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# magazén

## International Journal for Digital and Public Humanities

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[ve]dph

Venice Centre for  
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# **[re]constructions**

edited by Franz Fischer, Diego Mantoan, Barbara Tramelli





# [Re]Constructing Lost Realities, Possible Worlds and Future Perspectives Through Digital and Public Humanities

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## **1 Responding to the Challenges of a Scholarly Field (and Beyond)**

As our scholarly enterprise in the domain of Digital and Public Humanities turns three years old, the world just started recovering from the pandemic and slipped into a bloody war in Europe that is affecting millions of people around the globe. Whether humanists can do anything at all might be questionable, but we believe that academia is called to offer an example of scientific rigour, factual objectivity, and even outspoken courage in telling what research outcomes plainly suggest. We definitely will not restore peace at once, but at least we can contribute to strengthening society's belief in a kind of truth that is grounded in ethical principles, hard work, and deep research. In a time of easy-peasy media opinions, rampant fake news, and unrestrained web trolls, this volume is a paramount contribution to which particularly Digital and Public humanists are called to (Storchan 2022). For this reason, it is all the more enlightening to see successful coalitions under unusual constellations between dig-

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This introduction paper was mutually agreed on by the authors who acted as Editors of *magazén's* volume 2022, divided in two issues, with the help of the journal's editorial board.

ital humanists and the public press as in the case of the unveiling of identities of so-called ‘QAnon conspiracists’. These conspiracists have been claiming that a group of satanic and cannibalistic US democrats operates a global child sex trafficking ring – a theory at the very heart of a movement of believers which led, eventually, to the attack on the US capitol in January 2021. Commissioned by *The New York Times*, a team consisting of a mediaeval romance philologist and forensic linguists applied stylometric methodology developed for the attribution of authorship of anonymous works to a corpus of social media posts and tweets. Comparing the results to the style of various far-right activists they identified the profiles of subordinate figures, despite their own claims of being high profile political agents (Kirkpatrick 2022; Cafiero, Camps 2022).

Even during the various COVID waves raging through the world we resolved not to respond directly to the challenges that humankind was facing, as this would risk accommodating or even coercing scientific views into an emotionally strained debate without taking the necessary distance. On the contrary, we preferred to tackle wide topics that lay at the heart of our growing interdisciplinary field and, at the same time, offer a key to understanding the functioning of cultural and social constructs that shape the way humankind reacts to change and development.

In this sense, in the first year of this journal, 2020, we asked digital and public humanists to reflect on how, in their view, the tendency towards methodological fusion and cross-contamination shape the various research approaches that are present in our field (Fischer, Mantoan, Tramelli 2020). In 2021, for our second yearly edition, we looked beyond the melting-pot concept to understand what new balance between the forces or stakeholders involved has been reached, such as to render the consolidation phase that the Digital and Public Humanities is currently experiencing at an institutional level (Fischer, Mantoan, Tramelli 2021). For our third year, which also comes at the end of the excellence initiative of the Italian Ministry of University and Research that our centre is based upon, we then decided to shift our investigation of the field towards the research practices employed. In doing so, we are hoping to have closed the circle of a journey in the Digital and Public Humanities that started by looking at theoretical stances, in 2020, then pondering the institutionalisation process on the way, in 2021, and finally digging into the schemes and models of research that are defining our scholarly domain, in 2022.

Hence, this year’s two semestral issues of *magazén* are devoted to practical aspects in the Digital and Public Humanities, though again starting with a key concept that turns into a thematic *fil rouge*. The 2022 volume is thus entitled *[re]constructions*, focusing on the wide array of practices that prospered in our wide field for [re]configuring lost realities, [re]creating long gone dimensions, [re]building likely

scenarios, [re]considering exhibition settings, and [re]covering disappeared traces of historical and cultural value. Indeed, over the last decade the principle of [re]construction by means of scholarly expertise set the pace of many recent research projects in the field of Digital and Public Humanities (Dupré et al. 2020). Particularly digital tools and interdisciplinary collaborations provided the opportunity to [re]compose varied sources and [re]visualise research data, offering unprecedented insights into historical, societal, cultural, artistic, archaeological, and political events. Evolving research technologies and consolidated methodological approaches in the Digital and Public Humanities allowed scholars to test their analytical abilities against a set of novel possibilities to make their results public, immersive, and appreciated virtually (Beacham, Denard 2003). In this regard, Digital and Public Humanities lay at the crossroads of the kind of speculation, intuition, and invention that comes with every act of scholarly [re]construction, seen as a creative task steered by scientific rigour (Jenkins 2004).

The papers selected were submitted as a result of an international call for abstracts and subsequent double-blind peer reviews to examine the concept of ‘[re]constructions’ as a procedural and constitutional peculiarity of Digital and Public Humanities. Our authors were invited to submit contributions spanning from theoretical debates to methodological reflections, also comprising the examination of particular case studies from the heterogeneous domains of digital and public history, art, archaeology, textual scholarship, cultural heritage and GLAM studies. A true symbol of this [re]constructing attitude are the square brackets, which stand as a visual sign and signifier of the ‘gap-filling’ and ‘meaning-making’ tasks humanists always aim to accomplish in their research work. In a sense, digital and public humanists have the privilege of [re]framing their disciplines in various ways, such as: filling the gap of missing text fragments and traditions, retracing the dynamics of historical processes and events, retrieving dispersed artworks and collections, reconstructing lost archaeological sites and artefacts. With this third volume for *magazén*, we drew particular attention to the public aspects of such endeavours, given that successful [re]constructions hold firm to the principle of research dissemination and audience involvement from their very inception, rather than having public access just as a final by-product of scholarly work. In this regard, we constantly aim at upholding our mission to turn *magazén* into an open platform that fosters an international and open debate, a place for sharing and arguing such as in the public house at the time of the Venetian Republic, the so-called ‘magazén’, as should by now be familiar to our readership (Tassini [1863] 1970, 364-5).

## 2 Rescuing, Representing, and Visualising as Modes of Reconstruction

The authors chosen for the first issue of the present volume address the concept of [re]constructions analysing different case studies. The first contribution by Wouter Kreuze is dedicated to a collection of handwritten sixteenth-century newsletters from Venice which have been preserved in the State Archive of Florence. The application of digital methodologies and the analysis of large sets of metadata help to reconstruct the unknown paths of these anonymous sources and to gain knowledge about the compilation, travel times and circulation of news in early modern Europe.

The second article by Fiorella Bulegato and Marco Scotti focuses on the personal archive of Ettore Sottsass jr (1917-2007). The presented project aims at digitising and inventorying the fragmented and dispersed work of the Italian architect and designer in order to [re]construct the archive as a complete and coherent network of projects and activities and to provide free online access to objects and unpublished documents to both researchers and a wider audience.

In the third article, Martina Bürgermeister is examining the imaginative geographies of travel literature for reconstructing urban change in the nineteenth century. Transforming travel guidebooks of the city of Graz into digital topographic representations, Bürgermeister compares and analyses the perception and experiences of urban space and spatial relationships of a European city during the period of the industrial revolution in a diachronic way.

The fourth contribution by Arianna Farina reflects on a very different set of urban experiences dispersed in time. Evaluating various methods and fields of application to visualise fading Renaissance paintings on the facades in the city of Rome, she opens new research perspectives regarding the digital reconstruction of 'absent heritage'.

In the fifth contribution of this volume, Samuel Huskey elaborates on data visualisation and the representation of knowledge concerning ancient texts. He argues that representing textual data from a born-digital critical edition by reconstructing the traditional format of a printed edition can help to better understand the tradition of Latin works and to illuminate the strengths and weaknesses of both platforms.

In the last article, Torsten Roeder discusses the difficulties and opportunities of preserving *diskmags*, a special genre of electronic magazines published on floppy disks in the late 1980s and early 1990s. Roeder points out that reconstruction in terms of software emulation and hardware preservation is the basis for creating scholarly editions of the original artefacts, providing enlightening insights in the evolution of the digital culture as we know it today.

Once again, and for the third year in a row, we wish to express our gratitude to all scholars and experts involved in the making of this volume: our advisory board members, the selected contributors, the many peer reviewers, all members of the editorial board, as well as our publisher's team. Let us hope the second issue of this volume, due in December 2022, might come at a more peaceful time, when international law has been restored and humanity will be ready to embark in a process of mending and [re]construction.

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# Temporal Philology Reconstructing Patterns of *Avvisi* Creation and Distribution With Travel Times

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**Abstract** Manuscript newsletters are by definition documents in motion. While they were written up, adapted and reassembled, they spread information all over the European continent. In the Florence State Archives, the documents are being preserved in separate folders reflecting their varied origins. It is known that these volumes have been rearranged during archival works in the centuries following their creation, the value of this distinction is therefore not wholly clear. By applying digital methodologies, however, we can calculate the dynamics of the travel times. This both tells something about the inner workings of this news system and also allows us to reapply this data to make an educated guess about the origin of these documents.

**Keywords** Archives. Manuscript newsletters (avvisi). Travel times. Mail. XML.

**Summary** 1 Introduction. – 2 An Overview of Travel Times in the Sixteenth Century. – 3 The Layered Structure of the *Avvisi*. – 4 Method of Data Collection. – 5 The Speed of Letters: Mentions in the *Avvisi*. – 6 The Speed of News: Applying Travel Times to the News Items. – 7 Travelling Headers: Travel Times of the Headers. – 8 Reassessing the Place of Compilation. – 9 Studying Document Circulation. – 10 Conclusion.



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## 1 Introduction

In the sixteenth century, handwritten newsletters, often known by their Italian name of *avvisi*, were sent all over Western Europe. They are found nowadays in many different archives over the continent, but where they were compiled is not always clear. This genre of mainly anonymous sheets of paper containing information from one or more places truly revolutionised the dissemination of information. The lack of a clear authorship is a fundamental trait of the genre, in which texts could be copied, edited, and reassembled in changing compositions. The consequence of this flexibility was that news from different places could be included in the same document under distinct ‘headers’. These headers preceded the actual news items and consisted of a dateline containing information about the date and place of origin. Their versatility makes them a fascinating source and their internal layered structure makes them very suitable for the application of digital methodologies. A great amount of meta-data, for instance on date and place, can be extracted from their pages shedding light on their creation and dissemination. In this article, we intend to show how one in particular – that of time, and mainly that of these ‘headers’ – can methodologically be exploited to obtain data about the interval it took the news coming from one place to be published in another. We intend to demonstrate how this data can be reapplied to the same dataset in order to make an educated guess about the most probable place of compilation of a specific subset of documents. We will study this issue in particular with reference to a volume of *avvisi* from Venice preserved in the Florence State Archive because at first glance one might not think that these documents originated here.

The Medici Archive – as the collection within the Florence State Archives pertaining to this family is often called – had the reputation of being a disorganised heap of documents that historians could not penetrate easily (Panella 1966, VIII). Already from the sixteenth century onwards, we know that rulers in Western Europe reordered the archival collections that they inherited (De Vivo 2010). A shift has been discerned in archival ordering from a more subject based approach in the Middle Ages to one that reflected the way in which documents were created (Head 2019, 264). That means that we cannot always be sure about how current archival divisions came to be. If we as historians wish to use these categories, that could be a problem. This also means that we do not always know for certain what value the archival separations such as those in the *avvisi* hold and whether we can use them for historic interpretation. For the Medici Archive, it has been said that at the turn of the eighteenth century, the archivist Fabrizio Cecini started to divide the material by provenance. This meant that the fruits of the diplomatic activity, such as letters but possibly also *avvisi*, were placed together with all the oth-



er documents that arrived in Florence from the same locality (Panela 1966, IX; Baggio, Marchi 2002, 8). Later custodians of this archive applied further reorganisations to the archival material, not least Rigguccio Galluzzi. As a consequence, nowadays, we find place names written on the volumes of *avvisi* that supposedly refer to where they were created and from where they were dispatched to Florence. However, even though there exist some indications about the changes the archive went through, it is never completely clear who applied what changes to these archival entities. Therefore, the question remains what value this designated place of compilation holds. *Avvisi* are also a peculiar case, since they are not only created outside the territory of the state but oftentimes also not drafted up by the agents in service of that state, who would be more likely to be involved in the dispatch only. Also other people such as soldiers could occasionally be involved in the writing and dispatch of news (Lamal 2020, 15).

The question is particularly pressing for those documents collected in the volume of *avvisi* from Venice around the end of the sixteenth century. This is volume (or *filza*) 3082 with the designation “*avvisi varii di Venetia*” from the *Mediceo del Principato*. The curious thing here is that many of the manuscript newsletters from this volume do not have a single instance of a header from this city. Instead, we mainly find headers from Rome. What is more, this appears to constitute a regular series of newsletters, bearing words from the eternal city almost every week on the same day. Interestingly, together with Rome, Venice constituted the two most important centres of news in Early-Modern Italy (Infelise 2002, 22; De Vivo 2007, 81). This thorny question problematises the interpretation of this source within its archival setting as it is not always clear whether this layer can aid us at all in our understanding of the dissemination of the *avvisi* (Keller, Molino 2015, 152).

In order to study this matter thoroughly, we created a dataset of documents from the Florence State Archives which for specific research interests is located between March 1575 and March 1576. While attempting to shed new light on this specifically productive-archivistic matter of newsletter categorisation, we also hope to demonstrate how manuscript newsletters could be studied in relation to each other using digital methods. Such an approach has often been argued to be pivotal in reconstructing the way in which news networks worked, but has hardly ever been brought into practice (Raymond 2016, 109-13; Wijfjes 2017, 21; Nicholson 2013).

To facilitate understanding we will begin by clarifying the terminology. First of all, we get our documents from the Florence State Archives. There we find ‘manuscript newsletters’ (also called *avvisi*) divided over different ‘volumes’. These volumes are nothing else than bundled manuscript newsletters. If we speak about a ‘document’, we mean one manuscript newsletter. These volumes come with a designated locality. It is generally assumed that the documents contained

in this volume were compiled here, therefore we call this the ‘place of compilation’. The tricky part is this: because the compilers often put matters from different sources together, one document can contain several ‘headers’. A ‘header’ is a certain heading over one section of a newsletter and contains a ‘header place’ and a ‘header date’. Under the header follows the actual news in several paragraphs that we call ‘news items’. At times, the news items also disclose their sources. We have called these ‘transits’. The peculiarity of the volume from Venice is that it contains very few ‘headers’ from Venice. This disparity in headers creates doubts about what the actual place of compilation of these documents might have been.

By learning more about the travel speed in the sixteenth century, we have developed a method by which we can compare different header dates within the same document. This can be used to reconstruct the place of compilation of a volume. First of all, we will apply this method to the volume of manuscripts newsletters that were – supposedly – from Venice.

## 2 An Overview of Travel Times in the Sixteenth Century

In order to understand which places constitute a likely place of compilation for this group of documents from the ‘Venetian’ volume, we first need to do something else: understand the dynamics of the velocity of the news in Europe at this time. The development of a continent-wide postal network is often considered to have been a great incentive to the advent of a system of regular dispatching of news in the sixteenth century. This allowed news writers to send their writings with frequent intervals to their customers. The use of the ordinary mail is generally also considered to be the reason why there are regular series of newsletters arriving on the same weekday (Infelise 2002, 7-10; Pettegree 2014, 167-81; Behringer 2003, 49).

Historians have since long been interested in the travel times of the news. An early and often-cited example of this is found in Braudel (1976, 335-9). Later historians have continued this interest (for instance Fedele, Gallenga 1988, 121). These do generally not yet depend on a digital approach and sometimes mention travel times merely in passing (for instance: Barbarics-Hermanik, Pieper 2007, 67-74). Furthermore, for printed news in the seventeenth century, we also have examples of a digital approach (Ryan 2018, 462). In general, there are more digital initiatives and databases for printed newsletters probably due to the greater ease with which these can be build (Hillgärtner 2014). In addition, datelines are also used in order to chart the changing distribution of news centres over time (Arblaster 2014, 123-30).

From the seventeenth century, we have descriptions of how the postal system worked in theory. Ottavio Codogno, postmaster in Mi-

lan, published an itinerary with timetables of the post (Caizzi 1993, 43). For the early sixteenth century, we also have the travel times as found in the agreements between Francesco de Tassis and the imperial authorities for the institution of a postal network. The resulting timetable found in Behringer indicates the travel times from Brussels to other localities that were, at least in theory, guaranteed (Behringer 2003, 74). The speeds we find here, however, are much faster than those usually found in our sources. They could be as fast as over 200 km a day, velocities that we have never attested.

This has already been indicated by Oswald Bauer (2011, 179). He has calculated the travel times for around the same timeframe with dates found in the commercial correspondence of the Fugger. We will reproduce his table here in order to compare it with our own data (Bauer 2011, 178). In this case, we do not have the travel times as they were guaranteed in theory by the postmaster, but the actual time that passed as indicated by the dispatching and reception of letters. There remain some differences, nonetheless. Bauer reports the time between dispatch and reception instead of publication as will be the case for our dates. Also, strictly speaking *avvisi* are not a purely postal matter even though the advent of the *avviso* has always been linked to the introduction of continent-wide postal systems.

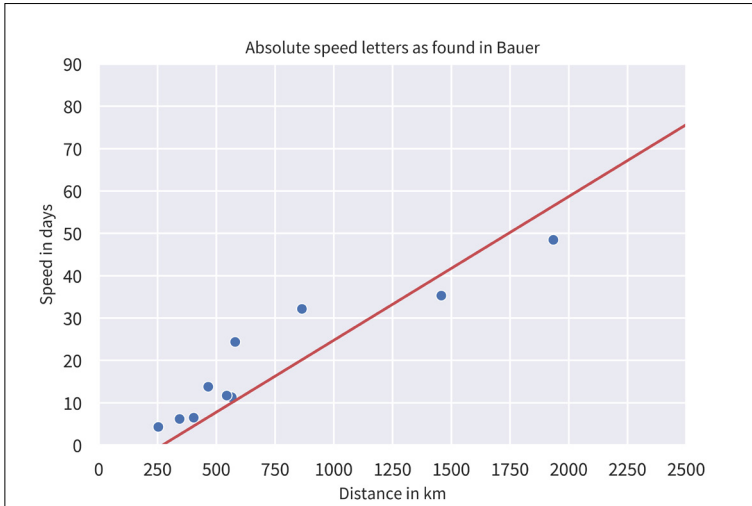
**Table 1** Delivery times of the Fugger correspondence adapted after Bauer 2011. In the dates from Antwerp, Bauer also included those from Amsterdam and Middelburg

From	To	Days	Amount	Distance	Km/day
Antwerpen	Augsburg	11.3	45	565	50
Frankfurt	Augsburg	4.3	7	252	59
Genova	Augsburg	13.8	4	465	34
Goa	Augsburg	273.3	6	6,774	25
Hamburg	Augsburg	24.4	35	580	24
Köln	Augsburg	6.5	39	403	62
Lisboa	Augsburg	48.5	85	1,933	40
London	Augsburg	32.2	19	864	27
Lyon	Augsburg	11.7	21	544	47
Madrid	Augsburg	35.3	221	1,457	41
Venezia	Augsburg	6.2	131	344	55

Here, we see the time it took the letters on average to arrive in Augsburg from the designated locations. The first four columns are from Bauer's publication, the data in the last two have been calculated and added here in order to facilitate the comparison. By combining the number of times connections have been found with their travel speeds, we can make an approximation of the median travel speed found in this dataset. This is found to be around 41.3 km per day.

In the following chart, we have chosen not to include Goa to facilitate the comparison as it is a lot further away than any other locality found in this research.

**Chart 1** Visualisation of the adapted data as found in Bauer



**Formula 1**  $y = -9.180 + 0.034x$

As we can see, historians have already made some valuable contributions to reconstructing the postal network and also started thinking about the dimension of time. At this place, we now want to develop a strategy to do this in a systematic way for manuscript newsletters which have an internal structure that sets them apart from letters. The possibilities and repercussions are quite different in comparison to documents pertaining to strictly epistolary practices.

### 3 The Layered Structure of the *Avvisi*

We now intend to calculate the travel times for our own sources. In order to understand how this could be done using manuscript newsletters, we should first analyse their internal and archival structure. This collection of *avvisi* exhibits a certain system of layering. First, we have the collection as a whole. This exists of several archival volumes. The individual documents are deposited within these volumes. The documents in turn consist of one or more headers. Under the headers follow the actual news items containing the text. The transits are named within the text itself, in the lowest layer of the news

items. This structure could be represented in the following way: 'collection' > 'volume' > 'document' > 'header' > 'news item'. This structure can be turned to our advantage by comparing the layers with each other. In this case, we will take up this task for the dimension of time and find out with what speed news travelled around Europe in the years of 1575-76. We will reapply this information that we have gained to the same dataset and give a conjecture about a possible place of compilation for this 'Venetian' volume.

This same layered structure is reflected by the XML scheme that has been established within the EURONEWS project,<sup>1</sup> as can be seen in the image below [code 1]. By utilising its structure, we can calculate travel times between different layers. In the course of this paper, we will do this for three layers, that between the dates of the header and transit, between the header and the news item and, most importantly, between several headers within the same document.

**Code 1** Simplified rendition of an XML fragment as used in the EURONEWS project

```
<newsDocument>
  <docid>27293</docid>
  <repository>Archivio di Stato di Firenze</repository>
  <collection>Mediceo del Principato</collection>
  <volume>3082</volume>
  <newsHeader>
    <hub>Roma</hub>
    <date>17/12/1575</date>
    <transc>Di Roma li 17 dicembre 75</transc>
    <newsFrom>
      <from date="18/11/1575">Paris</from>
      <from date="na/na/na">Roma</from>
      <from date="na/na/na">Bologna</from>
      <plTransit date="18/11/1575" dateUnsure="y">Lyon</plTransit>
      <transc>[omitted]</transc>
      <wordCount>272</wordCount>
      <position>1</position>
    </newsFrom>
  </newsHeader>
</newsDocument>
```

**1** EURONEWS is a project funded by the Irish Research Council and hosted at University College Cork from 2019 till 2023. I would like to thank Lorenzo Allori for his work on data extraction and transformation within the project.

The peculiar thing with these volumes is that the documents can contain several headers that do not coincide with the location indicated on the volume. This is by necessity the case as one document can contain several headers. In table 2, we can see that, in most volumes, the most common header is the one written on the spine that constitutes the official place of origin.<sup>2</sup> A notable exception is the volume from the city that is often said to have taken the forefront in the news culture of early-modern Europe, Venice. The most common header found here is actually from Rome. This begs the question what these documents actually have to do with Venice. This can lead one to doubt whether they originated from there at all. Why this is the case particularly for this city is not clear and might have something to do with the restraints that the authorities here placed on the dissemination of news and their desire to control the flow of information (Bongi 1869, 5; De Vivo 2007, 4-9). It might also have a different reason, since in other collections, such as that of the *Fuggerzeitungen*, we find plenty of headers from Venice (Keller, Molino 2015, 56-7). The thing we are interested in to study in this case is to construct a method that gives an indication of the probability of this volume of documents originating in *la Serenissima* as is being suggested by its binding or whether it is better to assume they were created at some other locality.

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<sup>2</sup> In some cases, *avvisi* were also found in other volumes, such as letters. They have been treated as one category here since usually they form continuous series of handwritten newsletters dispatched weekly.

**Table 2** Dataset overview of the header places contained in the various volumes of manuscripts newsletters for the period March 1575-March 1576. The number between brackets indicates the total number of documents

	Venezia (92)	Milano (72)	Roma (58)	Napoli (12)	Germania (7)	Genova (8)	Vlaanderen (8)	Polska (5)	Torino (1)	France (1)	Total (264)
Roma	57		45								102
Milano	1	67									68
Antwerpen	30	7	2		1		6				46
Wien	22		1		3						26
Napoli	6		4	10							20
Venezia	11		5								16
Praha	10		2		4						16
Genova	4	1	2			9					16
Krakow	5		1		1			3			10
Augsburg	8		1								9
Lyon	6		1								7
Paris	3	2									5
Regensburg	4		1								5
Madrid	1	2	1								4
Vlaanderen		3									3
Corfu	1		1	1							3
Bruxelles							3				3
Reims		2									2
Piacenza		2									2
Novellara			2								2
Mantova			2								2
Koln	2										2
Messina	2										2
Casale Monferrato		1							1		2
Istanbul	1							1			2
Espana		1									1
Schouwen-Duiveland	1										1
Otranto				1							1
Lecce				1							1
Dresden					1						1
Warszawa								1			1
Marseille										1	1
<b>Total</b>	<b>175</b>	<b>88</b>	<b>71</b>	<b>13</b>	<b>10</b>	<b>9</b>	<b>9</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>382</b>

Because we have chosen to collect sources from a shorter timeframe only, the possibility can never be wholly excluded that our findings are influenced by the specific circumstances of that time. Between the years 1575-77, the plague once more ravaged Europe, which did not leave communication lines unaffected (Fedele, Gallenga 1988, 121). This is also well documented within the *avvisi* themselves. One news item, for instance, makes mention of the courier from Venice be-

ing delayed because he had been halted by the Duke of Ferrara due to fears of the plague.<sup>3</sup> Having said that, our dataset runs as said till March 1576, whereas the contagion is said to have reached its worst moments only in the summer of that year (Preto 1979, 123).

#### 4 Method of Data Collection

The several layers contain different kinds of information which because of the distinctive nature of every layer has also been treated differently. Most often, the dates have been inferred from the transcription of the document itself. In the case of the news items, it has sometimes been derived from the secondary literature if the event could be established with certainty.

The XML also indicates whenever a date or a place could not be established with certainty (for a general discussion of place and time Bosse 2019; Lewis et al. 2019). All these dates have been excluded from the calculations.

The header date is in general most straightforward. In principle, an *avviso* header has one date only. There occurs one exception, in which the header contains different dates pertaining to different sections of the news nested underneath it.<sup>4</sup> Because this could not be processed according to a regular methodology, it has been excluded.

Not only can one news item contain more than one place, at times we also find more than one date for the same place. For the news items, we have always chosen the most recent date for every locality named there.

As far as the transits are concerned – that is, we remember, when the writers disclose their sources – the dates have been treated differently because one can regard them as separate itineraries. Therefore, two transits coming from the same place within the same news item with different dates are included separately. If on the contrary a transit recurs in more than one news item under the same header, it has not been duplicated but has been included only once because strictly speaking there is only one source.

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<sup>3</sup> *Avviso* from Rome, 16 December 1575, ASFi, MdP 4026, f. 490, MAP DocId #26283. The DocId can be used to locate the document on the Medici Archive Project's MIA platform (<https://mia.medici.org>).

<sup>4</sup> This is a document with headers from Vienna, Antwerp and Prague, ASFi, MdP 3082, f. 301r-303r, MIA DocId #27230.



## 5 The Speed of Letters: Mentions in the *Avvisi*

The closest thing we have in comparison to the dates of others such as Bauer are the times of these so-called ‘transits’. These sometimes also refer to letters. They cannot be completely equated to the travel times of the mail itself, however. What are they exactly? A ‘transit’ occurs when an *avviso* discloses the source where it got the news. Usually this follows a phrase such as “From letters from Lyon dated 25 of last month”.<sup>5</sup> Because we also have the header date and place, we know how much time it took before a transit was mentioned there. We simply subtract the date in the attribute of the transit tag from that of the header (i.e. the <hub> tag, see [code 1](#)). It still goes that we only know when these letters, or whatever form the transition of information took, were mentioned under the news header. This is their so-called publication date, not necessarily when they had arrived, as was the case with Bauer’s dates. These transits travelled both with ordinary as well as extraordinary couriers (and by other means). Because the texts specify this only in the minority of the cases, we have not taken this into further consideration.

By iterating through the XML, we can easily collect all the places where transits are mentioned for which we can consequently calculate the speed in kilometres per day. The time difference was calculated in days using `datetime` which allows us to subtract dates from each other and thus calculate the time difference between them. For the coordinates of places, we relied on GeoPy’s Nominatim database, which also allowed us to calculate the distance between two coordinates as the crow flies. In the future, it might be worthwhile to calculate the itineraries based on the post routes which are becoming digitally available, even though we are not always sure what route they took and there might be more than one possible (Midura 2021, 1030).

Below we see an overview of the transits [[tab. 4](#)]. The selection is random, they are simply the first and last items in the XML sheet.

**Table 3** Abbreviated logbook of travels with distance and kilometres per day

No	Hub	Transit place	Days	Distance	Km/day
1	Milano	Genova	3	119	40
2	Milano	Antwerpen	30	732	24
3	Milano	Genova	2	119	60
4	Milano	Genova	10	119	12
297	Milano	Lyon	12	341	28
298	Milano	Antwerpen	21	732	35

<sup>5</sup> Example taken from ASFi, MdP 3082, f. 217r; MAP DocId #51901. Original text: “Con lettere di Lione di 25 passato”. All translation are by the Author.

299	Milano	Schweiz	4	166	41
300	Casale Monferrato	Genova	16	90	6

We could also take the median of all these examples and place them in a table. In order to make it more reliable, we have decided to only include connections (header-transit) that have at least three occurrences. The result can be seen below.

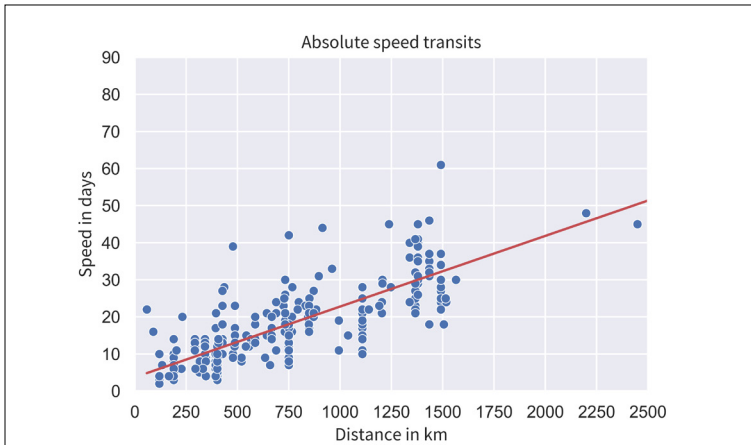
**Table 4** Absolute speed in days for transit connections that appear at least 3 times

	Roma	Milano	Venezia	Wien	Lyon	Augsburg
Istanbul	35		34			
Napoli	6					
Wien						14
Madrid	25					
Lyon	11	10	15			
Avignon	15					
Vlaanderen		25				
Genova	8	3	12			
Augsburg				5		
Malta	21					
Palermo	18					
Antwerpen		26	21	19		
Milano	10					
Paris	17	15	19		7	
Messina	15					
Espana	28	30				

Now that we have both the absolute distance in kilometres and the absolute time in days, we can combine them in one graph [chart 2]. If we put all the travel times of the letters in another scatterplot, we get the following result. As one would expect, the further the distance of the connection, the longer it takes the letter to get mentioned in the *avviso*.

This means that the transits reach a median speed of 42.7 km a day. From this data, we can also derive a formula that describes the general development of the time it took the news to be published. In chart 2 this is represented by the red line.

**Chart 2** Absolute speed transits in speed in days for distance in kilometres



**Formula 2**  $y = 3.71049 + 0.01906x$

## 6 The Speed of News: Applying Travel Times to the News Items

We know the speed of light. But what is the speed of news? Or to be more precise, what was the speed of news in the years 1575-76? From this dataset of *avvisi* from the Medici Archive, we can collect data on different levels. We have already done this for the mentions of letters. But that is not the same as the news itself. We can, however, undertake the same steps for the news by comparing the date of the header (under the `<hub>` tag [code 1]) and the single news item (under the `<from>` tag [code 1]). Difference with the transits discussed in the previous paragraphs is that this goes back to the actual events rather than of the sources used by the writers. In most cases, the locations of the news in the *avvisi* have not been assigned a date. It is usually simply not explicitly mentioned when something happened, and we cannot always trace back an event to a specific day. Of the total of 2,597 news items (or `<from>` tags [code 1]), only 813, or 31.3 percent comes with both an identifiable place and date. Of these, there are only 277, or 10.7 percent, that relate to a movement from one locality to the other. The median travel times in this case are as follows.

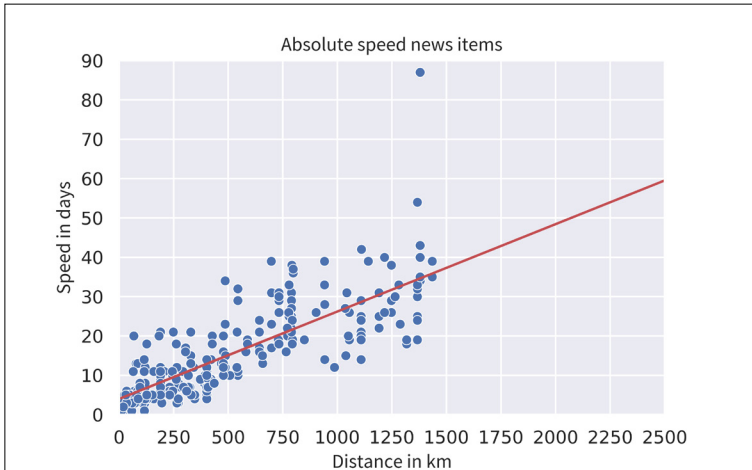
**Table 5** Absolute speed in days for news connections that appear at least 3 times

	Roma	Milano	Antwerpen	Praha
Genova	8	7		
Madrid	30	23		
Paris	25	17		
Milano	13	2		
Cartagena Espana	29	26		
Bruxelles		23	1	
Antwerpen		29	4	
Napoli	7			
Regensburg	24			
Cremona		3		
Torino		5		
Zierikzee		27		
Roma	3			
Istanbul	35			
Pitigliano	6			
Casale Monferrato	12			
Palermo	18			
Firenze	6			
Siracusa	19			
Finale Ligure	8			
Krakow				
Stezyca				29
Praha				8
Corfu				
Dordrecht			10	
Schoonhoven			11	
Wien				
Venezia				

Here one can see the median time it took a news item from its occurrence to its appearance under the header. In this case, it is possible that the location of the header and the news item coincide. We could call this domestic news. Also in these cases, it usually took more than one day to be published. This was to be expected. After all, also the regular series of newsletters that appeared with frequent intervals were only weekly. It might happen for this reason that a news item had to wait several days before it could appear. In that respect, also here the data represents specifically the speed of *publication* and not simply the speed with which the news travelled from one place to another. It seems to suggest that the publication added in general about another two days.

Now that we have both the absolute distance in kilometres and the absolute time in days, we can combine them in one graph. Also here, the publication time increases for longer distances.

**Chart 3** Absolute speed of the news items in speed in days for distance in kilometres



With 33.03 km an hour the median speed of the news is significantly slower than that of the transits (42.7). This might be partially due to the fact that in the case of the news items, oftentimes, the letter or person that bore the information did not depart immediately after the event, but sometimes only after a couple of days, meaning that they came to a standstill in their transit place. Letters, on the other hand, were often dated on the day that the courier left. That would make the news slower in comparison. The formula describing the general development of travel times over distance is for the news also steeper. This means that the increase in travel days over a longer itinerary develops faster in comparison to the transits. Also in that sense, they are slower [form. 3].

