

CHAPTER 5

Materiality and community: Digital approaches to Ethiopic manuscript culture

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Abstract

The manuscript tradition of Ethiopia and Eritrea extends from the beginning of the first millennium CE until the present and bears witness not only to a large corpus of texts of various genres and origins, but also to diverse aspects of the social, economic, religious, and cultural life of the region. Each manuscript has a particular role in the life of the society and thus embodies diverse social and cultural practices. Besides intellectual content, much information on the actual role of manuscripts in the life of the societies of Ethiopia and Eritrea is delivered by their material features. Consequently, collection and processing of codicological data on Ethiopic manuscripts is essential for understanding their social lives. This data can be approached from two different but complementary perspectives, the so-called New Philology and Quantitative Codicology. Both of these approaches might profitably be combined with digital research methods, enhancing the ways in which collected data can be processed and interpreted.

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Digital research methods foster a formalised description of many codicological and paratextual features of Ethiopic manuscripts and their quantitative and qualitative analysis and consequently promote the study of the role of manuscripts in the societies of Ethiopia and Eritrea. The multi-media research environment for the study of the rich manuscript culture of that region developed in the context of the project *Beta maṣāḥəft: Manuscripts of Ethiopia and Eritrea* might serve as a solid and flexible platform for the study of the role of manuscripts in society.

Zusammenfassung

Die Manuskriptkultur Äthiopiens und Eritreas reicht vom Beginn des ersten Jahrtausends n. Chr. bis in die Gegenwart und zeugt nicht nur von einem großen Korpus an Texten unterschiedlicher Gattungen und Ursprünge, sondern auch von vielfältigen Aspekten des sozialen, wirtschaftlichen, religiösen und kulturellen Lebens der Region. Jede Handschrift hat eine besondere Rolle im Leben der Gesellschaft und verkörpert somit vielfältige soziale und kulturelle Praktiken. Neben dem Inhalt liefern ihre materiellen Eigenschaften viele Informationen über die tatsächliche Funktion der Handschriften im Leben der Gesellschaften Äthiopiens und Eritreas. Folglich ist die Sammlung und Verarbeitung kodikologischer Daten zu äthiopischen Manuskripten für das Verständnis ihres Sitzes im Leben unerlässlich. Diese Daten können aus zwei unterschiedlichen, aber einander ergänzenden Perspektiven angegangen werden, der sogenannten ‚New Philology‘ und der quantitativen Kodikologie. Beide Ansätze können gewinnbringend mit digitalen Forschungsmethoden kombiniert werden, um die Art und Weise zu verbessern, wie gesammelte Daten verarbeitet und interpretiert werden können. Digitale Forschungsmethoden begünstigen eine formalisierte Beschreibung vieler kodikologischer und paratextueller Merkmale äthiopischer Handschriften und deren quantitative und qualitative Analyse und fördern folglich die Erforschung der Rolle von Handschriften in den Gesellschaften Äthiopiens und Eritreas. Die im Rahmen des Langzeitvorhabens *Beta maṣāḥəft: Die Schriftkultur des christlichen Äthiopiens und Eritreas: Eine multimediale Forschungsumgebung* entstandene und weiter entstehende multimediale Forschungsumgebung zum Erforschen der reichen Manuskriptkultur dieser Region soll als solide und flexible Plattform für die Untersuchung der Rolle von Manuskripten in der Gesellschaft dienen.

1. The Manuscript Culture of Ethiopia and Eritrea

The written tradition of Ethiopia and Eritrea has survived uninterrupted from the first millennium BCE until today (Bausi 2014; Bausi 2015).¹ The first

¹ I would like sincerely to thank Gabriel Bodard and Chiara Palladino for inviting me to contribute to this volume and for their competent and

evidence for written tradition in the region is in inscriptions (Avanzini et al. 2007); the introduction of manuscripts happened at an early date, apparently no later than the third century CE.² The process of Christianization, which took place as early as in the fourth century CE, fostered a diffusion of manuscripts—and consequently their production—in the region, at least for religious services and liturgical practices (Uhlig & Bausi 2007). Manuscript production has survived in some regions to the present. Most manuscripts are written in Ethiopic, a considerably smaller number in Amharic; Arabic and Harari are used in the Islamic context. Most of the manuscripts, at least those described and available for study, are datable to rather recent times (a significant number of manuscripts is attested from the fourteenth century onwards), with, however, some prominent exceptions.³

Having most probably started as an indispensable part of religious practice, manuscript culture in Ethiopia and Eritrea expanded its role during its long life in the region: new translations and local literary production (for example, hagiographical texts or royal chronicles), church education and healing practices, archiving and correspondence practices, and numerous other activities moulded the manuscript culture of Ethiopia and Eritrea into a multi-faceted and multi-dimensional phenomenon that became an integral part of the social, economic, religious and cultural life of the region.

According to approximate estimates the number of codices in Ethiopia and Eritrea may be as high as ca. 200,000, excluding scrolls and other manuscript forms (Sergew Hable Selassie 1981: 35). Several thousand manuscripts are also housed in museums, libraries, and other collections outside the region (Uhlig & Bausi 2007). The actual number of manuscripts might be even higher when taking less-explored monasteries of the region into consideration

patient editorial work and valuable remarks. I would also like to extend my thanks to Usama Gad for his helpful comments. I am extremely grateful to Steve Delamarter, George Fox University, Denis Nosnitsin, University of Hamburg, and Sisay Sahile, University of Gondar, for their permission to publish photographic material. My special thanks go to Sean M. Winslow, University of Graz, for his valuable comments on this chapter.

