are also aware of strategies used to raise the profile of some commercial editions by making selected digital content available without charge on platforms such as IMSLP, but in a controlled manner designed to generate income elsewhere. Other models – such as making scores available for use online, but not for download, or via subscription-based apps – are technically achievable, and will need careful consideration and testing through pilot schemes, since it is difficult to predict their commercial impact.

Conclusions

The possibilities of digitisation present many opportunities for editions such as *Musica Britannica* to protect the values of scholarly editing while simultaneously responding to changing markets for music editions. As the edition evolves and diversifies, we look forward to enhancing our productive relationship with our publishers Stainer & Bell to ensure the continued health of *Musica Britannica* into the future.

Monumenta Musicae Byzantinae and the challenges of encoding Byzantine neumatic notations

Christian Troelsgård

Digitally born musical editions offer obvious advantages such as search functions within a given corpus (and – if possible – between corpora), interaction with the user/reader to juxtapose variant sources, images of sources, various levels of interpretation, and, in the case of transcribable neumatic notations, an automatised rendition of the music in staff-notation and audible formats. Regarding the sources of medieval Byzantine chant, the necessary tools facilitating such editions have, unfortunately, not yet been developed or successfully put together. Yet some first steps have been taken, and it might now be possible to signal possible routes towards such editions.

Rudimentary types of melodic notation to facilitate performance of Greek ecclesiastical chant emerged sometime in the seventh or eighth centuries, identified as various types of 'Palaeobyzantine' notation. From around the middle of the twelfth century, a new and successful system of notation was invented, which by step-counting indicates the precise melodic movements within a pre-supposed modal structure, indicated by a preceding modal signature (Troelsgård, 2011). Accordingly, this diastematic 'Middle Byzantine Notation' is digital in its very nature, as opposed to the basically analogue character of Western diastematic notations. Shapes and names

of many of the Palaeobyzantine signs were retained, but they were assigned a specific intervallic meaning in the new diastematic ‘syntax’. Thus, melodic traditions of Byzantine chant can often be traced back to the earliest Palaeobyzantine sources through retrospective comparison, parallel to what has been done with the early, adiastematic sources of Western chant.

The *Monumenta Musicae Byzantinae* (MMB) has aimed at presenting facsimile editions of representative manuscripts of the main genres of Byzantine chant in Middle Byzantine notation and transcription of core repertoires. Likewise, facsimiles of representative and important Palaeobyzantine musical manuscripts have been published with metadata, i.e. an introduction, description, inventory and, in many cases, musical analysis. Given that more medieval Greek music manuscripts are becoming available as digital facsimiles from libraries, the importance of that part of the publication activity of the MMB will gradually cease. However, the intellectual value of the metadata remains, because the library facsimiles are generally offered almost without metadata or with text retrieved from obsolete library catalogues, written before a precise typology and periodisation of Byzantine notations was adopted. Therefore, the MMB website now offers such old front matters as downloadable PDF files (*Monumenta Musicae Byzantinae*, Series *Principalis*).

Paradoxically, the positional syntax of the Middle Byzantine musical notation has presented pioneer encoders of Byzantine chant with a number of challenges, despite the basically digital character of the notation. The placement of the interval signs in relation to each other (vertically and horizontally) and their frequent combination with the so-called group and phrasing signs, present a huge challenge. In addition, neumes do occasionally affect more than one syllable, the unit which is most often considered the point of departure for the encoding of neumatic notations.

A simple algorithm for the encoding and computer analysis of 35 hymns featuring a very limited number of group and phrasing signs (*heirmoi*) was presented by Schiødt (1971). This ‘Copenhagen code’ was later implemented by Doneda (2006) in a more sophisticated pilot project documenting the melismatic Communion chants from the *Asmatikon*, a choirbook referring to the Byzantine cathedral rite. The project involved database entry (Microsoft Access) and combined, for the first time, digital data of Byzantine chant notation with graphical representation of the neumes (Visual Basic) and transcription into Western staff notation. Still, the user-unfriendly input procedure has prevented it from being used for other genres and more extensive corpora.

