The Cluster of Excellence
Understanding Written Artefacts
cordially invites you to the conference

Studying Written Artefacts:
Challenges and Perspectives

Wednesday, 27 September 2023, 9:00 am – 7:30 pm CEST
Thursday, 28 September 2023, 9:00 am – 7:30 pm CEST
Friday, 29 September 2023, 9:00 am – 6:00 pm CEST

Edmund-Siemers-Allee 1, 20146 Hamburg

For a long time, researchers have debated when writing was invented and written artefacts first produced. They have asked whether this was a peculiarity of *homo sapiens* and what writing actually is, considering whether posing such a question is, in fact, methodologically possible. Most researchers can agree that the invention and use of writing has had such a profound impact on the history of humanity that its consequences continue even in the most sophisticated digital applications, even though manuscripts and writings still remain with us.

As for written artefacts we take the broad working definition of any artificial or natural object that have written or pictorial (visual) signs. This definition includes the traditional notions of manuscripts, in all attested book forms, and inscriptions, and at the same time goes well beyond these broad categories.

Mirroring the multifaceted research of the Cluster and encouraging a comparative perspective in geographical and chronological terms, the conference will draw attention to emerging research topics and innovative methodological approaches from within the humanities and natural and computer sciences. Contributions will focus on the study of creation, transmission, and archiving of written artefacts; on single written artefacts important for their revealing features or their challenging typology and categorisation; on small- and large-scale theoretical reflections on written artefacts; and on the ethical aspects of research on written artefacts.

The conference will take place over three days of panel presentations structured in three parallel sessions, from 27–29 September 2023. It will provide a unique forum for sharing experiences and views among the international community working on written artefacts, showcasing pioneering research, and developing new ideas.

Abstracts and Contributors

Serena Ammirati (Roma Tre University)

Orality and Writing: from Antiquity to the Present Day, through the Eyes of the Palaeographer

The invention of writing(s) has allowed mankind to codify sounds, languages, and cultures in different forms and ways; in the course of its history, writing has itself become (a) language, being itself an essential part of the message. Not infrequently, it has in turn conditioned expressive forms of orality, contributing to modifying ways of reading, but also of disseminating messages. Investigating the relationship between orality and writing is an indispensable aid to the understanding of every written artefact, even in the contemporary world. How has the progressive dematerialisation of handwriting practices in recent decades impacted on this relationship? How does writing, both material and immaterial, relate to new forms of orality (video, audio messages, animated web graphics)? How do the new forms of orality tap into the potential of writing? After the illustration of some examples from the ancient/medieval and modern worlds, I intend to present some cases of hybridity/contamination of orality-writing drawn from contemporary experience, in order to try to reflect - as palaeographers and with the tools of palaeographers - on the formal and cultural changes of written forms today.

Serena Ammirati, Paolo Ammirati, Lorenzo Lastilla (Roma Tre University)

How Explainable is Automatic Hand Identification? A Case Study

In recent years, the attempt to adopt computational methods to address Hand Identification (HI) in medieval and modern manuscripts has included several deep learning algorithms, whose success has however found a major obstacle in the lack of structured data in the palaeographical domain.
We present here our current research aimed to develop techniques for generating explanations on deep learning HI models. Our case study is the ms. Vat. lat. 653, written by four different scribes: our model explanation technique aims to determine the impact that a sub-region of that page has on its assignment to the scribe who wrote it. Our solution to generate the explanations leverages the LIME algorithm (Local Interpretable Model-agnostic Explanations). The results are encouraging; nonetheless, we observe that the current explanations have limited interpretability, as they do not correspond to semantically richer features such as those used by palaeographers for the hand identification task. As future work, we plan to exploit the interaction between scholars and the explanation system, in order to develop a system that could learn higher level features highlighted by palaeographers.

Ákos Bertalan Apatóczky (Károli Gáspár University, Budapest)

Hand-Written Sino-Mongol Bilingual Vocabularies

Bilingual Sino-Mongol glossaries were the decisive linguistic and cultural mediators of written contact between the settled Chinese and the nomadic Mongols of the steppes from the early Yuan period to the end of the Qing era. Among the many bilingual publications of the Bureau of Interpretation (Huitong guan 會同舘) and the Bureau of Translation (Siyi guan 四夷舘) established within the sprawling Chinese administrative system, the Sino-Mongolian glossaries were the earliest and by far the most significant until the Manchu era. The philological examination of these works began already in the 20th century, but to this day there still exist scientifically unprocessed and unpublished works among them. In this presentation, we will review the most important examples of the genre with a detour about the glossaries of the Chinese Bureaus in other languages and summarize the scientific results of the past few decades, as well as the findings of the latest relevant research.

Stylianos Aspiotis (Universität Hamburg), Jochen Schlüter (Museum der Natur Hamburg-Mineralogie, Leibniz-Institut zur Analyse des Biodiversitätswandels), Frank Hildebrandt (Museum für Kunst und Gewerbe Hamburg), Boriana Mihailova (Universität Hamburg)

Non-destructive material characterization by Raman spectroscopy: the example of cylinder seals

Next to cuneiform tablets, cylinder seals are one of the most common media for written evidence in ancient Western Asia, introduced in Mesopotamia around the 4th millennium BCE onwards [1]. Valuable information can be obtained by analyzing the exact material/mineral-phase composition of the cylinder seals, that is, to go beyond a simple visible inspection of the overall appearance of the object. Thus, non-destructive and easy-to-handle analytical methods, such as Raman spectroscopy, are particularly popular within the scientific community, because of their ability to identify crystalline and amorphous compounds as well as to quantitatively determine the crystal chemical composition within each mineral phase [2-4]. In this study, we report the results of the Raman scattering analyses on a series of cylinder seals from the collection of the Museum für Kunst und Gewerbe Hamburg (MK&G) dating between the 3rd millennium and 700 BCE. We show that (i) the already existing material classification should be revised in several cases and (ii) Raman spectroscopy can assist provenance studies based on the unambiguous mineral-phase characterization and quantitative determination of the chemical composition of cylinder seals.

References
[1] D. Collon, First impressions – Cylinder seals in the Ancient Near East, British Museum Publications Ltd: London, **1987**, p. 208.
[2] S. Aspiotis, J. Schlüter, G.J. Redhammer, B. Mihailova, *Eur. J. Mineral.* **2022**, 34, 573.
[3] S. Aspiotis, J. Schlüter, B. Mihailova, *EGU General Assembly* **2023a**, Vienna, Austria, EGU23-14853, https://doi.org/10.5194/egusphere-egu23-14853, 2023.

[4] S. Aspiotis, J. Schlüter, F. Hildebrandt, B. Mihailova, *J. Raman Spectrosc.* **2023b**, submitted, JRS-23-0117.

Zohra Azgal (École Pratique des Hautes Études, Paris)

Learning, Transmission, and Prestige: The Manuscript Tradition of a Handbook of Qur'anic Textual Variants

Qur'anic manuscripts are important witnesses for the history of the Qur'ān transmission. The manuals for teaching variant Qur'anic Readings also had a significant impact. Noldeke points out that the 10th century saw the appearance of *qirā'āt* handbooks.

Ḥirz al-Amānī's better known as *al-Shāṭibiyya* in reference to its author Abū-l-Qāsim al-Shāṭibī is the most famous. It has been used as a reference manual from the 12th century until now as a didactic poem intended for memorisation, replacing oral tradition while paradoxically constituting the source of a very significant written production all across the Muslim world.

In my study I will consider 30 manuscripts dated between the 12th and the 16th centuries. The main characteristics of these codices shed light on how the techniques used contribute to a normalization and standardization of the presentation of these manuals. Three distinct practices seem to emerge: the copy intended to be learnt by heart, the copy for commentary, and the most surprising one, the luxury copy which underlines the prestige that the possession of this very technical *qirā'āt* manual could represent.

Thomas Emanuel Balke (Universität Heidelberg)

Materiality and Context: Aspects of a Physical Practice of Cuneiform Accounting in Third Millennium Mesopotamia BC

The project focuses on specific aspects of materiality and bookkeeping as recognisable in the nearly 1.800 cuneiform documents from the EDIIIb archive é-munus "house(hold) of the lady (i.e. the ruler's wife)" from Lagash during the reigns of the rulers Enentarzid, Lugalanda, and Iri-KAgina (c. 2336 – 2314 BC). These administrative tablets feature some physical characteristics and exterior peculiarities often overlooked or even incorrectly identified by previous editors, among them subsequent excision marks, *eye-catcher* lines, textile impressions, centred drill holes or pseudo check marks as *kúr* (PAP) "ticked off". Since these distinctive features might well contribute significantly to an enhanced understanding of the artefact's holistic interpretation, they will be elaborately appraised and examined mainly resting upon clay tablets and high-grade photographs from authoritative museum collections. As a whole, the research project aims at achieving new insights into the nature of the writing process itself in Early Dynastic Mesopotamia and, more particularly, the deeper purpose of archiving administrative (planning) records and the specifics of contextual drafts, if compared with legal documents as proofs of authenticity.