² For the list of bibliographic references, see Bausi, 2014: 41, n. 9. The earliest specimen of manuscripts being represented by codices, the time of introduction of other manuscript forms, such as scrolls, can hardly be determined. Contrary to the situation, for example, in Egypt, where a substitution of (papyrus) scrolls through parchment codices might be traced back (Bülow-Jacobsen 2009: 18–25), no such observations can be made for Ethiopia and Eritrea with certainty.

³ For example, the famous 'Abbā Garimā Gospels are dated to the ca. 6th–7th century CE at the latest by radiocarbon dating. See the comprehensive monograph by Judith S. McKenzie and Francis Watson (2016), and the review of it by Bausi (2017; 2011).

(Bausi 2014: 37).⁴ An unknown number of manuscripts are also kept in private collections, which largely remain uncatalogued and unstudied. From this number of manuscripts only a portion have been documented,⁵ let alone digitised and thoroughly catalogued, although digitization and cataloguing projects are core activities in the field of Ethiopian Studies.⁶

2. Digital approaches in cataloguing

2.1 From traditional to digital cataloguing

Scholarly cataloguing practices for Ethiopic manuscripts in the West have undergone several changes since the first catalogue descriptions by Heinrich von Ewald in the 1840s (Ewald 1844; Ewald 1847). From the mid-nineteenth to the second half of the twentieth century, catalogues were mainly concerned with philological and comparative aspects, with little attention paid to the material features (Witakowski 2015). The 1978 catalogue by Stefan Sterlcyn (Strelcyn 1978) heralded a new approach to the cataloguing of Ethiopic manuscripts, with much more advanced physical description, including details of decorations, layout, and palaeography. Subsequently, the late twentieth century saw catalogues which are excellent in their descriptions of both intellectual content and material features (Marrassini 1984; Marrassini 1987; Hammerschmidt 1973; Hammerschmidt 1977; Hammerschmidt and Six 1983; Six 1989; Six 1994; Six 1999). Since that time physical descriptions of manuscripts have

⁴ These treasures are, however, endangered due to the complexity of the political situation. To draw attention on the problem, members of the Hiob Ludolf Centre for Ethiopian and Eritrean Studies and associated scholars issued an appeal for salvation of the cultural heritage of Tigray: <https://www.aai.uni-hamburg.de/en/ethiostudies/news/appeal2021.html>. See also Hagos Abrha Abay and Flanagan (2022).

⁵ For example, the database of the project *Beta maṣāḥəft: Manuscripts of Ethiopia and Eritrea (Schriftkultur des christlichen Äthiopiens: eine multimediale Forschungsumgebung)* contains over 18,000 entries for manuscripts at the time of writing. For more details on the project see below.

⁶ For copyright issues of digitised cultural heritage consider Okorie (Chapter 11 in this volume). In addition to digitization projects of collections of Ethiopic manuscripts (or their microfilms) kept in Europe or North America, several digitization projects have been conducted in Ethiopia in recent years, for example, the Project Ethio-SPaRe, HLCEES, University of Hamburg (PI Denis Nosnitsin; ERC Starting Grant 240720). For one of the most recent cataloguing projects of the uncatalogued collection of Ethiopic manuscripts of Dayr as-Suryān, see Nosnitsin and Reule 2021.

become an important part of catalogue descriptions. Summarising some experience of the last years, Witold Witakowski argues that ‘in order to achieve a satisfactory description of a collection of manuscripts collaboration between textual scholars and codicologists, and where necessary art historians and conservators, is desirable’ (Witakowski 2015: 487).

An excellent opportunity for such a collaboration is offered by the multimedia research environment for the study of Ethiopic manuscripts of the project *Beta maṣāḥəft*.⁷ *Manuscripts of Ethiopia and Eritrea (Schriftkultur des christlichen Äthiopiens: eine multimediale Forschungsumgebung)*.⁸ One of the project’s main objectives is the digital provision of manuscript descriptions based on existing catalogues of Ethiopic manuscripts, enhanced by consulting digitised images if available or occasionally physical manuscripts.⁹ Born-digital descriptions of uncatalogued manuscripts are also amongst the project’s activities.

Although it is not the first digital project in the field,¹⁰ *Beta maṣāḥəft* is an innovative endeavour in Ethiopian Studies, establishing a collaborative platform for manuscript catalogue records, text editions, and authority lists. The data architecture uses XML (Extensible Markup Language) as a data entry format. There are records for manuscripts, works (of literature), persons and places which are connected with one another and validate to the schema, which is a customization of TEI (Text Encoding Initiative). Hosting data on GitHub allows for continuous and collaborative editing and quality control. This workflow, on the one hand, fosters work with heterogeneous sources of information and, on the other hand, allows cataloguers to make individual decisions on the depth of cataloguing.

⁷ *Beta maṣāḥəft*, literally meaning ‘house of books’, stands for ‘library’ in the Ethiopic language.

⁸ *Beta maṣāḥəft* is a long-term project funded within the framework of the Academies’ Programme (coordinated by the Union of the German Academies of Sciences and Humanities) hosted by the Akademie der Wissenschaften in Hamburg. The PI is Alessandro Bausi, the Technical Lead was Pietro Maria Liuzzo until 2022, the Project Coordinator is Eugenia Sokolinski. The project website is: <https://www.betamasaheft.uni-hamburg.de/>. For the digital research environment: <https://betamasaheft.eu/>. For a detailed description including technical aspects see Liuzzo (2019), for a more concise overview see Reule (2018). I had the joy of working for this project as a cataloguer and of experiencing the inspiring and enriching atmosphere of a collaborative work process in 2018–2021. For a list of contributors visit: <https://betamasaheft.eu/team.html>.

⁹ For the list of digitised manuscripts maintained by the team of *Beta maṣāḥəft* visit: <https://github.com/BetaMasaheft/Manuscripts/wiki/List-of-digitized-Ethiopic-manuscripts-available-online>.