**Formula 3**  $y = 3.99205 + 0.02221x$

## 7 Travelling Headers: Travel Times of the Headers

Let us now reconnect this to the matter of the headers. The dates here are much scarcer. After all, one single header can contain dozens of news items or transits, but only gives a few dates for the headers, if any at all. The data we have produced before will also be useful

in comparison to the data produced hereafter. Not in the last place because the dates of the headers, as we will see, are very similar to that of the news items. We will now set out to explain how exactly one can calculate the travel speed of the headers.

The first important thing to realise is that one single document can contain more than one header. In many cases, at least one among the header places will coincide with the locality indicated by the volume in which this document was found [tab. 2]. That means that if we assume that this particular document was actually created in this locality, that there remains a time difference compared to the other headers. This time difference supposedly constitutes the time it took for this particular header to travel from the header place to the place of compilation. For example, in the earlier mentioned volume from Venice, there is a document with a header from Venice dated 29 October 1575.<sup>6</sup> But there is also another header included in this document, originally from Rome, dated 22 October 1575. That means that, for these headers, the connection Rome-Venice took 7 days.

One first important sign that these designations found on the volumes might constitute the actual places of compilation is that if a document does contain a header directly from there, then this is always the most recent among the bunch. That means that this header was probably drafted as last and that the others were created at an earlier date at another place after which they were sent to the place of compilation in order to be included in the same document.

We will now calculate the speed with which the headers moved around the continent in the same way that we have done for the news items and transits. This is possible, we remember, because one document can contain more than one header. In the table that follows, one can see that the sample size is much smaller than for the other categories as has already been indicated above. For both Rome and Venice, we have 11 examples. For Milan there are merely 4 as this volume does not include too many headers from other localities [tab. 2]. The median speed with which the headers moved is 33.04, oddly similar to that of the news items.

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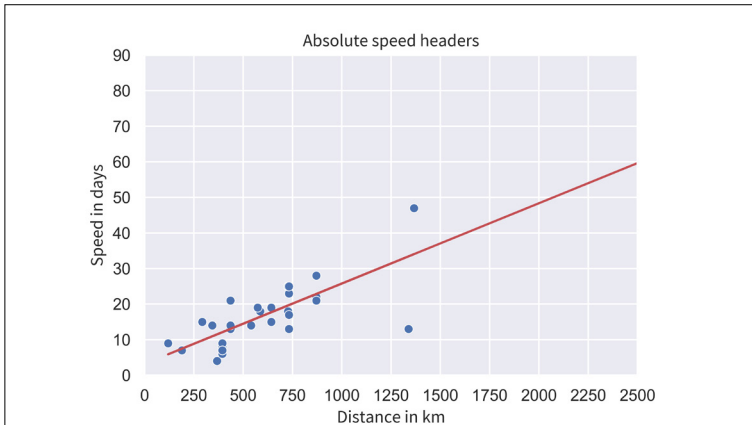
6 The document is ASFi, MdP 3082, f. 335r-336v, MAP DocId #27259.

**Table 6** Absolute speed in days for connections between headers that appear at least 3 times

	Venezia	Milano
Wien	14.0	
Roma	7.0	
Vlaanderen		25.0
Antwerpen	22.0	23.0

This translates to the following scatter plot [chart 4]. Even though the sample size is much smaller than that of the news items, the pattern it follows is quite similar.

**Chart 4** Absolute speed headers in speed in days for distance in kilometres



The general speed is just a notch higher. This might be due to the fact that there are relatively few header places on short distance from the volume’s place of compilation. In general, however, in light of the other data we have collected here, it does not appear to be unrealistic.

**Formula 4**  $y = 3.19529 + 0.02258x$

Now that we understand the dynamics underneath the movement of the news in the years 1575-76, we can reapply the data we have collected to other documents about which there remain some uncertainties around their place of compilation.

The median travel speeds that we have found for the news items and headers are generally somewhat slower compared to those found by Bauer in the correspondence of the Fugger. This was to be expect-

ed however, due to the earlier mentioned inherent differences in the nature of the dates.

## 8 Reassessing the Place of Compilation

Let us now return to the archival question. Where did the documents preserved in this volume of Venice originate? One might ask, but did they not just come from Rome? After all, Rome is the header most frequently found in this volume [tab. 2]. Let us for the sake of the argument consider this possibility.

One of these documents found in the Venetian volume includes headers from Augsburg and Rome that are both dated 27 August 1575.<sup>7</sup> Logically, one would not expect this document and the included headers to be composed in either of these places. If it would have been created in Rome, one would expect a difference of  $3.19529 + 0.02258 * 730 \text{ km} \approx 20$  days. Instead, it is zero. The only other possibility is that the information found under that header would be relatively outdated for that geographical location. But then, why not add some recent news in a genre in which novelty was key? It should follow on the contrary that this document was drafted up elsewhere, probably somewhere in a geographical location between Augsburg and Rome.

We, however, are first testing the hypothesis that these documents from the volume from Venice with a Roman header were made in the eternal city. What we have done above for one document, we can do for all of them. In the table below, all the other headers found in these documents have been collected indicating the number of days between that header and the one from Rome, as well as the number of days that one would expect taking into consideration the general formula we created [form. 4].

**Table 7** Indication of the expected travel times of the headers would the documents have been made in Rome

No	From	To	Days	Expected days	Relative difference	Distance	Km/day
1	Krakow	Roma	26	27	96	1,075	41
2	Antwerpen	Roma	11	30	37	1,206	110
3	Messina	Roma	13	14	93	487	37
4	Corfu	Roma	14	18	78	673	48
5	Lyon	Roma	18	20	90	750	42

<sup>7</sup> ASFi, MdP 3082, f. 305r-308r, MIA DocId #27231.



No	From	To	Days	Expected days	Relative difference	Distance	Km/day
6	Genova	Roma	8	12	67	402	50
7	Milano	Roma	10	14	71	477	48
8	Augsburg	Roma	7	20	35	730	104
9	Genova	Roma	8	12	67	402	50
10	Wien	Roma	17	20	85	766	45
11	Antwerpen	Roma	21	30	70	1,206	57
12	Antwerpen	Roma	21	30	70	1,206	57
13	Wien	Roma	14	20	70	766	55
14	Antwerpen	Roma	21	30	70	1,206	57
15	Wien	Roma	14	20	70	766	55
16	Antwerpen	Roma	14	30	47	1,206	86
17	Napoli	Roma	7	7	100	189	27
18	Schouwen-Duiveland	Roma	24	32	75	1,270	53
19	Regensburg	Roma	15	21	71	793	53
20	Antwerpen	Roma	14	30	47	1,206	86
21	Lyon	Roma	7	20	35	750	107
22	Napoli	Roma	7	7	100	189	27
23	Paris	Roma	27	28	96	1,109	41
24	Antwerpen	Roma	14	30	47	1,206	86
25	Antwerpen	Roma	21	30	70	1,206	57
26	Paris	Roma	20	28	71	1,109	55
27	Antwerpen	Roma	14	30	47	1,206	86
28	Wien	Roma	5	20	25	766	153
29	Antwerpen	Roma	21	30	70	1,206	57
30	Antwerpen	Roma	12	30	40	1,206	101
31	Wien	Roma	15	20	75	766	51
32	Lyon	Roma	8	20	40	750	94
33	Madrid	Roma	29	34	85	1,366	47
34	Napoli	Roma	10	7	143	189	19
35	Regensburg	Roma	15	21	71	793	53
36	Paris	Roma	26	28	93	1,109	43
37	Napoli	Roma	7	7	100	189	27
38	Genova	Roma	7	12	58	402	57

As we can see, in some cases such as the first one, it could be quite accurate. In others, however, the travel would be much too fast. The most extreme case is that of a header from Vienna which would have travelled in only a quarter of the expected time with a speed of 153 km a day. Not only is there not a single header in the database that would match that speed (the maximum is 102 km per day), also none of the news items or transits travel at such a high veloci-

ty. De Tassis maybe promised such high velocities for some connections, but they are never attested in the dates collected in the database nor in those by Bauer.

There are also three other locations indicating a hypothetical speed of more than 100 km a day. All of them coming from the north. A header coming from Naples on the other hand appears too slow. In that respect, for the actual place of compilation of these documents one might have to look further up north.

Then, where could this place be? In order to make a conjecture, we can execute similar calculations for other localities. Let us take into consideration as place of compilation of these documents every header that occurs at least three times in the dataset [tab. 2] which are, next to Rome, the following: Milan, Antwerp, Venice, Prague, Genoa, Naples, Krakow, Augsburg, Regensburg, Lyon, Paris, Madrid, Flanders, Bruxelles and Corfu.

The problem we run into here is that in many cases we are assuming that these documents would have been made in a place from which there was no header included. That means we do not longer have a fixed date as we had with the Roman headers. That is why we have to work with floating hypothetical dates. In order to do this, we will first calculate hypothetical dates of arrival for every candidate place for all the documents from the Venetian volume (using [form. 4]). Then, we will compare the hypothetical dates found within the same document if that particular *avviso* contains two headers or more. If there is little time difference between these hypothetical dates, that means that it constitutes a likely place of compilation. If, on the other hand, they are far removed from each other on the calendar, then it results unlikely that these headers arrived in that place to be compiled in one document. In order to keep the score for the whole volume, we give the candidate places one ‘penalty point’ for every day of difference between the hypothetical arrival dates.

The problem remains that not every connection is very well documented. For the connections that we do not have enough data on [tab. 6], we will have to make a conjecture of the travel days with the formula that we have created based on the data from other headers [form. 4].

An example might clarify a lot. The first document from the Venetian volume contains headers from Rome (2 April 1575), Krakow (7 March 1575) and Antwerp (22 March 1575).<sup>8</sup> We want to make an estimate about the travel time had it been compiled in one of the aforementioned places. Because Milan is the first on the list of candidate places of compilation, we will use it here as example. Because the distance between Milan and Rome is 477 km, we can apply the formula found above and calculate the expected days of difference between the

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<sup>8</sup> ASFi, MdP 3082, f. 229r-230v, MIA DocId #27120.

existing header from Rome and Milan as hypothetical place of compilation [form. 4]  $3.19529 + 0.02258 * 477\text{km} \approx 14$  days. That means that the hypothetical date of compilation in Milan as far as this Roman header is concerned would need to be placed 14 days after the date indicated in this header itself, which would come down to 16 April 1575. This indicates an approximation of the time that it would - hypothetically speaking - have arrived in Milan had that been the place of compilation. We can do the same for the other two headers included in this document. For Krakow that would come down to a difference in days of  $3.19529 + 0.02258 * 952\text{km} \approx 25$  days which results in a hypothetical date of compilation in Milan of 1 April 1575. For Antwerp we actually know that, in other cases, the median trip took 23 days [tab. 6] which gives us a hypothetical date of compilation of 14 April 1575.

As one can see, there are not too many days of difference between these three headers but there remain a couple nonetheless. The Roman header has 15 days difference with that of Krakow, which results in 15 penalty points. The discrepancy with the header from Antwerp adds another two penalty points. The time difference between the latter two adds another 13 points adding up to a total of 30. By doing the same for all other documents from the 'Venetian' volume, we can compare the total amount of penalties they received and see what candidate appears most likely to have been the place of compilation of this volume of documents. This gives us the following results.

**Table 8** Total amount of penalty points indicating the probability of the candidate places constituting the place of compilation for the Venetian volume. In this case, we made use of the documented connections as seen in tab. 6

Venezia	574
Roma	933
Napoli	952
Milano	970
Genova	994
Corfu	1,065
Augsburg	1,364
Regensburg	1,422
Wien	1,546
Praha	1,663
Lyon	1,709
Krakow	1,723
Madrid	1,737
Paris	2,420
Vlaanderen	2,650
Bruxelles	2,656
Antwerpen	2,697

As one can see, Venice actually comes forward as the most likely place of compilation, followed at a respectable distance by Rome and Naples. Logically, places that are geographically close to each other appear not too distant. All top 5 places are found in Italy, followed by Corfu and then the places are circling ever further away from Italy.

## 9 Studying Document Circulation

The problem remains that we do not have specific data for every single connection. Even though the travel times clearly follow a general trend, some connections tend to be faster than others. As a consequence, if we repeat the experiment making use only of times reconstructed with the formula above [form. 4] without recourse to documented connections, we see that Venice still emerges on top, but the difference has become a lot smaller.

**Table 9** Total amount of penalty points indicating the probability of the candidate places constituting the place of compilation for the Venetian volume. In this case, we made exclusively use of reconstructed travel times

Venezia	786
Roma	829
Napoli	925
Genova	970
Milano	1,052
Corfu	1,065
Augsburg	1,364
Regensburg	1,422
Wien	1,546
Praha	1,663
Lyon	1,709
Krakow	1,723
Madrid	1,737
Paris	2,420
Vlaanderen	2,650
Bruxelles	2,656
Antwerpen	2,697

In this case, however, Venice receives a great deal of penalties because the reconstructed travel time for the connection Venice-Rome should, according to the formula, take about 12 days. These two centres, however, were at the very centre of the European news system. One would expect the connection between them to be quite robust and efficient (Caizzi 1993, 224; Burke 2002, 393). A faster time of de-

livery and compilation is to be expected, which has also been documented by others (Infelise 2002, 10). In reality, none of the five occurrences of this connection within the database takes up that much time (restrictively 7, 7, 7, 8 and 9 days). The return trip Rome-Venice is also found once where it takes up only 6 days. The one time that there is a transit from Rome under a Venetian header, it takes only 7 days. In the opposite direction there is again one case which took 9 days to complete. In the future, it might therefore be worthwhile to consider the possibilities for bigger databases from various collections in order to better document the differences between the various connections and the dynamics of publication for specific headers.

Of course, once this tool to make educated guesses about the origins of groups of manuscripts newsletters has been developed, it could just as well be applied to other subsets of documents. The question was more pressing for the volume of Venice, whose composition of headers with only very few cases from the 'official' place of origin made it such a problematic and puzzling case. But it could just as well be applied to other compositions of documents.

The only prerequisite for this is that the volume used should contain several documents with more than one header. Venice was very useful also in that respect because there were no less than 48 documents that fit this qualification. The other two candidates, Milan and Rome, have far fewer documents that can be taken into consideration, 12 and 7 respectively. In the results for Milan, here below, it regards Milan as the most likely place of compilation. Naturally, this is a very different situation from the Venetian volume, where headers directly from Venice were often lacking. All the multi-headered documents here contain a header straight out of Milan.

**Table 10** Total amount of penalty points indicating the probability of the candidate places constituting the place of compilation for the Milanese volume. In this case, we made use of the documented connections as seen in tab. 6

Milano	98
Napoli	130
Roma	133
Corfu	140
Genova	145
Venezia	159
Wien	230
Lyon	243
Augsburg	255
Regensburg	269
Krakow	282
Praha	306

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Madrid	307
Paris	431
Bruxelles	520
Vlaanderen	536
Antwerpen	543

For the Roman volume, it is also Rome itself that ends on top even though with an advantage of one meagre point over Venice. But we remind the reader here that this is also based on a narrow selection of documents.

**Table 11** Total amount of penalty points indicating the probability of the candidate places constituting the place of compilation for the Roman volume. In this case, we made use of the documented connections as found in tab. 6

Roma	122
Venezia	123
Napoli	134
Genova	138
Milano	147
Corfu	154
Augsburg	168
Lyon	189
Regensburg	194
Praha	224
Wien	225
Krakow	242
Paris	260
Madrid	268
Bruxelles	281
Vlaanderen	287
Antwerpen	290

Of course, the same methodology could be applied to other archival collections. At this point, the best thing at my disposal to do such a thing is a partial transcription of the collection of documents within the same date range 1575-76 from the *Fuggerzeitungen*. This collection was originally from Augsburg but is now being preserved in Vienna.<sup>9</sup> Unlike the Medici collection, there is no subdivision in separate folders

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<sup>9</sup> Unfortunately, the digital project surrounding the *Fuggerzeitungen* that offers photographs of all the volumes does not take the documents (or what they would call 'Zeitungssendungen') into consideration.

for different geographical locations, but everything is lumped together in chronologically ordered volumes. We have good reason, however, to believe that these might have been made in Venice as well. The principal hub in these documents is almost always either Venice or Rome. In addition, among these documents there are several which have been signed by one Hieronimo Acconzaioco. This is quite rare, since as a general rule, these documents are anonymous. We also know virtually nothing about him and it is doubted that this even constituted his real name. He is, however, generally considered to have been active in Venice (Infelise 2017, 24-5; Bauer 2011, 101; Keller, Molino 2015, 111). Among these documents, there are 32 that offer more than one header and can thus be used to create the friction necessary to make calculations about a possible place of compilation. The results show that also here, Venice is the most likely candidate. Naturally, the calculations would work better if one had a fuller picture of the headers that were dispatched together. It has also not been said that these documents were necessarily all compiled in the same locality.

**Table 12** Total amount of penalty points indicating the probability of candidate places constituting the place of compilation for the transcribed documents from the Fuggerzeitungen collection. In this case, we made use of the documented connections as found in tab. 6

Venezia	276
Corfu	591
Roma	599
Istanbul	622
Napoli	641
Messina	649
Milano	704
Genova	718
Wien	767
Madrid	776
Krakow	819
Augsburg	837
Regensburg	874
Lyon	911
Praha	973
Paris	1,117
Vlaanderen	1,145
Antwerpen	1,161
Bruxelles	1,171

In all these cases, it can never be ruled out that a particular *avviso* actually found its way to Venice through Rome. For one year before

our timeframe, from the Medici Archive, we find in the same Venetian volume a document that reads:

From Palermo, 22 September 1574 arrived in Venice Thursday morning at the 30th around 16 o'clock by an extraordinary from Rome.<sup>10</sup>

First of all, this is a header travelling at particularly high speeds. Secondly, it illustrates how headers travelled from one place to another. The more so because in the next pages of this volume, this header from Palermo has been combined with another from Rome dated 2 October 1574 in one document.<sup>11</sup> This is an illustration of how headers from different places were combined in the same document.

## 10 Conclusion

The travel times of the news clearly followed patterns established by the dynamics of their dispatch. We can discern a general line for the transits, news items and headers. The time of publication tends to increase for longer itineraries. There remains some disparity, which is partly due to the fact that manuscript newsletters were often published only once a week which meant that after reaching the locality of the header, the news events had to wait for different amounts of time before getting published. Furthermore, there can also have been other factors in play, such as the seasons, the weather, diseases, armed conflicts disturbing communication lines and more. Analysing the data in this way tells us something about how communication networks developed. It can give us insight about when the news reached their locations and what kind of patterns of dissemination to expect.

Here, we have reapplied our understanding of the temporal dynamics of manuscript newsletters to an archival question that has troubled the interpretation of the Medici collection. These newsletters are not all listed under uniform archival numbers, but have directly or at some later point been separated into different folders based on their supposed geographical provenance. This raises the question what the value of such a distinction would be and whether it also went back to separate places of compilation. This question was more pressing for the volumes of Venetian *avvisi* since it is mainly populated with newsletters from Rome with only very few from

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<sup>10</sup> ASFi, MdP 3082, f. 146r-v, MAP DocId #55842. Original text: “Di Palermo li 22 di settembre 1574 venuto in venetia giovedì mattina ^alli 30^ circa le 16 hore per un straordinario di Roma”. The ‘30’ has been added later in another hand however, so it might also be that it was not that fast but they were just mistaken, the more so because the Roman header in the following document is actually dated later.

<sup>11</sup> ASFi, MdP 3082, f. 147r-v, MAP DocId #26945.



Venice. An analysis of the time difference between the headers contained in the same documents has eventually made clear that Venice should still be seen as the most probable place of compilation for this volume of newsletters.

## Abbreviations

ASFi Archivio di Stato di Firenze  
MdP Mediceo del Principato

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# L'Archivio di Ettore Sottsass jr Ricostruire mondi

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**Abstract** Ettore Sottsass archive is a fragmented and dispersed reality. At present only an historical research, together with the application of digital strategies and digitisation practices, could (re)construct it as a complete and coherent network of projects. It is today housed in several different institutions: the funds recently donated to Fondazione Giorgio Cini are now central to an ongoing research study, promoted by IUAV University, Venice, together with the ARCHiVe Centre of the same foundation. The project is part of a multi-annual digitisation and inventorying work: its objective is to offer the access to unpublished primary sources to a wider audience.

**Keywords** Design archives. History of graphic design. Digital humanities. Accessibility. Material/non-material culture.

**Sommario** 1 Ettore Sottsass jr: l'archivio e gli archivi. – 2 Archivi del progetto. – 3 Ricerca storica e prospettive digitali. – 4 Case study #1. – 4.1 Ricostruire da un frammento: *Grafica per i programmi della G.U.F. di Torino stagione 1940/41*. – 5 Case study #2. – 5.1 Ricostruire tra i progetti: storia di una rivista. – 6 Case study #3. – 6.1 Ricostruire tra gli archivi: l'XI Triennale di Milano. – 7 Conclusioni.



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## 1 Ettore Sottsass jr: l'archivio e gli archivi

L'archivio personale e dello studio di Ettore Sottsass jr,<sup>1</sup> architetto, designer, fotografo e artista, è una realtà frammentata e dispersa, fisicamente suddivisa tra istituzioni.

Attualmente è conservato a Venezia alla Fondazione Giorgio Cini, in seguito alla donazione del 2018 da parte della moglie Barbara Radice, ma questo fondo è solo una parte, complementare a quelle raccolte in altre istituzioni, principalmente alla Bibliothèque Kandinsky del Centre Pompidou a Parigi e al Centro Studi e Archivio della Comunicazione (CSAC) Università di Parma, come conseguenza di scelte effettuate nei decenni precedenti dallo stesso Sottsass jr e dagli eredi. Altri materiali, anche consistenti, sono inoltre depositati presso le imprese o i collaboratori con cui Sottsass jr ha lavorato - risultato di pratiche lavorative, occasioni espositive - talvolta organizzati con vere e proprie strutture archivistiche, come nei casi dell'Archivio storico Olivetti a Ivrea, degli Archivi Aldo Londi e Industriale Bittosi a Montelupo Fiorentino o del Centro Studi Poltronova a Firenze.

Questo articolo nasce da una ricerca in corso,<sup>2</sup> una collaborazione tra Università Iuav di Venezia e Centro ARCHiVe (Analisi e Archiviazione del Patrimonio Culturale in Venezia), struttura dedicata alla tecnologia, alla valorizzazione e alla conservazione digitale del patrimonio culturale della Fondazione Cini, fondata insieme a Factum Foundation for Digital Technology in Conservation e Digital Humanities Laboratory dell'École Polytechnique Fédérale de Lausanne (EPFL-DHLAB) con Helen Hamlyn Trust come *supporting founder*. Il Centro ha infatti avviato un progetto pluriennale di digitalizzazione e inventariazione degli oltre cento mila pezzi dell'Archivio Ettore Sottsass jr conservati presso la Fondazione stessa, con l'obiettivo di valorizzarlo e renderlo liberamente accessibile online attraverso le proprie competenze e tecnologie.

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**1** Per un primo inquadramento generale della figura di Ettore Sottsass cf. Thomé 2014; Sottsass jr 2010.

**2** *L'archivio di Ettore Sottsass jr: inventario e registro digitale dell'attività riguardante il design e la grafica*, Università Iuav di Venezia, Dipartimento di culture del progetto, assegnista di ricerca Marco Scotti, responsabile scientifico Fiorella Bulegato, cofinanziamento Fondazione Giorgio Cini, 1 dicembre 2019-30 novembre 2021.



**Figura 1** Dossier dell'archivio di Ettore Sottsass jr donato alla Fondazione Giorgio Cini di Venezia nel 2018. Fondazione Giorgio Cini onlus, Archivio Ettore Sottsass jr, Centro ARCHiVe Venezia

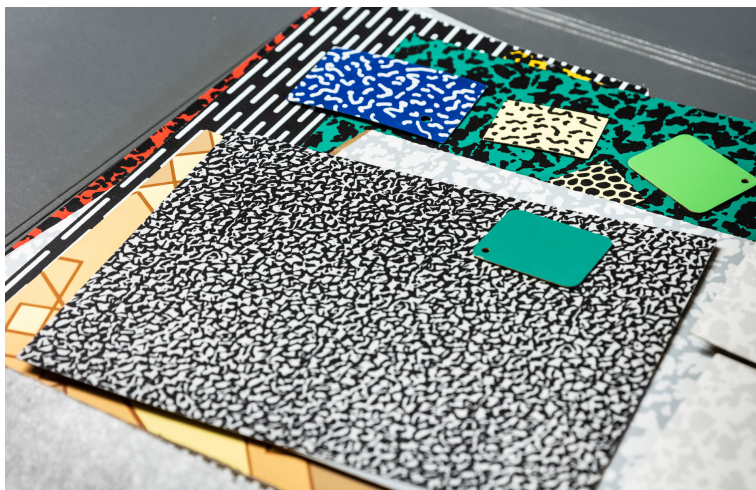
Nel dibattito contemporaneo il termine 'archivio' ha superato e travalicato una dimensione esclusivamente pubblica, arrivando a rappresentare interi corpus di materiali, raccolti in un passato più o meno recente (Schnapp 2008). Un termine non privo di ambiguità (Derrida 1996) nella sua accezione contemporanea - fluido nella struttura come nei ruoli a questa connessi (Clement, Hagenmaier, Knies 2013) -, che si sovrappone frequentemente tanto alla biblioteca quanto al museo e che per essere studiato richiede necessariamente una prospettiva ampia e trasversale alle discipline (Manoff 2004).

Adottando tale approccio multidisciplinare è stato affrontato il progetto di ricostruzione di tutti gli aspetti della pratica artistica e progettuale di Ettore Sottsass jr (Innsbruck 1917-Milano 2007), partendo dalla imprescindibile necessità di conoscere, come primi elementi fondamentali per la ricerca, la storia dell'archivio, la sua struttura, il modo in cui è stato progettato, costruito e conservato.

La prima riflessione di ordine generale riguarda infatti la necessità di ricostruire (Depauw 2013) un vero e proprio network di documenti, progetti, lavori, informazioni e cronologie, un tema centrale d'altra parte per qualsiasi studio che approccia gli archivi di progettisti con la consapevolezza di come questi sistemi possano riflettere e restituire processi e percorsi fondamentali su differenti livelli.

Nel caso di Sottsass jr alla Fondazione Cini si tratta di una serie di materiali eterogenei costituita dai cosiddetti 'dossier', contenenti tutto il materiale progettuale e personale, meticolosamente diviso e ordinato sia cronologicamente sia per categorie progettuali (arte, architettura, interni, design, grafica, mostre e allestimenti, editoria, articoli stampa, varie). A questi vanno aggiunti altri documenti come grafiche d'arte, manifesti e poster, riscontri commerciali, bozze per pubblicazioni, libri, tesi di laurea, una collezione di cestini. Frutto di un intervento dello stesso autore, che ha radunato e organizzato inizialmente tutti questi materiali, l'Archivio Sottsass jr è un ottimo esempio di progettazione della memoria (Sarno 2021, 194), di creazione di un sistema dotato di una dimensione sia privata sia pubblica e che per essere interpretato correttamente va considerato nelle sue contemporanee divisioni e frammentazioni tra diverse istituzioni e spazi di conservazione, spesso anche queste frutto di scelte consapevoli.

Come studiare e collegare un sistema così definito con gli altri archivi che, nel tempo, da questo sono stati separati e hanno di conseguenza trovato una nuova dimensione? Per affrontare queste sfide, e i rischi che comportano, è necessario mettere a fuoco una serie di passaggi e caratteristiche fondamentali.



**Figura 2** Materiali tratti dalla serie *Memphis*, 1985-1986 (SOT\_MEM\_11): pattern su formica. Fondazione Giorgio Cini onlus, Archivio Ettore Sottsass jr, Centro ARCHiVe Venezia

## 2 Archivi del progetto

Gli archivi di architettura e design, una tipologia con una storia relativamente recente (Irace 2013; Bonini Lessing et al. 2019, 8), hanno come elemento fondante il progetto, e proprio il processo progettuale è l'elemento da ricostruire nella sua unicità (Irace 2013).

Nel caso di Sottsass jr - in particolare considerando i dossier progettuali nella sezione storica del suo archivio - letteralmente a partire da ogni singolo foglio e annotazione emergono, oltre a una visione dell'archivio come autobiografia (Zanella 2018a) e rappresentazione di sé, le scelte, i gesti legati al suo pensiero e metodo progettuale e di lavoro.

Per poter indagare l'intero processo progettuale è quindi indispensabile avere a disposizione tutti i documenti che lo definiscono, in modo da consentire un confronto critico. Questo lavoro di ricerca prevede, anche solo come condizione preliminare, una ricostruzione del dibattito critico e - soprattutto - il recupero dei materiali pensati da Sottsass per le varie fasi di lavoro, dispersi oggi tra più sedi.

Lo studio più recente dedicato alla figura di Sottsass jr, che ha posto come punto di partenza il suo archivio, è quello svolto dallo CSAC in occasione della celebrazione del centenario della nascita del progettista.

L'istituzione conserva un importante archivio di Sottsass jr, complementare nella struttura a quello veneziano, donato con atto pubblico nel 1979 dallo stesso designer a partire da una selezione di progetti provenienti sempre dal suo studio e dalle sue attività personali.

Centro di ricerca dell'Università di Parma fondato da Arturo Carlo Quintavalle sul finire degli anni Sessanta, lo CSAC ha visto, fin dalla sua apertura, l'organizzazione di attività rivolte alla costituzione di una raccolta di collezioni e archivi di arte, fotografia, architettura, design, moda e grafica, in parallelo allo studio e alla valorizzazione di queste grazie all'organizzazione di esposizioni e alla pubblicazione dei relativi cataloghi. Nel 2017 l'archivio Sottsass jr trova qui la sua prima esposizione al pubblico, con la mostra *Ettore Sottsass. Oltre il design*, risultato di un ampio lavoro di catalogazione e digitalizzazione dell'intero fondo che vede in parallelo la pubblicazione del catalogo ragionato (Zanella 2018b). Analogamente alla mostra, il volume deriva dalla collaborazione fra archivisti e curatori del Centro, e una squadra di studiosi, curatori e ricercatori invitati ad affrontare da differenti prospettive le pratiche e ricerche di Sottsass jr

A fianco di altre pubblicazioni (Radice 2017; Barbero 2017) e mostre organizzate in occasione del centenario della nascita, che hanno sostanzialmente aggiornato il panorama degli studi e delle risorse disponibili, la recente mostra al Centre Pompidou di Parigi rappresenta un ulteriore punto di arrivo. Anche in questo caso, gli archivi parigini sono stati riletti, ripensati ed esposti, con l'opportunità di genera-

re nuove relazioni con le collezioni e i progetti selezionati dai curatori. Non è un caso che all'interno del catalogo ben due testi (Sarno 2021; Saraiva 2021) siano dedicati proprio agli archivi donati all'istituzione. Facendo emergere la struttura e la consistenza dei fondi, così come le scelte effettuate per affrontarli tramite nuovi modelli interpretativi, i contributi analizzano nella loro interezza le collezioni fotografiche, le agende e i quaderni personali, il fondo legato alla collaborazione con l'azienda Olivetti, così come le ricerche personali e le raccolte di packaging e grafiche trovate. Da questi contributi emerge la natura essenzialmente eclettica ed enciclopedica dell'archivio, che documenta e attraversa la pratica di Sottsass senza sostanzialmente distinguere la dimensione pubblica da quella privata.



Figura 3 Materiali tratti dal dossier *Grafica pubblicitaria per liquori Carpano* (1948\_G\_02): schizzi, pagine pubblicitarie, manifesto. Fondazione Giorgio Cini, Archivio Ettore Sottsass jr, foto di Noemi La Pera per Centro ARCHiVe Venezia

### 3 Ricerca storica e prospettive digitali

Dopo una essenziale definizione del contesto e della natura dei materiali, un ulteriore approfondimento per riflettere sul tema della ricostruzione di un archivio ha riguardato le strategie e pratiche digitali, intese come strumento per restituire un panorama di progetti e attività completo e coerente (Scodeller 2017).

La dimensione digitale è un elemento fondante di questa ricerca, considerando come fin dalla donazione dell'archivio Sottsass jr alla Fondazione Cini l'obiettivo principale e condiviso è stato quello di offrire, attraverso l'accessibilità online dell'*Inventario* e del *Regesto*



dell'attività di Ettore Sottsass jr relativi al design e alla grafica, fonti primarie inedite non solo per chi si occupa di ricerca storica, ma anche per un pubblico allargato. In questo senso è necessario ripartire da modelli di attivazione e produzione della conoscenza (Schnapp 2018), dai possibili approcci curatoriali specifici, per arrivare ad affiancare lo studio e la messa in relazione dei materiali con modalità per una conservazione a lungo termine, che al tempo stesso considerino un'attivazione e un'accessibilità dell'archivio basata su tempi più brevi (Schnapp 2018, 306).

Una prospettiva che vuole considerare, guardando a modelli di partecipazione e integrazione, l'archivio come un luogo dedicato alle connessioni, interrogandosi sulle potenzialità specifiche dell'oggetto digitale (Irace 2013).

Questo dovrà tenere in considerazione le specificità del caso, ripartendo da studi e sperimentazioni che hanno dimostrato come gli archivi digitali dedicati al design in Italia possano rappresentare una risorsa fondamentale per la ricerca (Scodeller 2017), al centro del dibattito sia per quanto riguarda la definizione di una metodologia di lavoro e di indagine sia rispetto alla messa in luce di una loro specificità, che permetta di distinguerli da biblioteche, mostre e collezioni. Con l'archivista digitale sempre più portato a un approccio multidisciplinare – integrando competenze proprie di ricercatori, curatori, editori e storici (Clement, Hagenmaier, Knies 2013) –, gli archivi, le collezioni e le raccolte museali dedicati alle arti applicate e al design hanno presentato in questi ultimi anni diversi progetti rivolti a sperimentare nuovi modelli per evitare rischi di dispersione dei materiali, facilitare nuove prospettive di studio e animare l'archivio. A partire da un'idea inclusiva di accessibilità – e con alcuni prodromi importanti, come il Centro di Documentazione Sul Progetto Grafico di AIAP (Associazione italiana design della comunicazione visiva) – archivi quali quello dedicato a Gio Ponti<sup>3</sup> oppure il più recente Archivio Vico Magistretti<sup>4</sup> rappresentano strumenti fondamentali per la tutela e la valorizzazione del design inteso come bene culturale.

Il progetto avviato dal Centro ARCHiVe della Fondazione Cini per l'archivio Sottsass jr, all'interno del quale questa ricerca si inserisce, ha scelto come elemento centrale l'idea di interconnessione e ha lavorato da subito sullo sviluppo di sistemi informativi grazie alla pratica dei *Linked Open Data*, le cui potenzialità (Listo 2019) rispetto ai beni culturali e nello specifico al design (Bonini Lessing et al. 2019, 6) sono già state presentate. L'obiettivo generale di definire e utilizzare «standard e formalismi appropriati» per arrivare a «una definizione esplicita sia del significato sia delle relazioni implicite di risorse

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<sup>3</sup> <http://www.gioponti.org/it/archivio/>.