Alongside these pre-MEI experiments of encoding medieval Byzantine chant, a number of applications for encoding and typesetting music in the currently used neumatic notation of the Greek Orthodox Church were developed. This so-called New Method notation was developed around the first decade of the nineteenth century, and it rapidly replaced the Middle Byzantine notation. It was more explicit on rhythm and scale-structure, but retained the ‘digital’ or ‘step-counting’ quality of its predecessor. An overview of these projects and corresponding ‘New Method’ fonts is given by Siklafidis and Alexandru (2022). Alongside these activities, a specific Unicode Character Chart with 246 different neumatic elements for both Palaeo- and Middle Byzantine notations was created at the instigation of Gregorios Stathes (*Byzantine Musical Symbols*), last modified by Nicholas (2006). This selection of signs is, however, not satisfying for rendition of all musical signs from all periods and varieties, the total number being estimated at above 600 (Siklafidis & Alexandru, 2022).

A potential way ahead is to develop a series of special extensions to the MEI-neumes module in order to grasp both the Palaeobyzantine neumations, the meaning of which is often unclear to the researchers, and the transcribable Middle Byzantine notation. Such a solution would allow for systematic searches in text – neumes relationships and patterns of the neumation in larger corpora – not immediately recognisable by the human mind. A parallel to the first-mentioned undertaking would be the development of MEI-neumes for the Old Hispanic notations. For Middle Byzantine notation, some general issues have recently been addressed by De Luca, E., Alexandru, M. & Fujinaga, I. (2023). The challenges raised by positioning and combinations of interval and group signs might be solved through establishment of rules for transforming the two-dimensional neumatic notation into a one-dimensional string of code. A further development would be to create a system of graphical representation of the code, facilitating both user-friendly applications for the data entry and reading/use of the editions. Another initiative might be the improvement of export facilities, visualising Middle Byzantine neumations via export from the unequivocal MEI-neumes code to (for example) TeX. Testing of this procedure has already yielded some good results with regard to the ‘New Method’ notation (Cornaros, 2016), and it also seems feasible in relation to pioneering experiments with the Middle Byzantine notation.

Such desirable developments would definitely contribute to the aim of the MMB, namely making the sources of Byzantine chant accessible to a wider scholarly public. Today, this goal cannot be achieved without development of digital editions.

Paving the way to digital editions: *Monumenta artis musicae Sloveniae*¹⁴

Klemen Grabnar

Monumenta editions are relevant because they present a great deal of music to the public for the first time and in a rather systematic fashion, providing also historical background and valuable analyses. Often the edition presents an entire collection of music, enhancing our understanding of the compositions in their historical context. Moreover, most of the music contained therein is not available anywhere else. This applies in particular to the Slovenian music editions in the series *Monumenta artis musicae Sloveniae* (MAMS). Without this series, it would be difficult to recognise the richness of Slovenian musical heritage and to assess the qualities of some of our region's composers, such as Isaac Posch and Giacomo Gorzaniš.

From the very beginning (the first volume was published in 1983), the strategy of the MAMS series has been to publish musical works by Slovenian composers, by other composers who were associated with the geographical area of present-day Slovenia in earlier times, and works preserved in Slovenian archives; all of this together represents the early musical heritage of the wider Slovenian cultural area.¹⁵ While the time frame has been extended from the early nineteenth to the early twentieth century, the focus remains on the repertoire from the sixteenth to the early nineteenth century. More recently, the editors have agreed that both mediaeval monophonic music and later liturgical monophonic music can be included in the collection. The series therefore includes very different genres, composers and also music which has varied notational representation (organ tablature, lute tablature, etc.).