¹⁰ For a list of projects see Liuzzo 2019: xxv–xxxii.

Amongst the many advantages of the project, one of the most valuable is the possibility of collaboration and easy and straightforward discussion of questions arising from the process of cataloguing using the Issues feature in GitHub.¹¹ Through a digital collaboration on manuscript descriptions between scholars at different career stages, interests, and cultural and academic backgrounds, flexible and editable Guidelines for cataloguing manuscripts of Ethiopia and Eritrea are being continuously developed (Liuzzo et al. 2018),¹² that highlight and formalise their various features. Many features (frequently material ones), which have been neglected in printed catalogues due to the limit of space, focus of the cataloguers on intellectual content, or other reasons, are coming to light, revealing the multiple dimensions of manuscript culture of the region, and illuminating many aspects of the real lives of manuscripts within the community. This is a result of scholarly collaboration which would barely have been possible without modern digital approaches to the study of manuscript cultures.

However, this is not the only advantage of applying digital approaches to the study of the manuscript culture of Ethiopia and Eritrea. In addition to the opportunity for collaboration and knowledge exchange, digital methods allow for processing large amounts of formalizable and quantifiable data pertaining to the materiality of manuscripts, which is indispensable in the field given the overall number of manuscripts and the number of already catalogued and digitised ones. This data can be approached from two different but complementary perspectives: the so-called 'New Philology' or 'Material Philology,' and 'Quantitative Codicology' (also known as 'statistical codicology').¹³ New Philology, a term officially launched in *Speculum* in 1990 (Nichols 1990), advocates for the primary significance of a manuscript and its material settings for the study of texts and regards each manuscript as an individual written artefact with its own history of transmission. Quantitative Codicology, a term coined by Ezio Ornato in 1990s (see, for example, Ornato 1997), focuses on a systematic study of a statistically significant number of samples and uncovering overall phenomena of long-term trends, and aims at setting each manuscript against the backdrop of a considerable number of other manuscripts (for an overview see Maniaci 2022). Both approaches can profit significantly from the application of digital research methods, which enhance the ways in which collected data can be processed and interpreted. In the following, I will demonstrate based on examples, the advantages, challenges, and new perspectives that arise from the application of digital research methods to the study of the manuscript heritage of Ethiopia and Eritrea within the project *Beta maṣāḥəft* and beyond.

¹¹ *Beta maṣāḥəft* GitHub Issues: <https://github.com/BetaMasaheft/Documentation/issues>.

¹² For the Guidelines visit: <https://betamasaheft.eu/Guidelines/>.

¹³ For history, methods, and challenges of this approach see Maniaci (2022).

2.2 Formalisation of data: size of codices

The number of Ethiopic manuscripts available, their diversification in materiality and content allows for posing of diverse research questions. In the meantime, formalisation and documentation even of very basic material settings such as book form and size for a statically relevant number of manuscripts,¹⁴ alongside their intellectual content, might provide information for the role of many manuscripts in the community. For example, the discussion on the so-called ‘monumental’ codices in the Ethiopian context (Bausi 2008: 517; Bausi 2014: 42–44; Brita 2015), which appear to play a specific social role being a sign of the richness and religious devotion of the community, might profit considerably from encoding of codex sizes in a consistent manner and from a possibility of filtering codices according to facets including height and width. Collection of the same data from printed catalogues would be a monumentally more time-consuming task, not least because some catalogues provide measurements in units other than centimetres.¹⁵ None of the catalogues of Ethiopic manuscripts known to me arrange manuscripts exclusively according to their size. Thus, filtering of manuscripts according to their size changes the research approach from sporadic case study observations to much more statistically reliable data.

2.3 Digital scientific methods and parchment description

For features of manuscripts which require more skill to define and formalise precisely than size, specific knowledge and expertise are necessary. These features, not commonly mentioned in catalogues, include the quality of parchment used in the production of manuscripts and the material characteristics of textiles in bindings. The overwhelming majority of Christian manuscripts in Ethiopia and Eritrea are made from parchment (Balicka-Witakowska et al. 2015: 154–156). Although information on the costs for manuscript production in the course of the history is sparse (Platonov 2017: 102–105), the expenses connected to the production of parchment would have represented a considerable (and along with the work of the scribe(s), completely indispensable) part of the production costs. Thus, a private manuscript of the kind shown in Figure 5.1, a small magic text most probably meant for private use (MS SSB-015) shows lower parchment quality than a manuscript produced, for example, for a monastic community or to serve political goals, such as the Four Gospel manuscript (MS Ef. n.s. 22), which was presented to the Russian Emperor Nikolay II by the Emperor Menelik II in 1895 (Dege-Müller et al. 2020a;

¹⁴ See also Filosa, Gad & Bodard (Chapter 3 in this volume) on machine-actionable encoding.

¹⁵ For example, the catalogue by William Wright (1877) utilised inches for measurements.