<sup>4</sup> <https://archivio.vicomagistretti.it/magistretti/>.

se allo scopo di renderle semanticamente accessibili e interconnesse tra loro» (Listo 2019, 29) trova nell'archivio di Sottsass jr un campo di applicazione ideale.

#### **4 Case study #1. Ricostruire da un frammento: Grafica per i programmi della G.U.F. di Torino stagione 1940/41**

Per entrare meglio nella specificità del caso, riteniamo sia fondamentale riportare il lavoro svolto su alcuni casi di studio che hanno mostrato differenti prospettive, difficoltà e potenzialità rispetto alla schedatura storico-critica dei progetti contenuti in archivio, lavorando tanto sulla ricerca storica e bibliografica quanto sulla messa in connessione dei diversi fondi.

La scelta alla base del lavoro è stata quella di affrontare in un primo momento l'attività nei campi della grafica e del design. Questa delimitazione dell'ambito di ricerca all'interno dell'archivio personale del progettista corrisponde alla volontà di arricchire il dibattito in corso a partire da materiali in gran parte ancora oggi poco studiati o inediti, ricostruendo di volta in volta la sua ricerca e la sua produzione: dai dati biografici e privati alle collaborazioni e ai rapporti con partner, committenti e aziende.

Una prima tipologia è rappresentata dai progetti i cui materiali sono conservati unicamente nell'archivio veneziano. Frammenti e materiali eterogenei necessitano in questo caso di una contestualizzazione storica basata su studi esistenti e pubblicati. Un esempio è il dossier *Grafica per i programmi della G.U.F. di Torino stagione 1940/41*,<sup>5</sup> riconducibile all'attività di Sottsass jr nei primi anni torinesi - nel 1929 la famiglia si trasferisce nel capoluogo piemontese - e legata al suo inquadramento all'interno del Gruppo Universitario Fascista (GUF Amos Maramotti), successivo alla sua iscrizione alla Scuola superiore di Architettura al Politecnico di Torino [fig. 4].

Il lavoro è stato ricondotto all'invito di Fernanda Pivano - scrittrice e intellettuale, futura moglie di Sottsass jr e figura fondamentale per un'ampia fase della sua carriera - che aveva conosciuto il giovane architetto nel 1938 e al suo tentativo di coinvolgerlo nella progettazione di alcune scenografie per un'opera del Cinquecento da tenersi all'interno della programmazione dei GUF. A questa proposta era seguita, almeno secondo la versione di Sottsass jr (2010, 66, 80), una controproposta (Sudjic 2015, 55) per il progetto di poster e biglietti, che ha portato al progetto qui conservato e finora praticamente inedito.

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<sup>5</sup> *Grafica per i programmi della G.U.F. di Torino stagione 1940/41*, 1940 G, Archivio Ettore Sottsass jr, Fondazione Giorgio Cini, Venezia.



Figura 4 Materiali tratti dal dossier Grafica per i programmi della G.U.F. di Torino stagione 1940/41 (1940\_G\_01):  
depliant, abbonamenti, programmi. Fondazione Giorgio Cini onlus, Archivio Ettore Sottsass jr,  
Centro ARCHiVe Venezia

Confrontabile solo con un manifesto dalla data simile conservato negli archivi CSAC<sup>6</sup> e ad oggi mai pubblicato, il progetto grafico per promuovere la stagione musicale 1940-41 del GUF di Torino, una serie di concerti tenutisi presso il Regio conservatorio di musica Giuseppe Verdi, risulta declinato su diversi formati che condividono un impianto basato su una griglia, un modello progettuale su cui lo stesso Sottsass tornerà diverse volte nel primo dopoguerra e che qui appare per la prima volta. Per ogni concerto è realizzato l'invito, pieghevole e pensato per essere inserito in una busta, composto da un foglio impresso in bianca e volta, declinato su due formati di differenti dimensioni - a tre oppure due pieghe. In bianca è caratterizzato da una fascia di colore differente per ogni concerto, mentre in volta contiene tutti gli appuntamenti della stagione, la biografia dell'interprete, il suo ritratto fotografico e le informazioni essenziali. I caratteri tipografici variano da un sans serif grassetto di derivazione svizzera, utilizzato per il nome del musicista, a un graziato veneziano per la maggior parte del testo, con alcuni inserti calligrafici. I biglietti di ingresso, sempre progettati da Sottsass jr, riprendono i diversi colori e il contrasto tra caratteri bastone e calligrafici, così come i programmi sono riconoscibili dalle copertine impostate su fasce del colore corrispondente alla serata. I programmi - in archivio ne sono conservati due, uno per il concerto di liriche cantate da Marisa Merlo del 15 gennaio 1941 e uno per l'intera stagione musicale - rappresentano un'ulteriore declinazione del progetto grafico sul formato del libretto. Infatti, per quello che è probabilmente il primo progetto in assoluto di Sottsass per un prodotto editoriale viene introdotto un terzo carattere tipografico mentre per le pagine viene ripresa l'impaginazione pensata per gli inviti adattando la griglia al formato orizzontale, mantenendo il colore solo in copertina e, nel caso del singolo concerto, impaginando centralmente il testo e rinunciando alle immagini.

Come accennato, il lavoro è inquadrabile nell'attività di Sottsass jr come scenografo e le sue partecipazioni e i riconoscimenti ottenuti in questo ambito all'interno dei Littoriali di arte e cultura. Tale ricostruzione è però possibile attraverso un ulteriore confronto con i materiali dell'archivio del progettista presso lo CSAC di Parma relativi ai lavori presentati agli esami di scenografia e decorazione di interni, mentre sono conservati presso la Bibliothèque Kandinsky del Centre Pompidou i fondi contenenti i suoi scritti e quindi gli articoli realizzati come collaboratore de *Il Lambello. Quindicinale dei gruppi universitari fascisti del Piemonte* che documentano le relazioni di Sottsass jr con l'organizzazione. Questa rimane tuttavia tra le pochissime testimonianze del lavoro grafico di Sottsass jr datate dopo la laurea in

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<sup>6</sup> Archivio CSAC Università di Parma, *Progetto per locandina G.U.M.*, data: 1935-1940, consistenza: 1 serigrafia su carta, 500 × 500 mm, cod: B200135S.

architettura (esperienze anteriori o di poco successive sono le copertine per le riviste scolastiche del Liceo scientifico G. Ferraris conservate sempre presso l'archivio veneziano) e precedenti all'esperienza bellica, nonché contemporanee alla brevissima esperienza presso la Fiat come architetto-designer. I lavori per quanto connotati da un certo schematicismo, riconducibile all'esperienza e all'ambito culturale dei GUF, possono essere letti come anticipatori di alcune tendenze poi compiutamente sviluppate dal progettista nei due decenni successivi anche grazie all'incontro con figure quali Max Huber e Max Bill, come le sperimentazioni sull'uso del colore e il lavoro di accostamento nella stessa pagina fra caratteri tipografici anche profondamente differenti. È inoltre da considerare come certi echi del movimento moderno, apparentemente rifiutati all'interno dell'esperienza dei GUF, possano tornare in Sottsass jr, che solo tre anni prima aveva visitato l'*Exposition Internationale des Arts et Techniques dans la Vie Moderne* a Parigi e aveva quindi potuto vedere personalmente il lavoro di figure come Le Corbusier e Josep Lluís Sert, il dipinto *Guernica* di Pablo Picasso e i lavori di Georges Braque e Henri Matisse, o - relativamente alle soluzioni grafiche - il *Pavillon de la publicité*.



Figura 5 Materiali tratti dai dossier riguardanti la rivista *1/2 Secolo* (1949\_G\_02, 1949\_G\_03, 1949\_G\_04, 1949\_G\_05, 1949\_G\_06, 1949\_V\_01, 1949\_V\_02, 1949\_V\_03, 1949\_V\_04, 1949\_V\_05, 1949\_V\_06, 1949\_V\_07): grafiche, studi, programmi. Fondazione Giorgio Cini onlus, Archivio Ettore Sottsass jr, Centro ARCHiVe Venezia

## 5 Case study #2. Ricostruire tra i progetti: storia di una rivista

Alcuni progetti hanno richiesto invece un lavoro di confronto tra i dossier, una minuziosa analisi che ha attraversato le categorie e le cronologie per ricostruire, a partire da un dibattito critico aggiornato, il quadro complessivo di vicende complesse.

Un esempio è rappresentato dal progetto mai realizzato per una rivista, a cui Sottsass lavora dalla fine degli anni Quaranta. Non presente in altri archivi, se non come tracce, la rivista *1/2 Secolo* - inizialmente denominata *Rapporti*, poi *L'Anno* e in alcuni bozzetti *Dinamo* [fig. 5] - costituisce un'esperienza centrale per ricostruire non solo il metodo progettuale di Sottsass jr ma, più in generale, il suo approccio al mondo dell'editoria nei suoi primi anni di attività professionale. Iniziata come sperimentazione nel maggio 1947 - anno della prima corrispondenza a riguardo -, trova nel maggio 1949 le prime declinazioni grafiche arrivando presto al titolo definitivo di *1/2 Secolo*.<sup>7</sup> La rivista non sarà tuttavia mai pubblicata e nel 1950 sarà dichiarata esperienza chiusa dallo stesso Sottsass jr ma, pur nel fallimento, si configura come un laboratorio, durato diversi anni, grazie al quale l'architetto-designer mette a fuoco un'idea di 'piattaforma' multidisciplinare e internazionale, e allo stesso tempo tenta di sintetizzare le esperienze di grafica editoriale portate avanti nel primo dopoguerra. Questi processi si cristallizzano nell'archivio, all'interno del quale Sottsass jr sceglie, di volta in volta, i materiali da conservare classificandoli fra i progetti grafici oppure fra le 'varie', salvando la memoria attraverso la corrispondenza, i verbali delle riunioni e i piani editoriali e finanziari.

Il primo editore, come emerge dalla corrispondenza e dai documenti in archivio, avrebbe dovuto essere l'Orma di Vladi Orengo e Piero Malvezzi,<sup>8</sup> con cui Sottsass collabora regolarmente in questi anni, mentre lo stesso Orengo presenta all'architetto quello che avrebbe dovuto essere il principale finanziatore dell'operazione, Gianni Agnelli, e quindi il giovane fratello Giorgio, introdotto dall'avvocato al suo rientro dagli studi negli Stati Uniti.<sup>9</sup> La storia della rivista,

<sup>7</sup> Per una prospettiva completa sulla vicenda si vedano: 1949 G; 1949 V; 1951 G; 1951 V, Archivio Ettore Sottsass jr, Fondazione Giorgio Cini, Venezia.

<sup>8</sup> Nella biografia di Sudijc (2015, 47, 110-11) è riportato Arnoldo Mondadori come editore interessato, ma è probabile che sia frainteso il coinvolgimento di Alberto Mondadori in redazione, appena rientrato a lavorare nell'azienda di famiglia e che nell'ottobre 1950 avrebbe lanciato *Epoca*.

<sup>9</sup> Le relazioni con la famiglia Agnelli sono testimoniate anche da altri progetti come la palestra in casa di Gianni Agnelli (1952) e gli studi per un telefono per Giorgio Agnelli (1953): 1953 D, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia; Archivio CSAC Università di Parma, *Studi per telefono*, 1953, committente Giorgio Agnelli,

che inizialmente avrebbe dovuto essere dedicata all'arte ma ben presto – come si vede già nella corrispondenza del 1947 – assume caratteri differenti e più eterogenei, è ricostruita dallo stesso Sottsass jr in diverse occasioni (Sottsass jr 2010, 134-8).

Nei documenti del 1949 presenti in questo archivio e classificati nella categoria «Varie» sono presenti altre tracce relative questa vicenda, a partire dalla prima corrispondenza con Vladi Orenge del 1947, accompagnata da una ipotetica struttura di redazione, oltre ad alcuni articoli già raccolti, tradotti e accompagnati da fotografie.<sup>10</sup> Particolarmente interessante un promemoria che definisce il formato del periodico, le caratteristiche,<sup>11</sup> l'uscita, prevista per il 1 giugno 1949, affiancati da una dichiarazione di intenti per la sezione dedicata alla storia dell'arte, evidentemente ancora centrale in questa prima versione della rivista, per la quale vengono già scelti i temi da affrontare e i collaboratori italiani e stranieri, tra cui troviamo artisti, letterati e architetti (solo a mano sono aggiunte note per possibili approfondimenti su musica, teatro e danza).

Sempre databili al 1947 sono i materiali conservati da Sottsass jr in un'ulteriore cartella,<sup>12</sup> grazie ai quali è possibile ricostruire la struttura ipotizzata per la rivista pagina per pagina, con un breve abstract per ogni sezione (fondo, attualità, ultime notizie / pittore, architetto, letterato / industria, tecnica, scienza / ambiente / libro a puntate / classico dell'architettura, architettura / classico pittura, letteratura, musica / ... / civiltà antica), gli autori e i soggetti già definiti. In questa sorta di primo menabò quasi esclusivamente testuale emergono già alcuni nomi che ritorneranno in tutta la vicenda, come quelli di Tristan Tzara e Brassai, Alexander Calder, Max Ernst ma anche Richard Wright, Raymond Queneau e diversi giovani scrittori americani, Charles Eames, Oscar Niemeyer e Bernard Rudofsky, Nikolaus Pevsner, Lewis Mumford e Sigfried Giedion con Walter Gropius e Auguste Perret nella sezione dedicata a tecnica e industria, Alfred Barr e Alberto Savinio. Per quanto riguarda l'impaginazione, è conservata una lettera di incarico a Max Huber del 11 ottobre 1947 da parte dell'amministratore di Orma edizioni Orenge, a cui però non faranno seguito altri scambi, e anche il logotipo *1/2 Secolo*, che ap-

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consistenza: 12 schizzi e *Progetto per palestra di casa Agnelli, Torino, 1952*, consistenza: 2 lucidi. Con la morte nel 1965 di Giorgio – legato a Sottsass jr da una lunga amicizia e per il quale progetta anche l'arredamento di un appartamento a Milano – si chiuderanno però i rapporti (Sottsass jr 2010, 135-9).

**10** Rivista «*1/2 Secolo*» – *Progetto editoriale e primi articoli*, 1949 V, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.

**11** Rivista «*1/2 Secolo*» – *Progetto editoriale e primi articoli*, 1949 V, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.

**12** Rivista «*1/2 Secolo*» – *Programmi I periodo*, 1949 V, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.

pare in un foglio di appunti abbozzato a mano, quella data sembra essere già stato disegnato da Sottsass jr. Tra gennaio e febbraio 1949<sup>13</sup> prosegue la definizione dei programmi e della redazione, per quello che lo stesso Sottsass registra come un «secondo periodo»: la testata in questo momento è *Rapporti* - si vedano anche le coeve bozze grafiche conservate in archivio e quelle in cui il titolo provvisorio è *Dinamo* -, Alberto Mondadori è introdotto al progetto - il 18 gennaio si tiene una riunione in casa sua, di cui sono conservati i verbali - e iniziano le discussioni intorno alle questioni tipografiche e all'impaginazione.

In questa fase sono definite anche le possibili serie e le tematiche, con un'ottica di periodicità che si perderà presto, e i nomi dei redattori, Fernanda Pivano, Alberto Mondadori, Remo Centoni, Raffaele Carrieri, Federico Veneziani e Nando Ballo, che si riuniscono per la prima volta il 2 febbraio. Sono già abbozzati anche alcuni testi per la pubblicità, si raccolgono proposte di articoli da figure come Dino Formaggio, e da qui in avanti<sup>14</sup> si iniziano a programmare inviti e spazi da riservare alle diverse figure individuate come collaboratori, con rose di nomi sempre più ampie. Sempre nel 1949<sup>15</sup> vengono costruite le prime ipotesi di distribuzione commerciale, sviluppo pubblicitario ed eventuali partnership con imprese, ipotizzando un Ufficio Pubblicità interno, così come viene redatta una scrittura privata tra Gianni Agnelli e Sottsass jr per la cura della stampa, finanziata interamente dal primo, con il nome della rivista, la carica di amministratore delegato affidata ad Agnelli e la data di pubblicazione ancora da definire. Già nel giugno dello stesso anno la rivista si intitola *1/2 Secolo* e, tramite gli avvocati dello Studio Lanza, viene preparato il documento di costituzione della fondazione di una nuova società dedicata della durata di tre anni, con la partecipazione de Il Poligono come editore e l'obiettivo di almeno dodici numeri. Essa presumibilmente avrebbe dovuto sostituire la scrittura privata del febbraio 1949 che prevedeva un accordo esclusivo con Orma edizioni. Sottsass jr firma nel marzo 1949 il programma redazionale e soprattutto quello ideologico, ambizioso e chiaramente votato alla rappresentazione e contestualizzazione storica delle avanguardie del Novecento, anche tramite le voci dei protagonisti, connotato da un tono «assolutamente antididascalico» e che permette «della civiltà contemporanea di chiarire l'intima storia umana».

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**13** Rivista «*1/2 Secolo*» - *Programmi* - 1949 I periodo, 1949 V, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.

**14** Rivista «*1/2 Secolo*» - *Programmi e redazione* - 1949 II periodo, 1949 V, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.

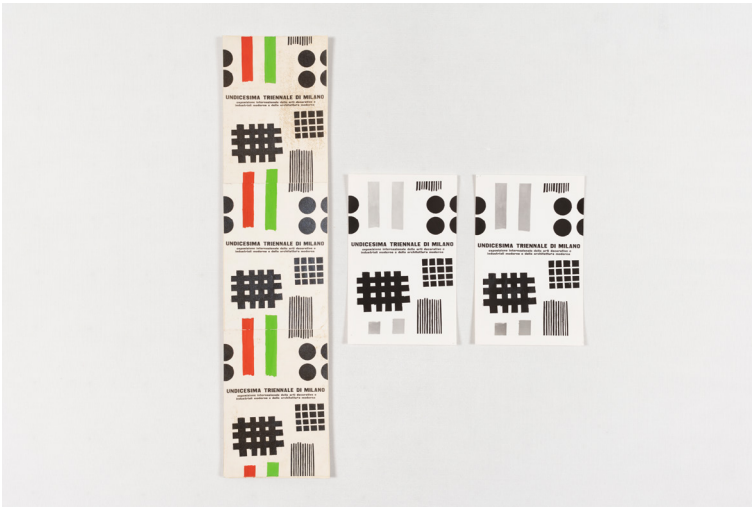
**15** Rivista «*1/2 Secolo*» - *Studi ed elenchi per collaborazioni*, 1949 V, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.



Da questo momento in avanti i documenti si diradano, in parallelo probabilmente con le numerose difficoltà che emergono. Rimangono nella corrispondenza solo tracce dei numerosi scontri dello stesso Sottsass jr con la struttura sempre più organizzata de Il Poligono, divenuta nel frattempo editore di riferimento quasi esautorando lo stesso direttore Sottsass jr per quanto riguarda diverse scelte, e i ripensamenti riguardanti il primo numero definito 'campione', un numero zero rivolto soprattutto ad esplorare le potenzialità della rivista in ambito pubblicitario. Il silenzio e gli scontri del periodo sono testimoniati anche dallo scambio di lettere con il componente della redazione Veneziani, che, non venendo rimborsato delle spese già sostenute per gli impegni presi (la corrispondenza include anche Brasai e Tristan Tzara, su cui avrebbe dovuto scrivere e che avevano già fornito fotografie e documenti), cerca più volte Sottsass jr, senza ottenere particolari risposte. La conclusione nel 1950 della storia di *1/2 Secolo* può essere ricostruita da alcune lettere.<sup>16</sup> Sottsass jr scrive il 4 febbraio al consigliere delegato Silvio Tanziani, editore proprietario della Poligono, con Giorgio Agnelli e Ferruccio Buratti in copia, lamentandosi dell'inconcludenza delle riunioni e degli sforzi fatti negli ultimi sei mesi, in risposta a una lettera dello stesso Tanziani in cui presumibilmente si annunciava la chiusura definitiva del progetto, e addossandone le colpe alla «più assoluta disorganizzazione e non collaborazione dei vostri uffici». Una lettera piena di accuse rispetto a diverse vicende, dal presunto affossamento del progetto tramite il rallentamento delle operazioni di impaginazione al mancato rimborso di alcune spese ai collaboratori, che a detta di Sottsass jr hanno generato un clima di diffidenza intorno alla rivista e la conseguente rinuncia a scrivere di persone che già si erano impegnate a voce, come Alberto Savinio, fino all'esplicita volontà di esautorare l'architetto dal suo ruolo di direttore. Nonostante un'apertura a una riconciliazione rivolta a proseguire l'esperienza in chiusura della lettera, l'esperienza con il Poligono si chiude (con una nota spese allegata per diversi rimborsi) e il 10 marzo Sottsass jr scrive a diversi amici, membri della redazione e potenziali collaboratori coinvolti nella rivista, annunciando di fatto il fallimento del progetto e scusandosi imbarazzato per i lunghi tempi e le difficoltà organizzative e finanziarie. L'obiettivo, mai raggiunto dopo tanti anni, è descritto in sintesi in una di queste lettere: «poter dare agli amici un mezzo spregiudicato e direi quasi irresponsabile, sul quale potessero considerare le loro cose più preziose e intelligenti».

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**16** Rivista «1/2 Secolo» - Corrispondenza, 1949 V, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.



**Figura 6** Materiali tratti dal dossier *Manifesto per la XI Triennale di Milano* (1956\_G\_01): studio della modularità. Fondazione Giorgio Cini onlus, Archivio Ettore Sottsass jr, Centro ARCHiVe Venezia

## 6 Case study #3. Ricostruire tra gli archivi: l'XI Triennale di Milano

Molto spesso il lavoro di lettura e ricostruzione di un progetto e della sua storia, in un caso come quello di Sottsass jr, non può prescindere da un confronto fra i diversi fondi in cui i materiali si sono trovati ad essere conservati. È frequente il caso di un singolo dossier contenente materiali differenti conservato con lo stesso nome e la stessa data sia allo CSAC che alla Fondazione Cini, mentre la documentazione fotografica e i riferimenti cronologici sono invece archiviati fra i fondi della Bibliothèque Kandinsky.

Un esempio che restituisce tali dinamiche legate a donazioni e conservazioni può essere ritrovato nel lavoro fatto per analizzare i materiali relativi al progetto grafico per l'XI Triennale di Milano [fig. 6].<sup>17</sup>

All'interno del lungo e complesso rapporto di Sottsass jr con la Triennale di Milano iniziato nel 1947 (Modena 2018), la partecipazione alla XI Triennale del 1957 si presenta come particolarmente articolata:

oltre alla progettazione del marchio e dell'allestimento della Sezione del Vetro, Sottsass espone *Miraggio* (disegno stampato su fon-

<sup>17</sup> *Manifesto per la XI Triennale di Milano*, 1956 G, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.

do marrone e motivi bianchi, gialli e rossi su tessuto reps di lilion) nella Sezione dei Tessuti ottenendo il secondo premio ex aequo, e alcuni gioielli - una collana d'oro e pendente snodabile e una spilla ovoidale d'oro a forma concava - nella Sezione dell'Oreficeria curata da Arnaldo e Giò Pomodoro tra creazioni firmate, tra gli altri, da Gianni Dova, Emilio Scanavino ed Enrico Baj. (Modena 2018, 75)

L'incarico come grafico è quindi, come spesso accade, portato avanti a fianco di altri progetti e commissioni relativi all'allestimento e alle prime sperimentazioni con il disegno di prodotti, fra industria e artigianato, sebbene con una metodologia progettuale coerente e lo sviluppo di un linguaggio uniforme.

La Triennale rappresenta poi un contesto privilegiato e imprescindibile in questi anni per qualunque architetto, soprattutto in ambito milanese, voglia confrontarsi con il dibattito intorno al progetto e al rapporto fra le arti. In particolare, l'edizione si apre con la contestazione del Movimento di studi per l'architettura (MSA) che, sotto la guida di Giancarlo De Carlo, invita gli iscritti a non partecipare alla manifestazione, invito seguito da tutti a esclusione di Marco Zanuso e Sottsass jr (Pansera 1978, 81): un'ulteriore conferma della sua tendenza a scegliere prospettive altre e a muoversi al di fuori dei dogmatismi (Sottsass 2010, 159-60). Il suo distacco dal dibattito politico è frequentemente ribadito nei suoi scritti,<sup>18</sup> distacco che accompagna un'indipendenza di cui Sottsass sembra in generale aver bisogno - indipendenza dalle dinamiche dell'industria come dalle logiche del potere - e che si riflette inevitabilmente nel metodo di lavoro: come ricostruisce Elisabetta Modena (2018, 76) l'approccio antiretorico emerge già in questa edizione, a partire dal lavoro sugli allestimenti.

Per quanto riguarda il progetto del marchio dell'XI Triennale, la realizzazione<sup>19</sup> era stata inizialmente affidata a un concorso, che tuttavia, come risulta dai materiali conservati nell'Archivio Storico della Triennale,<sup>20</sup> non porterà ad alcun risultato, con il conseguente affidamento diretto a Sottsass jr (Pica 1957, 23; Modena 2018, 198). Dalla corrispondenza conservata presso l'archivio veneziano<sup>21</sup> si evince che l'incarico arriva direttamente dal segretario dell'Ente Tommaso Ferraris, il quale scrive il 2 luglio 1956 per comunicare all'architet-

**18** Basti ricordare la sua autobiografia (Sottsass 2010, 153-4).

**19** Centre Pompidou/MNAM-CCI/Bibliothèque Kandisky, Fonds Ettore Sottsass, *Documents chronologiques*, Collection documentaire constituée par Ettore Sottsass: cartes postales, coupures de presse, photographies, notes (1950-2000), SOT B 15.

**20** Archivio Storico Triennale di Milano, *Riunione della Commissione giudicatrice del Concorso per il Marchio della XI Triennale del 16 aprile 1956*, ASTM, TRN\_11\_DT\_077\_V, 77.01 - Marchio.

**21** *Corrispondenza XI° Triennale di Milano, 1957 V*, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.

to la volontà sua, di Carlo Mollino, Giuseppe Ajmone e Carlo De Carli di parlargli del lavoro. Il 31 agosto è invitato a mettersi in contatto con il pittore Ajmone per arrivare urgentemente alla stampa del marchio: difficile ricostruire un possibile dialogo o collaborazione fra i due, in quanto a questa lettera seguiranno solo telegrammi di sollecito per la consegna.

La fase progettuale è invece ampiamente documentata presso i fondi conservati allo CSAC,<sup>22</sup> attraverso una serie di lavori in cui il segno e il colore hanno un ruolo determinante. Ciò mostra come le esperienze dell'astrattismo e dell'informale siano stata ormai completamente rielaborate e fatta proprie da Sottsass jr, in questi anni ancora a stretto contatto con gli ambienti artistici del MAC, dell'Art Club e in dialogo con le Gallerie del Naviglio e del Cavallino di Cardazzo, in cui espone e per cui progetta logotipo e allestimento della sede milanese.<sup>23</sup> Non bisogna dimenticare inoltre come Sottsass jr sia reduce anche dall'esperienza americana al fianco di George Nelson, che sicuramente l'ha portato a contatto con autori come Gorky e Motherwell (Modena 2018, 198), influenze evidenti quanto il segno di Hans Hartung. I materiali conservati nell'archivio CSAC consistono nello specifico in

Una prima cartella di 16 disegni si sofferma sul gesto e il colore, il rosso, il nero e il grigio, con l'analisi delle campiture e degli intrecci ortogonali di linee di diverso spessore [e] una seconda cartella di progetti con schizzi e stampati appartenenti a una fase successiva di elaborazione, testimonia poi delle modalità di applicazione alla tradizionale progettazione integrata della Triennale e quindi ai diversi utilizzi del marchio su supporti e materiali di varie dimensioni; esso verrà infatti stampato sulla carta intestata, sulla copertina del catalogo ufficiale, sulle tessere di servizio e per i convegni e sugli inviti. (198)

Anche in questo caso il metodo progettuale di Sottsass jr si concentra sullo studio del lettering, con l'utilizzo di un carattere tipografico senza grazie che diventa parte integrante del marchio stesso affiancato da forme astratte nere - righe, griglie e cerchi che possiamo ritrovare tanto nella produzione artistica quanto negli interni e negli allestimenti o nei progetti contemporanei per tappeti e ceramiche - e due pennellate di colore a richiamare la bandiera italiana. La sem-

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**22** Archivio CSAC, *Progetto per allestimento della Sezione del Vetro, e progetto per marchio, XI Triennale, Milano, 1956-1957*, consistenza: 16 disegni, 29 schizzi, 1 lucido, 9 stampati, 3 stampe fotografiche al bromuro d'argento.

**23** *Sistemazione della galleria del «Naviglio», Milano, 1955 I*, Archivio Ettore Sottsass jr Fondazione Giorgio Cini, Venezia.

plificazione è inoltre riconducibile anche alla «conoscenza dei loghi precedenti, in particolare quella della IX e X edizione presenti in un ritaglio nell'archivio» (Modena 2018, 198): in questo modo Sottsass si confronta con autori quali Marcello Nizzoli e Bruno Munari, anticipando alcuni sviluppi del suo lavoro negli anni successivi, che porteranno ad esempio all'elaborazione del logotipo per la divisione elettronica di Olivetti nel 1958 e al marchio per Poltronova nel 1961.

Nell'archivio veneziano dell'esperienza condotta per l'XI Triennale è conservato esclusivamente un manifesto, che declina il logotipo su un formato verticale, sia a colori sia in nero, trasformandolo in un modulo che occupa interamente lo spazio organizzando le forme e i segni, a differenza della copertina del catalogo dove questi sono sovrapposti e completati da campiture e punti di colore giallo. Da segnalare come, sulla busta originale, sia riportata la collocazione del quadro originale ispiratore del progetto, dettaglio importante per mettere a fuoco ulteriormente il metodo progettuale di Sottsass, in cui la sua formazione e la pratica pittorica svolgono un ruolo fondamentale.

## 7 Conclusioni

Conservare e scegliere sono le azioni che portano alla creazione di qualsiasi archivio.

Spesso è stata la mano di Sottsass jr a effettuare, consapevolmente, le opzioni che hanno poi definito la costruzione della sua memoria, e sono proprio queste le prime tracce necessarie per ricostruire i mondi di questo architetto e designer eclettico, difficilmente riconducibile all'interno di categorie predefinite.

La scelta di esemplificare tale poliedricità partendo da ambiti e casi specifici ha permesso in questo caso di iniziare a ricostruire gli intrecci e le influenze fra le diverse attività progettuali che hanno contraddistinto il suo percorso di ricerca.

L'archivio, nelle sue diverse incarnazioni, si è presentato così come una risorsa che tramite complessi sistemi di relazioni autorizza narrazioni multiple (Saraiva 2021, 200). Una prospettiva che a partire da questo caso è possibile estendere al concetto più generale di archivio come memoria di un progettista, da intendere quindi non come un sistema monolitico e corrispondente a un ordine predefinito, ma piuttosto come un insieme di racconti, anche in seguito alle - inevitabili? - divisioni e smembramenti dei fondi.

Uno strumento fondamentale, che nella frammentarietà ritrova un suo potenziale, da affrontare tramite pratiche di archeologia visiva e con la consapevolezza dell'importanza che in epoca moderna è venuto a rivestire come mezzo attraverso il quale la conoscenza storica e le forme della memoria si accumulano, si conservano e si recuperano (Merewether 2006).

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# Measuring Urban Change in Travel Texts Using the Example of the City of Graz in the Long Nineteenth Century

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**Abstract** Historic urban space with its formations, changes and dissolutions can be represented in various ways. This paper focuses on narrative spatial representations of the city of Graz in 19th-century guidebooks. In these texts the subjective in the individual accounts interweaves with historical reality. Two methods to reconstruct perceptions and experiences of historical spaces and spatial relationships in travel texts are presented, with the aim of making aspects of urban change measurable.

**Keywords** Urban history. 19th century. Maps. Travel literature. Spatial analysis.

**Summary** 1 Introduction. – 2 Travel Writing in the Nineteenth Century. – 3 The Growth of Graz in the Nineteenth Century. – 4 Data. – 4.1 Maps Data. – 4.2 Textual Data. – 5 Reconstructing Urban Change. – 5.1 Selection of Primary Sources. – 5.2 Methods. – 6 Conclusion.



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## 1 Introduction

This paper is about the reconstruction of the historical urban development of Graz in Austria based on the evidence of nineteenth-century travel texts. Forms and dynamics in the perception of urban space in travel writings will be examined in this context.

A city is a complex spatio-temporal phenomenon that is widespread worldwide, but which also varies from region to region. It consists of many urban settlement elements (buildings, neighbourhoods, quarters and districts) that are intertwined and characterised by uneven phases of formation, change and dissolution. The city has long been established as a research topic in the historical sciences.<sup>1</sup> Historical spaces are reconstructed and analysed primarily with the possibilities of a geographic information system (GIS), such as the *Urban History Project* of the University of Münster,<sup>2</sup> the *Stadtlexikon Stuttgart*,<sup>3</sup> the project *Urban Change in Time*,<sup>4</sup> or *Old Maps Online*<sup>5</sup> and *Carta Historica de Barcelona* and the *Venice Time Machine*<sup>6</sup> or also *Historical Ontology of Urban Space*<sup>7</sup> of the Polish Academy of Sciences.

In contrast to the aforementioned projects, which research historical maps, atlases and place registers, the complex interaction of spaces and the change of experiential or perceptual spaces over time will be examined here exclusively on the basis of travel guidebooks. Guidebooks, which are a part of travel literature, have their own unique style and are subjectively coloured spaces of experience, but according to Neumann, it is precisely these 'imaginative geographies' that fulfil important functions, since narrated spaces shape notions of 'real' spaces, arouse expectations and aversions and offer orientation within unknown spaces (Neumann 2015, 102). They ex-

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**1** Hans J. Teuteberg (1983) provides an overview of the beginnings of urban history research. Current research on urban history can be found in the journal *Urban History*, which has been published regularly since 1992. In particular, I would like to refer to the introduction "Thinking Spatially: New Horizons for Urban History" by Richard Rodger and Susanne Rau in *Urban History* (2020). On the use of digital methods in urban history research, see for instance Lelo, Chodějovská 2014 and the anthology by Bodenhamer, Corrigan and Harris (2010).