A few years ago, the editors decided to modernise the MAMS series and at the same time make the existing volumes available to a wider audience – on the one hand, to publish the scans of the existing volumes online, and on the other to prepare a platform for future truly digital volumes. Since in some cases recent research and the constant increase in data on worldwide sources have already changed our knowledge of the published authors, their works, performance practice, etc., the editorial board has decided to add new introductions and possibly also *corrigenda* to the scans of the old editions. In 2020, the newly designed platform called e-MAMS was launched and the

first two volumes – the old MAMS 1 and 3 – were put online. The entire edition is available in PDF format, and the introductory texts are also available in HTML. The files of the 12 volumes of the *Opus Musicum* by Jacobus Handl-Gallus have also recently been uploaded.¹⁶

We are currently paving the way for a presentation of our musical heritage in new, digital media, following the traditional scheme but utilising modern technologies for the visual presentation of music. The aim of this new initiative is to create a platform for new, fully digital volumes of the MAMS series. The initial development of this platform is part of the project *Digital Presentation of the Long-Sixteenth-Century Church Music Connected to Carniola* (ARIS, J6-2586). It will in the first instance contain editions of church music of the long sixteenth century and will be gradually extended to other genres and periods in the future.

After careful research, we have decided to encode the music according to the Music Encoding Initiative (MEI). MEI is a community-driven project to create an open-source representation of music notation in a machine-readable structure. While there are a number of different formats in use for marking up or encoding music, including MusicXML, Humdrum and Plaine & Easie Code, the most developed and promising for the representation of symbolic, physical and intellectual aspects of music notation using an XML schema is undoubtedly MEI. MEI offers greater possibilities for encoding semantically and structurally rich metadata and music notation, as well as the ability to identify relationships between music notation and digital images or recordings, as emphasised by many projects actively involved in the preparation of digital editions (e.g. Kijas et al., 2019, September 19). The aim of our project is therefore to encode music in a standardised, machine-readable format so that the music data can be searched and analysed using current and future tools, and to make the data available to others through this interoperability.

The process, which had already begun before the commencement of the funded project, comprised the following steps. The compositions were first encoded using the music engraving software Sibelius. These files were then exported to the (XML-based) MEI format using the SibMEI plugin available for Sibelius, which converts the Sibelius file into a MEI file. It was developed in a project led by Andrew Hankinson and is available on Github (<https://github.com/music-encoding/sibmei>). After obtaining the MEI file, we edited it – correcting some errors resulting from the conversion process, such as the so-called *musica ficta* (editorially added accidentals placed above the relevant notes) – and enriched it slightly

¹⁴ This contribution was written within the research programme 'Researches in the History of Music in Slovenia' (P6-004) and the research project 'Digital Presentation of the Long-Sixteenth-Century Church Music Connected to Carniola' (J6-2586), both financed by the Slovenian Research and Innovation Agency.

¹⁵ For the *Denkmäler der Tonkunst in Österreich*, the "Austrian" element has always been defined analogously loose.

¹⁶ <https://omp.zrc-sazu.si/zalozba/catalog/series/A04>.

by hand in an XML editor. This involved adding metadata to the header of the file, which normally has to be coded by hand using an XML editor. In a final step, the transcriptions are presented online in score using *Verovio*, an open-source library for engraving MEI scores into SVG, a format that can be displayed on the internet. The process described is not very complicated, as we do not aim to utilise all the features offered by MEI. Perhaps these encodings can be expanded in future, for example by fully documenting the variants found in concordant sources, but that is not the primary goal of the project at the moment. The full range of variants is for the time being recorded in the critical notes.

The decision to create truly digital editions within the MAMS series is based on the many advantages of digitally encoded music with MEI, including machine-readable scores, the possibility of computer-assisted analysis, the user-friendly possibility of dynamic scores that can be adapted to different needs, and the option to add extensive metadata. Nevertheless, we have learned from our experiment that digital editions require much more than just enthusiasm and good will. The process is time- and energy-consuming, can be expensive and requires the co-operation of more people – not just musicologists – than a traditional printed book, such as staff with knowledge of XML and other technical tools who will have a long-term involvement in the MAMS editions. Such editions also require a permanent host, not to mention constant updates due to the constantly and rapidly changing support technologies.