Elisa Barney Smith (Luleå Technical University / Boise State University) and Karen Wadley (Boise State University)

Document Processing Tools for Analysis of Historia Scholastica

The Historia Scholastica Project (HSP) starts with transcribing and translating Peter Comestor's *Historia Scholastica*, and extends to explore the typography used in its printing, handwritten initials and additions to the letters, and ultimately presenting the book to a wider audience.
The HSP project since 2011 has manually transcribed and translated 70 of the 608 pages from Latin to English. Tools from the field of document analysis will accelerate the process. For instance, Character spotting [Majid, IJDAR/ICFHR 2022] is not sensitive to touching characters, does not require the presence of blank rows between lines of text, and allows for the inclusion of special symbols not common in most recognition software. Illuminated capitals and section markers will be recognized separately in a similar process. Natural Language Processing techniques will be used to expand the scribal abbreviations. The translation from Latin to English will follow, which will be used for deeper analysis of the text to explore the impact it has had on society. We hope to stimulate discussion of other applications of document analysis to other corpora.

Clark Bates (University of Birmingham)

Materialising Unity: Catena Manuscripts as Imperial and Ecclesial Reform

Catena manuscripts are a unique form of biblical commentary created between the sixth and seventh centuries. In these manuscripts the biblical text is supplemented with extracts from selected church fathers either in a "frame" along the top, outside, and bottom margins of the folio, surrounding the biblical material or an "alternating" format wherein the biblical text is divided by the patristic extracts within the body of the page. The exact purpose for this unique form of commentary has eluded researchers for centuries. However, historical details following the Christological controversies of the Council of Chalcedon (451) and leading into the Council of Trullo (692) offer a plausible explanation that catenae developed as a means to promulgate the rise of Neo-Chalcedonianism, promoted by Justinian I and becoming the logical result of decrees by Justinian II. This paper draws from several streams of historical data to propose that these manuscripts served as a Neo-Chalcedonian propaganda supported by the Empire and used in the church.

Alessandro Bausi (Universität Hamburg)

The Essential of Cataloguing

Cataloguing entails the primary task of giving order to the evidence provided by written artefacts. The case-study in this panel are manuscripts from Ethiopia and Eritrea, predominantly in Ethiopic language. While cataloguing considers material, intellectual, textual and contextual, geographical, historical, and political aspects of these written artefacts, in their best examples

catalogues offer a degree of understanding that can vary in depth and ambition from global and analytic coverage, according to academic traditions in the field (fundamental catalogues were produced in the nineteenth century), to overview (inventories) or sectorial catalogues (typically, of illustrated manuscripts). At the core of cataloguing, however, there is a linking data approach and a modular concept of data generation, that presupposes that data are homogeneous (based on shared guidelines), sustainable, transparent, and reusable (at best, aligned since their generation with similar data from other fields). In order to pursue its goals, the long-term academy project Beta maṣāḥǝft (Bm) has adopted the XML-TEI standard, not as a dogma, but as a reasonable step towards a necessary (always arbitrary) norm in view of a cooperative approach.

Tina Bawden (University of Michigan, Ann Arbor)

Eclectic Modes? The Art of Collecting in Illuminated Manuscripts c.1000

Taking the 'North French' manuscripts around the year 1000 as a starting point, my talk explores the intended impact and function of some illuminated manuscripts as visual collections. Manuscripts produced at this time in Saint-Bertin at Saint-Omer, Saint-Amand, Marchiennes, Saint-André at Le Cateau and Saint-Vaast in Arras have often been termed "eclectic" due to their combination of past and contemporary styles, images, and techniques. Rather than seeing this as coincidental, or indeed as a sign of inexperience or artistic shortcoming, I propose viewing these eclectic modes as deliberate. Like treasuries and spolia do materially, these manuscripts visually assert multiple connections, emphasising the tradition of a particular scriptorium and its position in history, as well as tying into contemporary networks of power and exchange. The paper draws on recent studies on paradigms of pre-modern collections and forms of collecting to ask what might be gained by looking at this conscious manuscript presentation as visual collecting, to be viewed alongside other budding practices of collecting in the 11th and 12th centuries.

Karin Becker (Universität Hamburg)

Text Within and Surrounding the Psalms in Medieval Psalter Manuscripts

When writing down psalm verses, scribes of medieval Latin psalter manuscripts quickly faced the problem that verses do not always end neatly at the end of a line. In some cases, these lines were filled with an additional text, the small doxology (*Gloria Patri*), that is not taken from the Book of Psalms. Although this text is related to a specific use of these manuscripts, it often seems to have been added primarily for aesthetic reasons. Marginal texts, added either during the manuscript's production or by later users, can also refer back to a possible use of the manuscripts within a specific (ritual) framework. In this respect, both text within the text and text around the text can provide important clues as to the background against which the Psalter manuscripts were created and how they could be used. This paper examines these texts with regard to (the tension between) possible contexts of use and aesthetic completion of the page.

Brigitte Miriam Bedos-Rezak (New York University)

Signed, De-Signed, Consigned. Documentary Access as Re-Mediation (Western Europe, 8th-13th centuries CE)

In early medieval Europe, documentary production was a highly ritualised affair, during which written records, known as charters and diplomas, were generated as living traces of the interactions that surrounded their creation. This was made possible by the exploitation of documents' organic features (such as animal skins and wax). Thus, the information initially diffused by charters and diplomas produced and consulted in the medieval West went beyond their textual contents also engaging its authors and users in nonhermeneutic experiences.

The strategies that progressively emerged to ensure the preservation and secure access to documents brought profound changes to their format and signifying modes. Copies gathered in books (cartularies) created new versions of the original documents that de-signed them, stripping them of the original living and authenticating marks of authorship to showcase texts, consigning them to a logocentric domain.

The move from living traces to text did not proceed without some resistance. Particular attention will be given to the hybrid treatment charters received in the name of access. Such hybridity articulates different, even conflicting expectations about information and authenticity.

Floris Bernard (Ghent University)

Scribal Colophons in Manuscripts across the Medieval Mediterranean

This paper focuses on the shared aspects of scribal colophons across the medieval Mediterranean. These colophons are to be found in manuscripts written in Latin, Greek, Arabic, Syriac, Armenian, Georgian, Hebrew, Coptic, and other languages. They are often short and formulaic, but may also contain elements of prayer, dedication, and/or exhortation. They make use of a repertoire of similes and metaphors which are strikingly similar across the different languages of the medieval Mediterranean. These similarities have sometimes been remarked upon, but not systematically explored. This paper will provide an overview of some examples (notably the colophon containing the simile of "rejoicing travellers"), discussing possible trajectories of translation at the hand of metrical structure and vocabulary. It will also discuss the dissemination of typical motifs connected to the self-representation of the scribe and his manual work, thus arguing that the similarities between colophons written in different languages reflect a shared book culture across the medieval Mediterranean.

Sheila Blair (Boston College)

Three Strategies for Filling Space in Manuscripts Made in the Islamic Lands

For Muslims, the major miracle of the faith is that God delivered His word orally in Arabic to the Prophet Muhammad in the early seventh century CE. Because of the sanctity of the revelation

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and the desire to record it faithfully, writing and books came to play an extraordinarily important role in Islamic culture. The first attempts to write down these revelations, to judge from recent work arranging the fragmentary examples on palaeographic grounds, were rather rough, but with the establishment of the Umayyad caliphate in 661 CE, Muslims began to make fancier manuscripts with more uniform script that were more appropriate to the status of the divine word. This paper examples three strategies adopted by calligraphers to fill out lines of writing in manuscripts of the Qur'an and other texts produced across the Muslim lands in succeeding centuries: the breaking of words, the elongation of letters, and diagonal boxes set within columns of poetry.

Jonathan Bloom (Boston College)

Filling Space in Arabic Script Epigraphy

This illustrated presentation traces developments in monumental epigraphy in Arabic script from the late seventh century to the sixteenth over the vast region between the Atlantic and Indian oceans. Arabic script concentrates letter shapes on a horizontal baseline, but several letters ascend or descend from it. Furthermore, as several letters share the same form, they are often distinguished by adding dots above and below the letters. Short vowels are not normally written, but can be placed in these spaces. Since Arabic script also has both connected and unconnected letters, it is possible to extend the connector between letters to "justify" a line. When too little space is available, it is also possible to "nest" some letters of a word, particularly at the end of a line. This presentation shows some of the various devices used to embellish the text, including dotting, voweling, foliation and floriation, knotting, vine scrolls and multiple lines of script.