**2** <https://www.uni-muenster.de/Staedtegeschichte/portal/>.

**3** <https://www.stadtlexikon-stuttgart.de/dts/>.

**4** <http://ucit.or.at/>.

**5** <https://mapoflondon.uvic.ca/>.

**6** <https://www.epfl.ch/research/domains/venice-time-machine/>.

**7** <https://urbanonto.ihpan.edu.pl/>.

ist as an alternative to spaces that can actually be experienced and walked through (Dünne, Mahler 2015, 4). The power of the spatial imagination and experience is also put into play by the nineteenth-century novelist Gustave Flaubert in *Madame Bovary*:

Elle s'acheta un plan de Paris, et, du bout de son doigt, sur la carte, elle faisait des courses dans la capitale. Elle remontait les boulevards, s'arrêtant à chaque angle, entre les lignes des rues, devant les carrés blancs qui figurent les maisons. (Flaubert [1857] 1881, 62)<sup>8</sup>

She bought herself a map of Paris, and with the tip of her finger, on the map, she went shopping in the capital. She walked up and down the boulevards, stopping at each corner, between the lines of the streets, in front of the white squares that represent the houses.<sup>9</sup>

When the character of *Madame Bovary* races a map of Paris with her finger and explores and moves through the city in her mind as she does so, Gustave Flaubert's text passage is creating a familiar spatial situation. We transpose ourselves from physical reality to some imagined position on a line, in a grid, or a pictorial terrain (Vaughan 2010). Movement becomes the central principle, which in turn is responsible for our being able to perceive spatial constitution at all. Travel literature authors tell us about their movements, their journeys and the places they visited. What they report is indissolubly mixed with the actual object of their account and transforms into reality itself, which becomes habitable and homely, but can also decay (Ette 2020, 88). Travel writing is characterised by these dynamics. Both maps and literature are there to orientate us in the world (Ljungberg 2017).

For several decades, there has been a growing interest in space and its diverse forms of representation in the humanities.<sup>10</sup> This paper contributes to this and focuses on the urban changes seen in Graz during the nineteenth century, examining the growth of the urban population, settlement, and urban densification. The paper continues by exploring the question of how these processes are reconstructed as structural, functional changes within individual urban settlement elements based on the narratives of guidebooks. In order to measure aspects of urban change, quantifying and analytical methods as well as methods of literary cartography are applied.

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<sup>8</sup> This quote can also be found online at: [http://classes.bnf.fr/essentiels/grand/ess\\_2629.htm](http://classes.bnf.fr/essentiels/grand/ess_2629.htm).

<sup>9</sup> All quotes were translated with <https://www.deepl.com/Translator> and corrected by the Author.

<sup>10</sup> An overview of the context of the spatial turn and a list of selected literature can be found in Bachmann-Medick 2009, 284-328. For basic texts on spatial research see *Raumtheorie* edited by Jörg Dünne (2015).

Before delving into the details of this, the next section of the paper deals with the specifics of travel writing (§ 2) in the nineteenth century. This is followed by a more detailed description of urban history in Graz (§ 3) during this period. The textual and cartographic data is then discussed (§ 4) in the context of ways in which spatial reconstruction (§ 5) is conducted.

## 2 Travel Writing in the Nineteenth Century

Travel literature is a form of writing that is to be regarded as historical testimony to the specific way of thinking of the author and indirectly to the mentality of his or her area of origin (Harbsmeier 1982).<sup>11</sup> But most importantly, these narratives bear witness to the process of travel at specific points in time. They report on perceived and experienced spaces through which the authors have moved and by this means they are able to make these spaces perceptible to us (Ette 2020).

Travel writing is about journeys that have a specific purpose. It is also about how one travels. Whether travel is on foot, in a carriage, or a train, this will have a specific impact on the itinerary and also on the perceptions of the traveller. The way the journey is reported depends on contemporary models of other writers. They address a specific reading audience which they are trying to reach and therefore take into account traditional or common writing conventions (Das, Youngs 2019b, 12-15).

The travel narration has a long tradition but, especially from the eighteenth century onwards, the literary travelogue becomes very popular. Nigel Leask (2002, 15) links the popularity of the genre to European capitalism and colonisation. In the travel literature of the eighteenth and nineteenth centuries, the connection between travel, the idea of nation, trade and colonial expansion becomes clearly tangible. This heyday in travel literature coincides with the emergence of the modern novel, with which it has much in common. The romantic description of landscapes dominates, especially in the first decades of the nineteenth century. Whether authors describe their own country in the form of a homeland trip or travel abroad, they do so with more aesthetic appreciation for the landscape than in earlier times (Thompson 2019, 110).

In many European countries, the narrated journeys of this period describe discoveries. In exploration voyages, scientific interests can

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**11** For a recent research overview on travel literature, see Pettinger and Youngs in *The Routledge Research Companion to Travel Writing* (2020), *The Cambridge History of Travel Writing* edited by Nandini Das and Tim Youngs (2019b), or *The Routledge Companion to Travel Writing* by Carl Thompson (2016). More recent approaches in research can also be found in Kuehn, Smethurst 2015, or Forsdick, Fowler, Kostova 2014.

be combined with commercial interests. With increasing literacy, the number of customers in the book market multiplied, and so too did the number of authors (Das, Youngs 2019b, 2-15). Many travel accounts were written by travellers who were not professional writers, scientists or scholars and whose descriptions were their only opportunity to publish a printed work. The model for travel reports of this time was the scientific narrative of expeditions and voyages of exploration.<sup>12</sup>

While Europeans were not alone in how they obtained information about the world, they did establish unique practices for embedding such knowledge into their cultural life and institutions. In Europe, science came to represent many things beyond data collection: a means of measurement, a mode of rhetoric, a social identity, as well as a genre of writing. (Robinson 2020, 489)

This travel literature was very well received and was also disseminated internationally and even translated into several languages. One of the most influential writers of the early nineteenth century was Alexander von Humboldt, who began publishing his travels in 1807.<sup>13</sup>

In addition to travelogues, the first half of the nineteenth century also saw the emergence of tourist guides, adapted to an increasing phenomenon – tourism.<sup>14</sup> Thomas Cook, for example, began offering excursions in the 1840s, and the publishers John Murray and Karl Baedeker became market leaders with their guidebooks in the 1830s. The guidebooks offered a systematic and comprehensive overview of popular travel destinations. The personal narratives common in earlier travel reports were omitted. Alasdair Pettinger (2020) lists key features of these books. Basically, the guide should contain everything that is necessary for the traveller. Included in this is comprehensive information about locations together with maps, plans and illustrations, all of which were included in the books. In order to save space, attention was paid to concise descriptions of information. Information on opening hours and tariffs are abbreviated or given in symbols. Tables and lists are used as popular text features. Another characteristic of tourist guides is that they offer structured tours and invite the reader to follow these suggested routes.

Finally, the guidebook tends to assume a certain kind of reader. While a travelogue represents a journey that has already taken

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<sup>12</sup> See Robinson 2020; Byrne 2020.

<sup>13</sup> The travel diaries of Alexander von Humboldt are published in *The Digital Humboldt Edition*, version 7, 2021 (<https://edition-humboldt.de/index.xql?l=de>).

<sup>14</sup> Brillì (2006) gives an overview of the cultural history of travel in Italy; especially for the nineteenth century see Brillì 2018.

place, the guidebook offers a fantasy that the reader is invited to act out. Baedeker rather than Murray turned out to be the model here, making fewer assumptions about the wealth and education of the person the guide is aimed at, but still targeting those middle-class readers affluent enough to afford overseas travel and able to get time off work to do so, with tastes tending towards the appreciation of nature, art and historical monuments, but not excluding sport or shopping. (Pettinger 2020, 142)

### 3 The Growth of Graz in the Nineteenth Century

The urban developments that took place in the long nineteenth century (1789-1914) still shape the cityscape of Graz today. Two decrees of Emperor Joseph II in 1782 and 1784 had declared Graz an open city and abolished its fortress character. The merging of the city and the surrounding countryside could begin. Gradually, gates were removed; city ditches were filled in; even the fortress was demolished (1809).

With the disappearance of the town gate facing the river, the right bank of the river and its settlement could become part of the now open town. The gate Sacktor in Sackstraße, for example, was moved three times since its construction (fourteenth century) and disappeared in 1836, mainly because of increasing traffic (Reismann, Mittermüller 2003, 420).

The French Wars and economic stagnation contributed to the fact that the population grew only slowly in the first decades of the nineteenth century. It is estimated that Graz had about 32,000 inhabitants at the beginning of the century. A census of 1869 revealed 81,119 people (Wiesflecker 2003, 320). By the end of the period under consideration (around 1910), Graz already had more than 150,000 inhabitants (Brunner 2003a).

However as in many settlement areas, the decisive motor for the urban growth of Graz was undoubtedly the railway.<sup>15</sup> The Mürzschlag-Graz connection was opened in 1844 and with it the first railway station in Graz. This gave the city a new point of reference. The area between Südbahnhof (the main railway station), Murvorstadt (the district on the right bank of the river Mur) and the core city was made accessible as early as 1844 by the construction of Annenstraße as a railway station street. The railway is to be seen in close connection with industrialisation, its track became the favoured lo-

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<sup>15</sup> Jan Gypfel dedicates his book *Tempo! Berliner Verkehrsgeschichte* (Tempo! Berlin Traffic History, 2015) to the phenomenon of transport and urban development. On the influence of railroads on urban growth, see also Levinson 2008 or Capuzzo 2003. For a general history of transportation, see Merki 2008.

cation for factories, and bars, pubs and inns also settled close to the new station area (Dienes 2003, 368-9). The railway not only brought a revolutionary change in transport, but also led to more tourism and improved communication possibilities. It made it easier for the people of Graz to learn about and adopt customs and ways of life in the big wide world (Dienes 2003, 371).

In 1854 the Vienna-Graz line was completed, and three years later Graz was connected to the port city of Trieste. Goods could now be transported quickly and cheaply by rail:

Die Bahn ließ die Entfernungen schrumpfen. Für die Strecke Wien-Semmering-Graz hatte ein Wanderer rund vier Tage benötigt, die Postkutsche 29 Stunden. 1861 fuhren zweimal wöchentlich die Eilzüge in Wien um 6.30 Uhr ab, erreichten Graz um 12:17 Uhr und fuhren um 22.12 Uhr in Triest ein. 1884 brauchte der schnellste Zug, der Kurierzug, von Wien nach Graz 5 Stunden 5 Minuten. (Dienes 2003, 368)

The railway made distances shrink. The route Vienna-Semmering-Graz had taken a hiker about four days, the stagecoach 29 hours. In 1861, express trains departed from Vienna twice a week at 6:30 a.m., reaching Graz at 12:17 p.m. and arriving in Trieste at 10:12 p.m. In 1884 the fastest train, the courier train, took 5 hours 5 minutes from Vienna to Graz.

The fifties and sixties brought the first peak in urban development. A strong inflow of people made additional housing necessary, the expansion of the economy and public services demanded new streets and factories, eventually also new churches. The inner city became more the centre of political life, services, department stores, highly specialised retail, press and communication, banking and insurance (Dienes 1996, 153-5). Despite the stock market crash in 1873 and bad economic times between 1879 to 1881, the population grew, and new housing had to be built (Dienes 1996, 163).

## 4 Data

The data for this study was created in the context of the project *Becoming Urban - Reconstructing the City of Graz in the Long 19th Century*.<sup>16</sup> The aim of this interdisciplinary two-year project was to create a prototypical application for visualising historical urban development in Graz, where spaces in contemporary maps, travel accounts, and illustrations (paintings, postcards, photos) can be re-perceived and re-experienced (Bürgermeister et al. 2020).

### 4.1 Maps Data

Maps are graphical representations that enable a spatial understanding of things, processes or events in the world; in the project, they are used to trace landscape and structural changes. The starting point of the map material is the *Franziszeische Kataster* (cadastral plans) from the year 1829. All map sheets of this extensive and exact map work that refer to the Graz area were made available digitally by GIS-Steiermark<sup>17</sup> and were used as reference map in the project. These map sheets are available online as Open Government Data (OGD) and can be integrated into a GIS in their georeferenced form. In addition to this cadastral map a second very detailed map work from the beginning of the twentieth century was georeferenced in the project. The Bundesamt für Eich- und Vermessungswesen (Federal Office of Metrology and Surveying) used the stock of around 400 individual map sheets of the so-called *Feldskizzen* (field sketches). These were drawn at the turn of the nineteenth and twentieth centuries. In the project they were uniformly dated 1905. On the basis of these map works, all topographic objects of each map that are relevant to the city, such as buildings, streets, squares, monuments, bridges, bodies of water, green areas and fortification walls, were transcribed as vectors in polygon forms (areas). For the map of 1829, the project team created 4,900 polygon features and for the map 1905, more than 8,600 were created. However, these figures do not allow the conclusion that the city had almost doubled in size, because the polygon data was collected in map sheets which are of different sizes.

Both datasets are available in GML (Geographic Markup Language)<sup>18</sup> format in the long-term archive of the University of Graz:

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<sup>16</sup> <http://gams.uni-graz.at/beurb>.

<sup>17</sup> <https://www.landesentwicklung.steiermark.at/cms/ziel/141976122/DE/>.

<sup>18</sup> The Open Geospatial Consortium develops this standard: <https://www.ogc.org/standards/gml>.



- the *Franziszeische Kataster*  
[http://gams.uni-graz.at/o:beurb.fkg/GML\\_SOURCE](http://gams.uni-graz.at/o:beurb.fkg/GML_SOURCE);
- the *Feldskizzen*  
[http://gams.uni-graz.at/o:beurb.feldskizzen/GML\\_SOURCE](http://gams.uni-graz.at/o:beurb.feldskizzen/GML_SOURCE).

The GML file contains not only the coordinate data of the respective geo-object, but also metadata relevant for the project. An example feature looks like this in the model:

**Code 1** Code snippet of the GML

```
<gml:featureMember>
  <beurb:fkg fid="fkg.0">
    <beurb:geometryProperty>
      <gml:MultiPolygon srsName="EPSG:4326">
        <gml:polygonMember>
          <gml:Polygon>
            <gml:outerBoundaryIs>
              <gml:LinearRing>
                <gml:coordinates>15.4389233885359,47.070702757052
15.4387684235342,47.0706204181496 15.4387134493116,47.0706754085114
15.4385656733562,47.0705971397761 15.4386235734615,47.0705434532827
15.4386237046926,47.0705433316017 15.4385215044967,47.070489219555
15.4385950045334,47.0704269647982 15.438382101941,47.0703272417492
15.4382665974171,47.0704343269567 15.4381825306457,47.0705122656144
15.4387369795724,47.0708507576787
15.4389233885359,47.070702757052</gml:coordinates>
              </gml:LinearRing>
            </gml:outerBoundaryIs>
          </gml:Polygon>
        </gml:polygonMember>
      </gml:MultiPolygon>
    </beurb:geometryProperty>
    <beurb:Date>1829</beurb:Date>
    <beurb:Title>Rathhaus</beurb:Title>
    <beurb:Category>building</beurb:Category>
    <beurb:Settlement>Gratz</beurb:Settlement>
    <beurb:Source>FKG</beurb:Source>
    <beurb:beurb_ID>1829_FKG_Gra_build_193</beurb:beurb_ID>
  </beurb:fkg>
</gml:featureMember>
```

The code snippet shows, in addition to the coordinates, the date of the map, the title of the geo-object (if it is labelled in the map), and

the category (if it is a street, square, monument, green or water area, fortification or a building). These categories were taken over in a generalised form from the cadastral legend. Using these categories, the geo-objects can be semantically distinguished and, as you can see in the illustrations below [figs 1-2], they can be visualised accordingly. Figure 1 shows buildings in red, streets in yellow/brown colour. Figure 2 shows buildings in brown and streets in violet.

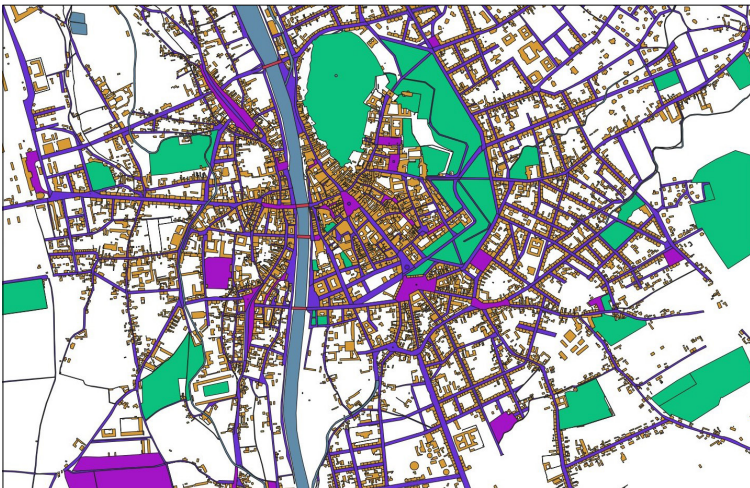


Figure 1 Author. Vector data of old Graz in 1829. 2022. Screenshot. Graz

Figure 2 Author. Vector data of Graz in 1905. 2022. Screenshot. Graz

The juxtaposition of the vector data makes the urban changes from the maps evident. Within about 70 years, the urban fabric of the city of Graz has increased enormously in size and density.

## 4.2 Textual Data

The short duration of the project made it necessary to limit the selection of sources to be researched. In the end, eleven travel descriptions of Graz were researched during the project period (2019-21). The texts were all written in German and were created in different decades of the long nineteenth century (the earliest travel description dates from 1808, the latest from 1910).<sup>19</sup>

The first step in indexing the travel descriptions was to create a digital text, structure it by annotation, and identify the places mentioned. All the selected works were digitised and OCR processed. The project team then transferred those parts of the descriptions dealing with Graz (over 600 pages in total) into TEI/XML documents.<sup>20</sup> In the TEI model, all relevant metadata was extracted from the print and recorded in the `<teiHeader>`. The logical structure in the form of headings, paragraphs, page numbers and annotations in the texts was captured in TEI as well.

The main task was then to mark up all places mentioned in the texts. This was done manually by the project team. The TEI-element `<placename>` was mainly used as a markup for places, while the element `<geogName>` was used for identifying special landscape features only, such as rivers and mountains. Finally each identified place which could be localised was provided with a reference to the corresponding unique identifier of the geo-object (see § 4.1).

The project team decided not to annotate retrospectives in the travel accounts, therefore only spatial information of the text that was described in the author's presence was annotated.

The data stored in standardised formats (TEI and GML) can be processed by machines and can be reused at any time as is made public in the GAMS repository under a CC-BY-NC licence. In total, we could reference more than 4,500 objects geographically located in the observation area Graz and surroundings out of the approximately 5,650 places mentioned in all studied texts.

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<sup>19</sup> <http://gams.uni-graz.at/context:beurb.texte>. Unfortunately, no foreign language sources were included. An example of a very rich bibliography of travelogues in diverse languages on the history of Barcelona is used in the research of Susanne Rau (2014).

<sup>20</sup> The Text Encoding Initiative (TEI) is a consortium which collectively develops and maintains a standard for the representation of texts in digital form (<https://tei-c.org/>). The guidelines are published at the following link: <https://tei-c.org/release/doc/tei-p5-doc/en/html/index.html>.

## 5 Reconstructing Urban Change

One way to reconstruct the growth and densification of settlement areas is to use a diachronic comparison of topographic maps. By this process a single perspective on the city is provided. But the question arises here of whether urban changes can also be detected in a diachronic comparison of city descriptions? What perceived spaces are revealed in these texts? How can the city be portrayed from the perspective of the authors?

To find answers to these questions, two methods of analysis are presented and their results shown. Before describing the methods and results, I want to present the selection of primary sources on the basis of which the analysis is carried out.

### 5.1 Selection of Primary Sources

Not all of the texts that were studied in the course of the project were used for the analysis. Five texts were selected, covering the period of the 19th century as broadly as possible. These are five guidebooks, each of which was written in different periods of the urban development of Graz. Table 1 lists the authors and the years of publication.

**Table 1** Selection of guidebooks

Author	Publication date
Polsterer	1827
Schreiner	1843
Weidmann	1856
Cieslar	1873
Semetkowski	1910

A central criterion in the choice of these guidebooks was that the texts are similar in scope and ambition. All five aim to provide a comprehensive picture of the city and are aimed at all travellers who are interested in the city. Extensive tours of the city are provided in each of the descriptions. The authors guide their readers through the city centre, visit the *Schlossberg* and relate its history.<sup>21</sup> The river Mur and the bridges that cross it also always play a role. Some of the populated city areas outside the walls and gates are referred to with the suburban title *Vorstädte* and are differentiated into districts in the course of the century.

<sup>21</sup> The *Schlossberg* is the hill in the middle of the city on which a fortress stood until 1809.

### 5.1.1 Polsterer 1827

A.J. Polsterer was born in Bavaria in 1798 and spent many years in Graz as a professor of history and political science (Schuller 1980; Schlossar 1888).<sup>22</sup> He dedicates his book, as «Hülf- und Handbuch für Fremde und Heimische» (Guide and handbook for foreigners and locals) (Polsterer 1827, V), to the Governor of Styria Franz Graf von Hartig.<sup>23</sup>

The book describes the inner city (city centre) in detail. It starts with the city gates, names the most important streets and squares and then the special buildings, churches, fountains, clocks, gardens and walks. In another chapter there is a description of the *Schlossberg*, which is a castle hill in the centre of the city. A fortress was located here until 1809 (Polsterer 1927, 134).<sup>24</sup> The *Vorstädte* are then described in the same way (144). The infrastructure of Graz is also reported. As for external connections, an express coach is mentioned that runs three times a week to Vienna and twice to Trieste. Polsterer also informs us that, in contrast to other cities, there are still no hotels («Hôtels garnis», 282) in Graz yet.

### 5.1.2 Schreiner 1843

Gustav Franz Ritter von Schreiner was born in Bratislava in 1793 and died in Graz in 1872. Like Polsterer, he was a professor of political science (Wurzbach 1876, 31: 287-91). In the preface he refers to Polsterer's work and writes that Graz has undergone a major transformation since 1827 and that because of this the «alt Grätz» is hardly recognisable (Schreiner 1843, V). He writes the following about the developments of recent years:

So haben denn Stadt und Vorstädte im Laufe der letzten 15 Jahre in mehren ihrer Theile ein viel freundlicheres Ansehen, mehr Geräumigkeit und Regelmäßigkeit, eine größere Sicherheit und Bequemlichkeit gewonnen und den mittelalterlichen Anstrich, den sie noch vor wenigen Jahren zur Schau trugen, bereits größtentheils verloren. [...] unter den Gassen zeichnen sich allein jene der Jakomini-Vorstadt dadurch aus, daß in ihrer Anlage das Bauen

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**22** See the person's authority file entry of the German National Library: <https://d-nb.info/gnd/104374365>.

**23** Until 1830 Franz de Paula Hartig (1789-1865) was the Governor of Styria. Then he was appointed to the Governor of Lombardy. See the person's integrated authority file entry of the German National Library: <https://d-nb.info/gnd/116490691>.

**24** You can view this page also on the project's webpage: [http://gams.uni-graz.at/o:beurb.tei.1827/sdef:TEI/get?mode=view:fac#\\_162](http://gams.uni-graz.at/o:beurb.tei.1827/sdef:TEI/get?mode=view:fac#_162).

nach der geraden Linie befolgt worden ist, daher dieser Theil von Grätz auch den besten Eindruck auf den Fremden macht. (Schreiner 1843, 110, 111)

Thus, in the course of the last 15 years, the city and *Vorstädte* have gained a much friendlier, more spaciousness and regular appearance, with greater safety and comfort in many of their parts, and have already lost most of the medieval appearance they displayed only a few years ago. [...] Among the alleys, only those of the *Jakomini-Vorstadt* are distinguished by the fact that building in a straight line has been followed in their layout, which is why this part of Grätz also makes the best impression on the stranger.

According to Schreiner, the book is primarily intended for travellers despite having over 600 pages. The first part of the book is a presentation of the geographical, statistical, climatic and natural-historical conditions of the city and its surroundings. In the second part he describes the inner city (location, ramparts, moats, city gates, squares, streets, buildings, churches and the *Schlossberg*) and then the *Vorstädte*. Schreiner has nothing to say about the transport connections to the city. He also gives no tips for inns or pubs, but names them in passing.

### 5.1.3 Weidmann 1856

Franz Carl Weidmann was a Viennese actor and author (1788-1867). He published many works especially for tourists, because he was widely travelled himself (Wurzbach 1886, 53: 263-6).

The publisher's bookshop prompted him to write this guidebook and the term 'tourist' appears for the first time in connection with Graz in this book:

Es war die Aufgabe gesetzt den Fremden und Touristen, von denen unser schönes Alpenland Steiermark und dessen reizende Hauptstadt alljährlich zahlreicher besucht wird, einen zuverlässigen aber durch ein bequemes Format, auch zum Mitführen in der Tasche geeignetes Guido zu bieten, welcher auf Alles aufmerksam machen sollte, was die Stadt, die Vorstädte und die an Schönheit so ausgezeichnete Umgebung an interessanten und sehenswerthen Gegenständen umfasst. (Weidmann 1856, V)

The task was to offer the foreigners and tourists, who visit our beautiful alpine country of Styria and its charming capital city in greater numbers every year, a reliable guide, which is also suitable for carrying in the pocket due to its convenient format, and

which should draw attention to everything that the city, the suburbs and the surrounding area, which is so excellent in terms of beauty, has to offer in terms of objects that are interesting and well worth seeing.

On the first 70 pages, Weidmann provides information on the history of the city, the passport, dining and coffee houses, the baths, the postal system and transport facilities. Furthermore he names important authorities, associations, charities, theatre, trade and commerce. He begins the second part of his book with walks around the inner city, the *Schlossberg* and the *Vorstädte*. At the end of the book he gives the readers a guide for stays of one or more days “um die merkwürdigsten Punkte zu sehen” (to see the most curious points) (299).

#### 5.1.4 Cieslar 1873

Paul Cieslar was a publisher and bookseller and he published his own guidebooks. According to his own information, his bookshop was located in the centre of the old town in *Herrengasse* (Cieslar 1973, 82).<sup>25</sup> The guide book not only includes compact information about the city, but also and in particular advertising from local companies. The book begins with an advertisement of a clothing shop, followed by the title page and a detailed index of places. He presents the railway timetable [fig. 3] in a compact, extremely space-saving way; a style that became typical for the guidebooks.

### Eisenbahn - Fahrordnung.

**Graz-Wien:** Posteilzug 6 Uhr 45 M. Früh, Postz. 8 U. 55 M. Fr., Gem.-Zug 4 U. 35 M. Nachm., Eilzug 4 U. und 4 U. 30 M. Nachm., Postzug 9 Uhr 30 Min. Abends.  
**Graz-Triest:** Postzug 5 Uhr 57 M. Früh, Gem.-Zug 10 U. 40 M. Vorm., Eilzug 12 U. 37 M. Mitt. und 1 U. 23 M. Nachm., Postzug 7 U. Abends, Posteilzug 9 U. Abends bis Marburg.

Figure 3 Author. Railway timetable. Cieslar 1873, 8. 2022. Screenshot. Graz

The description of the city starts with a chronicle of Graz and then informs travellers about passports, transport facilities, telegraph office, post office and hotels. He then mentions wine and coffee houses,

<sup>25</sup> The guidebook is provided by the Austrian National Library at [http://digital.onb.ac.at/OnbViewer/viewer.faces?doc=ABO\\_%2BZ258329602](http://digital.onb.ac.at/OnbViewer/viewer.faces?doc=ABO_%2BZ258329602).

delicatessen shops, cake and luxury bakers, and other retail traders. In addition to this he discusses collections of the arts and sciences, open spaces and public gardens, the *Schlossberg* and monuments, theatres and places of entertainment. Cieslar takes readers to notable public and private buildings, public educational institutions, hospitals and churches. At the end of the book (from page 81 onwards) a list of important addresses in Graz is provided and attached to this are over 68 pages of advertisements from Graz companies.

#### 5.1.5 Semetkowski 1910

Walter Semetkowski lived from 1886 to 1965 and was an Austrian art historian (Brückler, Nimeth 2001, 253).<sup>26</sup> He attempted to improve on the inherited errors of the other earlier guidebooks and he intended to inform his readers about the magnificent new buildings and the “charaktervolle alte Stadt” (old city full of character). The guidebook starts with practical advice. He recommends using the electric tram and the electric funicular for entering the city and going up the *Schlossberg*. He also provides information about one- and two-horse carriages and a car rental service. He names numerous hotels, restaurants and cafés, even a vegetarian dining house (Semetkowski 1910, 8). Under public institutions and businesses he also mentions bathing establishments and banks. He also lists theatres and places of entertainment as well as monuments. This is followed by a detailed overview of the location, history and characteristics of Graz, the *Schlossberg* and the city park. He gives tips for walking tours through the inner city and the other districts, as well as excursions in the surrounding area.

## 5.2 Methods

Two methods are used as a means of perceiving urban change from the perspective of the authors: firstly a literary map is generated for each guidebook, and secondly, a functional analysis on the buildings mentioned in the guidebook will be demonstrated. The locations mentioned are essential for both methods. To the better overview, table 2 lists the guidebooks, the annotated pages, the total number of places mentioned, and the identified locations (geo-positions) found in them.

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<sup>26</sup> See the person’s integrated authority file entry of the German National Library: <https://d-nb.info/gnd/12213365X>.



**Table 2** Listing the guidebooks with their context information on pages and places

Guidebooks	Transcribed pages	Mentioned places	Mentioned places localised
Polsterer 1827	90	264	225
Schreiner 1843	172	440	398
Weidmann 1856	130	347	274
Cieslar 1873	45	352	231
Semetkowski 1910	85	547	434

What can be seen from this list is the great information content difference in the guidebooks. Measured by the numbers of pages transcribed and the places, mentioned the density of the information provided increases strongly. The way in which these texts transcend spatial changes is analysed below.

### 5.2.1 Literary Mapping

The method of ‘literary mapping’ is derived from literary studies and explicitly borrows conceptual, terminological and technological elements from geography and cartography. Studies on individual authors and places of action, regions, cities or genres can be understood as literary geography (Moretti, Piatti), which is the field where the method of literary mapping originated.<sup>27</sup>

Critical literary mapping is about exploring the relationship between verbal and visual representations of space and place in a fully dynamic way to open up the nature of any literary work, but particularly one that contains a strongly spatial or topographical element... (Bushell 2020, 36)

Literary mapping is used here to show how the authors represent the city both verbally and visually, which places they mention and the nature of the cityscape they construct as a result. By this means we create literary maps for each guidebook. Matthew Graves defines all maps embedded in a textual document (graphically or verbally) as a “literary map”:

a graphic interface ‘where words and worlds collide’, where the author is also map-author and the reader is invited to become a map-reader in a performative way. (Graves 2005)

<sup>27</sup> Both have published literary atlases. Their aim is to write a spatially based history of literature, see Piatti 2009; Moretti 1999.

The literary maps are implemented as GML files containing geographic information on all referenced places of each guidebook. Screenshots of the literary maps in the GIS application (QGIS) are shown below. Each map constructs a different cityscape: green colour areas are used for all the green spaces mentioned, blue for water areas, squares are rendered light grey, dark grey is used for streets, and the buildings mentioned are coloured red.

#### 5.2.1.1 Polsterer 1827

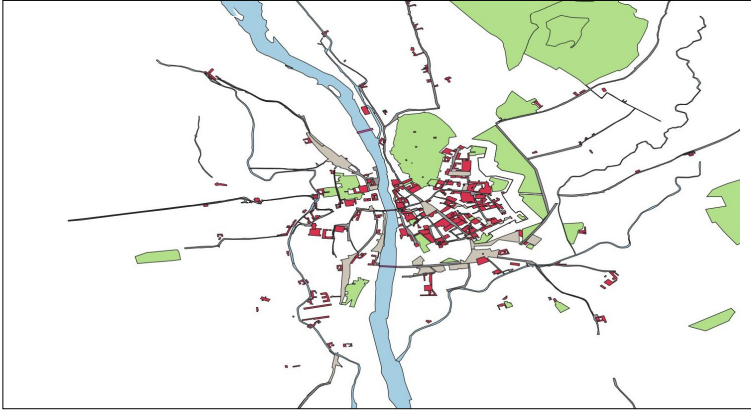
The visualisation [fig. 4] shows a map section of the literary map for Polsterer's guidebook (1827).



**Figure 4** Author. Map section of the literary map for Polsterer's guidebook (1827). 2022. Screenshot. Graz

5.2.1.2 Schreiner 1843

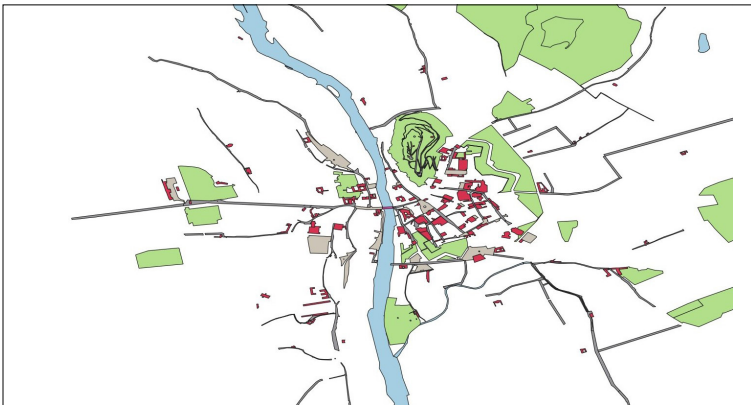
The visualisation in figure 5 shows a map section of the literary map for Schreiner's guidebook (1843).



**Figure 5** Author. Map section of the literary map for Schreiner's guidebook (1843). 2022. Screenshot. Graz

5.2.1.3 Weidmann 1856

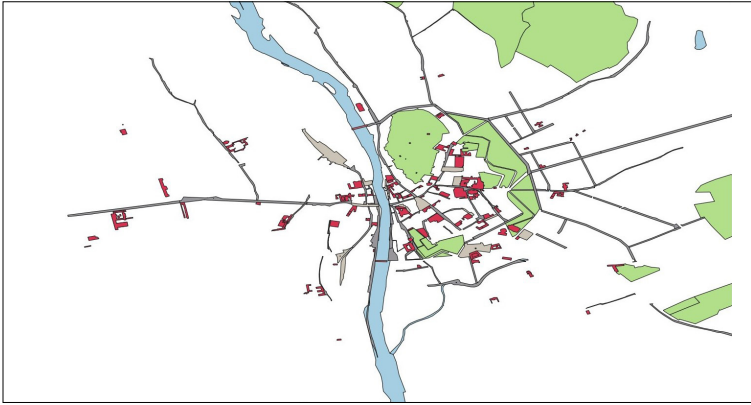
The visualisation in figure 6 shows a map section of the literary map for Weidmann's guidebook (1856).



**Figure 6** Author. Map section of the literary map for Weidmann's guidebook (1856). 2022. Screenshot. Graz

5.2.1.4 Cieslar 1873

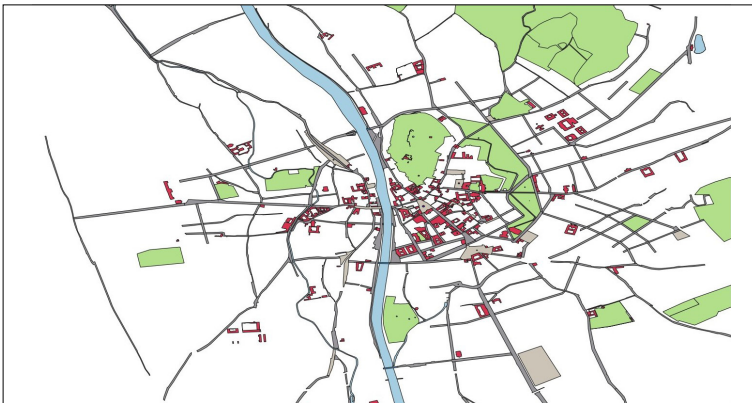
The visualisation in figure 7 shows a map section of the literary map for Cieslar's guidebook (1873).