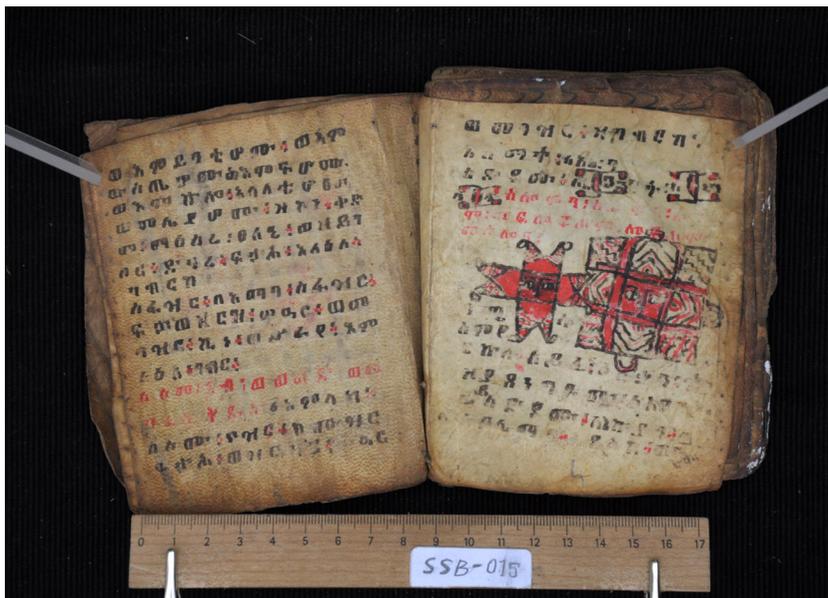


Figure 5.1: Poor parchment quality: MS SSB-015, fols. 3v-4r. MS Bet Hāwāryāt (Ethiopia), SSB-015, Maftəhe šəray, 19th century (catalogued for Ethio-SPaRe by S. Dege-Müller; now also accessible in the database of the project *Beta maṣāḥəft*: <https://betamasaheft.eu/manuscripts/ESsb015/main>). (Photo Ethio-SPaRe).

Platonov 1996: 9–11; Elagina 2019). The latter attests such a high quality of parchment (white and thin) that it was specifically (and exceptionally) mentioned in the catalogue (Platonov 1996: 9–11). In this respect, manuscripts that simultaneously attest various qualities of parchment within a single codicological unit are of special interest.¹⁶ Additionally parchment quality might give us insight to the craftsmanship and production techniques which in their turn might attest to a particular centre of manuscript production.¹⁷ These aspects make a description of the parchment quality of manuscripts a scholarly desideratum.

¹⁶ For an example of a manuscript with a change of parchment quality within the text block see MS AM-008 (Dege-Müller et al. 2020b). Sometimes protective leaves are made of lower quality parchment than the rest of the text block (Tomaszewski & Gervers 2015: 37).

¹⁷ For some hints on centres of high-quality parchment production, see, for example, Pankhurst 1983: 207. Reportedly, scribes or parchment makers could use individual recipes for occasional parchment whitening (Balicka-Witakowska et al. 2015: 155).

Parchment quality depends on two main aspects: the quality of animal skin (including species, overall health condition, insect bites, rubs)¹⁸ and the parchment production techniques and skills of a parchment maker. The description of both aspects requires specific expertise.¹⁹ The assessment of the quality of parchment requires not only the possibility of checking a physical manuscript, expertise in the parchment production of the region (Faqāda Šellāsē Tafarrā 2002: 94–126; Sergew Hable Selassie 1981: 9–12; Godet 1980, Mellors and Parsons 2003),²⁰ and the ability to distinguish between initial lack of quality and signs of deterioration, but is also quite problematic in formalisation. The quality of parchment within a particular manuscript culture is not an absolute but a relative characteristic, and it requires the preliminary examination of a considerable amount of data and the definition of a “standard”, deviations from which might be considered as peculiarities.

Concerning the stage of parchment production, much data can be obtained through the application of modern scientific and digital methods (Rabin 2015), such as digital microscopy, for example, the Dino Lite digital stereomicroscopy (UV/VIS/NIR), which helps detect, on the one hand, the remains of hair, blood, and other marks that might give us some clues to the process of parchment production (Liszewska and Tomaszewski 2016: 187). On the other hand, a microscopic examination can also reveal the initial colour of a manuscript, detecting spots with no discoloration (Liszewska 2017: 268). Much more advanced technologies, such as infrared spectroscopy or SEM-EDS might detect specific substances (for example, kaolin) used in the manufacturing process at different stages (Liszewska & Tomaszewski 2016: 187; Liszewska 2017: 266; Bicchieri et al. 2019: 8–11).²¹ Several technologies might be applied for defining the species of animal whose skin was used to produce parchment. Although these technologies are very advanced and might provide reliable and formalisable data, it is unreasonable to rely on collecting such data for a considerable number of Ethiopic manuscripts (especially of those kept in monastic libraries of Ethiopia and Eritrea) due to the human, technological, and financial resources such an enterprise would require.

¹⁸ The quality of skin was even dependent on the climate zone in which the animal was bred (Assefa Liban 1958: 11–12).

¹⁹ A proper description of parchment quality requires an expertise on the production techniques pertaining specifically to the region. Thus, for example, gelatinization on surfaces is rather normal and typical for the parchment production technique in Ethiopia and Eritrea without strong chemical processing (Tomaszewski and Gervers 2015: 17).

²⁰ For a summary of the evidence of parchment manufacturing in Ethiopia and Eritrea see, for example, Bausi (2008: 531–536); Balicka-Witakowska et al. (2015: 154–155); Winslow (2015: 69–112).

²¹ For detection of substances on Ethiopic manuscripts using X-ray fluorescence method (XRF) see Richardin and et al. (2006), Nosnitsin et al. (2014).

2.4 Statistical analysis and textiles in manuscripts

Another material feature of Ethiopian manuscripts to which I want to draw attention is the presence of different types of textiles as inlays,²² attached to the inner surfaces of the binding boards. These elements are important from different perspectives. Originating from different parts of the world, these pieces of textile are material evidence for the trade and cultural relations between Ethiopia and other countries (Pankhurst 1980; Pankhurst 1981; Pankhurst 1985–1986); on the other hand the presence and choice of textiles in codices might have had meaning within the manuscript culture of the region (Fee, Gervers & Melis 2022). The importance of collecting data pertaining to the presence and character of textile inlays has provoked a fruitful discussion between the members of the *Beta maṣāḥəft* project on the depth of description and formalisation plausible in cataloguing such material features.²³ Since a detailed description of historical textiles requires specific expertise, it has been decided to limit the documentation to the general presence of textile inlays and not to distinguish between the origin and type of textile. The only exception is for silk, which might represent material with a specific meaning in the culture of Ethiopia and Eritrea, since the acquisition, distribution, and use of silk was a royal prerogative for several centuries (Gervers 2010). One might try to trace this relationship based on the data of *Beta maṣāḥəft*.