Olivier Bonnerot and José Maksimczuk (Universität Hamburg)

An Interdisciplinary Analysis of the Greek Manuscript Vat. Reg. gr. 116 (Manuscript Studies, Textual Criticism, Ink Analysis)

Aristotle's Organon was passed down to us in around one hundred fifty Byzantine manuscripts. The most conspicuous characteristic of these Greek manuscripts is the numerous layers of annotations they accumulated over centuries, which testifies to an intense use of the artefacts. This paper focuses on a the multilayered Organon manuscript Città del Vaticano, Biblioteca Apostolica Vaticana, Reg. gr. 116. Its primary layer was made by three or four anonymous scribes by the end of the thirteenth century, whereas numerous subsequent users added sets of secondary layers. Arguably, the most relevant of the later layers was the one made by Sylvester Syropoulos in 1420s. This communication will: 1) describe the formatting of Syropoulos' layer; 2) identify its source; and 3) argue that the current folio 2r-v in the codex Milano, Biblioteca Ambrosiana, D 54 sup. (14th c.) is an excerpt from the secondary layer that Syropoulos made to enrich the pri-

mary layer in Reg. gr. 116. The proposed study will be undertaken from an interdisciplinary perspective, integrating Manuscript Studies, Palaeography, Philology, and Material analysis (reflectography and X-ray fluorescence spectroscopy).

Eleni Bozia and Angelos Barmpoutis (University of Florida)

Originals, Copies, and Digital Reproductions: Reembodying the Written Artefact

This presentation discusses technologies that can help us reembody artefacts through 3D digitization and other enhanced computer-assisted visualizations.
Walter Benjamin argues a monolithic appreciation of authenticity that impugns any copy as a falsity. Conversely, UNESCO considers authenticity as a multi-level concept that also considers the individual (re)experience. Within this framework, the Digital Epigraphy and Archaeology project (DEA) offers different methods for the 3D digitization of inscriptions and other artefacts to facilitate their preservation and study and enhance the scholarly and public experience. The digital artefact can be seen virtually and in augmented reality. It can be touched virtually and physically as a 3D-printed object and studied closely through a metadata library. Ultimately, the DEA project achieves the re-embodiment of artefacts through their digital preservation and revival to engage audiences in hands-on re-experiences.
In sum, this paper makes a case for the digital re-embodiment of ancient inscriptions and their digitally physical and virtually augmented presence in the modern world. Such advances enable scholars and the public alike to re-write the history of artefacts and preserve it for future generations.

Nicole Brisch (Universität Hamburg)

The Philology of Sumerian Literary Texts

Sumerian literary texts, most of which are dated to the Old Babylonian Period (ca. 2000-1595 BCE), were written down on manuscripts that are commonly interpreted as school tablets, which were used in the education of scribes. These manuscripts were written down at a time when Sumerian was no longer a spoken language in the ancient Near East, having been replaced by Akkadian, the oldest Semitic language. Studies of philological aspects of these manuscripts have used textual criticism to develop a methodology for classifying and interpreting variants and mistakes. However, the difficulties in our understanding of Sumerian grammar have not been adequately taken into consideration when discussing variants, mistakes, and notions of prescriptive grammar. This is particularly difficult in the case of Sumerian, which is linguistic isolate with an ergative-absolutive alignment.

Christian Brockmann, Stefano Valente, Louiza Argyriou, Daniel Deckers, Alessandro Musino, Eva Wöckener-Gade (Akademie der Wissenschaften in Hamburg / Universität Hamburg)

Presenting a Multi-Layered Manuscript of a Byzantine Greek Lexicon within a Responsive Digital Edition

The *Vaticanus Barberinianus graecus* 70 (11th c. CE, from Southern Italy) is a remarkable written artefact which preserves the original of both the *Etymologicum Gudianum* and another shorter lexicon. Its core text mainly consists in a preliminary version which has then been supplemented by its producers in several steps, resulting in additional textual layers recognisable in the marginal and interlinear spaces. We will illustrate how the features of the manuscript can be reflected in a responsive digital edition currently being developed within the *Etymologika* project, carried out under the auspices of the Academy of Sciences and Humanities in Hamburg with funding from the Academies' Programme. The online version will include a view of the digitised manuscript, simultaneously illustrating relevant elements of the critical edition on the zoomable manuscript images. This responsive behaviour helps visualise how the layout corresponds to the process of creation and revision of the manuscript.

Aaron Butts (Universität Hamburg)

Intersections between Philology and Manuscript Studies: An Ethiopic Case (EMML 1939)

As the organisers of this panel have astutely pointed out, tensions exist between the relatively new field of manuscript studies and the older discipline of philology. In the present paper, I explore these tensions through a single Ethiopic manuscript, EMML 1939, which can be dated to before 1468. I begin by looking at a small erasure in this manuscript, and I use this erasure to illustrate how philology – in this case, particularly textual transmission – allows for a richer manuscript story. I then turn to a set of irregular linguistic forms attested in one text of this multi-text manuscript (but not in others) in order to show how a manuscript perspective can inform philology in the wider sense, in this case particularly language and linguistics. Taken together, these two points suggest that philology and manuscript studies can inform one another in a symbiotic, mutually-beneficial way. I conclude, however, on a more pessimistic note: I ask what constitutes a text in this manuscript and argue that philology and manuscript studies will arrive at different answers to this question in at least one case in this manuscript. I suggest that these different – and irreconcilable – answers highlight once again some of the potentially-unresolvable tensions between philology and manuscript studies.

Dîlan Çakir (Freie Universität Berlin) und Alex Holz (Deutsches Literaturarchiv Marbach)

Studying Born-Digital Artefacts in a Literature Archive. Friedrich Kittler's Born-Digital Estate

In archives, such as the German Literature Archive Marbach (DLA Marbach), an increasing number of "born-digitals" are being studied. These are written artefacts that are produced, edited,

and saved electronically by authors. Instead of traditional physical materials, authors often hand over their computers and hard drives to the archive. The literary estate of media theorist and literary scholar Kittler provides a challenging case study for our archive, as it represents the largest and most complex digital estate received by the DLA Marbach thus far. This paper aims to present and discuss this particular case in detail. Kittler's estate provides important insights into the best practices for managing and studying born-digital collections in archives.

Michele Cammarosano (University of Naples L'Orientale)

Wax Boards in Context. History, Technology, and Philosophy of the Neverending Manuscript

The paper explores an aspect of manuscript cultures that is rarely investigated systematically and has virtually never been the subject of comparative study: the development of technologies that facilitate the erasure and re-inscription of text on a non-occasional basis. It aims to do this by focusing on a specific medium, the wax board, in a multicultural and trans-regional perspective, and by approaching the subject from three distinct but intertwined angles: historical, technological, and comparative. Having been in use for over three millennia in a number of different regions and cultures, wax boards provide an ideal case study for the investigation of rewritable manuscripts. The analysis focuses on three aspects: the composition of the wax layer in different periods and contexts, the techniques used to write the signs, and the interaction with other media. Comparison with other 'rewriting-oriented' technologies – including clay tablets, ink on coated supports and metalpoint – highlights similarities and divergences between different solutions to the problem of rewritability, and calls for a new, holistic research programme on the 'neverending manuscripts'.

Maria Teresa Catalano (Universität zu Köln)

Advantages and Limits of RTI (Reflectance Transformation Imaging) Applied to Byzantine Sigillography

Reflectance Transformation Imaging (RTI) is a useful technique for reading damaged inscriptions on Byzantine lead seals, as it can show the object from multiple light angles and vary its colour and reflectance, making the bas-relief morphology more apparent. RTI has been successfully tested and used on Byzantine lead seals at the University of Cologne in cooperation with the Cologne Center for eHumanities. The procedure is effective for barely legible seals with signs of abrasion, provided that the outlines of the legend are still detectable on the surface and the loss of material is not too significant. However, in cases where the relief-like structure of the imprint is too eroded or lost, RTI reaches its limits. Despite its limitations, RTI offers promising perspectives for further exploration of collection pieces that have not yet been extensively researched because of their condition. Currently, the technique is being used within the framework of the ANR/DFG project DigiByzSeal to make accessible approximately 800 severely damaged seals from the Robert Feind Collection in Cologne.