**Figure 7** Author. Map section of the literary map for Weidmanns's guidebook (1856). 2022. Screenshot. Graz

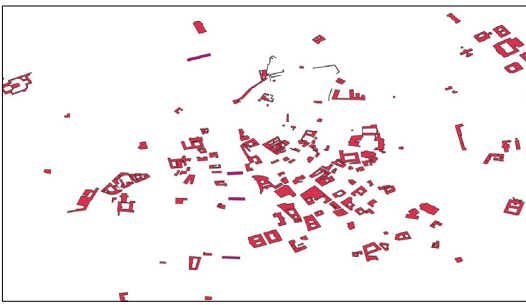
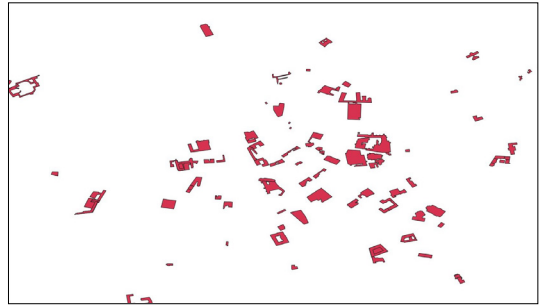
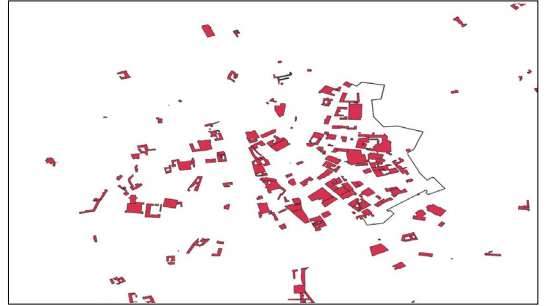
5.2.1.5 Semetkowski 1910

Figure 8 shows a map section of the literary map for Semetkowski's guidebook (1910).



**Figure 8** Author. Map section of the literary map for Semetkowski's guidebook (1910). 2022. Screenshot. Graz

The mapping of the verbal to the visual constructs different maps, but to what extent can urban changes be uncovered? To this end, we take a closer look at the buildings. If we compare only the buildings from these literary maps, we notice the dissolution of the city form at the beginning of the nineteenth century. The walls are no longer perceived, the locations mentioned in the centre of the city become fewer and the cityscape is fragmenting in the course of the juxtaposition of these literary maps.



**Figure 9** Author. Buildings in Polsterer (1827).  
2022. Screenshot. Graz

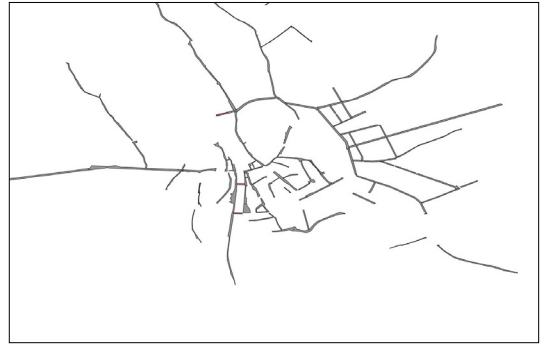
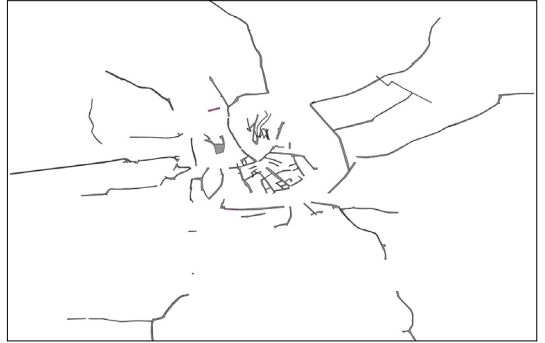
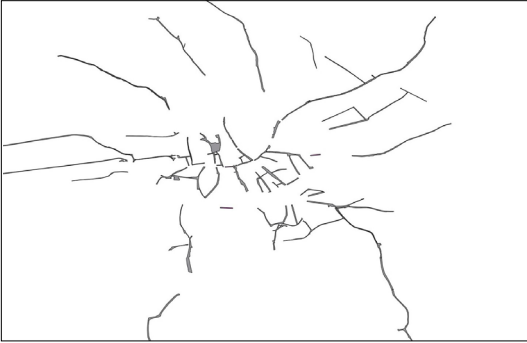
**Figure 10** Author. Buildings in Schreiner (1843).  
2022. Screenshot. Graz

**Figure 11** Author. Buildings in Weidmann (1856).  
2022. Screenshot. Graz

**Figure 12** Author. Buildings in Cieslar (1873).  
2022. Screenshot. Graz

**Figure 13** Author. Buildings in Semetkowski (1910).  
2022. Screenshot. Graz

By contrast, a comparison of the streets and squares over the years reveals clear densification and structuring. With the exception of the descriptions in Cieslar 1873, the road network becomes more dominant in the narratives.



**Figure 14** Author. Streets and squares in Polsterer (1827).  
2022. Screenshot. Graz

**Figure 15** Author. Streets and squares in Schreiner (1843).  
2022. Screenshot. Graz

**Figure 16** Author. Streets and squares in Weidmann (1856).  
2022. Screenshot. Graz

**Figure 17** Author. Streets and squares in Cieslar (1873).  
2022. Screenshot. Graz

**Figure 18** Author. Streets and squares in Semetkowski (1910).  
2022. Screenshot. Graz



The authors move the readers around the city. They inform about the spatial relationships at specific points in time, which become recognisable through this comparison.

Finally, we can superimpose all five literary maps and thus create a cumulative map of all the place nominations in the texts. This presents us with a city that could never have existed, but it illustrates locations that were mentioned at all times in the area under consideration. In this manner, 52 locations were found, which can thus be considered as perennial favourites for tourists in Graz.<sup>28</sup> This way of looking at the city can also be significant for the preservation of historical monuments and for the increasingly important issue of city image care. Places which are mentioned more often are coloured dark red in the following heat map:

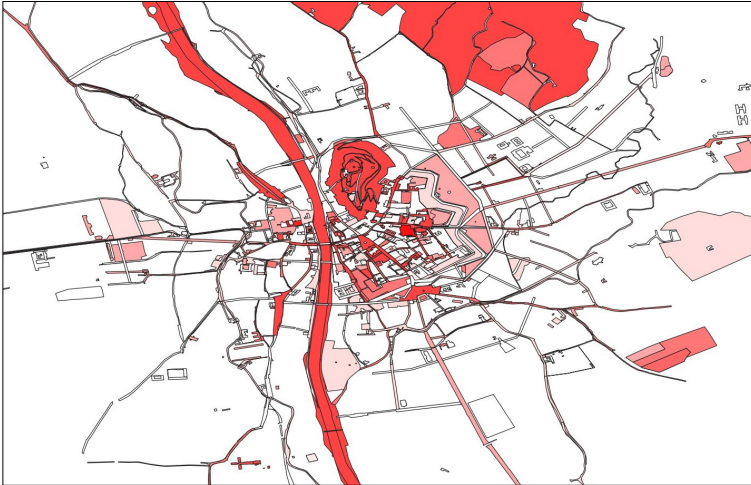


Figure 19 Author. Heat map of all places named in the selected guidebooks (1827-1910). 2022. Screenshot. Graz

**28** Places which are mentioned in all five guidebooks: Allgemeines Krankenhaus, Alte k.k. Universität, Attems'sche Palais, Burg, Burggasse, Bürgergasse, Convict, Domkirche, Dreifaltigkeitssäule, Franzensplatz, Franziskanerkirche, Färbergasse, Glockenturm, Grabenstraße, Griesplatz, Hauptplatz, Herrengasse, Hofgasse, Jakominiplatz, Kalvarienberg, Karmeliter-Kloster Maria-Schnee, Kloster und Spital der Barmherzigen Brüder, Landesmuseum Joanneum, Landhaus, Landhausgasse, Leechkirche, Lendplatz, Leonhardkirche, Mariensäule, Mausoleum Kaiser Ferdinands II., Minoriten zu Maria-Hilf, Mur, Murgasse, Murvorstadtplatz, Neutorgasse, Palais Saurau, Paradeis, Paulustor, Paulustorgasse, Priesterhaus, Rathaus, Raubergasse, Residenz des Bischofs, Rosenberg, Schlossberg, Stadtpfarrkirche, Stempfergasse, Stiegenkirche, Strafanstalt Karlau, Ursulinerplatz, Uhrturm, Zinzendorfasse.

## 5.2.2 Spatial Function Analysis

This method is about identifying and categorising the functions and uses of all the buildings mentioned in the guidebooks. This analysis identifies further aspects of urban change in the studied texts.

For this purpose, the buildings are divided by function into 14 categories. The categories are taken from the *Art & Architecture Thesaurus (AAT)* published by the Getty Research Institute (2017).<sup>29</sup> The AAT is a standardised vocabulary that contains only general terms. It is used to assign standardised values to data.<sup>30</sup>

The buildings mentioned in the guidebooks are categorised by concepts under the “guide term”<sup>31</sup> <single build works by function>.<sup>32</sup> The following table lists the chosen concepts with assignment examples on specific buildings in the textual sources [tab. 3]. In addition, a page link and notes from the AAT are provided for each concept. The detailed evaluation of the results for each guidebook can be found in the Appendix.

**Table 3** Used AAT terms for buildings

AAT Concepts	Page link and notes from AAT	Example
ceremonial structures	<a href="http://vocab.getty.edu/page/aat/300263489">http://vocab.getty.edu/page/aat/300263489</a> , structures built or used primarily or exclusively for ceremonies or related activities.	churches
commercial buildings	<a href="http://vocab.getty.edu/page/aat/300005147">http://vocab.getty.edu/page/aat/300005147</a> , use broadly to refer to buildings associated with any aspect of the various activities and business relationships of industry and trade.	coffee houses, banks, bookshops
exhibition buildings	<a href="http://vocab.getty.edu/page/aat/300005748">http://vocab.getty.edu/page/aat/300005748</a> , buildings built or used exclusively or primarily for exhibitions, which are organised displays of works of art or other objects of human making.	museums, galleries
Fortifications	<a href="http://vocab.getty.edu/page/aat/300006888">http://vocab.getty.edu/page/aat/300006888</a> , general term for any works made to oppose a small number of troops against a greater.	city walls

<sup>29</sup> Getty Research Institute (2017). *Art & Architecture Thesaurus (AAT)*. <http://www.getty.edu/research/tools/vocabularies/aat/>.

<sup>30</sup> The vocabulary was first published in 1990 and has been continuously developed since then. More information on the vocabulary and its development can be found at <https://www.getty.edu/research/tools/vocabularies/aat/>.

<sup>31</sup> “Guide term: Refers to records that serve as place savers to create a level in the hierarchy under which the AAT can collocate related concepts. Guide terms are not used for indexing or cataloguing. They are enclosed in angled brackets” ([http://www.getty.edu/research/tools/vocabularies/aat/AATCodeLookup.html?flag=RTG#record\\_type](http://www.getty.edu/research/tools/vocabularies/aat/AATCodeLookup.html?flag=RTG#record_type)).

<sup>32</sup> <http://vocab.getty.edu/page/aat/300004894>.



AAT Concepts	Page link and notes from AAT	Example
gate structure	<a href="http://vocab.getty.edu/page/aat/300129523">http://vocab.getty.edu/page/aat/300129523</a> , structures comprising or focused on gates or gateways.	city gates
industrial structures	<a href="http://vocab.getty.edu/page/aat/300121918">http://vocab.getty.edu/page/aat/300121918</a> , general term that groups all structures built for the purpose of industry.	factories
institutional buildings	<a href="http://vocab.getty.edu/page/aat/300132384">http://vocab.getty.edu/page/aat/300132384</a> , built works used by, or in support of, institutions.	schools, hospitals
Monuments	<a href="http://vocab.getty.edu/page/aat/300006958">http://vocab.getty.edu/page/aat/300006958</a> , structures or edifices of importance or historical interest, typically erected in memory of the dead or of an important event.	trinity columns
performing arts structures	<a href="http://vocab.getty.edu/page/aat/300121919">http://vocab.getty.edu/page/aat/300121919</a> , built works used for arts and public performance.	theatre
public accommodations	<a href="http://vocab.getty.edu/page/aat/300164125">http://vocab.getty.edu/page/aat/300164125</a> , structures, establishments, or facilities, whether ownership is public or private, that are used by the public.	hotels
public buildings	<a href="http://vocab.getty.edu/page/aat/300008059">http://vocab.getty.edu/page/aat/300008059</a> , buildings or groups of buildings owned and operated by a governing body, carrying out official duties, and often occupied by a governmental agency.	city hall, post offices
recreation structures	<a href="http://vocab.getty.edu/page/aat/300122263">http://vocab.getty.edu/page/aat/300122263</a> , built works used for purpose of recreation.	baths
residential structures	<a href="http://vocab.getty.edu/page/aat/300257729">http://vocab.getty.edu/page/aat/300257729</a> , architecture or other accommodations produced for or adapted to provide shelter and security for the basic physical functions of life for an individual, family, or clan and their dependents, human and animal.	villas, barracks
transportation structures	<a href="http://vocab.getty.edu/page/aat/300120693">http://vocab.getty.edu/page/aat/300120693</a> , structures of any kind that serve the transportation and transport of goods and passengers.	railroad stations

In the guidebook by Polsterer (1827), a total of 156 buildings are mentioned in Graz. Of these buildings, 39% (61) were residential structures and 18% (28) ceremonial structures. He mentions 10 industrial buildings (6%) and 3 commercial buildings. He does not describe any public accommodation or structures for transport.

Schreiner in his book of 1843 counted 260 building mentions. The distribution of the different functional categories is similar to Polsterer's, except for the commercial buildings, where the proportion of buildings mentioned triples (from 2% in Polster to 7% in Schreiner).

Weidmann in 1856 mentions 227 buildings. In this case, too, the proportion of commercial buildings increases threefold and coffee shops and taverns are named. Buildings used as public accommodation appear in the text for the first time. The proportion of residential buildings mentioned, on the other hand, decreases sharply.

In Cieslar's guidebook of 1873, 197 buildings were listed. In his text, the largest number of buildings proportionately are in the ceremonial structure category, followed by commercial buildings, followed with a large margin by the category institutional buildings. The number of public accommodation buildings is unchanged from the situation reported by Weidmann.

In the last guidebook examined, that of Semetkowski in 1910, 299 buildings were found. In this text, the category commercial structure is the most strongly represented. Semetkowski names 82 buildings in this category. A sharp decline in the number of industrial buildings mentioned can be seen and he names only 2 of these.

Overall, a diachronic comparison of the results reveals that a tour of the city in the first decades of the nineteenth century is dominated by visits to representative town houses and religious buildings. The fortress walls and city gates are clearly part of the perceived cityscape and are also mentioned. Public buildings (fire station, police, post office and so on) are a fixed part of the city description until the middle of the century. The proportion of these buildings mentioned in the 1873 and 1910 descriptions then decreases sharply. In the latter, the mentions of industrial buildings also decrease. New building functions appear with the guidebook by Weidmann of 1856, these being the public accommodations and the transportation structures. Together with the simultaneous increase in commercial buildings, the analysis presents changing portraits of the city. These portraits do not allow for direct conclusions to be made about the lifestyles of the urban population in Graz during the nineteenth century, but the analysis shows that the authors emphasise different functionalities of the city, which evolve over time and demonstrate the urban as a process.

## 6 Conclusion

Historic urban space with its formations, changes and dissolutions can be represented in various ways. This paper focused on narrative spatial representations of the city of Graz in the 19th century in guidebooks. In these texts the subjective in the individual accounts interweaves with historical reality. Two methods were demonstrated to reconstruct perceptions and experiences of historical spaces and spatial relationships in travel text, making aspects of urban change measurable and comparable.

In contrast to successive reading of a text, the transformation of the texts into maps provides a simultaneous experience of places and their relationships to each other. The diachronic comparison enables the morphogenesis of the city (densification of the road network, enlargement of the urban space) to be traced in these accounts. Furthermore, by superimposing all maps, a cityscape was created that

could be used in a particularly informative way for tourism, but also in the cultural heritage sector for preservation strategies. Significant structural and functional changes in the city descriptions in the course of the nineteenth century could be revealed by the spatial function analysis, in which the functions of the named buildings were categorised and juxtaposed. This led to the realisation that the representation of the city as a space with commercial offers, public accommodations and transport amenities does appear in the texts around mid-century and becomes much more dominant in subsequent representations.

In conclusion, the analysis of guidebooks shown here makes the urban space and its spatial relations perceivable. Facets of a historical city were reconstructed, identifying the urban as a dynamic process. All the data created in the project “Becoming Urban - Reconstructing the city of Graz in the long nineteenth century” and for this analysis is freely available and can be further used by the scientific community, driving a critical discussion about verbal and visual representation of space.

## Appendix

Buildings by function	Polsterer	Schreiner	Weidmann	Cieslar	Semetkowski
	1827	1843	1856	1873	1910
Ceremonial structures	28	36	25	41	41
Commercial buildings	3	19	46	46	82
Exhibition buildings	2	2	1	2	5
Fortifications	1	3	1	2	0
Gate structure	7	9	5	3	2
Industrial structures	10	27	15	13	2
Institutional buildings	12	22	19	22	27
Monuments	5	9	5	9	20
Performing arts structures	1	5	3	2	6
Public accommodations	0	0	11	13	15
Public buildings	13	21	22	5	9
Recreation structures	6	6	9	11	8
Residential structures	61	88	51	18	65
Transportation structures	0	0	1	4	6
Other	7	13	4	6	10
<b>Mentioned buildings total</b>	<b>156</b>	<b>260</b>	<b>227</b>	<b>197</b>	<b>299</b>

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# Confrontarsi con l'assenza Nuove prospettive di ricerca e di visualizzazione di un dimenticato museo a cielo aperto della Roma del Rinascimento

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**Abstract** The city is a set of arbitrary visual experiences dispersed in time that must necessarily be integrated. In studying the absences, Bruno Toscano writes that “the city would appear to us in a less verisimilar facies if we resigned ourselves to consider it forever amputated of the missing parts just because they are missing”. The comparison with an evanescent patrimony such as the painted facades in Renaissance Rome imposes a methodological reflection on various fields of application. The loss could instead open up research perspectives and propose new ways of restoring the memory of the genre. The ambition is to make usable again an aspect of Renaissance Rome in its sedimentation and specificity as an object of vision and reconstruction and as a specific field of Digital Humanities.

**Keywords** Digital Humanities. History of art. Italian Renaissance. Virtual heritage. Urban environment.

**Sommario** 1 Introduzione. – 2 Le ICT per la ricostruzione di patrimoni scomparsi. – 3 Modelli e canoni. – 4 Una proposta di valorizzazione e di ripristino mnemonico della *Roma picta*.



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## 1 Introduzione

«Il pur ricco e vario universo preso in considerazione dalla ricerca storico-artistica non è che la parte superstite di una originale totalità» sostiene Bruno Toscano (1998, 15), un limite che emerge assai più chiaramente quando si affrontano patrimoni artistici caratterizzati dall'assenza, il cui studio rende spesso problematica una ricerca che abbia ambizioni di esaustività. L'approfondimento del tema delle facciate dipinte a Roma nel Rinascimento, - diffusa usanza di decorare i prospetti di case e palazzi a graffito o ad affresco tra XV e XVI secolo a opera di importanti come di sconosciuti artisti dell'epoca - risente dell'evanescenza dei suoi esiti e della scarsità delle fonti che troppe volte ne hanno limitato analisi e letture critiche più ampie come anche la diffusione della sua conoscenza. La perdita, in questo caso, è senz'altro una delle cause dell'impossibilità di comprensione totale del fenomeno che è, per sua natura, non solo decorativo ma anche architettonico, urbanistico e sociale. Mancano, infatti, approfondimenti che collochino il discorso critico sui prospetti decorati in una riconoscibile costellazione storico-artistica e in una più vasta prospettiva macro-culturale. Sono insomma pochi gli studi che lo considerano una preziosa occasione per osservare, partendo da un genere non centrale ma ricchissimo d'implicazioni, aspetti rilevanti della vita artistica tra Quattrocento e Cinquecento con le sue connessioni sociali, culturali, tecniche e ideali. Nonostante la qualità tecnica e artistica e la presenza di importanti artisti e committenti che si sono misurati con la decorazione dei prospetti e nonostante la sua ampia diffusione,<sup>1</sup> le fonti storiche<sup>2</sup> e la trattatistica d'arte di fine Cinquecento<sup>3</sup> non sono sufficienti per una ricostruzione della *Roma picta*. Una situazione che non solo ha causato un vuoto bibliografico ma anche una scarsa consapevolezza dell'importanza e dell'esistenza di quel patrimonio cinquecentesco tra i non addetti ai lavori.

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Questo articolo è in parte tratto dalla mia tesi di dottorato intitolata «*La città più ornata di tutto il mondo*». *Facciate decorate a Roma fra XV e XVI secolo*, sostenuta il 9 febbraio 2016 presso l'Università Ca' Foscari Venezia.

**1** «Il numero di duecento a Roma da qualcuno proposto, a me personalmente non convince per niente, sono convinto che erano molte di più» (Toscano 2000, 62).

**2** Tra le fonti storiche si citano, oltre alle *Vite* di Giorgio Vasari, anche le testimonianze seicentesche di Giulio Mancini (1628), Gaspare Celio (1638), Giovanni Baglione (1642) che riportano, oltre a preziosi elenchi di case decorate a Roma anche alcuni dei loro artefici.

**3** Il riferimento va in primo luogo ai trattati di Giovanni Paolo Lomazzo (1590), Romano Alberti (1585), Giovan Battista Armenini (1587).



Le prime perdite delle decorazioni su facciata si registrano già a partire della fine del XVI secolo<sup>4</sup> ed è proprio dalla metà del Seicento che si verifica una sorta di amnesia che andrà di pari passo con i primi cedimenti di un patrimonio che si farà sempre più frammentario.

I riferimenti alla *Roma picta* svaniranno insieme alle sue tracce materiche progressivamente fino agli inizi dell'Ottocento. Tra il XVIII e gli inizi del XIX secolo, infatti, studi, commenti, testi, ricordi o interventi su ciò che rimaneva della *Roma picta* sembrano mancare, tranne un discreto interesse da parte del mondo degli artisti alla ricerca di modelli pittorici del passato.<sup>5</sup> Una dimenticanza imputabile alla progressiva svalutazione della pratica artistica, al cambiamento di gusto, alla mancanza di studi e interessi, a una nuova idea di magnificenza e di decorazione della città, alla difficoltà di osservazione di quelle opere d'arte poste troppo in alto e in vicoli stretti per essere scovate, ma anche al repentino sbiadire delle decorazioni che provocano l'accelerazione del distacco emotivo di cui stiamo parlando.

Le perdite e i vuoti artistici, nota Bruno Giordano, sono quasi sempre legati a

catastrofi naturali [...] fasi di trasformazione politica [...] religiosa [...] infine le oscillazioni del gusto, che spesso procedono per drastiche selezioni di modelli esaltando ma anche escludendo, favorendo l'apprezzamento e, d'altra parte, provocando svalutazione e oblio, sempre rivelandosi anch'esse fattori di conservazione e di reviviscenza oppure di obsolescenza e di distruzione. (1998, 19-22)

Il caso delle facciate dipinte sembra ricadere su quest'ultimo punto come anche sulla responsabilità imputabile al tempo trascorso. Francesco Milizia, ad esempio, fornisce la prova di una certa svalutazione della tecnica del graffito nel XVIII secolo, una delle più utilizzate per la decorazione dei prospetti cinquecenteschi.<sup>6</sup> La voce «sgraffito» contenuta nel suo *Dizionario delle belle arti* descrive, infatti, un genere «disaggradevole alla vista» (Milizia 1827, 486). Fu solo nell'Ottocento che si prestò nuovamente attenzione a quell'aspetto artistico della Roma rinascimentale che tempo e incuria avevano messo al bando: grazie a una nuova sensibilità nei confronti dei problemi le-

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<sup>4</sup> Federico Zuccari, in anticipo su tutti, definisce quelle decorazioni «in pericolo di perderli e dal tempo annullarsi» (Alberti, Zuccari 1604, 7) invitando i suoi allievi dell'Accademia a copiare e riprodurre quel patrimonio.

<sup>5</sup> Il silenzio bibliografico della seconda metà del Seicento fino a tutto il XVIII secolo non aveva scalfito l'ammirazione di Cherubino Alberti, di Joseph Heintz e di Pietro da Cortona. Tutti talmente affascinati da quel repertorio da continuare a copiarlo e a studiarlo nonostante la sua progressiva rovina.

<sup>6</sup> Della tecnica dello sgraffito Giorgio Vasari scrive che «non serve ad altro che per ornamenti di facciate di case e palazzi» (1971, 201).

gati alla conservazione del patrimonio artistico e alla vigilia di Roma Capitale, si tornerà a parlare di facciate dipinte, ma in tutt'altri termini. Al posto dei trattati d'arte e delle biografie degli artisti compariranno le condanne nei confronti di chi continuava a permettere la distruzione dei pochi esiti sopravvissuti; al posto delle descrizioni delle facciate dipinte, del repertorio iconografico scelto, della tecnica e dello stile si affermerà che «ciò che ancora si conserva risulta irrisorio in confronto a quanto è andato perduto» (Burckhardt 1952, 319, 1). Nonostante tutto però la strage pittorica continuò. Complice anche l'avvicinarsi di Roma Capitale e i relativi piani urbanistici, molti piccoli edifici rinascimentali, alcuni dei quali decorati al loro esterno, sparirono per sempre. Anche le demolizioni quindi, avviate per far spazio ai nuovi assi stradali della Roma postunitaria, entreranno presto a far parte della lista dei colpevoli insieme al tempo, all'incuria, a infelici scelte di ristrutturazione e ai cambiamenti di gusto.

## 2 Le ICT per la ricostruzione di patrimoni scomparsi

Per la riscoperta di un patrimonio per lo più scomparso bisogna rievocare almeno il suo ricordo. La memoria della *Roma picta* è un insieme di 'punti di vista': lacerti, restauri, riproduzioni, testimonianze coeve, narrazioni di viaggiatori, di trattatisti, di artisti, cronisti, passanti. La sua labilità obbliga a misurarsi con l'aspetto soggettivo del suo passato stratificato nel tempo e nelle prospettive culturali e lascia la traccia di esperienze visive disperse, arbitrarie che, nella loro integrazione, possono farsi insieme racconto di un genere e di un'eredità. Proprio perché legato a un fenomeno in cui aspetti microstorici e macrostorici si fondono con sorprendente evidenza, la ricerca sull'argomento non può esaurirsi nella sua riscoperta o nell'approfondimento della sua genesi e dei suoi caratteri, ma deve anche provare a rendere nuovamente fruibile questo aspetto della Roma rinascimentale nella sua sedimentazione e nella sua specificità come oggetto di visione e di ricostruzione e con uno spettro di questioni metodologiche non trascurabili. La grave perdita della *Roma picta* potrebbe quindi essere utilizzata per ampliare le prospettive di ricerca su un genere divenuto poco noto anche perché scarsamente leggibile. Si tratta, a una prima approssimazione, di un'operazione di ripristino storico-percettivo che intende restituire una realtà cittadina, così particolare «quanto negletta nella percezione comune» (Calzona 2015, 11): una ricostruzione per immagini di quella galleria a cielo aperto che offrirebbe una visione scalare che dalle singole facciate, attraverso strade e quartieri, finirebbe per offrire un'idea della città seguendo un processo ricostruttivo modulare e integrato in cui la piccola scala svela la grande e viceversa.

La scomparsa appena descritta obbliga quindi a misurarsi oggi con l'aspetto soggettivo e metafruitivo della memoria di soggetti, di

tempi e culture diverse, e induce a considerare fonti, lacune e lacerati come testimonianze che vanno necessariamente integrate come immagini in divenire (cf. Danielsson, Jones 2020). L'assenza, scrive ancora Toscano, è

intesa come valore perduto, misto di storia e di arte. La ricerca non può certo presumere di restituirlo, può però far sentire il peso specifico della sua storia interrotta in un quadro di presenze parziali di sopravvivenze. (2006, 3)

Si tratta della volontà di affrontare la *storia dell'arte che non c'è* (cf. Toscano 1998) senza farsi condizionare dalla loro progressiva scomparsa. Nonostante la scarsità delle fonti, l'uso di una documentazione grafica e di descrizioni posteriori e a volte imprecise, la variegata eredità del genere potrebbe servire per la costruzione di un suo racconto rielaborato a uso dei contemporanei - oggetto di fruizione, di conoscenza ma anche di riflessione metodologica su un campo di applicazione molto particolare come quello fornito dall'uso delle tecnologie digitali dell'informazione e della comunicazione. Trattandosi di un patrimonio caratterizzato dall'assenza, si propone quindi di interrogare la potenzialità delle moderne tecnologie digitali applicate, dei campi delle *Digital Humanities* e del *Virtual Heritage*, non solo nella prospettiva di una ricostruzione più o meno ampia del fenomeno, ma anche di quella legata a una restituzione stratificata e problematica in cui la fruizione non viene schiacciata sull'oggettività della ricostruzione ma viene proiettata in un percorso articolato e, volutamente, irrisolto. L'ambizione è dunque quella di trattare il tema delle facciate dipinte senza farsi troppo suggestionare dalla sua evanescenza, di ripristinarne parte del suo antico splendore e, soprattutto, di facilitare una sua riscoperta tra la popolazione.

Si tratterebbe quindi di un processo di restituzione e ricostruzione che riprenda temi fruitivi assolutamente attuali: che le facciate dipinte siano un fenomeno non solo artistico ma anche urbanistico, sociale e architettonico e, d'altra parte, siano apparati decorativi scomparsi o evanescenti e appartenenti alla sfera pubblica dell'arte, ne fanno un fenomeno particolarmente coerente con l'impiego contemporaneo delle tecnologie digitali. Sono i temi - sempre più spesso applicati ai beni culturali e in particolare ai patrimoni artistici scomparsi e in pericolo - della ricostruzione virtuale, della ricollocazione in situ e del percorso interattivo per cui la *Roma picta* può essere modello ed esempio: un percorso conoscitivo da ricostruire colmando vuoti fin troppo evidenti e riconsegnando alla città un'immagine, oggi inedita, ma che un tempo le apparteneva e la caratterizzava in maniera tutt'altro che marginale.

L'uso corretto delle tecnologie digitali nel campo storico-artistico presuppone l'uso e la valorizzazione di materiali storico-critici e del-

le fonti. L'apparato documentario, nella sua varietà e nella sua validità, risulta infatti essere il punto di partenza per il ripristino fruitivo e visivo delle facciate, delle loro decorazioni, delle tecniche e dei soggetti raffigurati. Il riferimento va in primo luogo alle fonti storiche, a chi aveva scritto dei prospetti adornati quando ancora erano tutto sommato visibili, ma anche alle biografie degli artisti che hanno collaborato alla creazione della *Roma picta*. Di grande importanza sono poi le fonti iconografiche conservate in diversi musei e gabinetti sparsi per il mondo: dagli schizzi e dai disegni preparatori fino alle riproduzioni postume caratterizzate da un vasto repertorio di copie, stampe e incisioni come quelle di Cherubino Alberti [fig. 1],<sup>7</sup> Giulio Bonasone, Giovanni Saenredam e di Piero Santi Bartoli o di quelle più tarde di Paul-Marie Letarouilly<sup>8</sup> e di Enrico Maccari.<sup>9</sup>



Figura 1 Cherubino Alberti, copia di un brano decorativo della facciata di Palazzo Milesi. 1576. Incisione

<sup>7</sup> Cf. Fiore 1983; Manescalchi 2007; Pouncey 1962.

<sup>8</sup> Letarouilly 1992. L'architetto francese, nato nel 1785 e allievo di Charles Percier, pubblicò il primo volume iconografico di *Edifices de Rome moderne* nel 1840. Seguirono il secondo volume nel 1851 e il terzo e ultimo nel 1857. I viaggi romani di Letarouilly risalgono al 1820, il primo, al 1830 il secondo allo scopo di completare la sua opera e, per lo stesso motivo tornerà anche nel 1844 quando si fermerà in città per un anno.

<sup>9</sup> Cf. Iannoni, Maccari 1876. La raccolta iconografica di Enrico Maccari, iniziata nel 1873 ma apparsa al pubblico tre anni più tardi, si presenta come un tentativo concreto di intervento contro la definitiva perdita della *Roma picta*. Il suo volume *Graffiti e chioscuri esistenti nell'esterno nelle case di Roma* è un documento di estrema importanza per la ricostruzione delle facciate di Roma e delle loro singole decorazioni. La nascita della raccolta di tavole incise su rame di Maccari è strettamente connessa alla volontà di salvare il salvabile, preservando almeno la memoria delle decorazioni rinascimentali di Roma. Il libro è, infatti, il frutto di un preciso progetto voluto da una commissione apposita che prese l'onere di tutelare quei prospetti anche affidando a Maccari la loro riproduzione.

Da non dimenticare, in un racconto che vuole comprendere l'intera vita di un'opera (cf. Failla, Gioli, Piva 2016) e la storia della sua percezione nei secoli, le voci dei cronisti, degli appassionati, dei burocrati ottocenteschi alle prese con un patrimonio divenuto in qualche modo ingombrante ma da tutelare.

Partendo dalle evidenze, dalle descrizioni e dalle riproduzioni delle decorazioni dei prospetti a nostra disposizione, confrontandole e apparentandole tra loro, sistematizzando gli studi e infine collazionando le fonti storiche (bibliografiche e iconografiche) con le analisi scientifiche moderne, si potrebbe riconsegnare un volto e una storia ad alcune facciate in origine dipinte scelte sulla base di criteri che garantiscano soprattutto scientificità e utilizzabilità. La scelta si dovrebbe, infatti, orientare su quegli esempi che conservano, nelle forme possibili di rappresentazione e narrazione, una testimonianza affidabile del loro aspetto passato, in modo che la ricostruzione non aggiunga nulla di intuitivo, approssimativo o suggestivo ma restituisca invece, in modo filologico, l'apparenza originale alle facciate e la loro antica *facies picta*.