At the time of writing, the database contains entries for 18,177 manuscripts. A considerable proportion of those are automatically generated stubs or entries not encoded according to the standards of the project's Guidelines.²⁴ Accordingly, the following analysis is a very preliminary attempt at analysing data collected in the database and should not be considered as a final result; the restrictions of this analysis will be presented below.

According to the search function of the web application,²⁵ 695 manuscripts contain textiles in their binding and 66 (under 10%) of those attest the presence of silk. The list of manuscripts with silk inlays is of much interest. Except for one manuscript from Grottaferrata, MS Crypt. Aet. 7 (Dal Sasso 2018), the other 65 manuscripts are from the so-called Maqdalā collection stored

²² The term 'textile inlay' is used by the team of *Beta maṣāḥəft* (<https://beta.masaheft.eu/Guidelines/?id=bindingDescription>). The new *Textiles in Ethiopian Manuscripts* project applies the term 'textile pastedowns'. I stick to the term 'inlay' because that was the term I was searching in the database of *Beta maṣāḥəft*. Textile inlays are not the only cases of application of textiles in manuscripts of Ethiopia and Eritrea. Sometimes textile pieces are also used as protective curtains for miniatures, textile bags or wraps for keeping manuscripts are attested as well.

²³ <https://github.com/BetaMasaheft/Documentation/issues/1337>.

²⁴ For example, due to automatic creation of stubs from printed catalogues.

²⁵ <https://betamasaheft.eu/newSearch.html?searchType=text&mode=any&work-types=mss>.

today in the British Library.²⁶ The Maqdalā collection was a rich collection of manuscripts (reportedly over one thousand) which the Emperor Tewodros (1855–68) took from churches all over his empire, especially from Gondar. The collection was housed at the natural fortress of Maqdalā (Pankhurst 1973; Pankhurst 2007). In 1868, the manuscripts of this royal library were looted by the British Napier expedition and 400 were brought to Britain. 350 are kept today in the British Library (Wright 1877: iv). Not all of those manuscripts have been fully included in the database; nevertheless, the search results, despite almost exclusively returning manuscripts from the collection, are still of interest.

These results might point to the association of silk inlays in codices with a high social status of the manuscript's owner or of the hosting institution, the Maqdalā collection being a royal library. Indeed, some of the pieces from this collection with silk inlays were even produced personally for the members of the royal family. For example, a beautiful, richly illuminated manuscript of Four Gospels (CAe 1560)²⁷ from the Maqdalā collection, MS Oriental 510 (Wright 1877: 24b-25a; Reule et al. 2022), was in the possession of Sabla Wangel, wife of the Emperor Yoḥannēs I (1667–1682). Another example is a manuscript containing a collection of magical texts known as *Maftāḥe šērāy* ('Undoing of charms', CAe 1824), MS Oriental 566 (Wright 1877: 113b; Elagina et al. 2022), which belonged to the ruler of Shoa Wasan Sagad (1808–1812/13).

Another possible explanation might pertain to the character of data that is collected in the database. The sources for the data in the database are very heterogeneous. I have already outlined at the beginning of this contribution that the standards for cataloguing Ethiopic manuscripts have varied considerably over the course of time. Since the main source for data at this stage of the project is historical catalogues of Ethiopic manuscripts, it is not impossible that the search results represent the cataloguing practices of William Wright in particular, whose catalogue, enhanced with analysis of available digitised material, is the source for the encoding of this collection.²⁸ Moreover, the catalogue of Wright is one of the catalogues on which the team of *Beta maṣāḥaft* has been working most actively. In other words, it is at this stage not possible to decide whether the search results are based on the absence of silk inlays in other manuscripts or on the absence of recording of them. This observation sheds light, in

²⁶ The list of manuscripts in a concise form is the following: MSS London, British Library, Oriental 78, 483, 488, 508, 509, 510, 513, 517–522, 533, 534, 536, 539, 542, 545, 547, 549, 552, 554, 555, 557, 562, 566, 591, 596, 598, 599, 603, 607, 608, 615, 616, 617, 658, 660, 661, 666, 670, 685, 686, 696, 701, 708, 715, 723, 727, 730, 732, 739, 741, 742, 744, 751, 752, 776, 777, 778, 781. All these numbers fall within the numbers ascribed to the Maqdalā collection (Wright 1877: iii).

²⁷ CAe stands for Clavis Aethiopica, a repertory of works of the literature of Ethiopia and Eritrea, and refers to the individual identifier of a text.

²⁸ <http://www.bl.uk/manuscripts/Default.aspx>.

my opinion, on some limitations of editable digital cataloguing, flexible in depth and scope, which I have highlighted above. A statistical analysis, one of the main tools of Quantitative Codicology, requires data of a specific quality. Missing or incomplete data inevitably leads to distortion of analysis results. In cases when the absence of a feature in encoding does not explicitly document the absence of the feature, statistical analysis becomes a very unreliable instrument. This is not to be considered critical of the strategy of the project *Beta maṣāḥəft*, which I find very balanced and sensible, since much of the data just cannot be retrieved from historical catalogues, and there should be a scholarly freedom in the decision making on the depth of cataloguing.