Jessey J.C. Choo (Rutgers University-New Brunswick)

Black Squares and Scratch Marks—Materiality and the Interpretation of Medieval Chinese Mortuary Epigraphy

Mortuary epigraphy was a common way for people in late medieval China (6th–10th c.) to commemorate their dead. These stone inscriptions, known as entombed epitaphs or *muzhi*, average 800 Chinese characters and contain a large amount of detailed information on the dead, their families, and the specifics of the mortuary rites and burials. While they represented the dead in a (mostly) favourable light, they also allowed their creators to display their respect for the dead and promote their achievements and virtues. While the transcribed *muzhi* have been extensively used in historical research, the inscriptions on stone surfaces have received little attention. I explore the relationship between materiality and the memories conveyed, interpreted, preserved, or erased by examining the *muzhi* of a high-born lady (684–741) and illuminate how attending to the lacunas (appearing as black squares) and scratch marks (i.e., the intentional or unintentional erasure of information) on the stone surface could affect the content's transmission and interpretation and shed light on the negotiations over the construction of memory.

Albrecht Classen (University of Arizona)

Manuscript Culture in the Early Modern Age: Challenges to the Notion of a Paradigm Shift

We tend to embrace the notion of the paradigm shift leading from the late Middle Ages to the early modern age triggered especially by the invention of the printing press by Johann Gutenberg ca. 1450. Indeed, there are many good reasons to accept the notion that a new book market emerged because the innovative printing technology quickly superseded the manuscript culture. Much research has confirmed those observations, but it is also a dangerous misconception because the manuscript itself continued to be highly appreciated and served specific purposes, and this has not really changed in some areas until today. The manuscript carries a unique function for representative works or for instructional material, for instance, relevant only for a unique audience, such as fencing or horsemanship manuals. Conrad Kyeser's famous *Bellifortis* (1405), for instance, was of relevance only for a sophisticated audience, but there exist 45 manuscripts, so it was highly popular. Nevertheless, it was not printed until 1967. Similarly, the famous Ambraser Heldenbuch, produced between 1504 and 1516, signalled the continued importance of the manuscript, produced for Emperor Maximilian I. Here, we face an intriguing attempt to preserve a large number of medieval narratives, and this at a time when the printed book dominated the public already. In short, if we want to understand sixteenth-century public and literary culture, we cannot ignore the continued existence of manuscripts next to an ever-growing body of printed materials. By the same token, this allows us to confirm also the continuation of medieval culture and literature well beyond the so-called Gutenberg galaxy.

Mickaël Coustaty (Université de La Rochelle)

Complex Computational Analysis of Historical and Administrative Documents

Documents are part of our daily life, in a personal or professional way, and since centuries. Even if they seem easy to handle, to analyse, and to manipulate for a human, current trends in document analysis tend to address more and more complex information, mixing textual content (typewritten, handwritten), visual content (logo, signature, pictures) and their semantic. For the textual content, OCR and HWR are a common step to process documents and extract their content. Even if its performance is getting better and better, errors remain and may impact further steps. A lot of document image analysis techniques have been proposed over the last 30 years, which are still not satisfying as documents are not only composed of visual elements. The best current approaches tend to join text and images in order to achieve solutions for multimodal analysis of documents. The presentation will propose some results obtained by combining visual and textual elements, while trying to deal with the need of large annotated datasets.

Jay Crisostomo (University of Michigan)

Cuneiform Bilingual Vocabularies, the Foundations of Ancient and Modern Scholarship

Bilingual vocabularies from the ancient Middle East are the foundations of both ancient and modern cuneiform scholarship. For ancient scholars, these vocabularies perpetuated and re-invented a long lexicographic tradition. In addition, the many varieties enabled cuneiform scholars to explore myriad intellectual endeavours through layout, structure, and content. Like their ancient counterparts, modern scholars relied on these bilingual vocabularies not only for decipherment and lexicography, but also cultural exploration and understanding the layers of intellectual achievement in antiquity.

Christiane Czygan (Orient Institute Istanbul)

The Agency of the Hamburg Divan Manuscript by Sultan Süleyman the Magnificent (1554) and its Readership

Sultan Süleyman's (r. 1520-1566) must have commissioned the Hamburg Divan manuscript shortly before leaving Istanbul for his Eastern campaign in 1553. It is his first Divan manuscript realized in the Imperial palace atelier by outstanding artists.
My paper will address two questions:
First: What was Sultan Süleyman's aim to commission this early Divan? By contextualising this Divan within the political situation, the Divan will be revealed as an extension of politics.
Second: Who were the readers of this and other Divan manuscripts by Sultan Süleyman? In the Hamburg manuscript, as well as in a large number of later Divan manuscripts by Sultan Süleyman, the owners of the books were noted. Thus, we are in the fortunate situation of being able

to explore the owners and readers of these prestigious books. For this purpose, I will present the stamps and owner entries in the different manuscripts and delineate the circulation of this unique Divan.

Following these two questions, I will reveal how these written Divans functioned as symbols of cultural power.

Giuseppe De Gregorio (University of Bologna)

Philology vs Manuscriptology? Examples of Interactions from Greek Manuscript Studies

The interaction between palaeography and codicology on the one hand, and philology on the other has already been pointed out in some foundational studies from the second half the 20th century — e.g. Jean Irigoin ("Deux servantes maîtresses en alternance"), Martin Sicherl ("Handschriftenforschung und Philologie"). Limiting ourselves to the investigation on book production in the Greek Middle Ages and in the Italian Humanism, we can notice that these disciplines, although not yet perfectly blended, have not lost their relevance up until now and are far from becoming obsolete or being superseded by the new field of manuscript studies. Examples taken from the intellectual climate of Byzantine scholars will offer possible solutions on how these more traditional fields (palaeography, codicology, philology) could work together with material analysis and new technologies, aiming at a comprehensive analysis of texts and written artefacts in their material as well as cultural and historical dimension. The reconstruction of the cultural and historical dimension of written artefacts is still central to the modern work on manuscripts.

Sarah Deichstetter and Maria Theisen (Österreichische Akademie der Wissenschaften)

Uncovering the Medieval Bookbinding of Klosterneuburg Abbey. Written Sources and Cover Decoration

Klosterneuburg Abbey holds an extensive collection of account books dating back to the 1320s. With the help of this source material, we can look at book production from an economic point of view: we learn about certain actors as well as materials and techniques used in the Klosterneuburg bookbinding workshop. The long period covered by the account books allows us to reveal economic and historical developments in late medieval and early modern book production for the largest monastic library in the Vienna area. (SD)

The ABC project also integrates an evidence-based method by recording the motifs of the blind tools used to decorate the covers in order to draw conclusions about the dating of the respective book bindings. These will help us to identify stylistic peculiarities of the area and to establish a reliable dating framework for the calibration of the FTIR measuring device. (MT)

Albert Dietz (Ludwig-Maximilians-Universität München)

Inscriptions as Images. Placement and use of seal inscriptions as pictorial elements

Inscriptions on ancient West Asian seals are often part of the imagery placed on the stone cylinder. It may consist of several lines or a few signs, may be placed in an orderly manner in a framed text box or cut in between the figures of the depicted scenes.
But is the inscription to be seen as an element independent of the pictorial program, or can it be addressed as an integrated part of the pictorial scenes? Does one obtain clues by looking at the composition of the scenes and the placement of the inscription? What role do different writing systems (cuneiform and hieroglyphics) and the way the inscription was inserted into the pictorial space play?
In this presentation I do not analyze the inscriptions from the epigraphist's point of view but treat them as one of the many pictorial elements in a composition. For this I examine seals and seal impressions from 2nd millennium BCE Mesopotamia (today's Iraq) and Syria.

Paul Dilley (University of Iowa)

Introducing the "Global Writing Cultures" Resource

The "Global Writing Cultures" website aims to make available a reasonably comprehensive database of pre-modern writing, with some coverage of as many languages and scripts in as many materials and formats as possible. There are currently over 300 validated entries, with numerous other entries to be published in the near future. While "Global Writing Cultures" is not a research database, strictly speaking, it will be the most extensive object-based online platform for exploring diversity of pre-modern writing, and it can be used as a jumping off point for comparative studies. To that end, the database uses a provisional, region-neutral typology and terminology for writing formats. On the other hand, "Global Writing Cultures" is also intended as a resource for the general public, providing basic information and a birds-eye-view on the scope of writing culture through its geospatial interface. In this presentation I will give an overview of the site's current data structure and design, along with ongoing challenges and goals for the future.