Le potenzialità e gli usi delle tecnologie dell'informazione e della comunicazione (ICT) applicate all'arte e alla cultura sono stati ampiamente analizzati e spesso utilizzati a fini conservativi, ricostruttivi, fruitivi e di riqualificazione. Fin dagli anni Novanta tecnici e studiosi hanno messo in evidenza alcune caratteristiche dell'interazione tra l'arte e le tecnologie digitali:<sup>10</sup> è stato dimostrato che le ICT permettono una diffusione della creatività e della conoscenza attraverso nuove forme di partecipazione innovative, rispondono alle esigenze di diffusione e conservazione e sono potenti strumenti formativi. Inoltre è stata dimostrata la loro importanza nel settore del restauro perché permettono la ricostruzione e la ricollocazione contestuale dell'opera e favoriscono nuove dinamiche di interazione tra opera e spettatore. Sono dunque dei sistemi a supporto della comprensione in grado di ampliare l'esperienza di visita seguendo nuove e diversificate chiavi di lettura.

Se uno degli obiettivi del presente studio è rendere nuovamente fruibile quel patrimonio in gran parte perso e per questo poco conosciuto, appare subito chiaro il perché del ricorso a questi strumenti.

Una possibile ricostruzione dell'aspetto originario dei prospetti decorati a Roma durante il Rinascimento deve obbligatoriamente confrontarsi con la specificità di un caso estremamente particolare. Il genere delle facciate dipinte si discosta, infatti, da gran parte dei prodotti

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**10** Tra i molti testi esistenti sull'argomento si rimanda in particolar modo a Antinucci 2014; Balkun, Deyrup Mestrovic 2020; Bodard, Mahony 2010; Bonancini 2011; Branchesi, Curzi, Mandarano 2016; Ciotti, Roncaglia 2000; Colosi et al. 2015; Di Stefano 2012; Gaiani et al. 2021; Kalay, Kvan, Affleck 2008; Lévy 1999; Luigini, Panciroli 2018; Mandarano 2019; Martini 2016.

artistici solitamente coinvolti nei processi digitali e nelle variegate applicazioni delle ICT: si tratta di una galleria all'aperto, di una città museo dall'aspetto alterato, di un patrimonio caratterizzato dalla seconda dimensione e appartenente alla cosiddetta sfera dell'arte minore. Anche se lo spettro di applicazione si sta ampliando, questo campo disciplinare e progettuale continua a prediligere la rovina che, per sua natura, obbliga a intervenire con ricostruzioni e a essere completata; si punta inoltre su prodotti artistici noti e dal grande seguito e sulla terza dimensione, maggiormente adatta ai processi ricostruttivi. Nel caso di un palazzo e della sua decorazione esterna l'interazione invece cambia: mantenendo apparentemente la sua materialità data dalla struttura architettonica, la facciata non sembra richiedere un'integrazione immediata. Si tratta di una realtà compiuta a cui aggiungere qualcosa, una veste caratterizzata dalla seconda dimensione. Tuttavia, viste le potenzialità di questi strumenti, e ci si riferisce non solo ai molti progetti dedicati alla ricostruzione ma anche al loro potere comunicativo e di diffusione culturale, bisognerebbe, a maggior ragione, coinvolgere diversificate forme artistiche e periodi storici. Trattandosi di potenti ed efficaci strumenti di coinvolgimento e sensibilizzazione, il loro uso sui degradati e spesso dimenticati prospetti di Roma potrebbe riuscire a ridare importanza e nuova vita a patrimoni ignorati ma non per questo di scarso valore culturale e artistico.

### 3 Modelli e canoni

Numerosissimi sono gli esempi in cui il patrimonio culturale e le ICT si fondono nella ricerca di un nuovo approccio all'arte. Non è questa la sede per ripercorrere la storia degli innumerevoli progetti coinvolti in questa ibrida interazione. Il campo d'applicazione è ormai sterminato ma appare interessante in questa sede guardare a quei progetti che per alcuni versi presentano analogie con l'idea di restituzione della *Roma picta* che si vuole avanzare. In particolare l'attenzione va al rapporto tra tecnologie digitali ed elemento strutturale della facciata (supporto artistico della *Roma picta*) o semplicemente i casi in cui l'obiettivo ultimo è il ristabilimento dell'unità potenziale<sup>11</sup> di un prodotto artistico caratterizzato dalla seconda dimensione.<sup>12</sup>

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**11** Una restituzione di tipo virtuale potrebbe anche rispondere agli assunti della teoria del restauro di Brandi secondo cui il restauro dovrebbe «mirare al ristabilimento dell'unità potenziale dell'opera d'arte, purché ciò sia possibile senza commettere un falso artistico o un falso storico, e senza cancellare ogni traccia del passaggio dell'opera d'arte nel tempo» (2000, 34).

**12** Un lavoro senza pretese interattive ma il cui fine è quello di riproporre l'aspetto originario dei prospetti dipinti usando la grafica digitale: *Facciate dipinte nella Mantova di Andrea Mantegna* (Bazzotti, L'Occaso, Vischi, 2009) è un testo con delle schede

Per prima cosa è d'obbligo ricordare il nuovo ruolo della facciata nella cultura contemporanea, la cosiddetta estetica del display (cf. Somaini 2005, 8) attraverso la quale i prospetti cittadini, da fulcro della progettazione urbana si trasformano anche in apparati performativi dal grande impatto assorbendo su di sé un nuovo tipo di centralità della visione non più legata al suo passato ma al suo uso attuale. Sempre più spesso le facciate delle città, vestite di luci e proiezioni, si mettono al servizio di eventi performativi diventando dei veri e propri schermi: «un'euforia di immagini, prodotte con svariate tecnologie, che ha indotto alcuni filosofi a parlare di *pictural turn*» (Di Stefano 2012, 7) col fine di intrattenere tramite il coinvolgimento emotivo di luci, suoni e immagini dinamiche in movimento (si pensi ai molti progetti nazionali e internazionali di *History Telling*, di *Video* o *Audiovisual Mapping* e di *Architectural data sculpture*). Grazie alle tecnologie digitali la facciata è andata così assumendo un ruolo da protagonista nel connubio tra parete e multimedialità. Accade così che

different types of lighting on historical facades are introduced, in general, and then specifically, 3D projection mapping on the facade of historical buildings, in order to create a context for proposing a new idea to apply this technique on the historical facade. (Moghaddam 2014, III)

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dedicate ai prospetti della città dipinti nel Rinascimento che contiene un CD in allegato, nato nel 2006 e entrato a far parte della pubblicazione del 2009. La proposta è semplice ma molto efficace: al *rendering* 3D dell'edificio è aggiunta la veste pittorica originaria seguendo un procedimento che ci invita nuovamente a riflettere sulla dimensione spaziale più appropriata per ricostruire un apparato prettamente decorativo: «l'uso del 3D è limitato ma indispensabile per la corretta restituzione delle parti e per offrire panoramiche geometricamente attendibili. [...] Solo dove il materiale ha concesso un accettabile grado di sicurezza, si è passati alla ricostruzione pittorica su tavola dei motivi, successivamente fotografati e montati in una nuova livrea che si sovrappone correttamente a quella attuale» (Bazzotti 2013, 67). L'esempio mantovano può dunque essere da guida per ripensare al futuro della *Roma picta*. Tuttavia, esistono alcuni dubbi riguardo l'effettiva possibilità di ricostruire una trama in via ipotetica mancando, in molti casi romani, una decorazione prettamente geometrica e dunque ripetitiva che ben si presta a delle interpretazioni intuitive. A Mantova, infatti, è stato possibile dedurre i criteri distributivi dei cicli e anche il loro andamento figurativo seguendo un metodo caro a Bruno Toscano che nel suo studio sull'assenza nota che «molto raramente gli studi [...] siano accompagnati da rilevamenti interpretativi analitici o rilievi critici [...] allo scopo di sondare sistematicamente l'intera latenza nell'edificio e della sua decorazione» (1998, 31).

Il nostro caso però è assai diverso e se è vero che le proiezioni vengono spesso utilizzate per ricostruire visioni artistiche e architettoniche ormai perse<sup>13</sup> seguendo un approccio filologico e non solo performativo, e che, per le loro caratteristiche altamente suggestive e non invasive, esse permettono di ristabilire l'unicità di un'opera senza che il ripristino diventi una manomissione *ex novo*, nel caso delle facciate dipinte di Roma, disposte in una collocazione sfavorevole, presentano alcuni limiti di applicazione che, se risolti, potrebbero rappresentare il primo passo verso la riscoperta del genere. La maggior parte dei prospetti dipinti coinvolge l'edilizia privata e minore e basta conoscere la città di Roma, il suo centro storico e i suoi vicoli per comprendere la piccolissima porzione di spazio in cui si troverebbe il palazzo su cui intervenire con eventuali videoproiezioni. La decorazione proiettata difficilmente combacerebbe con la sua disposizione originaria né, tanto meno, con gli elementi strutturali della facciata che nel passato orientavano e imponevano le modalità di inserimento e di scelta degli ornamenti. Anche la condivisione di questa scoperta verrebbe meno visto che difficilmente un vicolo o una strada stretta si prestano a divenire una platea per la visione collettiva di restauri di luce, ma la videoproiezione resta comunque una strada da poter percorrere superati i limiti tecnici.

Se il fine del presente studio è quello di trovare una soluzione convincente per provare a rendere nuovamente fruibile quel piccolo patrimonio decorativo nascosto tra le strade del cuore di Roma, l'ambizione primaria è quella di coinvolgere la città e il suo flusso di visitatori, ripristinando così anche la forte valenza pubblica del genere in esame. Per sua stessa natura, la facciata è ciò che per prima si mostra all'interno della conformazione urbana ed è considerata, a partire dal trattato di Leon Battista Alberti (cf. Alberti 1989) in poi, responsabile dell'estetica e della reputazione cittadina. Le facciate dipinte, già alla fine del XVI secolo si trasformano in botteghe d'arte all'aperto, in veicoli di una formazione pubblica e gratuita e in una vetrina dell'opera dei grandi artisti del Cinquecento.<sup>14</sup> Da elementi di puro decoro le pitture esterne diventano modelli teorici e figurativi

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**13** Dalle proiezioni di luce per la riproposizione della colorazione originaria dell'Ara Pacis Augustea (oggi tramite realtà aumentata) grazie allo studio di quello che era, o si suppone che fosse, l'aspetto cromatico dell'Ara Pacis (Rossini 2010) alla musealizzazione della Domus romana di Palazzo Valentini (in cui, dal 2011, le antiche pitture murali e i mosaici sono visibili e ricostruiti virtualmente attraverso la grafica digitale e la videoproiezione all'interno di un percorso multimediale stabile) fino al ripristino, tramite videoproiezioni, del ciclo di affreschi medioevali di Santa Maria Antiqua realizzato nel 2016.

**14** «Quando queste facciate erano in essere, potea dirsi veramente di Roma, che tutta intera fosse uno esempio ed una pubblica ed onoratissima scuola di pittura» (Amati 1867, 3).



per la collettività e veicoli comunicativi.<sup>15</sup> Quegli imponenti supporti resi opere d'arte e affacciati sulla città diffondevano e mostravano simbologie, forme e repertori iconografici condivisi dalla società del tempo e da tutti ammirati inserendosi in uno «spazio stradale trasformato in luogo di contemplazione e di lettura di storie», come scrive Paolo Portoghesi (1970, 360). Le facciate, dalla loro posizione privilegiata nello spazio urbano, divennero ben presto meta obbligatoria per gli artisti ed è proprio grazie a questa attenzione che oggi disponiamo ancora di riproduzioni, schizzi e testimonianze vivive dei dipinti sui prospetti romani.<sup>16</sup> Bisogna così immaginare che di fronte a quei palazzi, davanti ai quali oggi non si ferma più nessuno, secoli fa, ci fossero delle vere e proprie scuole d'arte e di gusto: «laonde si è veduto di continuo ed ancor si vede per Roma tutti i disegnatore esser più volti alle cose di Polidoro e Maturino, che a tutte l'altre pitture moderne» scriveva Vasari delle opere dei più importanti decoratori di facciate della Roma del Cinquecento (1971, 230-1). Tra le diverse tipologie di ambienti decorati all'esterno che vengono realizzati in quegli anni, come le facciate delle chiese, i chiostri o i cortili, si vogliono quindi privilegiare le pitture che si affacciano su strada perché trasformano il contesto visivo della struttura urbana e perché, fin dalla loro origine, si sono imposte come pareti parlanti e oggetto di fruizione civica:

quando un'interazione di città acquista una speciale caratterizzazione grazie alla presenza di ornati di superficie, l'istanza conservata dovrebbe essere affermata nel senso di superare la logica dell'iniziativa privata o dei singoli cantieri di restauro, per diventare un'esigenza civica generale. (Toscano 2000, 61)

Proprio per questo motivo si vuole affermare la necessità di una ricostruzione e un'esplorazione in situ con la mediazione di dispositivi

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**15** Un buon esempio della possibile valenza didattica di una facciata come veicolo comunicativo nel Cinquecento viene proposto dalla casa dell'architetto mantovano Giovan Battista Bertani sul cui prospetto egli decise di 'esporre' due colonne senza nessun compito strutturale ma «con la specifica intenzione di volere dare dimostrazione teorica e pratica del mondo di comporre secondo tale ordine. [...] La facciata dell'edificio viene concepita come un vero e proprio 'testo' dove esporre per immagini i principi architettonici. Riportando sulla facciata in modo visibile e tangibile ciò che costituiva una schema teorico (anche se elaborato apposta per essere messo in pratica) l'immagine diventa simbolo e la facciata manifesto. [...] la facciata non presenta infatti nessuna particolarità a parte il fatto di essere una vera e propria pagina illustrata del trattato del Bertani. Si stabilisce in tal modo uno stretto rapporto tra parola e immagine, operando attraverso la manipolazione di elementi usuali una riduzione formale immediatamente comunicabile» (Capuano 1995, 19-20).

**16** Dalle riproduzioni esistenti, dalle testimonianze storiche e dagli studi moderni sappiamo che tra gli estimatori e gli studiosi di quel genere c'erano Peter Paul Rubens, Annibale Carracci, Nicolas Poussin, Pietro da Cortona, come anche Andrea Sacchi.

mobili che restituisca al genere della *Roma picta* la sua valenza pubblica di museo a cielo aperto.

#### **4 Una proposta di valorizzazione e di ripristino mnemonico della *Roma picta***

Riunito e digitalizzato tutto il materiale disponibile facciata per facciata e realizzata una campagna fotografica dello stato attuale dei prospetti - operazione tutt'altro che scontata vista la loro collocazione<sup>17</sup> -, bisognerà trovare il modo migliore per far rivivere quelle decorazioni, la loro cornice architettonica, storica e sociale e il loro significato ed evidenziare l'esistenza a Roma di un fenomeno decorativo dalla grande importanza e segnalarlo nello spazio urbano. Per questo si è pensato a una metodologia integrata e scalabile vista la presenza di tali tipologie di lacune formali e mnemoniche in molte altre città italiane.

La creazione di un'applicazione per dispositivi mobili faciliterebbe in primo luogo la creazione di un itinerario romano inedito basato sulla mappatura delle facciate decorate a Roma in origine e di quelle ancora esistenti (utile a mostrare la diffusione del genere in epoca rinascimentale e la progressiva perdita in età moderna). Ogni punto sulla mappa, corrispondente a una facciata decorata, darà la possibilità di approfondirne la conoscenza e di mettere a disposizione dell'utente materiali e contenuti riguardanti il prospetto scelto: la documentazione iconografica, le informazioni riguardanti la datazione, la tecnica, il soggetto e l'artista o l'attribuzione e link di approfondimento storico e macro-culturale sul fenomeno. Purtroppo, non esistono fonti iconografiche per tutte le facciate dipinte superstiti e scomparse. Laddove possibile, si riprodurrà l'aspetto originario della facciata con le sue decorazioni ma, in caso opposto, ci si accontenterà di far almeno conoscere l'esistenza e la diffusione del genere. Il percorso si dovrebbe focalizzare sui palazzi ancora esistenti ma non

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**17** Già nel 1985, Errico, Finozzi e Giglio avevano riscontrato alcuni problemi per presentare al lettore la ricognizione delle facciate dipinte che proponevano: «è quasi del tutto impossibile infatti - scrivono - fotografare tali facciate in una veduta d'insieme a causa della loro collocazione in vicoli ristretti» (1985, 62). I primi tentativi di fotografare i superstiti palazzi dipinti al loro esterno sono stati, infatti, fallimentari. Gli scatti riproducono la visione da sotto in su del passante e, di conseguenza, non possono essere usati per la ricostruzione o per l'esposizione completa del repertorio. A tal scopo bisognerebbe convincere l'inquilino della casa di fronte a consentire di fotografare dalle sue finestre la facciata - come del resto dovettero fare per le fotografie che accompagnavano la prima mostra sull'argomento del 1960, come dimostra il saggio di Goffredo Grilli su Palazzo Milesi in cui la fotografia della decorazione pubblicata fu «eseguita, per cortese consenso del Barone Camuccini, da una finestra del suo palazzo che è in faccia all'antico palazzo Milesi» (1905, 100).

è da escludere una mappatura che coinvolga anche gli esempi ricordati dalle fonti ma oggi persi. Per supplire ai problemi legati al cambiamento dell'assetto viario dal XVI al XXI secolo, si potranno usare *layer* attraverso i quali sarà possibile sovrapporre (grazie all'indicazione di alcuni punti e le rispettive coordinate geografiche) mappe storiche a mappe attuali e mostrare le facciate dipinte anche in quelle strade che oggi non esistono grazie a una «mappa digitale tematica consultabile in open access online».<sup>18</sup>

Aspetto centrale del progetto sarà la possibilità di sovrapporre a una facciata la sua originale decorazione tramite realtà aumentata (cf. Maniello 2021) o realtà mista (*Mixed Reality* o MR) per ricostruire parte di una pittura perduta o degradata senza annullarne l'aspetto attuale, la sua secolare storia. La fruizione in presenza rimane infatti l'ambizione maggiore, al fine di integrare aspetti antichi e contemporanei, per un approccio attivo all'arte, e fondere in un'unica immagine-sequenza memorie lontane e aspetti attuali,

in una prospettiva che mantenga anche l'integrità dei manufatti e dei siti, che conservi un senso della distanza e della differenza fra il passato e il presente, fra l'originale e la ricostruzione, fra l'oggetto e la sua interpretazione. (Salvarani 2013, 11-13)

Si potranno così

illustrare, sovrapporre, confrontare le fasi storiche che hanno portato alla creazione di un'entità composita come un edificio [...]. Le fasi di costruzione, gli interventi successivi, le variazioni in atto e quelle tendenziali legate a fattori esterni o al degrado: tutto può essere indagato, esposto con chiarezza, valorizzato. (2013, 67)

In questo modo, le informazioni a nostra disposizione saranno accessibili in presenza: immagini e documenti costituiranno a loro volta altre fonti di informazione, delle iperimmagini per approfondire ulteriormente la storia della rappresentazione (mitologica, sacra o motivi ornamentali), la vita e le opere dell'artista, la descrizione della tecnica usata.

La proposta ricade dunque in un percorso volto alla scoperta formato da tre tappe che andranno a coincidere con tre differenti livelli di incontro e di interazione con l'opera. Appurato che vicino alla nostra posizione esiste un palazzo che nasconde una storia e una decorazione - possibilità per la quale i sensori di prossimità come i Bea-

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**18** Cf. in merito il progetto di ricerca *Naples Digital Archive. Moving Through Time and Space* del Dipartimento di ricerca della Bibliotheca Hertziana (<https://www.bihertz.it/it/dept-michalsky/naples-digital>).

con potrebbero essere altamente funzionali - non si dovrà far altro che raggiungerlo e, se si vorrà, interrogarlo nei suoi variegati aspetti e tramite le modalità messe a disposizione che indubbiamente modificheranno non solo la percezione dell'oggetto ma anche dell'aspetto che dovette assumere la città di Roma tra Quattrocento e Cinquecento. Gli strumenti a disposizione per realizzarlo appaiono infiniti:

le tecnologie aumentate sono oggi ormai in grado di diventare pervasive grazie alla capillare diffusione di dispositivi quali *tablet* e *smartphone* che, seppure nati per esigenze diverse, sono risultati essere perfettamente idonei a fornire uno strato di informazione digitale letteralmente sovrapposto agli oggetti presenti nel nostro campo visivo [...]. Esse rispondono all'esigenza di completare la fruizione del contesto reale nel momento stesso in cui essa viene richiesta. (Bergamasco, Carrozzino, Evangelista 2014, 110)

Non si può infine non prendere in considerazione il fenomeno degli NFT (cf. Weidinger 2021) quale azione speculativa e di *legacy* che possa andare a sostenere la conservazione, il restauro e lo studio dei beni in esame. Gli NFT (*non fungible token*) non sono altro che un insieme di informazioni digitali depositato nella *blockchain*, registro digitale pubblico, trasparente, decentralizzato, eterno e inviolabile. Per quanto riguarda la ricostruzione in formato digitale di una decorazione scomparsa di una facciata cinquecentesca di cui stiamo parlando, essi potrebbero entrare in gioco tramite l'utilizzo dell'*hash*, una funzione crittografica che codifica i dati per formare una singola stringa di caratteri. I dati digitali che compongono l'immagine della decorazione (della sua ricostruzione) possono in questo modo essere associati ad un'identità/firma che garantirebbe l'originalità e l'irripetibilità dei dati. Una volta depositato il dato nella blockchain, esso rimarrebbe inviolabile e autentico. La blockchain è una tecnologia relativamente giovane e le sue applicazioni sono ancora da definire e sperimentare ma, grazie alle sue caratteristiche che danno consistenza - in termini di tracciabilità e proprietà - al dato digitale, sono ipotizzabili alcune modalità di utilizzo e peculiarità applicabili a gran parte del patrimonio storico artistico e non solamente al caso specifico qui presentato. In primo luogo, una ricostruzione digitale, come qualsiasi altro dato digitale, è caratterizzata dall'essere di proprietà di chi la crea. Avendo una forma che autentica la proprietà del dato digitale, essa può essere ceduta tramite *smart contract* (una tipologia di contratto digitale associato al *token*), producendo valore. Legata alla questione della proprietà è la *legacy*, l'eredità del dato digitale, che, una volta depositato su blockchain (un registro pubblico peer-to-peer), può essere ritracciato mostrando e mettendo in evidenza, in piena trasparenza, la storia legata a quel dato. In termini speculativi, invece, data la trasferibilità del bene digitale uni-

co, all'NFT può essere associato un valore economico, ridistribuito tramite smart contract tra i possessori del token, riconoscendo il diritto di seguito (*royalties*) a tutti coloro che hanno partecipato alla realizzazione di una ricerca o di una ricostruzione virtuale di un'opera storica scomparsa.

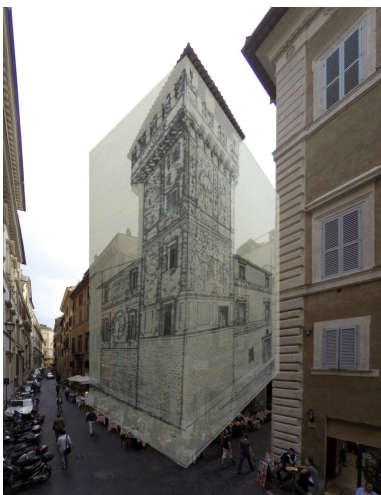
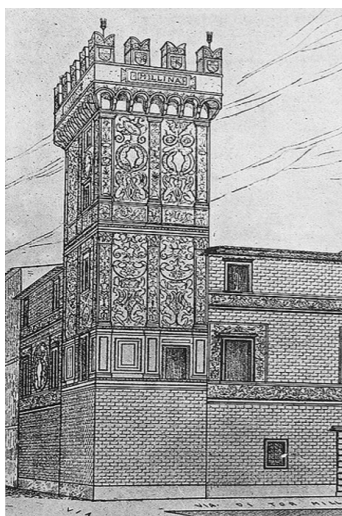
Ai possessori del token potrebbe inoltre essere dato accesso a dei contenuti di natura scientifica (sia digitali che di altra natura) come ricostruzioni in *augmented reality* fruibili tramite strumenti hardware specifici fino a esperienze reali dal vivo come una visita guidata in situ. Vi è poi un altro importante aspetto legato all'utilizzo degli NFT che è già abbondantemente sperimentato da brand commerciali ma che ancora non viene applicato ai beni culturali: la creazione di un token legato a un bene storico artistico, proprio per le sue caratteristiche legate alla scarsità e autenticità che fanno assumere un valore trasferibile, rende il possessore del token una sorta di 'ambasciatore del token' tanto che, più esso viene trasferito o richiesto, maggiore sarà il suo valore. Questa dinamica intrinseca a ogni *commodity*, comprese quelle digitali, può facilmente trasformarsi in una leva pubblicitaria e in una dinamica vivificante per l'intero patrimonio storico artistico.

La ricostruzione digitale della decorazione persa, o solo in parte ancora leggibile, potrà così essere venduta favorendo un processo che tenda a far entrare nel Metaverso non solo un singolo brano decorativo ma un intero genere artistico. Si auspica dunque un nuovo processo di distribuzione di un contenuto non più basato sulla componente immersiva, conoscitiva o emotiva ma sul possesso, che andrebbe così a generare un'economia a servizio della ricerca.

Il tentativo di ridare un volto ornamentale alle facciate con il minor grado di approssimazione possibile dovrà, a prescindere dalle tecniche utilizzate, inizialmente concentrarsi su pochi ma concreti esempi scelti sulla base del materiale esistente. Troppo è andato perso per potersi permettere delle ricostruzioni approssimative, per confronto o per induzione; pochi i brani puramente ornamentali dalla ripetizione geometrica per i quali a Mantova si è potuto ricreare la trama senza tracce preesistenti. La scelta dovrebbe quindi inizialmente cadere su quei palazzi la cui memoria è stata tramandata con parole e immagini con il minor grado di incertezza possibile: via della Maschera d'Oro, 7 e 9; Tor Millina (torre e palazzo); vicolo della Fossa, 14-17; vicolo del Governo Vecchio, 52; vicolo Cellini, 31; via del Pellegrino, 64 e 66; Palazzo Massimo (Piazza de' Massimi, 1); vicolo del Campanile 3; via di S. Salvatore in Campo, 43-44. Non vi sarà dunque la necessità di presentare tutti i prospetti decorati riportati sommariamente dalle fonti e neppure quella trentina di esempi ancora visibili. Del resto non ce ne sarebbe bisogno: Cecilia Pericoli Ridolfini ha provato a elencarne molti nel catalogo della prima mostra sull'argomento del 1960 (cf. Pericoli Ridolfini 1960) barcamenando-

si tra l'incertezza delle fonti e i pochi sopravvissuti così come aveva già fatto Umberto Gnoli (1938). Errico, Finozzi e Giglio (1985) hanno poi voluto dar vita a una ricognizione anche visiva dei pochi esempi che al 1985 mantenevano ancora residui di decorazioni con campagne fotografiche, rilievi architettonici e studi su intonaci e materiali. Lo stesso può dirsi per il lavoro - anche se incentrato sul solo caso del rione Borgo - di Giacometti e Mauro (1994).

Non si tratta solamente di preservare le tracce e gli esiti superstiti spesso definiti avanzi (cf. Hermanin 1944) e di mostrare l'invisibile tramite ricostruzioni digitali. La riproposizione proposta non vuole quindi esaurirsi nell'esposizione di antiche memorie o nello sfoggio di tecniche e strumenti digitali e multimediali. Attraverso la ricostruzione - per la quale si prevedono all'incirca sei mesi - si vorrà raccontare la progressiva perdita di un patrimonio e facilitare un recupero di interesse e un cambiamento di percezione nei confronti di quelle ormai pallide tracce decorative. Ricostruzione quindi non tanto formale ma quale mezzo per suscitare nuovi interessi e come chiave di accesso per scoperte solitamente inaccessibili; per avere dunque il privilegio di entrare in contatto con la *storia dell'arte che non c'è* che in qualche modo continua a riecheggiare nelle metodologie fruibili contemporanee utili anche per aprire possibili scenari futuri di investimenti e campagne che possano riportare alla luce decorazioni che ancora vivono sotto gli intonaci dell'edilizia minore romana: provare così a «far rivivere opere ancora nascoste sotto lo scialbo, dando nuovamente alle vie l'aspetto antico di ridente preziosità» (Giovannoni 1946, 39-40).



**Figura 2a-c** Torre dei Milini, Roma. 2016.  
Ricostruzione grafica di Giovan Battista Giovenale  
(1909)



**Figura 3a-c** Vicolo del Campanile 3, Roma. 2016.  
Ricostruzione grafica di Enrico Maccari (1876)





**Figura 4** Via del Pellegrino 65-66, Roma. 2016.  
Riproduzione anonima da Archivio Capitolino di Roma, tit. 62, b. 31, fasc. 27. (1884)



**Figura 5a-c** Via San Salvatore in Campo 43-44, Roma. 2016. Rilievo di E. Cisterna pubblicato nell'*Inventario dei Monumenti di Roma* (1911)



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# The Visual [Re]Presentation of Textual Data in Traditional and Digital Critical Editions

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**Abstract** The prospect of breaking free from the confines of the printed page drives much of the interest in digital critical editions; yet the format of traditional editions in print remains an effective and efficient information visualization. This paper will argue that using the data from a digital edition to [re]present the traditional format of a printed edition can illuminate the strengths and weaknesses of both platforms. In addition to making the data available in a familiar format for offline reading, a print visualization is also a useful test of the digital edition's data model. It can also promote a shift toward thinking about textual data and its visualization (in print or on a screen) as separate concerns.

**Keywords** Digital critical editions. Print. Latin. Textual criticism. Data visualization.

**Summary** 1 Introduction. – 2 [Re]Presenting Traditional Critical Editions. – 3 [Re]Presenting Critical Editions Digitally. – 4 [Re]Presenting Critical Editions as Databases. – 5 Visualizing Digital Critical Editions. – 6 The Round Trip to Print. – 6.1 Textual Scholars. – 6.2 Reviewers. – 6.3 Readers. – 6.4 The Process. – 7 Conclusion.



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## 1 Introduction

Considering the many techniques of modern information visualization, it may seem backwards or counter-productive to spend time trying to render the data of a born-digital critical edition in the familiar look and format of a traditional printed critical edition. After all, the typographical conventions that scholars have used for centuries to represent textual information developed “under the shadow of the printing press” (Sutherland 2009, 19), with publishers and printers sacrificing the value of scholarship to the cost of materials and labor. In light of that, some (e.g. Heslin 2016; van Zundert 2016; Keele 2017) argue that the very concept of a critical edition is outdated in an era when technology allows users to browse digital images and transcriptions of the available witnesses and sources for a text, and that we should spend our time developing interfaces and tools for processing, visualizing, and analyzing that data in ways more suitable to a digital paradigm. Others (e.g. Rasmussen 2016; Damon 2016; Olson 2019; 2020), however, see continued value in traditional critical editions as guides to the issues and problems of the texts central to their scholarship. Some of the value they perceive lies in the way printed critical editions represent information. Accordingly, it is worth examining what, in particular, might be valuable about this format and whether that value can be transferred to and from the digital realm.

Those questions are relevant to any project that seeks to publish textual data in digital form, but the specific context for this article is the Digital Latin Library (DLL),<sup>1</sup> a key activity of which is publishing born-digital critical editions of Latin texts in its *Library of Digital Latin Texts* series (LDLT) in partnership with three learned societies.<sup>2</sup> The point of this article is to examine whether that activity, as currently practiced by the DLL, is in thrall to the printed past of traditional critical editions. The DLL’s guidelines for encoding critical editions are by and large based on how scholars have communicated their ideas in print for centuries.<sup>3</sup> Does that mean that editions encoded according to those guidelines are unnecessarily bound to the limitations of printed media? Or is it the case that the knowledge representation model for traditional critical editions is valid apart from the media in which it has been expressed? This article will re-

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1 <https://digitallatin.org/>.

2 <https://ldlt.digitallatin.org/>. The DLL’s publishing partners are the Society for Classical Studies (<https://classicalstudies.org/scs-news/library-digital-latin-texts-call-submissions>), the Medieval Academy of America (<https://www.medievalacademy.org/page/LDLTsubmissions>), and the Renaissance Society of America (<https://www.rsa.org/page/DLLCFS>).

3 <https://digitallatin.github.io/guidelines/LDLT-Guidelines.html>.



spond to these questions by examining the DLL's efforts to develop a visualization of the data of digital critical editions in the traditional printed format.

In keeping with this issue's theme of [re]constructions, Bordalejo's definition of "critical text" is a useful starting point:<sup>4</sup>

[W]hen I talk about a critical text, I am not referring to the reconstruction of a lost archetype, but to the construction of a new, well-informed text that can help readers understand the relationships between extant witnesses; a text that functions as a gateway to the others. (Bordalejo 2021, § 68)

Her reframing of "reconstruction" fits well with the project of considering old ideas in a new light. But there is more than one path to a well-informed text, and which one to take depends on any number of factors, including time, resources, and the nature of the textual tradition. Certainly, focusing on transcribing and collating as many witnesses as possible, if not all of them, will yield an important gateway for students and scholars of works such as the Greek New Testament.<sup>5</sup> But critical texts based on more selective use of the available documentary evidence can also help readers understand a work's textual tradition, particularly when those critical texts can be explored in a variety of representations. Accordingly, the central concern here is on a type of reconstruction: '[re]presentation', where the square brackets draw attention to ways of presenting critical texts anew – even, or especially, representations that appear merely to reconstruct the printed past.

In an article bearing the title "Representing the Critical Text", Fischer surveys the long arc of efforts to represent critical texts over the past few centuries, and he argues that the "standards and conventions for presenting the critical text in print [...] are fundamentally challenged by the digital paradigm" (2020, 405).<sup>6</sup> Although I agree that those challenges are significant, with '[re]presentation' I propose an alternative view in which the printed form is just one of many possible expressions of an edition created according to the digital paradigm.

The square brackets in '[re]presentation' also have special meaning with reference to their use in textual criticism to signify and

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<sup>4</sup> See Robinson 2000, 10, for an earlier formulation of this idea.

<sup>5</sup> See Paulson 2020 on the Nestle-Aland digital edition of the Greek New Testament. See also Bordalejo, Vázquez 2021, §§ 49-52, on the use of machine-assisted collation in the production of the Nestle-Aland *Greek New Testament* and the *Editio Critica Maior*.

<sup>6</sup> On the concept of the digital paradigm, see especially the conclusions of Sahle 2016, 27-8. Fischer 2020, 415-16, provides a succinct overview of the concept.

even to create gaps, a point to which I will return in the next section, where I discuss the typographical conventions in traditional printed editions as a kind of visual markup language. As I turn to semantic markup in the rest of this article, the square brackets in ‘[re]presentation’ take on the function of gap-filling and meaning-making that they often have in computer code.<sup>7</sup> For these reasons, the square brackets in ‘[re]presentation’ potentially have many meanings here, from philological symbol of loss to a digital symbol for a data type. For the most part, however, ‘[re]presentation’ here is a shorthand for presentation, representation, and re-presentation, the last in the sense of ‘presenting anew’.