2.5 Closed lists in digital cataloguing: book forms

The recording of the type of textile might appear as a less important material feature for many cataloguers, or a feature requiring special expertise, and therefore neglected. However, the categorization of either of the two most widespread types of book forms in Ethiopia and Eritrea, codex and scroll, is inevitably documented by any cataloguer, and a definition of the object form in the object description of each manuscript is required by the project's schema.²⁹ This serves to the advantage of the study of scrolls, which are still understudied. Scrolls have almost exclusively been described in the literature as text carriers for magic texts (Balicka-Witakowska et al. 2015: 158–159; Nösitsin 2020: 295). Indeed, the so-called *katābs*, scrolls containing magic texts and pictures used as apotropaic objects, are still quite widespread in Ethiopia and Eritrea today (Chernetsov 2007). However, this is apparently not the only context in which scrolls as text carriers have been circulating in the region.

Scrolls have also been used in the traditional system of church education as didactic tools for learning to read. In this case scrolls contain, according to current knowledge, two types of texts: traditional Ethiopic syllabaries, *ʾAbugidā* (CAe 5913) and *Hahu* (CAe 5914) (Chernetsov 2003), and *Fidala ḥawārəyā* ('Apostle's Alphabet', CAe 5905), an excerpt from the First Epistle of John. There is hardly any information on this type of scroll in Western literature,³⁰ probably because such scrolls, which I call student scrolls, are almost absent in the collections of Ethiopic manuscripts outside Ethiopia and Eritrea. I know so far of only six specimens kept in three different institutions. The Museum of Anthropology and Ethnography of the Russian Academy of Sciences 'Kunstkamera' in Saint-Petersburg holds the 'largest' collection of four items: MSS 2103–21 (Platonov 1996: 67; Elagina 2020a), 2103–25 (Platonov 1996: 68; Elagina 2020b), 3052–887a (Platonov 1996: 70; Elagina 2020c) and 3052–887b (Platonov 1996: 70–71; Elagina

²⁹ <https://betamasafeft.eu/Guidelines/?id=objectDescription>.

³⁰ The only exception known to me is the posthumous monograph on the manuscript culture of Ethiopia by Platonov (2017: 26–29).

2020d). The British Museum in London has in its collection one student scroll (Af1893,0715.7),³¹ and one single scroll is kept in Paris (MS Éthiopien 521).³²

Other than student scrolls, there is another more enigmatic category of scrolls or similar objects representing parchment strips or leaves, ca. 50–60 cm long and ca. 36–55 cm wide, with narrow strips of parchment possibly meant to keep them rolled. I know so far of two examples of such objects digitised in the frames of the Endangered Archives Programme of the British Library, project EAP286:³³ one (MS British Library EAP286/1/1/121) transmitting *Mystagogia* (CAe 3978),³⁴ and another one (MS British Library EAP286/1/1/152) transmitting *Malkə 'a Tewodros (Image of Tewodros, CAe 6389)*.³⁵ The purpose and use of these manuscripts has not been determined with certainty so far.³⁶

These types of scrolls, including the student scrolls, might be very under-represented in digital or analogue collections, due to the very private character of such manuscripts, their modest physical features (for example, the lack of decoration in contrast to the magic scrolls), or their overall scarcity. Being very rare they often remain unnoticed. The idea of a digital hyper-catalogue, which stores information from different catalogues, pointing to the *Beta maṣāḥəft* project would create much more visibility for such objects and would widen our understanding of the manuscript culture. Additionally, this would provide grounds for analysis of the distribution of texts amongst different text carriers and subsequently the role of texts in different aspects of the community's life.

2.6 Encoding the interaction with manuscripts: navigation systems

In Ethiopia and Eritrea manuscripts have often been witnesses to the social practices connected to the texts they contain. Regular use of a manuscript quite often presupposed the existence of elements that assisted in navigation through volumes and structuring their content. In Ethiopic manuscript culture, there are many ways in which manuscripts were adapted for the specific purposes of reading, chanting, or other practices. This 'system of navigation', or 'finding aids,'

³¹ The digital image of the scroll is available online: https://www.britishmuseum.org/collection/object/E_Af1893-0715-7.

³² I express my gratitude to my colleague Dorothea Reule, who has discovered this manuscript in the large collection of Bibliothèque Nationale de France. A digital image of the manuscript is available at: <https://gallica.bnf.fr/ark:/12148/btv1b531151467>.

³³ Grant holders are Ato Demeke Berhane Teffera and Stephen Delamarter. For more details on the project visit: <https://eap.bl.uk/project/EAP286>.

³⁴ <https://eap.bl.uk/archive-file/EAP286-1-1-121>.

³⁵ <https://eap.bl.uk/archive-file/EAP286-1-1-152>.

³⁶ Although both texts transmitted in these artefacts are known in the context of magic, these scrolls do not show typical features of protective artefacts (for example, they lack protective pictures).

can take different forms: textual or non-textual; pertaining to the stage of production or of secondary nature. The complexity of this phenomenon deserves special attention. It is a case where there is still room for improvement in encoding strategies and an active collaboration with colleagues, fostering best practices and the collection of experiences and opinions, which I demonstrate by referring to the relevant GitHub Issues in the following section.

Textual elements that seem to serve as navigation through a volume can take various forms, such as tables of contents, titles of texts or text parts written in the margins, as well as running titles throughout a text unit. Their categorization and attribution to a certain stage of production is a complex task. Even more so defining a strategy for their consistent and sustainable encoding.³⁷ Interestingly, such elements appear alongside other structuring elements in Ethiopic manuscripts belonging to the initial stage of production, such as rubrication and aniconic decorations at the beginning of texts and text sections. Quite often, liturgical manuscripts contain indications for readings at the beginning of textual units, which tell on which day or holiday the text should be read.³⁸

A non-textual form of finding aid, the bookmark, is normally represented by small pieces of threads (silk in case of *deluxe* manuscripts), textile ribbons, or pieces of leather attached to folio margins (Balicka-Witakowska et al. 2015: 174; Figure 5.2). They might be attached to different parts of a leaf and be of different colours. This is a phenomenon which is close in its functionality to the textual finding aids but is different in its expression and possibly also purpose.³⁹ As pointed out by Di Bella and Sarris (2014: 303), such elements are not infrequent, especially in liturgical manuscripts, and a thorough study of them would also contribute to the study of liturgical practices. However, bookmarks are attested in manuscripts transmitting different texts. The above-mentioned manuscript with magic (or medical) text belonging to Wasan Sagad also attests such elements⁴⁰ —undoubtedly a fascinating topic for research, which might reveal much on the intended usage of the manuscript.