Alexei Ditter (Reed College, Portland)

What We Learn from Looking at Layouts: Construction and Design in Tang Dynasty (618–907) Entombed Epitaphs

In this paper, I will discuss the design and layout of Tang dynasty entombed epitaphs (*muzhiming* 墓志銘). In the first part of the paper, I survey the variations in style and "font size" of *muzhiming* calligraphy, the images and decoration used for ornamentation, and differences in layout of textual and visual content. I identify subtle ways in which these design choices illuminate the processes of *muzhiming* manufacture and the broader commemorative agendas producers sought to achieve. In the second part, I explore the implications of two unusual post-productions

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practices, the inscribing of supplemental information onto the verso, recto, or sides of the epitaph stone and cover, and the re-inscription of old epitaph stones with new content (i.e., palimpsests). I consider what these later efforts by producers to supplement, emend, or literally erase the work of earlier producers suggest about indeterminacy? and fragility of memory as an enterprise in late medieval China.

Arianna d'Ottone (Sapienza – University of Rome)

Challenging Texts: Encrypted Qurʾans in the Arabic-Islamic Manuscript Culture

The case of an encrypted Qurʾan produced in an Ismāʿilī context in 18th-century India, and nowadays preserved in the Library of the School of Oriental and African Studies (SOAS – London), was a unicum in the Arabic-Islamic written production (A. D'Ottone Rambach, The Qurʾan Encrypted: A Unique Qurʾanic Manuscript in Cipher, "Journal of Islamic Manuscripts" 11,2 (2020), pp. 133-176). However new manuscript evidence is challenging this perspective. In this contribution I am going to present another encrypted manuscript – possibly again a Qurʾan – attributed to the hand of the Mughal Emperor Babur (1483-1530) and currently kept in an Iranian library. The cryptoanalysis of this new manuscript will be the first step to have access to its hidden text. Growing interest is given to encrypted manuscripts that represent a category which goes beyond the original language of their text, allowing specialists of various domain to speak about encryption as a third, common factor (see the online workshop: Geheimschriftenzoom: Vertrauen durch Verbergen II, 27. Mai 2022). Through this case study I aim at considering how the script interacts with other semiotic systems linked to the visual perception. The recognition of the script and of its meaning on the double level of langue and parole is indeed hidden, or less evident, in encrypted texts (Campus et al. eds, Scritture nascoste, scritture invisibili: quando il medium non fa passare il messaggio, Verona 2020). Yet, the encrypted Qurʾan-s are a sacred text well known by Muslims and do not belong to the category of magic for which charactêres – signs without a connection with a meaning – are usually employed. Encrypted texts represent a language in themselves, and their existence needs to be investigated in connection with historical, religious, and cultural dynamics to unveil the reasons that lead to the encryption as well as the identity of both the author(s) of the code and the readers to whom the text is destined.

Maura Dykstra (Yale University)

Paper Trace: The Production, Destruction, and Transmutation of Archival Texts in Late Imperial China

The emperors and officials of the Ming and Qing dynasties had a whole vocabulary for distinguishing the types of validity associated with an official document. These terms highlighted distinct channels of not only the production and destruction of archival materials, but their transmutation into other forms of text. Some processes produced bureaucratic texts that would inevitably be enshrined in dynastic cannon, while other processes produced paperwork that was destined for the trash heap. Some texts were reproduced in stone or in compendia that were

widely reprinted, while others were carefully incinerated or invalidated. This paper examines the space and the processes of the archive as the pertain to these channels of production, destruction, and transmutation by using the movement of manuscripts to highlight various trajectories of documentary lifecycles.

Daria Elagina (Universität Hamburg)

William Wright: A Victorian Scholar in the Digital Age

William Wright's *Catalogue of the Ethiopic Manuscripts in the British Museum Acquired since the Year 1847* from the year 1877 is considered to be one of the most important catalogues of Ethiopic manuscripts. The digital encoding of this catalogue in TEI XML became one of the main milestones for the project *Beta* maṣāḥǝft which has been achieved in 2022. Since no universally agreed standards for manuscript cataloguing existed at the time of the catalogue composition, encoding its manuscript descriptions in TEI XML turned out to be challenging. As complicated as the digital encoding of the historical catalogue might be, this task cannot be compared with the laborious work conducted by Wright. Fortunately, some insights on various aspects of his work were generously shared by Wright himself in correspondence with his colleagues and friends. These details allow us to look at the catalogue from a new perspective, which, despite a gap of 150 years, is surprisingly relatable to the scholars of the digital age.

Daria Elagina (Universität Hamburg)

Seals in Ethiopia and Eritrea: New Data and New Approaches

Having been used in Ethiopia and Eritrea for centuries, seals represent an essential but still understudied element of the written culture of the region. Despite some profound publications, many aspects of the usage of seals in Ethiopia and Eritrea still need to be covered, including an overview of their history, methods of production, and their complex role in the manuscript culture. The sources for the study of seals and sealing practices are highly heterogeneous and include seals as material objects (matrices), seal impressions, their reproductions, and textual evidence. Each type of source requires a different approach to its documentation and study. A new strategy for documentation of attestations of seals and sealing practices in digital form seeks to create relations between matrices and their impressions attested in manuscripts.

Yousry Elseadawy (Berlin Graduate School Muslim Cultures and Societies)

The Reception of Kalīlah wa-Dimnah Approached through Their Manuscript Notes

The main aim of my project is to write the history of the circulation of Kalīlah wa-Dimnah through the manuscript notes. Thus, the methodology of the proposed project will consist of compiling a corpus of notes found in the extant 150 manuscripts of Kalīlah wa-Dimnah and then analysing these notes. As a basis of research, any notes found on the title pages, and the manuscripts' colophon page will be collected and organised and then analysed for the insights they can give us regarding the circulation of Kalīlah wa-Dimnah. This analysis consists of deciphering the manuscript notes, translating them into English, commenting on them, and contextualising them within the scribal practice documented in the manuscript's main text. For example, if someone writes on the title page that he read the book, one may search for traces of his reading, such as marginal notes, corrections, insertions of omissions, or even side-heads (marginal titles, e.g., for its numerous sub-stories). The research also focuses on the personalities and the places mentioned in the notes.

Martin Etter, Riccardo Cameli Manzo (DESY P02.1), Zsombor J. Földi (Ludwig-Maximilians-Universität München), Szilvia Jáka-Sövegjártó (Universität Hamburg)

Powder X-ray Diffraction: Pilot Study on Clay Tablets

This presentation aims to unveil the initial findings of a pilot study conducted in collaboration between DESY and the CSMC. By utilizing the powder X-ray diffraction method on cuneiform tablets, valuable insights into their mineral composition can be obtained. The primary focus of the initial measurements centered around thirty-seven authentic clay tablets, which are currently housed in both the Staats- und Universitätsbibliothek Hamburg and the Museum für Kunst- und Gewerbe.
Thus far, three distinct groups have been identified. The first group consists predominantly of tablets rich in calcite, encompassing the majority of the specimens examined. The second group comprises tablets with a low calcite content. Lastly, the third group exhibits significant levels of pyroxene and aragonite but lacks any trace of calcite. While the limited number of objects restricts extensive conclusions, an analysis of the temporal and spatial distribution of these tablets reveals certain correlations with their mineral composition.

Victoria Eyharabide (Sorbonne University, STIH Laboratory), Béatrice Caseau (Sorbonne University, CNRS - UMR 8167 Orient et Méditerranée, Paris), and Lucia Maria Orlandi (CNRS - UMR 8167 Orient et Méditerranée, Paris)

Hybrid Artificial Intelligence and Byzantine Seals (BHAI)

The paper discusses the challenges of applying neural network algorithms to the analysis of Byzantine seals, which represent a unique and complex dataset due to their historical and material characteristics. Algorithms need to be adapted in order to deal with the reduced number of available seals, their damaged and corroded state, and the monochrome colour palette. This paper proposes a hybrid AI approach to analyse Byzantine seals, which combines different artificial intelligence methods to recognise writings on seals, analyse iconographic scenes, and interpret corroded areas based on existing insights. The paper presents the preliminary results of the ANR project BHAI (2021-2025), which aims to use artificial intelligence to propose hypotheses for missing parts of damaged seals, cluster Byzantine seals with similar characteristics, and provide evidence to verify historians' hypotheses. In the framework of this project, we strive to implement hybrid AI as a valuable tool for Byzantine sigillography and Byzantine Studies at large.

Penelope Faithfull (Universität Wien)

A Layout by Any Other Name Would Sound as Sweet…? The Importance of Layout and Format in Roman Military Verse Inscriptions

With the loss of so many original Roman books, some may say that it is difficult to prove whether, to those in the Roman world, the layout of verse mattered. By examining verse inscriptions, however, it can be seen that, for some, this was important. This paper will examine a collection of imperial Roman military verse inscriptions to demonstrate that the format of a Latin poem was significant; it will also examine the various ways in which they creatively presented the importance of this when the limitations of their material did not allow the poem to be displayed in a conventional manner. We see that verse inscriptions were written with care, not only in regard to the language within them, but also in regard to their format, which is significant to understanding Latin verse as those in the Roman world did, considering that these are deeply personal, individual poems, amongst the closest writings we have of an ancient author directly from their own hand.