In exploring the ambiguity of [re]presentation in the context of digital critical editions of Latin works and their relationship to traditional printed critical editions, I am guided by these questions: In what ways do both printed and digital editions [re]present a work? What gap do they fill? What meaning do they make? Conversely, what gap do they create? And what loss occurs through the [re]presentation of a digital critical edition in a visualization designed for print output? In asking these questions, I do not mean to rehash arguments about the semiotics of markup languages or their suitability for encoding textual data (e.g. Buzzetti 2002; 2009). In truth, I accept as given that the model established by the Text Encoding Initiative (TEI)<sup>8</sup> for using Extensible Markup Language (XML) is valid and appropriate.<sup>9</sup> Although I do not intend to challenge the prevailing theories about the nature of scholarly digital editions,<sup>10</sup> I do mean to complicate the idea that digital editions operate on an entirely different paradigm from traditional printed editions.

Although cleaving to a print-based model risks losing the benefits of working within a digital paradigm, jettisoning the model just because of its connection to a particular medium also risks losing its advantages. For this reason, ‘[re]presentation’ is an apt concept for the project I shall describe since it seeks to present anew the strengths of both printed and digital editions in a way that fills a gap between them. I shall conclude with some observations about how the visualization of digital data in a traditional format can have practical uses that have not yet been replaced by digital media.

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**7** For example, square brackets are used in many computer languages to signal the use of Regular Expressions to match patterns instead of specific combinations of characters. Square brackets also signify data types such as a list in Python. They can also be used (e.g. in JavaScript) to refer to properties of data. In these and other ways, square brackets are often used in computer languages to fill gaps and to supply information.

**8** <https://tei-c.org/>.

**9** For a summary and rebuttal of the main criticisms of TEI XML, see Cummings 2019.

**10** Particularly Robinson 2002; 2013; Gabler 2010; Earhart 2012; Sahle 2013; 2016; Apollon, Bélisle, Régner 2014; Franzini, Terras, Mahony 2016.

## 2 [Re]Presenting Traditional Critical Editions

Traditional printed critical editions themselves illustrate the concept of '[re]presentation'. On the one hand, their layout and typographical conventions constitute a presentational format for information about a work, its transmission, and the editor's understanding of both.<sup>11</sup> Through visual cues, a traditional critical edition can effectively communicate, for example, where to find the main text and where to find variant readings and other critical annotations. A subtler example is the ordering of information in a critical apparatus, where the position of a variant reading relative to others can implicitly communicate the editor's judgment about its plausibility. The capital Roman and Greek characters known as *sigla* convey information about hyparchetypes, archetypes, families of manuscripts, and individual manuscripts - not to mention the various diacritical marks that adorn them to indicate the various hands that have intervened in one way or another in a particular manuscript. All of these things and more combine to present arguments about a text.

On the other hand, printed critical editions also re-present a variety of things. Obviously, they re-present works by the fact that the main text is often an eclectic one, a hybrid derived from various sources.<sup>12</sup> Modern critical editions may also be said to re-present the work because, unlike some early printed volumes, they do not seek to recreate the look of the original sources. Even so, every character in the font selected for the edition re-presents the original characters of the autograph manuscript and/or copies of it, whether those copies are other manuscripts or early printed editions. And even when Unicode characters do exist for certain non-standard glyphs that occur in primary sources, those characters represent the original glyphs.<sup>13</sup>

Especially relevant to the use of brackets in this volume's theme are the typographical conventions editors have invented to represent the different kinds of loss that can befall a text.<sup>14</sup> Square brackets in the context of a critical edition can signify an editor's assertion that certain characters, whole words, or even entire passages are inauthentic, even though they occur in the documentary evidence. Then

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**11** Cf. Buzzetti 2009, 46: "Any particular witness or any particular edition, even the most authoritative one, is only and always a representation of the text".

**12** I use 'work' and 'text' according to Gabler's definition of a work as an "abstraction projected from one or more material texts in which it manifests itself" (2010, 121 fn. 1). Cf. Rasmussen 2016, 121: "A work is an immaterial entity that serves as a gathering point for all the texts that we classify under a certain title".

**13** See, for example, the characters available in the Junicon font (<https://github.com/psb1558/Junicon-font>). On the use of Unicode in classical philology, see Tauber 2019.

**14** For the symbols used in critical editions, see Maas 1958, 22; West 1973, 80-1; Tarrant 2016, 166.

again, square brackets can signify the actual loss of characters in editions of inscriptions and texts written on papyrus, wherein they can also signify the physical boundaries of the support material.<sup>15</sup> Other ways of re-presenting loss include \*\*\* for a lacuna (total loss of a part of a text), --- for loss of legibility of an unknown number of characters, slashes (///) for erasures, underdots (aḥçd) for loss of legibility of specific characters, and †† for loss of sense. The loss does not even have to be physically verifiable, since editors can assert that text has been lost (e.g. through careless copying, not physical damage) and could be supplied with text surrounded by < and >, or that some text should be lost (e.g. because it is a scribe's error or interpolation) by enclosing it with either { and } or [ and ].

These symbols, especially those that enclose text, comprise a visual markup language, as it were.<sup>16</sup> In this way, a critical edition in print differs little from a critical edition in any other media in using encoded information to provide a view onto the state of a text's witnesses and sources, the interventions of previous readers, the opinions of previous scholars, and the judgment of the current editor.

Real differences, however, emerge when we consider the extent of the encoded information that print and digital editions can contain and the editorial philosophies behind them. Of necessity, the print paradigm gave rise to the view that a critical edition should represent only those items that the editor has determined to be important. According to that view, a critical edition does not seek to provide readers with transcriptions of every known witness to the work – that is the scope of a variorum or comprehensive edition. It also maintains that critical editions do not seek to give readers everything they need to reconstruct all the witnesses to the work in their entirety.<sup>17</sup> That is, one cannot recreate manuscript A's text simply by gathering all of its readings from the critical apparatus of an edition, since the editor has probably reported only those variants that are worthy of note. That is what makes each critical edition created on the print paradigm unique: similar though it may be to other editions of the same work, it is, or it ought to be, a novel representation of the work and information concerning it.

<sup>15</sup> See the *EpiDoc* project (Elliot et al. 2006-22) for the digital representation of inscriptions and texts written on papyrus. The DLL's own guidelines owe much to the *EpiDoc* project.

<sup>16</sup> Apollon and BÉlisle (2014, 98) describe the critical apparatus of nineteenth century editions as a “visually retrievable database legitimizing the reconstruction of textual prototypes”.

<sup>17</sup> Cf. Olson 2019, 332: “[V]ery few editors report all readings in even the manuscripts they do consider. Nor do most editors print all previous conjectures on the text, but instead offer only what they judge – rightly or wrongly – to be the best and most likely among them”.

But to what degree has the print paradigm determined that view of critical editions? Ultimately, a traditional critical edition's 'bibliographic codes' (e.g. page size, layout, and typography) require editors to communicate in a particular way.<sup>18</sup> The cryptic expressions and abbreviations that have become standard in the cramped space usually allotted to the critical apparatus are proof enough of that.<sup>19</sup> So, too, are the sigla and other symbols mentioned earlier, since they represent information that, in the interests of both space and efficiency, has been explained in more detail elsewhere.<sup>20</sup>

However much the print paradigm has influenced the way textual data are represented in critical editions, the concepts expressed in printed critical editions are relevant regardless of the media. In the case of printed critical editions, it makes sense to use square brackets, for example, to indicate text that should be considered surplus (i.e. not in the original document or documents), since square brackets do not require a significant amount of space on the page. But the concept of surplus text can be expressed in other ways in other media. For example, TEI XML indicates surplus text with the aptly named element `<surplus>`. What is important is that the representation makes sense in its media.

Sahle's concept of "transmedialisation" is relevant here, since it involves thinking about information beyond how it will appear in any one specific form of publication.<sup>21</sup> Text encoded as `<surplus>`, for example, could be rendered with the conventional symbols common in printed editions, or it could be visualized in color or in any number of other ways. What is important is that the representation makes sense to the entities using the media. In the case of human readers, the traditional printed form of critical editions has worked well for centuries, and many scholars continue to prefer to engage with works in that format.<sup>22</sup> That is likely to be the case for many more years to come - not because scholars are stubborn, but because the format used for printed critical editions is an effective visualization of information.<sup>23</sup> But that does not mean that the knowledge representa-

<sup>18</sup> Cf. Sutherland 2009, 20 (referring to McGann 1991, 56).

<sup>19</sup> Apollon and Bélisle (2014, 93) refer to the "allusive and hermetic" style of the printed critical apparatus. Fischer (2019, 204) refers to it as "philology's most notorious feature". For abbreviations commonly found in critical editions, see Tarrant 2016, 164-6.

<sup>20</sup> For this reason, Rasmussen (2016, 129) argues that printed editions are "hyperlink-structured. After all, a printed note apparatus is comparable to hyperlinks".

<sup>21</sup> See Sahle 2010 for a full discussion of the concept; for a summary, see Sahle 2016, 32.

<sup>22</sup> Cf. Sutherland 2009, 22: "For most reading and scholarly purposes the stable or stabilized paper text is currently not only sufficient, it is best".

<sup>23</sup> Again, cf. Sutherland 2009, 20: "if we work with literary texts our expectation is almost always zoned to print; we may need another hundred years of electronic creativity

tion system familiar to us from printed critical editions is *ipso facto* subject to the limitations of print media. Rather, that system can be represented to machine readers in a way that opens new possibilities for processing and visualizing critical edition data while preserving the traditional format as an option for the human readers who want it. That will be the topic of the next section.

### 3 [Re]Presenting Critical Editions Digitally

Many of the same typographical representations mentioned in the previous section are relevant to digital critical editions because they have become the standard for communicating information about texts and the phenomena that occur in them. Leaving aside the increasing availability of high-resolution digital images of manuscripts online,<sup>24</sup> typography will remain the primary means of representing textual data, at least until someone invents a way of experiencing them in another way. That is why the team of scholars working on the DLL looked to printed critical editions when developing the data model for the digital editions it would publish in the LDLT.

That we naturally turned to printed editions is an acknowledgment of their value as a platform for knowledge representation. After all, the format of printed critical editions as we know them today is the product of several generations of advances in both scholarship and printing,<sup>25</sup> so it seemed reasonable to build on that accumulation of knowledge instead of trying to invent something entirely new.<sup>26</sup> On the other hand, it may be argued that developing encoding guidelines from traditional critical editions in print unnecessarily tied them to the physical limitations of the printed page and, by extension, the codex. In promoting a paradigm shift in scholarly communication from print to digital forms, why opt to base the encoding guidelines on a print-based paradigm that many consider antithetical to the aims of digital editions?<sup>27</sup> Indeed, since the digital realm is not limited by the same physical constraints as the ma-

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to nurture into existence a really sophisticated textual model zoned to the computer”.

<sup>24</sup> Of course, digital images, too, may be said to be digital representations of real-world objects. Cf. Buzzetti 2002, 62: “[t]he image itself, to the extent that it is a digital representation of visual information, does not provide merely a ‘facsimile’ or ‘physical reproduction’ of the original, but rather a set of ‘structured data’, that is, a ‘logical representation’ of the document’s content”.

<sup>25</sup> Fischer asserts that “critical editions are among the finest products of scholarly print culture” (2020, 407).

<sup>26</sup> For the history, see Keeney 1974, esp. 152-7.

<sup>27</sup> E.g. Fischer remarks, “to encode an *apparatus criticus* is to encode a phenomenon inherited from the print era, whereas digital textual scholars seek to go beyond what

terial one, why even bother at all with traditional critical editions that privilege the editor's perspective? Moreover, since it is (theoretically, at least) possible to publish a digital edition consisting of transcriptions and images of all available witnesses to a text, what is the point of a critical edition that, to some anyway, appears only to list the significant variants? These are good questions, but they come from a point of view that sees the representational system of the traditional critical edition as inextricably tied to the physical form in which it has always been expressed. If instead we view the printed form as just one among many visualizations of critical edition data, we can reframe the print-digital divide as a continuum of renderings, from print to fully digital.

It is important first to confront the question of whether traditional critical editions are even relevant when the flexibility of digital media allows direct access to the witnesses and sources for a text. Critical editions ought to be more than just lists of variant readings. They ought to be windows onto the issues and problems in the transmission of the text, and they ought to reflect the judgment of editors who have spent time and energy trying to understand those issues and problems. Some readers (e.g. Robinson 1993; Heslin 2016; Keele 2017) may want direct unmediated access to source materials; others (e.g. Sutherland 2009; Olson 2019; 2020) appreciate the guidance that a good critical edition provides. The fact is that not everyone wants to sift through the documentary evidence, even if they have the requisite skill or resources to do so.<sup>28</sup> That will remain true as long as there are what Rasmussen (2016, 127) refers to as "readers" (i.e. those "mainly interested in scholarly editions as reliable academic versions of literary works"), as opposed to "users" (i.e. those seeking "an understanding of the work, but in a more intertextual context") or "co-workers" (i.e. those seeking "to go beyond the user and reader roles, and to contribute actively to the scholarly enterprise").<sup>29</sup> But that does not mean that editions must serve only one of those categories.

Although it is true that the confines of the printed page and the concerns of publishers can limit the amount of information that editors include in their editions, nevertheless it is also true that those limitations have to do with the medium itself, not with the model for representing the information. To be sure, traditional critical editions in print are so effective at communicating rich information precise-

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is seen as merely one possible physical embodiment of the editorial arguments and decisions about the textual tradition" (2020, 416-17).

**28** See Olson 2020 for a strong articulation of this point of view.

**29** Rasmussen's categories map onto the different categories of digital editions that Fischer (2020, 417-26) surveys.

ly because of the limits of their medium. That is, the limitations of the print medium force editors to identify the kinds of information they are dealing with and to develop efficient ways of communicating rich information about texts. Let us not forget, moreover, that the compressed form of annotations in critical editions is a signature of the minimalist approach, so the physical constraints of the printed page are not necessarily limiting factors.<sup>30</sup> It stands to reason that the same model for communicating knowledge in printed editions can be even more useful in digital media that do not have the same physical limitations.

Of course, the prospect of working outside of the physical limitations of print media opens the door to maximalist, or even totalist, editions.<sup>31</sup> But the value of a critical edition does not necessarily increase in proportion to the number of variant readings and conjectures it contains.<sup>32</sup> In truth, excessive reporting of readings can detract from a critical edition's value as a scholarly tool. That is why the DLL encourages scholars to publish collations, transcriptions, and other related materials alongside their critical editions, in the interest of making the editorial process more transparent to readers and providing access to materials for further research.<sup>33</sup> In this way, the critical edition is presented as a curated database, while the ancillary materials provide access to the raw data.

In their printed form, critical editions do present structured data in their own way (e.g. through punctuation, line numbering, layout, etc.), but it is not easily computed against by anything other than the human brain.<sup>34</sup> But there are plenty of instances of unstructured, or at least loosely structured or implicitly structured, data in printed editions (e.g. in the ordering of variants and their witnesses in the critical apparatus). In short, the data in a printed critical edition are structured in so far as a human being can recognize and correctly interpret the visual cues. To a machine, those visual cues are just strings of text without any special meaning.

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**30** Cf. Tarrant 2016, 130: “[a]t the heart of the minimalist approach is the idea that the apparatus as well as the text should be the product of the editor’s judgement, and that it should contain only what is essential to the establishment of the text”.

**31** For the barriers to producing comprehensive digital editions of classical texts, see Monella 2018.

**32** Tarrant (2016, 153) thinks “it would be a grievous loss if the apparatus were to be reduced to a mechanical record of variants and conjectures, and the editor’s personal voice no longer heard”.

**33** See Bordalejo, Vázquez 2021, particularly § 68, where they observe: “With computer-assisted collation methods and complete text transcriptions, the process that leads to a critical text becomes comprehensive, thorough, and more transparent to the reader”. See, however, Dähne et al. 2022 for a discussion of the flaws in current computer-assisted collation algorithms.

**34** On the data model of traditional printed editions, see O’Donnell 2009.



Accordingly, the DLL sought to implement the implicit model of traditional critical editions in a way that makes it explicit to both human and machine readers. Of course, basing a model for digital editions on the one for printed editions could mean simply reproducing or imitating the same visual cues in printed editions.<sup>35</sup> But doing that would miss the point of making a digital edition in the first place: to leverage the power of machines to process, analyze, and visualize information. We needed to look with fresh eyes at the typographical conventions of printed editions that we had long ago learned to interpret and accept as part of the language of scholarship. In this way, we would re-present critical editions to ourselves.

#### 4 [Re]Presenting Critical Editions as Databases

Our first exercise involved projecting pages of a critical edition onto a dry-erase board and marking the different types of information we saw there.<sup>36</sup> Describing aloud the interpretative moves that we usually made while reading in silence helped us to identify the relative strengths and weaknesses of the system of visual communication that we were now analyzing in common. For example, one reader might ‘front-load’ the critical apparatus data by reviewing it before reading the main text; another might glance at the apparatus only when a passage presented difficulties; yet another might review the apparatus after reading the main text on the page. Discussing the different ways of interpreting the symbols, abbreviations, and other typographical conventions also revealed to us some ambiguities that could be resolved through semantic encoding. M<sup>1</sup>, for example, could signify a particular hand in a manuscript or the first edition of a particular printed edition; abbreviations such as *codd.*, *cett.*, and *recc.* are useful shorthand references, but different editors use them differently and with varying degrees of precision. But despite these issues, seeing the different varieties of information that we had identified on the dry-erase board made it clear to us how efficient the existing model could be in communicating a network of complex data about real-world objects and the intellectual contributions of scribes and scholars.

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**35** Fischer (2020, 417-26) describes a range of digital editions, from reproductions (e.g. a PDF of a printed edition) and imitations (editions that “do not significantly exceed print formats in terms of content and function”) to collaborative and progressive editions that leverage digital tools to create something that cannot exist in print.

**36** The outcome of this exercise resembled Fischer’s figure 6.3-5 (2020, 414). We began working with editions of Servius’ commentaries on Vergil’s *Aeneid*, since the difficulties of representing them have pressed the limits of typography and layout. An LDLT edition of Robert Kaster and Charles Murgia’s edition of *Serviani in Vergili Aeneidos Libros IX-XII Commentarii* is in preparation.

From marking up a text in common on a dry-erase board, we began to experiment with marking up a text digitally in TEI XML.<sup>37</sup> We selected the *Bucolica* of Calpurnius Siculus as published in Giarratano's 1910 edition as a test case for developing the DLL's encoding guidelines. It is a relatively short work with many textual issues, and Giarratano's maximalist approach gave us a lot to consider.<sup>38</sup> Of course, the universe of Latin texts is much larger than Calpurnius Siculus' bucolic poetry, so to help us expand the guidelines to accommodate a wide variety of texts, we recruited scholars to produce pilot editions. The texts ranged from the pseudo-Caesarian *Bellum Alexandrinum* (with an editorial team led by Cynthia Damon) to Servius' commentary on books 9-12 of Vergil's *Aeneid* (as edited by Charles Murgia and Robert Kaster) to a single-manuscript edition of the *Miracula sancte Frideswide* (edited by Andrew Dunning) and a portion of Peter Gracilis' commentary on the *Sentences* (edited by Jeffrey C. Witt and John T. Slotemaker).

The editorial approaches taken by the scholars were as varied as the texts they proposed to edit. Some approached their work from a decidedly print-oriented point of view. They preferred to use a word processor to do their work because that allowed them to reproduce the traditional conventions of printed critical editions on their screen or on a printout of their work. One even vowed never to key in a single angle bracket during the project! That turned out to be a good thing, not only because it prompted us to work on ways to automate as much of the encoding process as possible, but also because it clarified for us the distinction between low-level encoding and encoding that requires scholarly expertise.<sup>39</sup> Others were comfortable working directly in XML. Yet they, too, had a strong affinity for printed critical editions. Dunning, for example, has considerable expertise in the use of LaTeX to typeset digital editions for print (cf. Dunning 2020). Before working on a pilot edition for the DLL, Witt had built an entire ecosystem for publishing critical editions of *Sentences* commentaries, including an application that delivers a print-on-demand PDF output in the format of traditional critical editions (cf. Witt 2018). Indeed, our decision to devote time and resources to delivering a PDF of DLL editions owes much to Witt's work in that area and his input on the DLL's steering committee.

Both groups of scholars helped us to understand and appreciate the traditional printed form of critical editions as an important and useful way of thinking about critical editing. Those who are comforta-

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<sup>37</sup> On the selection of TEI XML for the LDT, see Cayless 2018, 253-6.

<sup>38</sup> See Cayless 2018, 252-62, for more on the choice of this edition and its use in the development of the guidelines and the DLL Viewer.

<sup>39</sup> Cf. Michelone 2021, 33.

ble working in XML acknowledge that the traditional format has value as a particularly human-friendly representation of their data. It certainly shapes the way print-oriented critical editors think about and visualize their work, either in their mind's eye or by using word processors that allow them to reproduce the visual communication system of printed editions. For example, in discussions with editors who view their work in this way, it is common for them to speak in terms of the main text and the apparatus criticus as separate entities, as indeed they are on the printed page. In the XML version, however, the information usually found in an apparatus criticus at the bottom of a printed page is encoded alongside the individual lemmata in the text, like so (ironically using *lorem ipsum* text for the sake of illustration):

```
<p>Lorem ipsum dolor sit <app>  
  <lem>amet</lem>  
  <rdg>amat</rdg>  
  <rdg>amit</rdg>  
</app>, consectetur adipiscing elit.</p>
```

In this simple example, the paragraph (<p>) proceeds until there is a difference among the various sources for the text. An apparatus element (<app>) signals the start of the variation. The lemma (<lem>) is listed first, followed by variant readings (<rdg>). A closing tag marks conclusion of the apparatus entry, and the paragraph continues until its conclusion, also marked with a closing tag.

Even those with a strong preference for the traditional format find that the simple, yet radical, change of including the apparatus data at the site of the variation is a more accurate representation of textual variance than segregating it in a smaller typeface at the bottom of a page, possibly with nothing to indicate the one's relationship to the other.<sup>40</sup> Nevertheless, they still prefer to view the edition in the traditional layout, or at least in a representation that does not include XML tags.

Is an edition conceived in this way in fact just a “born-digital printed edition”, as Bordalejo describes the *Editio Critica Maior* of the Greek New Testament (Bordalejo, Vázquez 2021, § 52, referring to Bordalejo 2013, fn. 65)? Does the print heritage of a data model preclude new ways of thinking about critical editing and editions? As van Zundert (2016, 85) puts it, is the DLL encouraging “paradigmatic regression”? These are the questions that will drive the next section.

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**40** This is by no means the only way to encode textual variance. The TEI Guidelines describe two methods (double end-point attachment and parallel segmentation). See Bordalejo 2021 for a system derived from methods used in the field of bioinformatics.

## 5 Visualizing Digital Critical Editions

Although we based the DLL's encoding guidelines on what we found in traditional printed editions, we did not have in mind a printed output for the digital editions we planned to publish. Rather, a significant amount of the project's funding from the Andrew W. Mellon Foundation supported efforts to develop novel ways of visualizing and working with textual data. Indeed, the aim of this part of the project was to illustrate the benefits of shifting away from the print paradigm. We wanted to move as far away as possible from traditional critical editions in print to demonstrate the potential benefits of making critical edition data available to machines for processing and visualization.

A team led by Christopher Weaver, of the University of Oklahoma's School of Computer Science, developed experimental visualizations using *Improvise*,<sup>41</sup> an application he developed and maintains for visualizing complex data from a variety of domains.<sup>42</sup> Hugh Cayless, a co-author of the encoding guidelines for the DLL, focused on developing an online reading environment for LDLT editions.<sup>43</sup> He built the DLL Viewer using *CETEIcean*, an application he developed with Raffaele Vigiante that uses HTML Custom Elements to minimize the amount of processing needed to transform TEI XML into something that can be viewed and manipulated in a web browser.<sup>44</sup>

All of this is to say that the plan was always for LDLT editions to have a one-to-many model for representing their data. Unlike traditional publishers, who literally bind an edition's data to a single presentational format (the codex), the DLL aims to separate the content of a critical edition as much as possible from its presentational form(s).<sup>45</sup> The reasons for this are two.

First and foremost, we want editors to focus on editing texts, not creating visualizations and interactive interfaces. For the most part, readers do not hold the editor of a printed edition accountable for the layout, the typeface, or the other details of print production, so why should we hold editors accountable for developing digital tools to display their work? In the same way, we want to promote the efforts of scholars in the fields of information visualization and human-computer interaction by highlighting their work as scholarship

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<sup>41</sup> <https://www.cs.ou.edu/~weaver/improvise/index.html>.

<sup>42</sup> For their work, see Asokarajan 2016; Silvia 2016; Sunchu 2016; Vangala 2016; Rathnam 2017.

<sup>43</sup> For a full description of his work, see Cayless 2018.

<sup>44</sup> Cayless, Vigiante 2018. The code for *CETEIcean* is available at <https://github.com/TEIC/CETEIcean>.

<sup>45</sup> On the separation of content and presentation, see Pichler, Bruvik 2014; Witt 2018; Fischer 2019, 210.

in its own right. Indeed, the DLL's effort to visualize a digital critical edition's data according to the traditional model for representing critical editions in print should be considered and evaluated as research and/or creative activity apart from the production of the critical edition itself.

Second, we are concerned with the longevity of LDLT editions. We simply cannot maintain unique interfaces and visualization tools for each edition we publish. Maintaining the files that contain edition data, however, is a much simpler task.<sup>46</sup> Indeed, the only presentational form the DLL publishes is the TEI XML file that contains the edition's data. If XML ceases to be a standard format for the TEI in the future, the files will still be readable by machines, since they are, in the end, text files.<sup>47</sup> Moreover, the publication format is a version-controlled repository of edition data, including not only the TEI XML file but also other data an editor might want to include (e.g. images, collation tables, correspondence, notes, etc.). In this way, we endeavor to publish editions that are more scientific than printed editions ever could be, since a version-controlled repository of data gives Rasmussen's "users" and "co-workers" greater access than before to the editor's process, method, and working materials so that they can interrogate those items for themselves.

That will not satisfy those who want (or think they want) unmediated access to comprehensive editions or those who aver that editors should assume the role of curators and compilers.<sup>48</sup> But that is not the aim or scope of the DLL. Rather, we seek to publish critical editions in a format that can be visualized in a variety of ways, along with other data that might at least approach what the totalists want.

## 6 The Round Trip to Print

As lofty as the ideal of separating content from its visualization might be, and as scientific as it might be to publish critical editions as data repositories, it would be foolish to ignore the fact that most humans simply do not want to read XML, regardless of how human-readable it is. Moreover, the experimental visualizations produced by Weaver and his students are exactly that: experimental. However much these

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<sup>46</sup> Cf. Fischer 2020, 427: "Whereas we seem to be relatively safe when it comes to archiving and preserving data in standardised models and formats, crucial issues remain problematic when it comes to software and technical infrastructure for keeping digital editions alive and accessible".

<sup>47</sup> See Cummings 2019 (esp. 59), on why the TEI exists apart from XML.

<sup>48</sup> Heslin, for example, considers "textual criticism as a mental disorder" (2016, 503-9) and argues, "the job of the editor should now be not to decide on the text, but to marshal all of the evidence in such a way for the reader to manipulate conveniently" (509).

visualizations might reveal about the data in a critical edition, they are not designed primarily for reading a text, which is what we anticipate most users of LDLT editions will want to do. That is why we provide Cayless' implementation of CETELcean as an official 'reading room' in which readers can view and interact with editions in a web browser without having to work directly with XML. But the more we worked with editors and potential readers of LDLT editions, the more we realized the vital purposes the traditional printed format serves.

As I mentioned earlier, visualizing the data of an LDLT edition in the traditional format of a printed edition was far from our top priority. It did not even become a topic of interest until we began working actively with the various constituencies that view printed editions as important professional tools. These included not only the textual scholars whose research products are critical editions, but also those peers tasked with reviewing editions prior to and after their publication, not to mention the scholars who simply need access to a stable, reliable edition to do their work.

## 6.1 Textual Scholars

Many textual scholars, particularly those who do not work directly with XML, are used to a process that lets them see the product of their work to make sure that it accurately reflects their views. That used to happen only when a publisher delivered page proofs of an edition, but desktop publishing has made it possible for scholars to approximate, at least, the look of a printed edition as they work, giving them instant verification that the information they have entered is rendered as expected on a screen or a printed page.<sup>49</sup> In this way, they represent their work to themselves. By recreating the visual and typographical system of printed editions, they give form to their work, and that allows them to relate to it.

Ostensibly, they could have the same experience working directly with XML. But the difficulty of comprehending an XML file increases with the accumulation of elements and attributes. However easy it might be to verify that a particular word or phrase in an XML file is encoded with `<surplus>` tags, for example, an XML file often has hundreds, if not thousands of elements and attributes on tens of thousands of lines. Those who know how to build and execute XPath queries have access to powerful tools for navigating XML files to find specific information, but relatively few textual scholars are in that group. Considering the technical barriers to working directly with XML, even with tools such as Oxygen or the various configurable text

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<sup>49</sup> The Classical Text Editor (<https://cte.oeaw.ac.at/>) is particularly good at this.

editors,<sup>50</sup> it is no wonder that many textual scholars prefer to work in the familiar and comfortable environment of LibreOffice or other word processors.<sup>51</sup>

The LDLT reading room mentioned above is one way of bridging this gap. Although it does not provide the instant feedback that editors receive from a word processor, it does give them the ability to verify visually that their encoding reflects their intentions. Indeed, Cayless created a ‘sandbox’ version of the LDLT reading room so that editors could use it in this way.<sup>52</sup> The trouble is that this option has the additional technical barrier of needing to know how to use the version control application Git to stage, commit, and push files to a remote repository.<sup>53</sup> Of course, editors should already be using Git for local development of their editions, since the final published product will be a Git repository, but that, too, is a significant technical barrier for many scholars who are used to saving their work through a word processing program.

Besides, many editors do not want to review their work on a screen, however nice the interface might be.<sup>54</sup> For a variety of reasons (portability, the satisfaction of working with pen or pencil and paper, etc.), they simply prefer having a hard copy, particularly one that at least resembles a final product. One of the motivations behind our efforts to customize the TEI XSLT Stylesheets is to give editors an option to see their work in a traditional format for offline viewing, or to use as a tool to verify their encoding.<sup>55</sup>

It is our hope that this option will also encourage editors to make the transition to a digital paradigm by thinking of their editions as databases first and products later. Free to work without having to think simultaneously about typography and other extra-textual concerns, they can focus on the clarity and quality of the information in their editions. It will be difficult for many to leave the comfort of a purely ‘what you see is what you get’ environment, but the expanded possibilities of an edition-as-database should make the transition worthwhile, particularly, and paradoxically, if one of those possibilities is the familiar format of a traditional printed edition.

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**50** The Oxygen XML editor (<https://www.oxygenxml.com/>) has many powerful features built into it. Text editing programs such as Atom (<https://atom.io/>) and Visual Studio Code (<https://code.visualstudio.com/>) can be configured to do many of the same things for free.

**51** <https://www.libreoffice.org/>.

**52** <https://github.com/DigitalLatin/training>.

**53** <https://git-scm.com/>.

**54** On this point, see Andrews, van Zundert 2018, 4.

**55** XSLT = Extensible Stylesheet Language Transformations. The TEI XSLT Stylesheets may be found at <https://github.com/TEIC/Stylesheets>.

## 6.2 Reviewers

The scholars who review editions prior to and after publication are another important constituency for a print-ready visualization. From the beginning, the DLL has made peer review of LDLT editions a top priority. That was the main concern of the DLL's advisory committee, which met several times during the funding periods to develop a peer review process. A central question in those discussions was what should be reviewed. The XML file? Surely it would be difficult to find qualified reviewers who were willing to read an XML file, let alone review both the textual content and the use of XML tags and attributes. A browser-based interface, such as the DLL's reading room? That seemed more likely, but it also seemed probable that reviewers would be tempted to focus more on the interface, which the editor did not design, than on the textual scholarship.<sup>56</sup>

The best solution to this question seemed to be providing a print-ready PDF, especially one that replicates, as much as possible, the look of a traditional printed edition. In this context, the print visualization is represented as a neutral format for the purposes of facilitating peer review of an edition's content. Of course, a printed visualization is anything but a neutral format, since it brings with it the rhetoric, history, and traditions of the printed page - not to mention physical limitations. But the printed format is neutral in the sense that editors are not typically held responsible for the layout, typography, and overall quality of the printed product that contains their work. Reviewers sometimes remark on those issues, but usually as a criticism of the publisher, not the editor. Presented with a digital edition in a traditional and familiar format, reviewers can focus on content, not interface or visualization, both of which call for an altogether different kind of review by an altogether different kind of reviewer. If ever a case arises where a print visualization cannot satisfactorily convey a digital edition's contents, it will, of course, be necessary to supplement it with other visualizations to facilitate the work of the reviewer. If anything, that will highlight the benefits of working on the digital paradigm.

## 6.3 Readers

Although Canonical Text Services and Distributed Text Services enable the citation of works and individual digital texts with great

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<sup>56</sup> For this reason, it seems unlikely that LDLT editions would meet the criteria for review in a publication such as RIDE (<https://ride.i-d-e.de/>), but the interfaces for using LDLT editions might be candidates.



specificity,<sup>57</sup> the fluidity and perceived ephemerality of digital interfaces can leave readers feeling uneasy. Many undeniably still prefer the fixity of a printed product when they must refer to works in their scholarship.<sup>58</sup> Rasmussen describes the situation well:

A scholarly edition in print, one might say, is a complete and singular object in the world: the results of scholarly effort are locked in a printed edition that can be conceived of as completed and closed. The publisher or editors have completed a scholarly effort whose outcome can be accessed using the edition, which is frozen in time (the date of publication) and space (the physical edition). From this spatiotemporal point onward, such an edition's textual representation of the work can inscribe itself into the work's reception history, including the history of research about the work. (Rasmussen 2016, 124)

Put in another way, “stability is a function of print, and it is a useful one that we should not give up lightly” (Sutherland 2009, 22). I suspect that this is true even of a print visualization of a digital edition, especially if it is not easily distinguished from the products of a traditional press. That is why the DLL aims to include a PDF copy in the repository of every edition it publishes. It is important to note, however, that the PDF is emphatically not the published edition, but only one possible rendering of the officially and verifiably published data.<sup>59</sup> The edition, as mentioned above, is a distributed version control repository of data published by the DLL on behalf of one or more scholarly associations that manage the peer review process.<sup>60</sup>

## 6.4 The Process

The process for producing a printable PDF from an LDLT edition's data is the final example of [re]presentation in this piece, and the square brackets are fully justified in this instance. Just as we customized the TEI Guidelines to create the DLL's guidelines, we are customizing the TEI XSLT Stylesheets for the purpose of visualizing LDLT edition data in PDF form.<sup>61</sup> The XSLT consists of multiple queries of an edition's TEI XML for the purpose of creating a new representation of

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**57** See Tiepmar, Heyer 2019; Blackwell, Smith 2019.