Nevertheless, the transition to true digital editions could expand accessibility for all kinds of potential users (performers, students, etc.) who use these editions for various purposes, including study (musicology, but also performance studies), public performance (professional and amateur), home music-making, pedagogical processes, music teaching and archiving. As sheet music editions are increasingly put online, users are increasingly turning to (freely) available editions. In addition, digital editions can avoid several problems that many printed editions have in terms of format (the standard format is not suitable for all purposes), binding (sometimes it is difficult to open the book completely), poor paper quality and the lack of performance material (separate parts).

Denkmäler der Tonkunst in Österreich (DTÖ) and the E-LAUTE project: experimenting with hybrid editions

Birgit Lodes and Kateryna Schöning

The *Denkmäler der Tonkunst in Österreich* (DTÖ: Monuments of Art Music in Austria) began in Vienna in 1893. It was initiated by Guido Adler (1855–1941), one

of the founders of musicology as an academic discipline. By 2023, it had published a total of 167 printed volumes, focusing on music related to Austria in various ways. It is noted as the longest-running Musical *Monumenta* edition worldwide (Eybl, 2014; Hilscher, 1995).

E-LAUTE (*Electronic Linked, Annotated, and Unified Tablature Edition*) is an international, interdisciplinary, and long-term endeavour aimed at creating a comprehensive digital edition of the entire corpus of lute tablatures in the German-speaking world during its first historical period (1450–1550). Launched on 1st of March 2023, this project involves the collaboration of approximately 30 researchers from Austria, Germany, and Switzerland.

The two enterprises have recently taken on the joint challenge of producing at least one volume of German lute repertoire in the form of a hybrid edition. The development of this format is partly due to the incomplete or outdated nature of existing editions of lute tablatures from the mentioned period, and partly because editions of some tablatures do not exist at all. Our approach is based on other considerations that take centre stage in any major planned digital edition:

The hybrid edition intends to

- (1) *meet the needs of different groups of users* – supporters of the printed book and of digital editions alike. As recent studies have shown, the behaviour of these two target groups is still very different from one another (Driscoll & Pierazzo, 2016; Kocher, 2019).
- (2) The hybrid character of the edition will significantly *expand the scope of the print version* by digitally providing a wealth of information and various transcriptions that cannot typically be included in a print format (see table for details).
- (3) The hybrid character will *facilitate the reception of the future digital edition*: relevant information will be accessible in print without the user ‘drowning’ in the versatility of the digital world. As a result, the project must address questions such as:
 - What criteria must the digital edition meet to maintain the proven usability of traditional print media like the DTÖ series? This ensures that the intended audience can be effectively transitioned to the new format.
 - How will the digital edition align with existing printed editions that contain small parts of the repertoire covered by the project?

The conception of the hybrid edition must therefore embrace practical issues (e.g. library subscriptions), as well as methodological and historical aspects (e.g. scholarly and practical reception of editions).

As a consequence of the hybrid setting,

- (4) *the print edition also takes on a new function.* No longer aiming at completeness and finality, the printed sections of hybrid editions provide the reader with only a condensed form of the hypertexts (such as a brief introduction and critical report, selected index and bibliography), thus acting, among other things, as an invitation to learn more about the repertoire. By serving a promotional function for digital editions, they no longer stand for the concept of a finished ‘work’, but rather guide the reader into an ongoing process – a world of creation without limits to creative additions. They offer the reader (and the editor) a different strategy for engaging with the repertoire, considering its openness to interpretation. We are convinced that this approach is a crucial precondition for the long-term preservation of our musical heritage, especially when it comes to extempore and partially fragmentary repertoire, such as that of E-LAUTE. It also relieves the editor of the task of establishing a ‘single correct version’ (Grier, 1996). Furthermore, a hybrid edition allows for a dynamic dialogue between ‘archival’ data, as provided in earlier DTÖ print volumes among others, and newly researched material presented in digital form.
- (5) *The digital resources to be developed in E-LAUTE* will comprise the entire repertoire with a wide range of editorial possibilities. The fact that they *can be filtered and selected according to any criteria*, without being constrained to historically continuous or strictly circumscribed regional concepts, will result in a transnational perspective on the repertoire which we also want to reflect in the printed edition.