Martina Filosa and Claudia Sode (Universität zu Köln)

A Research-Based Digital Teaching Infrastructure for Auxiliary Disciplines: The Case of Byzantine Sigillography

The paper discusses the preliminary results of the DiBS project, which aims to advance the four Byzantine auxiliary disciplines - Sigillography, Numismatics, Epigraphy, and Greek Manuscript

Studies - through research, creation of a sustainable digital teaching infrastructure, and innovative teaching formats. The teaching module on Byzantine Sigillography, specifically, trains students in reading, analysing, and contextualising seals, using SigiDoc and RTI images to investigate damaged seals from the Robert Feind Collection. By the end of the module, students are expected to have acquired subject specific knowledge and digital skills tailored to the discipline. The project also promotes collaborative digital approaches to Byzantine text-bearing objects, fostering interchange with Digital Humanities and implementing internationally shared concepts of training in the field of Byzantine Studies. The materials and methods developed by the project can be implemented in any academic context of Byzantine Studies, extending the lifespan of the research itself.

Zsombor J. Földi (Ludwig-Maximilians-Universität München)

One's Own Seal. The Manufacture of Cylinder Seals and the So-Called "Drafts" of Seal Inscriptions

The first part of my talk focuses on a group of short texts written on cuneiform tablets and following the structure of seal inscriptions. Of these texts some one or two dozen examples are known so far, mainly from the Old Babylonian period. In the Assyriological research, they are commonly considered as "drafts" of seal inscriptions, that is, drafts designed by a scribe for the seal cutter's use who would engrave the inscription. I shall discuss the pros and contras of this view and suggest an alternative interpretation. The second part of my paper shall discuss the manufacturing of cylinder seals, as far it is highlighted by cuneiform texts of various genres as well as the cylinder seal inscriptions themselves. What kind of inscriptions occur on whose seals and what do seal inscriptions contribute to prosopography? What are the mistakes that may hint at the manufacturing of cylinder seals.

Tom Gheldof (KU Leuven) and Marta Fogagnolo (University of Bologna)

An Innovative Approach in the Study of Ancient Written Artefacts: the ENCODE Project

This poster presents the results of the ENCODE project, a three-year (2020-2023) Erasmus+ Strategic partnership for higher education, funded by the EU, which involves five universities (Bologna, Würzburg, Leuven, Parma, Oslo). The ENCODE project aims to bridge the existing gap in the teaching/learning domain of ancient written cultures between the peculiar humanistic training and the now essential digital competences required for study, research, and employment. It intends to promote digital competences among students and academic staff by developing innovative teaching modules collected in a database and implementing them in the existing academic curricula. Among other outputs is the creation of a shared vocabulary of digital competences in teaching and learning ancient writing cultures, an online course intended to enhance the importance of innovative digital training and digital applications in the academic and professional environment, guidelines for the use of the database and the online course, and a community network among employers, institutions concerned with digital curation, academics, alumni, and students.

Anna Gialdini (Bruno Kessler Foundation Library, Trento)

"Greek covers" and Turkish Leather: Economic Value and Practical Knowledge in Early Modern Italian Bindings

Although the relationship between bookbindings and their prices has been partly explored for the context of early modern Italy, we know little about the ways in which specific competences and practical knowledge of the craftsmen that made them influenced the cost of the final product in this lively and multi-connected market. This paper uses a case study from fifteenth- and sixteenth-century northern and central Italy (that of Greek-style or 'alla greca' bindings) to analyse how different factors compared in influencing prices: expensive, often imported materials (such as tanned skins from the Ottoman Empire, silk threads, and gold leaf), vs. binders' specialised "know-how". In order to do so, it uses a range of sources, from library inventories to payments to binders, from day-books to purchase annotations in the books themselves. As we will see, while practical knowledge was essential for bookbinders in their craft, it was typically not valued as much as expensive materials were.

Mary Gilstad (Yale University)

Reading Tekagami as Anthology: Totality vs Constituency

As collections of calligraphic inscriptions that have been cut off from their "original" contexts, *tekagami* albums share epistemological issues with poetic anthologies. By means of attributions they assign a personality to each included piece, creating a virtual community that transcends time. By means of overt and suggestive organisational principles, they create a totalising structure wherein each piece has a place in the whole. Given their formal similarities, how could we read *tekagami* as anthologies? This talk focuses on the question of discipline, or the application of a totalising framework onto existing materials that shears them away from their original meanings and redefines them within a new structure wherein they are only a constituent. Applying a structural analysis derived from the author's comparative study of anthologies, the paper outlines totalising and organising features of *tekagami* to arrive at an articulation of what, according to their own internal logic, the albums assemble. Offering an interpretation of an *anthologised unit*—the iterated bundle of information that makes up the argument of the *tekagami* as a collection of something—, the paper identifies what happens to an individual piece to become part of the whole.

Nikolai Grube (Universität Bonn)

Unseen Writing: Maya Hieroglyphic Texts Invisible to the Human Eye

A large part of Classic Maya hieroglyphic inscriptions is written on stone monuments that were located in public spaces and were visible to the general public. In addition, there were written texts on many portable objects for a restricted, private circle of readers. In contrast, there also

existed written texts that were designed in such a way that they could not be glimpsed by any human eye, or at least made it difficult to perceive and read them. These include texts on the top of stelae and other surfaces hidden from the human eye, inscriptions painted on the walls of burial chambers, but also texts in mirror writing. Other texts exist in liminal spaces where stopping to look closely is made impossible. My contribution will focus on the media and spaces of these invisible texts and the question of their communicative function. It turns out that the writing process itself endowed the writing artefacts with an animated force that played a central role in ritual and communication with the gods.

Sylvio Haas (DESY P62) and Agnieszka Helman-Ważny (Universität Hamburg)

Investigating Paper Components with Small- and Wide-Angle X-ray Scattering (SAXS/WAXS)

Synchrotron X-ray analytical methods are increasingly being used to study historic papers. However, so far purpose of such research has been mostly to anticipate the impact of X-ray photons on paper- and cellulose-based artefacts (Gimat et al 2020) or to better understand deterioration processes. Paper as writing support with all its components is a very complex and unique material, which is why difficult to understand at the molecular level, especially considering a large number of its components modified under both technological and deterioration processes occurring at different stages and times, as well as under the influence of various environmental substances. As a result, with almost endless possibilities of elements, compounds, both original raw materials, products of deterioration, as well as environmental substances, we deal with the subsequent material of multiscale heterogeneity, which is constantly changing.

This study discusses the application of scanning Small- and Wide-Angle X-ray Scattering to investigate the nano-structure of papers, exploring its potential use for authentication and provenance studies. Based on the X-ray scattering signals information about the local nano-structure can be obtained. The focus of this study is to develop a protocol for fingerprinting specific types of papers, so we can then detect the same or very similar paper in different heritage objects. At the same time, the characterization of each paper contributed to the development of an innovative experimental X-ray scattering-based approach to complement current analytical methods of paper identification and raw materials characterization in heritage-written artefacts.

Emmylou Haffner (Institut des textes et manuscrits modernes, CNRS/ENS)

Written Artefacts and Mathematical Research

In this talk, I will study written artefacts found in mathematicians' drafts, their role and place in the research process and in the shaping of mathematical knowledge. Emphasising the specificities of drafts as temporary states of writing, I will suggest integrating methodological elements from codicology and genetic criticism. With a selection of drafts from a selection of authors from the 18th to the 20th century, I will discuss some of the textual practices developed by mathematicians in their research and show how better understanding these written tools and artefacts allows us to better understand the creative process and the shaping of new knowledge.

Ulrike Hanstein (University of the Arts Linz)

Inscriptions, Inventories, and Instructions in VALIE EXPORT's Archive

Since the 1960s, VALIE EXPORT has been creating an extensive archive on her artistic and curatorial projects. In their original order, documents are organised into numbered "bundles" (*Konvolute*), which group together materials by themes, dates, places, art projects, exhibitions, or by format. The meticulous order of the material indicates the artist's parallel preoccupations as the archive's author, registrar, administrator, and reader.