**58** See, however, Michelone 2021, 32, on the fixity of digital editions.

**59** On the verification of the data, see Huskey, Witt 2019.

**60** See Michelone 2021, 39, on the importance of publishing authority for digital editions.

**61** The DLL's customization of the TEI XSLT Stylesheets may be found at <https://github.com/DigitalLatin/DLL-Stylesheets>.

the data in LaTeX, a “document preparation system used for the communication and publication of scientific documents”.<sup>62</sup> The package “reledmac”,<sup>63</sup> specifically written for typesetting scholarly critical editions, handles the calculations for allotting space to the text and critical apparatuses, along with marginal notations (e.g. line numbers) and other features of traditional critical editions. When compiled and processed, the LaTeX code produces a PDF of similar quality to editions published by traditional presses.

I say that the use of ‘[re]presentation’ to describe this process is ‘fully justified’ because it captures well several aspects of the project. The PDF is not the officially published edition; rather, it presents the edition in a specific form. But that presentation is really a re-presentation. Since the data go through at least two transformations (from XML via XSLT to LaTeX, then from LaTeX via XeTeX to PDF), they are presented anew each time. Furthermore, the semantic encoding of the data is represented in the visual encoding of traditional printed editions. The PDF is thus a [re]presentation in that it fills the gap between human-readability and something that humans prefer to read. It also represents the work of a team of professional scholars working on the interpretation and visualization of humanities data.

## 7 Conclusion

Why make the effort and spend the time to encode critical editions if we are just going to print them out in the same old format? Sahle’s words echo loudly here: “A digital edition cannot be given in print without significant loss of content and functionality” (2016, 27) and “Scholarly digital editions are scholarly editions that are guided by a digital paradigm in their theory, method and practice” (28). As I wrote in the introduction to this article, I would like to complicate this view and suggest that, at least in this case, the ability to render an LDLT edition’s data in print is proof that LDLT editions are guided by a digital paradigm. That is, their encoded data can be computed against to produce many outcomes, a visualization optimized for print being one of them. There is no question that loss occurs when an LDLT edition is rendered in print, but at least some of the loss is made up by the ability of human readers to supply meaning through the interpretation of symbols and visual cues that comprise the standard bibliographic code of traditional critical editions in print. Moreover, any loss in the transformation to print can always be restored

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<sup>62</sup> <https://www.latex-project.org/about/>.

<sup>63</sup> <https://www.ctan.org/pkg/reledmac>.

by examining the original data or viewing it in another interface.<sup>64</sup>

On the other hand, it may be objected that LDLT editions do not follow a digital paradigm because the encoding guidelines for LDLT editions are based on the examination of how various textual issues are handled in printed critical editions. But even though the format of traditional critical editions in print was developed in part to address the economic considerations of publishers, the model for representing knowledge about a text and its transmission is not itself determined by the constraints of the printed page. Rather, it can be successfully and usefully transferred to a machine-readable format so that the information in a critical edition can be visualized and manipulated in a variety of interfaces and environments. Print is just one of them.

‘[Re]presentation’ is thus an apt description for many aspects of this work. The DLL’s encoding guidelines present the visual encoding of traditional critical editions to machines in a language they can understand. They re-present the work of textual criticism on a digital paradigm, encouraging scholars to think of textual information as data for human and machine readers to consume. And they enable the representation of those data not only beyond but also including the traditional format of print.

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<sup>64</sup> See Cayless 2018, 256, on loss as a default behavior of data transformation when there is not a matching template for a type of data.

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# Rescuing Diskmags: Towards Scholarly [Re]Digitisation of an Early Born-Digital Heritage

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**Abstract** Disk magazines are a special type of periodical that was published on floppy disk mainly in the 1980s and 1990s. Created by home computer enthusiasts for the community, disk magazines are potentially valuable as a historical resource to study the experiences of programmers, users and gamers in the early stage of microcomputing. The material preserved by fan communities could be a starting point to derive scientifically reliable resources. Creating a digital scholarly edition from the material needs not only to consider the original encoding and hardware standards, but also include the necessary role of emulation and hardware preservation.

**Keywords** Disk magazines. Digitisation. Digital scholarly edition. Home computers. Demoscene. Gaming. TEI. Annotation.

**Summary** 1 The Early Days. – 2 What were Disk Magazines? – 2.1 General Characteristics. – 2.2 Inside the Magazines. – 3 Diskmags as Cultural Heritage. – 3.1 Potentials. – 3.2 Challenges. – 3.3 Diskmags for Historical Research. – 4 [Re]Digitisation. – 4.1 Text Extraction. – 4.2 Text Conversion. – 4.3 Text Interpretation. – 4.4 Image and Audio conversion. – 4.5 Scholarly Annotation. – 5 Demo Edition. – 5.1 General Transformation Concept. – 5.2 Indexes, Commentary, Software References. – 6 Tasks at Hand.



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## 1 The Early Days

Some may still remember the decades when the first microcomputers settled in our living rooms and working places. In the decline of arcade and video games, it was devices from companies like Acorn, Atari, Commodore, Olivetti, Schneider/Amstrad, Sinclair – just to name a few – which defined the 1980s as a pioneering era of personal computing in the western hemisphere. Early personal computers did not only begin to replace typewriters and calculators in offices, but they were also introduced as recreational gaming platforms. Their omnipresence produced grassroots movements like the international demoscene as well as underground cracking groups, some of them remaining active for decades or even until today. However, this era and its memories are fading into temporal distance, and its devices, digital objects and human witnesses have begun to disappear. As seen from today, digital culture has changed and diversified considerably in comparison to then.

Early digital culture was strongly defined by the hardware, whose ergonomic accents created a typical ‘look and feel’, and confined the capacities of the respective devices in characteristic ways, as through available sound channels, colour palettes or screen resolutions, or even through specific peripheral ports. Further, the devices were not as hermetically sealed as they are today, so that they could be ‘hacked’ with little more than a soldering rod. On the software side, user interface intuitiveness depended much on input devices like keyboards and joysticks, and was perceived much differently from today. Some programs strongly depended on printed manuals. Magazines published program listings that were laboriously manually typed in. Nevertheless, despite this relatively hybrid state between analogue and digital components, people were willing to engage intensively in the devices and the programs and to creatively explore the possibilities under much limited circumstances again and again. How can this culture of the early digital movement still be conveyed today? Which sources do still exist? It is only a question of time until the remembrance of the original experiences fall into oblivion, together with the electronic and digital objects.

It is a good moment to take action. Archivists, librarians and museologists on the one side and fan communities on the other side have already begun to preserve digital material from the first decades of home computing and gaming culture. More recently, multiple humanities research groups have initiated their research to develop an understanding of the social and historical relevance of that period. Indeed the experience of the early microcomputing scene has become rather unfamiliar to us today: pixelated, crudely coloured objects and low quality audio effects, together with very individual interfaces developed for the respective devices, no in-game help and usually



printed manuals. While some of these visual and auditive characteristics have transformed into elements of an 8-bit retro culture, the original user experience of that time is far from being documented with a similar density and mediality as today's gaming scene does by Let's Plays, walkthroughs, fandom wikis and social media channels.

While the vast majority of games distributed at that time have survived as executable software and can be recreated in emulators today, there is a noticeable lack when it comes to sources that can actually serve as documents of historical user experiences. While contemporary witnesses could be one starting point, there is still some digital material from that time that has electronically survived. Most of it has not yet been made accessible according to scientific digital humanities standards, and it should be worth the effort.

## 2 What Were Disk Magazines?

### 2.1 General Characteristics

This article is about a medium that emerged in the early digital culture period and provides characteristic documents for this period. Disk magazines – also called 'diskmags', 'diskzines' or 'magazette' – represent a special type of magazine for use on personal computers, which was published exclusively on digital media, such as data tapes, 5¼-inch and 3½-inch floppy disks or CD-ROMs.<sup>1</sup> While it was not unusual for print magazines to include media devices as 'covermount', a speciality of disk magazines was that their main content was on the disk itself and not in the printed paper. In this sense, despite their hybrid character, they are an early born-digital resource (cf. the discussion in Ruan, McDonough 2009, 746).

The historical peak in the distribution and usage of disk magazines can be dated roughly to the late 1980s and early 1990s. They were primarily produced in countries with a relatively high density of devices, as in the United States, United Kingdom, West Germany, Italy, Sweden, Finland and other countries. The situation for disk magazines varied depending on the digitisation and on the computer companies' market shares in the respective countries.<sup>2</sup> Wikipedia (2022a) lists about 200 titles from that time; however, the yet incomplete list needs to be taken with a grain of salt. Most of the disk magazines

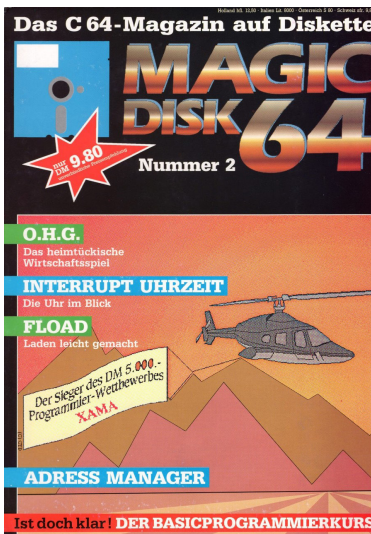
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**1** Examples for 'cassette magazines', which were distributed in the late 1970s, are CURSOR for the Radio Shack TRS-80 and CLOAD for the Commodore PET.

**2** In France, the online service Minitel successfully served as information interchange infrastructure in the 1980s and 1990s, which possibly limited the market for French disk magazines.

were in English, but there was also a relevant German-speaking diskmag community – mostly outside of the GDR – with an estimated 30 magazines regularly distributed on floppy disk (cf. the list by Gansberger s.d.). Also a smaller number of Spanish, Dutch, Russian, Polish and Italian language disk magazines existed.<sup>3</sup>

Reading a disk magazine was only possible on the specific computer system it was designed for, so the potential audience was confined to the owners of those devices. Popular titles of the time were: *Softdisk*, the first disk magazine in 1981 for Apple II, initially published on data tape, and later ported for other systems; *Loadstar* for the Commodore 64, which set a record by existing until 2007; *Diskmig* for IBM-PC; *Generation* for the Amiga; and *ST News* for the Atari ST, just to name a few. Bertuca and Bertuca (1986) give a contemporary discussion of disk magazines as a new media and present a few titles. Most of them were sold in regular newspaper shops for pocket money, with a relevant secondary readership, while others were distributed only by copying. During the 1990s, when the World Wide Web became the primary media for information interchange, most disk magazines ceased or migrated to online platforms, sometimes keeping ‘disk magazine’ in their title.



Figures 1a-b Paper covers of two German disk magazines from (a) *Magic Disk 64*, no. 2, 1989 and (b) *Game On*, no. 2, 1992. Source: c64-wiki.de. License: GNU Free Documentation License

<sup>3</sup> The diskmag collection of the Internet Archive (2015) presents a relevant number of Dutch issues.

One of these magazines should serve here and in the following chapters as an example. The popular German disk magazine *Magic Disk 64*, edited by Christian Geltenpoth, existed from 1987 to 1993 and was published monthly by CP Computer Publications GmbH in Nuremberg (cf. C64 Wiki 2015). It was distributed in regular shops at a moderate price of 9,80 DM (roughly 10 euro today) and was delivered on cardboard together with a coloured title page [figs 1a-b]. After 1993, it became included into the printed magazine *Play Time* and was eventually discontinued in 1995. The German magazine database contains only a record for the printed issues (cf. Zeitschriftendatenbank, s.d.).

## 2.2 Inside the Magazines

The content of the disk magazines was usually split into two sections. One side (sometimes literally – most floppy disks of the 5¼-inch generation stored data on both sides and had to be physically flipped) often contained articles written by authors from the home computing scene and covered current topics on microcomputers, peripherals, games, applications, hacking activities (both software and hardware) and the ongoing developments in the coder- and demoscene. The other part usually consisted of free software like applications, demos and games.



**Figure 2** Section "Hardware" from *Magic Disk 64*, no. 11, 1987. Translation: "In the 'Hardware' category, we reveal what is happening in the hardware sector. Of course, we also present new developments, but also products that have stood the test of time in use with the C64. | This month is about: | BTX + C64 and the ETB ... page 2 | 24-needle printer ... page 4 | Voice Master ... page 12". Source: Screenshot from VICE Emulator

The articles of the disk magazines were rendered by a display software, which was programmed individually by the magazine teams and was included on the floppy disks. Essentially, disk magazines were executable programs which were able to display text with a simple, yet efficient navigation interface [fig. 2]. In this respect, they differ fundamentally from the less popular 'zines', which were distributed as plain text ASCII files and mostly distributed through the USENET. Disk magazines could take some time to load into the computer memory, especially when they were stored in compressed data formats. A demonstration video by Klaus Rettinghaus (2020) shows an original setup in which it takes about 20 seconds to load the splash screen and another minute to load the main menu.



**Figure 3** Bitmap graphic from *Magic Disk 64*, no. 11, 1987, creator unknown. Source: Screenshot from VICE Emulator

The general design of the disk magazines tended towards multimedia. Many articles were accompanied by block or bitmap graphics [fig. 3], moving text and sprite graphics, and sometimes even music was played in the background. The user interfaces were designed individually, with some peculiarities in their operating mode that seems sometimes not very intuitive from a today perspective: some depended exclusively on input devices like joysticks, others required the knowledge of customary keyboard commands.

It should also be mentioned that the disk magazines' programmers were often their authors and editors at the same time. The creators of disk magazines were often individuals from the home computing community: coders, gamers, programmers, hobbyists, some

of them surprisingly young. As an expression of a niche and underground subculture, many diskmag articles deliberately do not mimic the format, language and decorum of journalistic professionalism. Even when the magazines were distributed commercially, most of them maintained the flavour of a grassroots product, with an intermediate position between consumers and critics. In this respect, disk magazines could fill a gap in the historical records of early digitality, as they allow us to understand the structures, language and habitus of the home computer scene of that time.

### **3 Diskmags as Cultural Heritage**

#### **3.1 Potentials**

Disk magazines may serve as an example of pre-WWW born-digital archive assets. They derive from a highly productive and creative decade of digital culture. Just in 2021, the German UNESCO chapter acknowledged the demoscene, which is closely related to the diskmags scene, as intangible cultural heritage (cf. Lange 2019; Deutsche UNESCO-Kommission 2021). Whether something similar will happen to disk magazines is up to its community, however the general awareness of digital culture as cultural heritage has definitely risen since UNESCO published its first charter on the preservation of digital cultural heritage (2009).

In practice, disk magazines are a very popular textual source that represent contemporary hubs for discussions about hardware, applications, games and demos apart from established printed magazines and early Internet services like USENET. They do not only document a subculture, but provide an important reference for comparisons as well. Potentially, disk magazines could reflect the development and evolution of a nerdy and multifaceted subculture of hackers, coders, users and gamers, which later became incorporated into a culture of digital mass-media, where some of its characteristic traits were picked up by the retro scene decades later. Last but not least, as a multimedia product, disk magazines are a part of the cultural heritage of their time itself, necessarily to be preserved as a whole, possibly together with their user experience.

#### **3.2 Challenges**

The preservation of these magazines and their compatible hard- and software ensembles is precarious. There is no reliable and comprehensive index of disk magazines that would offer a starting point for systematic research. Only a few libraries have randomly collected

a fraction of issues, since disk magazines were not collected or archived systematically like print magazines. It must be assumed that some diskmag issues are already lost, and some titles forgotten.

As far as the materiality of the storage media is concerned, the magnetisation layer of floppy disks degrade over time and become unreadable after 10-30 years, depending on data density (cf. National Semiconductor Corporation 1989, 30). Even if the original floppy disks are still readable, they would still require suitable devices in order to be read; a more reliable, hardware/software based preservation option is Kryoflux by the Software Preservation Society (2021).<sup>4</sup> Also the hardware tends to deteriorate over time and would need to be repaired, replaced or reconstructed. Access through the original hardware, so it seems, needs to be limited to specific circumstances, e.g. bitstream preservation, museum exhibits and for creating documentaries, but probably not for doing research.

Emulation is a scenario which is better suited for mass access. They can serve as 'facsimiles', even if the original 'look and feel' of the hardware is strongly limited to what the emulation device can recreate. It requires bitstream copies of the original disks (cf. Barreira-Gomez, Erway 2013 for a generic guide). Luckily, diskmags have a very strong and active fanbase, and there are some online collections that provide the required binaries. For copyright implications, the collection and publication of these binaries is legally questionable, but if these issues can be resolved, these community-created collections would be the best starting point to create a systematic collection of diskmag binaries. Furthermore, the Internet Archive (2015) has stored some disk magazines and offers browser-based emulation; some issues are also available as 'browse through' videos on YouTube.

In the case of *Magick Disk 64*, there are many fan-based projects that have republished the contents of the magazine on the Internet. Floppy binaries are available on a website by Christian Zauner (2022), including scans of the original paper titles. A YouTube channel by Patrick Patul (2022) gives live comments while browsing through the pages. Another page provides an index with transcriptions and images (Nerdherrschaft 2008). Altogether, the preservation situation is good on some levels. However the legal status remains unclear, making re-use difficult even for scientific purposes.

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<sup>4</sup> <https://www.kryoflux.com/>.

### 3.3 Diskmags for Historical Research

While there can be debate in the context of preserving digital cultural heritage about how best to preserve the physical media on the one side while making it publicly available on the other side, I would like to expand here on the potential of disk magazines as a source for historical research. The numerous game reviews and commentaries provide a first-hand resource for investigations into contemporary gaming experiences and game reception, entanglements between user and hacker communities, and last but not least the early demoscene and computer art scene, just to name a few ideas. One thesis is that the magazines reveal both an increasing aesthetic expectation for visual and auditory design and the professionalisation of software criticism, which, however, much unlike the printed computer magazines of the time, has its origins in a grassroots movement. The dense network of references in the magazines – which programs and devices are chosen for review, how are they categorised, which are recurrently used as references – also offers the chance to conduct intermedial and linked data-based analyses. Last but not least, the material is linguistically interesting to study the subculture language of the computer scene.

While the community has already created some valuable online resources, these do not meet the requirements for a scientific approach in terms of searchability, reliability, citability and re-usability. The prerequisites for scientific investigations would consist in multiple levels of data services:

1. A reliable catalogue of titles and possibly also issues for all disk magazines.
2. Bitstream copies of the original disks need to be preserved and made accessible, which implies valid re-use licenses.
3. A digital text corpus that allows both close reading and distant reading, or in other words, both human- and machine-based analytic approaches, should be created by extracting text from the available bitstream copies.
4. This data could be enriched by NER (named entity recognition) processing or POS (part of speech) tagging. Named entities are interesting for systematic research and for creating authority records as reference points for libraries and the LOD (linked open data) cloud.
5. Disk magazines are a highly challenging subject for digital scholarly editions, as they pose a number of questions on the nature of historical sources and on digital textuality and materiality likewise. This results in tasks for processing and interpreting the original binaries, practically re-digitising them into a new presentation media. Such an edition would also require a persistent connection to documentaries of the original material and to emulated versions (like a facsimile) as well.

Further, a scholarly edition would also require a critical commentary on the contents and on the text itself.

In the following section, I will focus on the fifth level, which comprises the complexity of the other four. A sixth level, which will be discussed only briefly here, is the intermediality of disk magazines, which comes by the numerous references in the texts to certain situations in games and applications. Many references to software are not resolvable without a proper ‘document’ of the original object. A simple solution is to link to screencast videos that replay the situation in the respective software. As demonstrated by Kaltman et al. (2021), it is also possible to create hyperlinks into specific memory states of emulated environments within the browser (also known as ‘save state’, ‘memory dump’ or ‘restore point’). This offers potential to not only resolve references through linking to catalogue entries, but to jump into reconstructed situations, e.g. in computer games or programming courses. This is especially interesting for the programs that were delivered together with the disk magazines, but also generally for textual references to software. This would require, however, an immense effort to create all those memory states – which could be a potential task for a citizen science project. However, there might be legal questions to resolve, depending on the copyright status of the referred software: not everything is yet ‘abandonware’ (the software is no longer supported or the creators are unknown) or ‘public domain’ (the creators deliberately waived copyright). From this complex legal situation, it should be assumed that software links would have to rely on more than one reference platform.

## 4 [Re]Digitisation

Creating a scholarly edition from 30-40 years old digital material will likely have to deal with the contemporary encoding standards, with the original input and output devices and their relative limitations, as well as the digital aesthetics of that time. The following description of the required steps toward a re-digitisation is focused on text, but I will also tackle some aspects of image and sound conversion, as well as text-software-linking, which however would require separate skills and expertise.

### 4.1 Text Extraction

Assuming that a binary copy is available, it is likely that the data needs to be decompressed first. A number of native compression programs (‘crunchers’) existed, like MatchamSpeed and Sledgeham-



mer for the Commodore 64 (cf. C64 Wiki 2017); however, it is possible that a magazine implemented their own compression algorithm. As an alternative, it is also possible to work with RAM captures from the emulator after the decompression procedure took place. From that, it should also be possible to deduce the respective compression algorithm.

Apart from the main text of the disk magazines, paratexts also should be identified and possibly included in the edition. Most disk magazines were distributed with a cover on printed paper as carrier media, some contained intro screens which were displayed before the actual magazine was loaded into memory. And last but not least, the directories of the original floppy disks should be considered paratexts, which can be extracted with programs like DirMaster.<sup>5</sup>

## 4.2 Text Conversion

The code then needs to be interpreted according to the original standards. While ASCII was accepted as a common ground, manufacturers often created their own extensions and modifications, like PETSCII by Commodore Business Machines (cf. Wikipedia 2022b). A one-to-one mapping to Unicode is in some cases impossible without utilising the Unicode custom area. Manual adjustments are often necessary and it would be required to document the mapping of the encodings. Further, it was customary to modify the default character sets in order to render diacritics, emojis, block graphics and other graphic symbols; some devices like Sinclair ZX Spectrum provided extra areas for user defined graphics. The variance is potentially endless: the character sets could also be modified for composing larger images, which makes it questionable if digital text can actually be interpreted as literal text instead of being interpreted as the image it is meant to present.

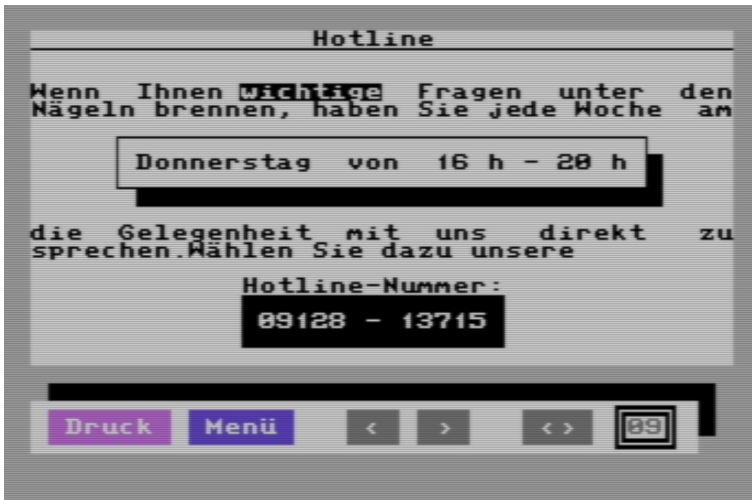
## 4.3 Text Interpretation

Assuming that the text can be successfully extracted from the source files, it needs to be interpreted according to the visible typography. For some markup features, technical compromises had to be made in order to create a layout that satisfied a certain level of typographic aesthetics [fig. 4]. Computer text was usually strictly grid-based; e.g. on Commodore 64 machines it was 25 lines of 40 characters. Text alignment, to give one example, was implemented by white space;

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<sup>5</sup> <https://style64.org/dirmaster>.

highlighting was limited to changing the text or background colour (no italics / bold, but inverting was customary) and to spacing, and it was common to create underlining by putting dashes or hyphens in the line below. Box graphics were frequently used, e.g. to highlight titles and important information. While each single character on the grid can be preserved byte-wise, it requires a markup layer to record the assumed intention or usage of the characters, as they need to be interpreted not only literally, but also visually.



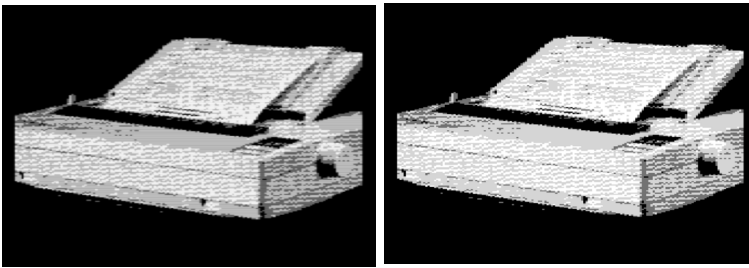
**Figure 4** Example for block based typography, top area: white space centred text, underline with block graphics; first paragraph: inverted text and white space justification; below: centred boxes with shadow effect and inversion, bottom: box graphics GUI. Translation: "Hotline | If you have **important** questions, you have the opportunity to talk to us directly every week on | **Thursday from 4-8 pm** | To do so, dial our | hotline number: | **09128 - 13715**" (bold added to indicate highlighted or boxed text). Source: *Magic Disk 64*, no. 11, 1987. Screenshot from VICE Emulator

#### 4.4 Image and Audio Conversion

Conversion of images and audio created originally on 8-bit devices share the specific trait of a relatively strong boundness to the original hardware and their historical standards.

Colour schemes were not necessarily based on RGB triplets, but some devices, like the Commodore 64, relied on the YUV scheme, which was used in NTSC and PAL television standards. This is evidently because home computers were meant to use home TVs as displays, and YUV is also backwards compatible to black-and-white devices, while RGB is not. In the YUV scheme, Y stands for non-linear brightness and U/V for blue and red luminance retrospectively, which can be converted only approximately, even if closely, into RGB (cf. Wikipedia 2022c).

Additionally, pixels on the typical CRT (cathode ray tube) monitors had a different shape compared to today's LCDs (liquid crystal displays). Instead of a rectangular form, a CRT pixel resembles the form of a blob with soft edges, which also overlapped and merged with the adjacent pixels (cf. Smith 1995; see **figs 5a-b** for an example). While a digital image can be preserved by its original bitstream, its code does not automatically reproduce the original pixel shape. It will be required to apply an appropriate filter (Gaussian, in this case) to mimic the original CRT effect. Some emulators like VICE do support such filters [**fig. 5a**].



**Figures 5a-b** Comparison of the same digital image (a) on a CRT display and (b) on an LCD. Source: *Magic Disk 64*, no. 11, 1987. Screenshots from VICE Emulator

Apart from block graphics and bitmap graphics, many home computers supported 'sprites', which were smaller overlay images, intended mostly for moving elements on the screen (e.g. mouse pointers). They were frequently used in games and demos, but sometimes also for small dynamic graphics. The conversion procedure is comparable to bitmap graphics, however animation can come into play, which makes sprite graphics a feature that can probably be best experienced in an emulated setting instead of within a digital scholarly edition.

While image extraction and conversion is already challenging, audio extraction is more complex. The manufacturers often had peculiar approaches for the audio output of their devices and computer sound was strongly hardware dependent, as demonstrated by Rettinghaus (2018) for the C64 and Lizzy et al. (1984) for the BBC Micro. Apart from hardware exploits (see e.g. Rettinghaus 2020 on speech synthesis in computer games), algorithmic sound programming was used for creating loops, repetitions and special effects. While it might be possible to extract the data feed for the audio channel, it is difficult to interpret it without the original hardware. It may be the best option in many cases to preserve the music through recordings. Recordings from emulators seem possible as long as the emulation is capable of mimicking the original hardware - more like a simulation - together with all possible glitches that might have been used. There are already huge collections of media from the early home computing era,

e.g. the High Voltage SID Collection (2022)<sup>6</sup> for the Commodore 64, which could serve as one reference point.

#### 4.5 Scholarly Annotation

The last stage of the re-digitisation process would consist in scholarly annotation layers. Usually this starts with checking the original text for orthographic consistency and flagging possible mistakes. The converted articles should be arranged according to their original sections and, if it makes sense, semantic elements like paragraphs and headings should be marked up. If the original text is based on page (screen) breaks, the page numbers should be documented for citability. However, the material is not necessarily arranged in a linear order.

A second scholarly annotation layer in digital scholarly editions usually covers named entities in a source, like persons, places and things, which can be created with help from NER scripts. Named entities are crucial for the study of disk magazines, as they can be utilised to find references for entities in more than one issue or magazines. It should be considered not to confine the entity types to places and persons (as in classical editions), but extend the entity types to software titles (application and games), programming languages, devices (computers and peripherals), manufacturers, and finally to names of the numerous developer, hacker, cracker and demo groups. It will be difficult to find authority records or at least linkable open data sets for these, as libraries do not offer much in this area, however there are some possible points of reference in community-based resources, like records for computer games in Wikidata.

A third scholarly annotation layer would provide commentaries on the original text, e.g. to explain technical terms, identify quotations and check for mistakes. This can be crucial for the understanding of the text, especially for those readers who do not have a background in the early home computer scene.

### 5 Demo Edition

In this chapter, I will demonstrate how a re-digitisation of an original disk magazine issue could look like in a TEI-XML (Text Encoding Initiative XML Schema) based environment. It is an attempt to make a disk magazine readable online with simple means and to make the text available for digital research.

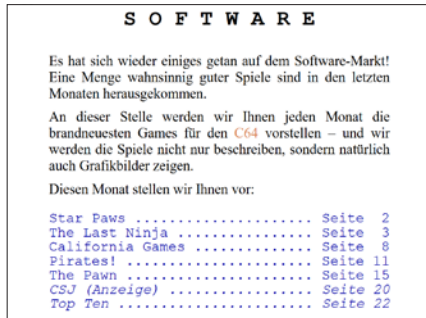
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<sup>6</sup> <https://hvsc.c64.org/>.

I rebuilt the first issue of *Magic Disk 64* (no. 11, 1987) with TEI-XML and created an HTML output through an XSL transformation. The data is available at GitHub (Roeder 2022a), while the demo edition is available under the corresponding GitHub Pages (Roeder 2022b). In the re-digitisation process, several decisions had to be made regarding technical environment, layout, character encoding, and mapping into TEI-XML. It remains to discuss whether the TEI guidelines yet provide a suitable standard for encoding a born-digital resource after all – or whether it would require substantial extensions or even another standard.

### 5.1 General Transformation Concept

I decided to move away from the idea to mimic the original page based user interface in all its details, which actually works more authentically and more convincingly in the emulator [fig. 6a]. It was my approach instead to put the whole content of one issue on a single HTML page [fig. 6c]. The articles are ordered according to their sequence in the original disk directory. To substitute the original navigation elements I have inserted hyperlinks in several places. For a better reading experience, I removed original line and page breaks, but kept them in the page margin for documentation (fig. 6c, top left). It was also considered to include links to screenshots from the original disk magazine, but yet not implemented: this will be discussed further in the following chapter on software references.



Figures 6a-c Section “Software”, *Magic Disk 64*, no. 11, 1987, p. 1 (a) in VICE Emulator, (b) encoded in TEI-XML, (c) rendered HTML output in the browser

The encoding maintains the original byte sequence including whitespace [fig. 6b]. It would be possible to reconstruct the original block-based layout [fig. 6a] from this, however I decided to use an equidistant font only when the block-based layout was characteristic or strictly necessary for the layout, and a serif font for normal paragraphs [fig. 6c]. This creates new line breaks, while the original line breaks are preserved in the TEI encoding.

The C64 charset was modified to represent German umlauts, so some of the characters needed to be mapped to UTF-8. Special characters were transferred with the best possible equivalent in Unicode, which in this case was possible without ambiguities. Finally, I have used a colour palette close to the original, and pixel precise images of the original graphics, however with no filter applied. Background music is not present in this issue.

Concerning paratexts, there is a colour printed title page for display in newspaper shops [figs 1a-b], which needs to be transcribed (diplomatically) and linked to the contents in the issue. Second, the complete directory of the floppy [fig. 7a] needs to be documented. Third, there is a startup screen [fig. 7b] with some basic instructions for the usage, which should also be included in the TEI. The front matter and back matter elements seem suited to bear these contents.



Figures 7a-b Two examples for paratexts: (a) partial directory listing of the a-side of a floppy disk and (b) splash screen with usage instructions. Source: Screenshot from VICE Emulator

## 5.2 Indexes, Commentary, Software References

I also tried to create an index of named entities in order to build up a reference system for a larger corpus of articles and issues. The problems begin with the authors of the texts, if they can be identified at all, who were sometimes known by one or possibly several pseudonyms in the scene. Then there are hacker, cracker and demo groups, where numerous overlaps in personnel are to be expected. This continues with titles of software (for applications and games) and their developers and extends to device names, both of computers and peripherals, and their manufacturing companies. For a part of this, a possible reference system is already provided by Wikidata, but not yet by national libraries. In the end, the general topography of entity references in disk magazines is completely different from that we can expect from historical prints or manuscripts. The example issue from 1987 mentioned only a few persons, while groups or organisations and software titles are the most frequent entities (see Roeder 2022b, “appendix”).

Apart from named entities, the scholarly annotation layers for this experiment were limited to technical abbreviations, to explanations of some customs within the computer culture and colloquial expressions; also some spelling errors and mistakes were highlighted. In some sections, the original did not mention some articles in the table of contents, which were added in the edition and highlighted as an intervention.

Concerning software references, the issue contains some application programs and games, as well as some smaller system programs. The articles describe in detail what each program does, however a link to an emulation platform or to a video documentation could be helpful to understand how the programs worked. While this is already possible, the issue at hand contains some references to hardware extensions, some of them self-built, which seem currently impossible to emulate.

## 6 Tasks at Hand

Preserving disk magazines as digital cultural heritage is a complex and manifold mission. It requires a large scale project to realise the steps of cataloguing, bitstream preservation, text extraction, scholarly annotation, edition and software linking. In such a cross-media approach, there are many potential players involved, and the various tasks require high specialisation in the respective fields. It would be highly interesting to involve the active community into this process. Interested people could help to gather original and digitised material, create transcriptions and transforming data, creating indexes and identifying entities, help with commentaries and RAM save states for software references. The resulting reconstructions are reusable for cultural, historical and linguistic research.

From the example of disk magazines, three more general conclusions can be drawn:

1. Early digital cultural heritage depends much on original data carriers and original devices. Its preservation needs to take the history of technology into consideration. As it is not possible to maintain functioning hardware in the long term, reliable emulators are required, possibly in browser-based environments to allow linking to emulated software.
2. Early digital cultural heritage still requires a comprehensive scientific investigation and representation in library catalogues, especially for authority records of involved groups, companies and devices. The knowledge and resources of the active community can and should be included.
3. The re-digitisation of early digital cultural heritage represents a challenge for the digital humanities, on the one hand with regard to digital textuality and on the other hand to the modeling of multimedia objects.

To summarise, disk magazines are more than historical material. They are witnesses to a creative period, in which the foundations of today's digital culture were laid, but which is no longer accessible to us today - not only technically, but also in terms of media reception. The challenge of their preservation - for which re-digitisation may represent one possible way - anticipates many tasks that will become typical in the near future when it comes to dealing with digital cultural heritage in general.



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