Finding the right strategy for encoding such phenomena, which represent the connecting element between the materiality of a codex and its contents and might serve as a witness to the way a codex was used, is a complex task. The Guidelines of *Beta maṣāḥaft* provide a solution which differentiates between a leaf string marker and a leaf tab marker;⁴¹ however, some further physical

³⁷ I have tentatively proposed for discussion an approach for encoding at least some cases of such phenomenon: <https://github.com/BetaMasaheft/Documentation/issues/1765>.

³⁸ A GitHub Issue concerning formalisation of their encoding was created by Marcin Krawczuk: <https://github.com/BetaMasaheft/Documentation/issues/1804>.

³⁹ For the GitHub Issues concerning these elements see: <https://github.com/BetaMasaheft/Documentation/issues/972>; <https://github.com/BetaMasaheft/Documentation/issues/1130>.

⁴⁰ For example, MS Oriental 566, fols. 1, 6, 11, 18, 30, 36.

⁴¹ <https://betamasaheft.eu/Guidelines/?q=tab&id=bindingDescription>.

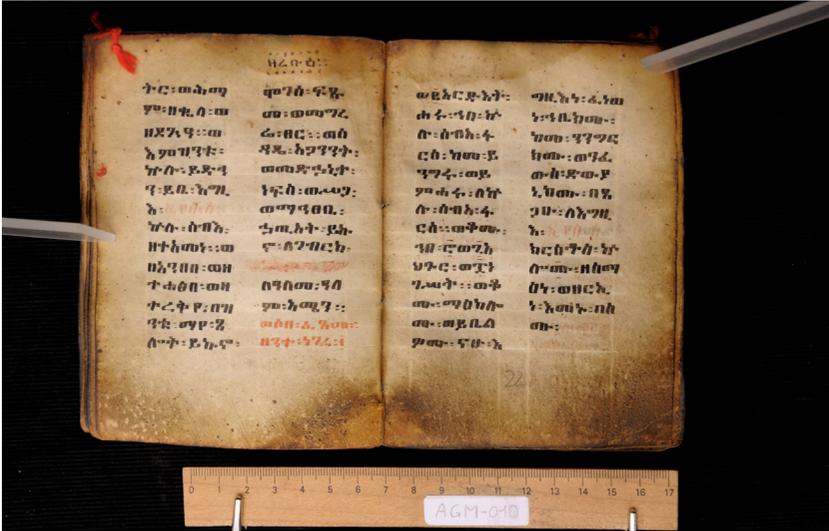


Figure 5.2: Red thread, MS AGM-010, fol. 21. MS 'Agamyo Qøddus Mikā'el (Ethiopia), AGM-010, Collection of texts, 19th century (catalogued for Ethio-SPaRe by S. Dege-Müller; now also accessible in the data base of the project *Beta maṣāḥaft*: <https://betamasaheft.eu/manuscripts/ESagm010/main>). (Photo Ethio-SPaRe).

aspects, such as material or colour in case of textiles or threads, should probably receive more attention in the future, especially in cases of the use of several colours for bookmarks throughout a codex, which might represent a further level of structuring.

2.7 Digital approach to seals and sealing practices

Ethiopic manuscripts, including personal letters, are witnesses to another fascinating but often neglected practice: sealing.⁴² While the presence of seals in Ethiopia and Eritrea is first attested in the sixteenth century at the latest (Sohier 2010), their use flourished in the nineteenth and early twentieth centuries. The functions of seals in the manuscript culture of the region are manifold; they were used as signatures, to authenticate documents and letters; in codices, they were supposed to declare ownership of a volume; in the system of traditional education, seals were used to certify students by putting a seal impression

⁴² The study of seals and sealing practices in Ethiopic manuscripts would also open new perspectives in comparative studies of the same phenomenon in neighbouring regions, for example, with seals in Greco-Roman Egypt (Vandorpe 1997). For an online database, see https://www.trismegistos.org/seals/overview_A.html.



Figure 5.3: Seal impression. MS Portland, Ethiopic Manuscript Imaging Project, Weiner Codex 74, fols. 119v-120r. Image courtesy of Ethiopic Manuscript Imaging Project, Director Steve Delamarter.



Figure 5.4: Seal matrix. A bronze seal of Mamhər Bayyana, a notable clergy from Gondar, 19th–20th century. Image courtesy of Sisay Sahile Beyene.

in their codices (Figure 5.3) and issuing parchment certificates (Platonov 2017: 40); signet rings were apparently used to seal imperial messages with wax or another substance. Not only the sealing practices are of interest, but also the design and manufacturing techniques of seals. Seals have always been precious and expensive objects that represented their owners and their status. The design of seals is therefore also a topic that can tell us a lot about self-representation, aesthetics, and symbolism, but also about craftsmanship and artistry.