Based on these considerations, E-LAUTE’s hybrid edition was conceived as follows:¹⁷

In general, we are aiming for a productive interplay between the two forms of edition (where some of the material will be edited both traditionally and digitally), hopefully securing the potential for a breakthrough that lies in hybridity: the parts that are most likely to become outdated soon and require corrections or additions will be available only digitally. Users will have the ability to add annotations and comments using buttons, providing them with the opportunity to engage in ongoing dialogue and participate in live discussions on the digital platform (Weigl et al. 2019).¹⁸ The printed editions of

Printed edition (DTÖ and E-LAUTE)	Digital edition (E-LAUTE)
Structure	
Main texts: <ul style="list-style-type: none"> - transliterations of the (original) tablatures (GLT, ILT) - editions (revised versions) of these originals in CMN 	Main texts: <ul style="list-style-type: none"> - originals (facsimiles) - transliterations in different (also original) tablature notations (GLT, ILT, and FLT) - literal transcriptions in a project-specific reduced CMN that is in accordance with the tablature notation, incl. automatic changes of pitch or tuning¹⁸ - literal transcriptions of original texts (instructional texts, lyrics, marginalia) - revised transcriptions in GLT, ILT, and FLT - revised transcriptions in CMN - revised transcriptions of all texts - all transcriptions and editions can be used dynamically online or be transferred into a PDF file
Hypertexts: <ul style="list-style-type: none"> - short scholarly introductions - short critical reports - indexes of chosen entries - selected bibliography - cross-references to the corresponding online editions using their URLs 	Hypertexts: <ul style="list-style-type: none"> - full indexes & concordance lists - references to the printed DTÖ edition, where applicable - concordances, including the possibility to compare concordances from different sources - vocal models for intabulations - scholarly texts - detailed critical report - audio files of professional performances - bibliography
Material	
<ul style="list-style-type: none"> - the most well-known or widespread works - templates for improvisation & 1–2 elaborated variants with completely notated embellishments 	<ul style="list-style-type: none"> - the whole repertoire (international, yet connected to the German-speaking area of the sixteenth century) - templates for improvisation & all variants of fragments with completely notated embellishments

the DTÖ series will evolve as a result of this dynamic process and will always stay up-to-date due to the fact that the online sources referenced in the volumes are continuously updated. The integration of the print edition into the online platform increases its reference value. Finally, the hybrid edition concept allows us to be open to material under Open Public Licences. All datasets will be versioned and described using machine-interpretable Linked Data vocabularies in accordance with the FAIR data management principles (Weigl et al., 2021).

The DTÖ is currently facing the challenges of the digital age in a number of ways: for ease of access, the edited repertory is listed online piece by piece on the DTÖ website (<http://www.dtoe.at>). Some of the editions (currently the volumes of the *New Senfl Edition*) are published both

¹⁷ Abbreviations: CMN = common Western music notation; GLT = German lute tablature; FLT = French lute tablature; ILT = Italian lute tablature.

¹⁸ See the article ‘A Collaborative Digital Edition of 15- and 16th-Century German Lute Tablature: The E-LAUTE Project’.

in print and as e-book Open Access, thanks to the generous support of the Austrian Science Fund (FWF). We are in the process of preparing PDFs with parts for selected repertoires, starting with the two volumes of Masses and Concertos for harpsichord by the Austrian composer Marianna Martines (1744–1812), scheduled for 2024, in order to increase the visibility of the editions and their suitability for possible performances. With the concept of a true hybrid edition in collaboration with E-LAUTE, we are going the other way round: in the context of a comprehensive digital edition with numerous possibilities, the DTÖ serves as a stable anchor, making the project's results accessible to users who prefer a conventional edition, while at the same time pointing to the fact that the edited 'Austrian' repertoire is strongly intertwined internationally. By exploring and realising different possibilities for the interplay between analogue and digital editions we are responding to the diversity of the repertoire and the funding structure – and on the different needs of the different users.