My paper discusses the role of writing for the documentation, access, and comprehension of the archive. VALIE EXPORT's care for the materials and her acts of archiving are manifested in inscriptions on the backs of binders, on the covers of folders, on separating strips between filed papers, on labels glued to videocassettes and their cases, on the top of photo boxes, on slide frames, and on Post-It notes fixed to booklets or catalogues. My paper discusses inscriptions, which are both part of VALIE EXPORT's archive and part of the documentation of the archive: the inscriptions work at the thresholds between the inside and outside of the archive. Inscriptions as archival and archived written artefacts render records of the past legible; they imagine and instruct (future) readings.

Elena Hertel (Universität Basel)

Material Traces of Manuscript Use and Reuse in Ancient Egypt: The Heterogeneous Papyri from Deir el-Medina

In this paper I discuss the use and reuse of papyrus in ancient Egypt, focusing specifically on the so-called heterogeneous papyri from the village of Deir el-Medina (c. 1200-1050 BCE). The manuscripts are characterised by the coexistence of administrative and non-administrative texts on the same carrier, as well as by regular use and reuse, changes of handwriting, modifications of the roll, etc. While these factors are often interpreted as a sign of the high cost of writing material, I argue that the monetary value of the text carrier is not necessarily the reason for reuse. Rather, the reuse of certain manuscripts was a typical practice within a highly developed manuscript culture and testifies to a pragmatic utilisation of writing. Furthermore, the existence of different modes of use depending on the intended function of the papyri is proposed. These modes are rooted in the affordances of papyrus, which offer both the possibility of serving as a short-term memory aid as well as a method for the long-term preservation of information, and are reflected in their materiality.

Michael Höckelmann (Friedrich-Alexander-Universität Erlangen-Nürnberg)

Contested Memory: The Many Afterlives of Gao Lishi

This paper examines the impact of materiality and chance on the content and transmission of life writings from medieval China, taking the many afterlives of the Tang 唐 court eunuch Gao

Lishi 高力士 (684–762) as an example. Gao's biography survives in various forms, from entries in group biographies of official histories of the Tang to stories in anecdote collections to epigraphic sources. The latter comprise an entombed epitaph (*muzhiming* 墓誌銘) and a spirit road stele (*shendaobei* 神道碑), which not only add essential details to our picture of historical events but also lend themselves to questions about gender, family, institutions, and the survival of non-literati life writings in medieval China. Moreover, Gao's was the only satellite tomb of Emperor Xuanzong's 玄宗 (r. 712–56) Tai Mausoleum, an honour he owed to his role as a close confidant to the emperor, which makes it even more conspicuous that archaeologists only rediscovered his grave and two-thirds of the epigraphic sources on his life in the late twentieth century.

Direk Hongthong (Kasetsart University, Bangkok)

Old Seed in Different Soil: Evolution of Khmer Didactic Literature Entitled "Cpāp' Kram" in Thailand

"Cpāp' Kram," a piece of Buddhist didactic literature dated as old as at least 17th century, was widely found in Khmer monasteries in both Cambodia and Thailand. Its interesting angles of evolution were revealed in Thailand's context. In term of textual creation, it was inscribed on palm leaves by using Khmer script and kept for novices to learn and practice inscribing. Later, its title grew new branches to combine with new contents for new implied readers like Northern Khmer descendants or women. In term of transmission, traditional agents like novices and monks transmitted it on palm leaves and notebook papers for traditional purposes like monasterial education or preaching. Meanwhile, new agents like folksong performers transmitted it on notebook papers with Thai script, sang it at night for entertainment, or posted their recitation videos on websites. In term of archiving, this text was collected among the others in many places from traditional one like monasteries to new ones like scholars' homes, researches' appendixes, cultural centres, and websites. Thus, on a different context through changing times, this traditional text could fascinatingly grow.

Seyed Abdolreza Hosseini (Allameh Tabataba'i University)

Pounce and the Innovation of Emād's Rasm-al-Mashq [Calligraphic Writing Booklets]

Development in early modern Iran was conceived as the swiftest possible change and elicited widespread adoption of reproductive-repetitive techniques. Inspired by the pouncing technique in inscriptions, Emād al-Kottāb (1861-1931), the most famous calligrapher of late Qajar and early Pahlavi, invented a method in which the students could follow the faint dotted outline, not by connecting the dots but by controlling and moving the reed pen between the organised whole. Pounce was then recruited for a new purpose: education. Emād published his manual twice, first in Russia and for the second time in Harlem Publication in the Netherlands. Due to his fame and influence in the government, he maintained his monopoly in calligraphy education for a long time by requiring school teachers to use his booklets exclusively. After Emād's death, other cal-

ligraphers published booklets and brought out other versions with the same method. The monopoly broke with the emergence of the national publishing industry but the innovative calligraphy education system lasted for several decades.

Patrick Huber (DESY / Technische Universität Hamburg), Giovanni Ciotti (Universität zu Lübeck) and Laura Gallardo Dominguez (Technische Universität Hamburg)

Multiscale Material Characterisation of Asian Writing Supports

Palm leaf has been a very important material for the production of manuscripts in South, Central and South East Asia, where this tradition has almost disappeared with the exception of a few monasteries and workshops for tourist handy-crafts.
The features of palm leaves and the interplay of these writing supports with their environment have had a profound impact not only on the way in which manuscripts as well as written artefacts at large have been produced and used, but also on the way we access the literary and intellectual histories of these vast geographical areas. Despite the fact that substantial efforts have been made even very recently to document the manufacture of the writing support [1], much remains to be done to match this craftsmanship with the manuscripts we inherit from the past. The scientific understanding of the production and the material characteristics of both the writing support and the manuscripts is crucial for identifying features that can help classify the manuscripts according to their origin or age. Microscopy techniques have been used to reveal the multiscale structural features of palm leaves. We also present small and wide angle X-ray scattering results showing clear differences in structure and composition of leaves measured at different stages of preparation as well as in manuscripts.
[1]   https://www.csmc.uni-hamburg.de/written-artefacts/working-groups/asian-highland-mauscripts.html

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Matthieu Husson (Université PSL-Observatoire de Paris, SYRTE, CNRS)

Scientific Manuscripts as Device to Shape Traditions and Epistemic Collectives: Blank Spaces, Hands, and Temporal Scales of Production in MS Escorial O II 10

The material history of a scientific manuscript often mirrors a more epistemic history where scientific traditions are shaped and discussed by historical actors from different places and times connected through the manuscript space, and leaving material traces and clues of their intervention in the document. I want to illustrate this with a very famous manuscript for historians of late medieval astronomy in Europe MS Escorial O II 10. The material history of the manuscript is that of re-purposing the document from a university handbook to a place where a first rank astronomer of the early 14th century recorded different observations and astronomical discussions with his fellows. In inscribing these records in specific spaces in this particular manuscript he also deliberately chose to include them in a dialogue with the broader astronomical tradition of which the manuscript is also a witness thereby mixing the long time scale of these traditions with the very short time scale of his discussions with pairs or his computations.

Silpsupa Jaengsawang (Universität Hamburg)

Printed Anisong Manuscripts in Luang Prabang: How Handwritten Additions Create Uniqueness

In Luang Prabang printed *anisong* manuscripts have been mainly found at two monasteries: Vat Maha That and Vat Siang Thòng; there are 113 fascicles in total. They were imported from Thailand by monks and novices who studied there in the early 20th century and were donated to the monasteries in expectation of gaining merit. Manufactured in mass production, most of the manuscripts were individualised by additional handwritings to create uniqueness. Although printing technologies seem to have replaced traditional manuscript production practices and agencies, especially the role of scribes, there is still the case that handwriting cannot be replaced by prints. Handwriting was added for several reasons to differentiate donated manuscripts from general printed ones. Instead of being written by scribes, additional handwriting was done by sponsors on their own. The study will figure out how the handwritten additions create uniqueness and individuality of printed manuscripts and what printing technologies cannot replace. Differences in textual diversity between handwritten and printed manuscripts at the same repositories will also be discussed.

Edward Kamens (Yale University)

Sūtra-copy Fragments (shakyōgire) in Calligraphy Albums (tekagami): Desecration, Preservation, and Ontological Shift

Of the 139 calligraphy specimens in the "Tekagamijō" calligraphy album (Beinecke Rare Book & Manuscript Library, Yale University), six are fragments of Buddhist sūtras. The first specimens in such albums are usually sūtra passages said to have been copied by the 8th century Emperor Shōmu and of his consort Empress Kōmyō, but sūtra fragments attributed to writers in other social strata are included as well. In this presentation, I focus on the examples of sūtra fragments in the "Tekagamijō" to consider their place and function within the larger schema of this and other *tekagami*. How are the nature and the cultural significance of sūtra copies changed, materially and immaterially, when they are cut up, dispersed, and their parts then reused in *tekagami*? What is the meaning of these transformations?