However, seals as surviving physical objects (matrices) are extremely rare (Figure 5.4), which is most probably connected to the practice of destroying seals after the death of the owner to prevent their misuse. In this situation, seal impressions are in many cases the only source for the study of sealing practices, as well as of the materiality of seals. The latter is of course very restricted, but much valuable information on the materiality of matrices can be inferred from their impressions: size (which defines the relative size of a matrix), basic information on manufacturing techniques (engraved vs. *champlevé*), designs, and legends. At the current state of research, seal impressions are mostly treated in isolation, each seal impression is described on its own with sporadic references to other publications of impressions of the same seal (Tornay & Sohier 2007). In the Guidelines of *Beta maṣāḥəft*, seal impressions can be described in each manuscript.⁴³ I believe, however, that using TEI XML for separation of features pertaining to seals as material objects⁴⁴ (size, design, legends, ownership, bibliography) and seals as impressions (position, quality, accompanying elements, ink colour, etc.) could benefit to the study of the usage of seals in Ethiopia and Eritrea considerably.⁴⁵

What I tentatively propose in the case of seal impressions, is inspired by the way in which texts are treated in the frames of the project *Beta maṣāḥəft*, that is the distinction between ‘text-as-witness’ and ‘text-as-opus’ (Liuzzo 2019: 79). I would suggest treating any seal impression as a witness to the existence of a (lost) material matrix, which should be created as a separate record with an individual identifier. The record should contain information pertaining to the material object it represents, that is: size of the impression surface, description

⁴³ <https://betamasaheft.eu/Guidelines/?id=additionsVaria>.

⁴⁴ For a XML-based and TEI-compliant standard for the encoding of Byzantine seals see SigiDoc by Alessio Sopracasa and Martina Filosa (<http://sigidoc.huma-num.fr>). This approach focuses on seals as individual objects given the state of Byzantine sigillography. For a different approach to markup of seal impressions as authenticating elements in TEI see Winslow (2021) and GitHub TEI Issue #1851: <https://github.com/TEIC/TEI/issues/1851>. For treatment of seal impressions as distinct objects associated with manuscripts see the GitHub Issue #2376: <https://github.com/TEIC/TEI/issues/2376>.

⁴⁵ For more observations on digital editions of text-bearing objects, including seals, see Filosa, Gad & Bodard (Chapter 3 in this volume).

of its design, ideally marked up with keywords, legends, ownership,⁴⁶ time of use, and any other information. This would allow for identification of impressions of this seal scattered amongst codices, documents, and letters, and to point to the one and the same ID of a record, which would aggregate information on a matrix from different evidence of its existence. Given that identification of some features of a seal might be easier in some cases (for example, existence of additional information on the owner of a seal, or better quality of an impression), and much more difficult in another (isolated, destroyed, or unclear impression), such approach would minimise the existence of impressions left without identification.⁴⁷ Description of seal impressions in manuscripts would then be limited to the actual sealing practice: function of the impression, its position in the manuscript, existence of hand-drawn doublets of impressions, colour of the ink, etc. This approach would not only help create a repository of the seal matrices attested in the manuscript culture, documenting their design and symbolism in a more consistent way, but would also help identify persons who were authorised to own and use seals, and to study their individual sealing practices.

3. Conclusion

To conclude, I want to stress once more that Ethiopian Studies currently profits significantly from the introduction of digital tools and technologies into its scholarly practices. Digital research methods allow for structuring, documenting, and exchanging information, for exploring manuscript culture from different scientific perspectives, as well as fruitful cooperation between scholars of different disciplines from all over the world. They have their restrictions, but also provide new ways of addressing research questions.

The study of material aspects of manuscripts especially benefits from the application of digital research methods and tools. Hyper-cataloguing draws attention to lesser-known aspects of manuscript culture of Ethiopia and Eritrea by aggregating information on them. The need for formalisation and classification of some material aspects of manuscripts will create new

⁴⁶ For declaring of ownership the project *Beta maṣāḥəft* has a repository for persons (<https://betamasaheft.eu/newSearch.html?searchType=text&mode=any&work-types=pers>).

⁴⁷ The Digital Sigillography Resource (DIGISIG) project by John McEwan on seals in England has very similar objectives, namely, linking multiple descriptions of the same seal (McEwan 2022). The project is launched online: <https://www.digisig.org/home>. It uses the opensource Python-based web framework Django and a PostgreSQL database. The main source of data for this project are, however, sigillographic reference works almost absent in the case of Ethiopian Studies, except Tornay & Sohler (2007).

standards for cataloguing and shed light on important neglected features. Digital approaches to organisation and storing of data open new perspectives in the creation of repositories of material objects which have been lost but are documented from the evidence of their use. All these aspects allow us to learn more about the life of the community and the role of the manuscripts.

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Manuscripts abbreviated in text:

- MS Crypt. Aet. 7 = MS Grottaferrata, Exarchic Greek Abbey of St. Mary of Grottaferrata, Crypt. Aet. 7
- MS Ef. n.s. 22 = MS Saint-Petersburg, Rossijskaja Nacionalnaja Biblioteka, Ef. n.s. 22
- MS Éthiopien 521 = MS Paris, Bibliothèque nationale de France, Éthiopien 521
- MS Oriental 510 = MS London, British Library, Oriental 510

MS Oriental 566 = MS London, British Library, Oriental 566

MS AMM-008 = MS 'Āddigrāt Madhāne 'Ālam (Ethiopia), AMM-008

MS SSB-015 = MS Bet Hāwāryāt (Ethiopia), SSB-015

MSS 2103-21 = MS Saint-Petersburg, Etnografičeskij Muzej Akademii Nauk,
2103-21

MSS 2103-25 = MS Saint-Petersburg, Etnografičeskij Muzej Akademii Nauk,
2103-25

MSS 3052-887a = MS Saint-Petersburg, Etnografičeskij Muzej Akademii Nauk,
3052-887a

MSS 3052-887b = MS Saint-Petersburg, Etnografičeskij Muzej Akademii Nauk,
3052-887b