Conclusions

Andrea Puentes-Blanco, Metoda Kokole, and Philippe Vendrix

The five short essays presented here provide a snapshot of the current situation and ongoing plans and projects of a varied representation of *Monumenta* music collections in Europe. While each of these editorial enterprises has its own tradition, dynamics, and agenda, it is highly positive that they are also willing to discuss their projects and work methods. The meeting that led to this article was probably one of the few times in the history of monumental editions that editors-in-chief of these collections sat together and engaged in a joint reflection. More than one century after the birth of the first *Monumenta* collection, it is clear that the digital turn is having a substantial impact on their development now and will continue to do so in the future.

Traditional editions in folio format continue to be the main product offered, but monumental collections are progressively responding to the flexibility of formats required by different users. They are doing so in different ways, sometimes sharing similar approaches. For example, *Monumentos de la Música Española* (MME), *Monumenta Musicae Byzantinae* (MMB) and *Monumenta artis musicae Sloveniae* (MAMS) decided to make freely available online PDF files of some of their earlier published volumes to increase their visibility and accessibility, sometimes even updating the critical introductions, as in the case of MAMS. *Musica Britannica* (MB), for its part, has privileged the production of printed performance parts to make it easier performers' access to its

music editions. MAMS and *Denkmäler der Tonkunst in Österreich* (DTÖ) have gone a step further and they are currently working on truly digital and hybrid editions. A quite innovative approach is DTÖ's current project of creating hybrid editions in which printed and digital versions are conceived to meet specific needs. As Lodes and Schöning explain, the printed version takes on a new function, providing only a brief introduction and critical report, selected index and bibliography, and inviting to delve deeper into the repertoire through the digital edition. Considering the strong tradition of monumental collections printed in paper as authoritative editions of a given repertoire, this is undoubtedly an innovative perspective.

We can observe, though, that the creation of full digital editions within monumental series is still experimental and in progress. For instance, in the case of MAMS and DTÖ, their ongoing plans to produce digital editions are not decisions of their respective editorial houses to completely change from now on the format of the series, but rather pilot schemes directly linked to specific and time-limited research projects that have their own funding. In most of the cases considered here the move to digital editions would not yet be possible in a near future. For instance, Troelsgård's explanations of the challenges of encoding Byzantine neumatic notations show that more technological development is still needed in this field, and Gembero-Ustárróz points out that in the near future it is difficult to accomplish a truly digital edition of MME owing to limitations in editorial infrastructure. Indeed, that is a general concern among the monumental series represented in this article. Skills for music editors in the digital era include for instance mastery of different music edition software and even programming knowledge, but there is a gap between musicological *curricula* in many universities around the world and the technological skill set needed for producing digital critical editions.¹⁹

If we think about the enormous amount of repertoire that has been edited in monumental collections, there is a need for visibility and accessibility to that information. As Herissone explains in her essay, the visibility of monumental editions has traditionally relied more on the edition's volumes themselves, rather than the repertoire contained in them. But in the digital and linked data era, it would be desirable to treat music editions the same way musical sources have been treated. Monumental editions, as any kind of edition, deserve to be indexed and also linked to the source or sources that founded the

¹⁹ EarlyMuse Working Group 1 'Education' has carried out an extensive survey about musicological curricula, and particularly early music curricula, in European universities. The results of this survey will be published in the framework of EarlyMuse and will potentially shed light into this question.

scientific work. This way, musicologists, performers, educators, students and science communicators could more easily be aware of and access the repertoire edited in monumental collections.

The five essays presented in this article cannot certainly cover all the issues that monumental editions raise in the digital era. As Rebecca Herissone has put it, there are ‘monumental challenges’ for monumental editions. We hope, though, that these essays might serve as inspiration for future actions in the field of collected editions. A review of the current projects and plans being developed by these (and other) monumental series would be desirable in order to reassess their progress in the next years. The global context of the historiographical system that saw the birth of *Monumenta* music collections has enormously changed in the last few decades. Consequently, initiatives like the ones presented here are becoming increasingly important to ensure the sustainability of *Monumenta* editions, their projection into the future and to assess the role they play in the material and symbolic construction of the European heritage.

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