The "Tekagamijō" is one of several such albums that are the subject of new scholarly scrutiny. I am interested in thinking about how the constituent parts of *tekagami* produce meaning through their collective interaction and arrangement. In that connection, this presentation will delve into the material and textual aspects of "*tekagami* culture." Even if "desecrated," might something of the original character of these once-sacred writings remain with them in these settings?

Alya Karame (Collège de France, Paris)

Beyond the Role of Ibn Muqla: Writing as a Cultural Vehicle

A major transformation happened in the 10th century CE to the Arabic script and manuscript production in general. Two new scripts gradually replaced the Kufic for copying the Qur'an and were accompanied with a standardisation of the round scripts and the introduction of paper in the eastern Islamic lands. This fundamental period in the history of Arabic writing coincided with the vizierate of the Abbasid penman Ibn Muqla (d. 328/940) known for his elegant handwriting. Three centuries later, textual sources associated Ibn Muqla with al-khaṭṭ al-mansūb, the 'Proportioned Script', and a treatise on penmanship attributed to him survives today. Ibn Muqla's intervention in the script reform has been debated in modern scholarship, and it is still unclear what his responsibilities exactly were, let alone what al-khaṭṭ al-mansūb really looked like. This paper engages with these questions by tying up the material evidence from the period with contemporaneous textual sources. By contextualising the script changes within their broader social and religious milieu, we move beyond the question of Ibn Muqla's role and towards an understanding of why and how the script changes happened. By doing so, writing is understood as a practice of continuous acts of affirmations and contestations that resonate with other script reforms at the frontiers of the Islamic world.

Kristopher W. Kersey (University of California, Los Angeles)

Codex Redux: Grounding the Poetics of Collage in the Collected Poems of Ise (Ise-shū, Japan, ca. 1112 CE)

In 1929, a twelfth-century Japanese codex known as the *Collected Poems of Ise* (*Ise-shū*) was unbound, sliced into fragments, and put on the art market. Many medieval codices shared similar fates, but the *Ise Collection* was rare in that it bore examples of a stunning practice known as "patched" or "joined" papers (*tsugigami*), whereby sheets of paper were torn or sliced apart and reassembled, resulting in a codex where the ground itself was collage. As this paper will argue, however, if one foregrounds the writing over the abstract collage, a very different understanding of the role of collage emerges. In contrast to the largely visual focus of previous scholarship, this paper will look closely at the poems themselves, demonstrating how they calligraphically and semantically relate to their material ground. The paper also makes an argument for reassessing the way in which such works are displayed, as curators must navigate the issue of how to balance the twelfth-century identity as codex with the early modern and modern practices that would turn these into planar objects of display.

Yeogeun Kim (Kyungpook National University)

Calligraphy or Marginalia in the Visual Narrative of a Korean Buddhist Romance, Kuunmong

Calligraphies have been practiced as a form of visual art while marginalia have been performed as an act of audience response. This research examines an exemplary case where calligraphy and marginalia are both executed on visual adaptations of literary texts. A Korean Buddhist romance *Kuunmong* (1687–88) was composed and then visually presented onto folding screens. Initially no writing accompanied, fragmentary inscription was later added onto the painting in an attempt to emulate a high art form of calligraphy —only resulted in mere marginalia for the quality of brushwork. Fine calligraphy was eventually appreciated as an essential part of visual texts when the novel *Kuunmong* was introduced to the English audience by James Scarth Gale in 1922. This case study reveals a cultural trajectory of textual marginalia contending with calligraphy, where they both demonstrate shared desire and common interests in the visual narrative, and it thus facilitates a cross-border approach to understanding written artefacts, concerning the visual reception of *Kuunmong* from seventeenth-century Korea to twentieth-century England.

Daria Kohler (Kondakova) (KU Leuven)

Inscription as a Mode of Literary Publication in Greek and Roman Antiquity

This paper presents an investigation into the relationship between stone inscriptions and papyrus rolls as two means of 'publication' of literary texts in Greek and Roman antiquity. While the bookroll was one of the main carriers of a literary text, inscriptions could also perform this function, with a visible cross-influence of these practices. In this paper, I will analyse inscription as a means of delivering a literary text to its intended audience, exploring the concepts of authorship, audience, and authority through a series of case studies of inscriptions and graffiti in Greek and Latin (3rd century BC – 2nd century AD).
Some of the questions this paper will address are: What difference does the addition of the author's name make for an inscribed literary text? Who are the readers of inscriptions, and how is the communication with them supposed to work? What does the immobility of the inscription change in its relationship to the audience, compared with the bookroll that can travel across space? How 'public' is a book and an inscription? And if one can choose between the two 'modes of publication', what are the reasons behind the latter?

Aden Kumler (Universität Basel)
Moneta Sacra: Counterfactual Numismatics in Carolingian and Ottonian Illuminated Manuscripts

Painted coins and coin-like medallions appear in a series of Carolingian and Ottonian illuminated manuscripts, chiefly Gospel books. Unlike the actual coins issued in the Carolingian and Ottonian domains, which were predominantly silver issues, the majority of the fictive monetiforms collected in the pages of the manuscripts are rendered as golden forms. In this respect, and in their motifs and legends, the coins minted by painting in these manuscripts diverged from coined

money beyond the manuscript page. This paper will argue that the fictive coins painted in these manuscripts amount to a premeditated tradition of counterfactual numismatics designed to advance theological and political claims. Tracing this tradition of counterfactual numismatics from its early flourishing in ninth-century manuscripts into the Ottonian period, the paper will explore how the issuing and collecting of fictive coins in illuminated manuscripts participated in conceptions of salvation as an economy.

Adeline Laclau (École Pratique des Hautes Études, Paris)

From Mamluk Barracks to Sultans' Libraries. A Case Study on an Original Production of Manuscripts in the 15th-Century Egypt

From the second half of the 15th century onwards, in Egypt, many manuscripts were produced within the military barracks and bear witness to the existence of a unique manuscript production in the Islamic world. From information reported by primary sources, few studies have already focused on education and intellectual life, as well as literature, in the 14th- and 15th- centuries Mamluk military circles but no in-depth analysis of the preserved manuscripts has been conducted so far. This talk will discuss the book production in military barracks and their reception by sultans and emirs through an in-depth study of a dozen illuminated manuscripts. It aims to highlight information and research perspectives that can be drawn from the study of these manuscripts in order to deepen our knowledge of the social and intellectual history, as well as the manuscript and artistic production, in the military circles of the late Mamluk period.

Jana Lambeck (Freie Universität Berlin)

Stitches in Time: Added Material in a Late Medieval Psalter Hamburg, Cod. in scrin. 149 (13th–15th Centuries)

The paper presents a case study of a thirteenth-century psalter from Saxo-Thuringia, which was repurposed in the late fifteenth century in the Cistercian convent of Medingen in Lower Saxony. As part of the reworking campaign(s), the nuns removed and added folios. They also cut two of the psalter's 13th century miniatures (the Annunciation and the Nativity) from the manuscript and sewed them into the quire as the first two folios using decorative cross- and zig-zag stitches with bright green and red thread. The presentation within the manuscript underscores their character of display, raising the question why the nuns singled out these two miniatures, highlighting them by sewing them into the quire rather than gluing them. The preservation of 'old' material owned by an institution, its reframing, as well as the addition of new material are well-known manuscript practices of the time. The paper will focus on the aesthetic practices of presentation at play in the example, tracing in particular the significance of textile work in convents in the late Middle Ages to evaluate the semantic potential of the stitches.

Ralph Lee (Oxford Centre for Mission Studies / Institute for Orthodox Christian Studies, Cambridge)

Encoding Catalogues

The EMIP Project digitised and catalogued thousands of Ethiopian manuscripts found in libraries in the US, Europe, and Ethiopia. Some published catalogues were produced, but given the scale of the data and the availability of high-quality images, the Beta maṣāḥǝft database provided a strategic opportunity to make the data widely available. The flexibility of Beta maṣāḥǝft and its self-checking community of editors made it the best choice. This presentation will summarise what has been done with EMIP records, and what remains from this collection, focusing on approaches used to provide as much basic information as possible; the challenges of producing image sets addressing problems of missed or duplicated folios. It will describe practical approaches using Excel spreadsheets to transform data in standard formats in Word or PDF format into XML code; and finally, a brief discussion of how Transkribus has begun to transform the approach to creating records.

Élodie Lévêque (Sorbonne University)

The Emergence of Bookbinding as a Specialised Craft in the 12th C. France

One of the common misconceptions regarding medieval bindings is that certain monks would have dedicated their time to bookbinding. However, recent research suggests that this was not so. An examination of the Clairvaux Medieval manuscripts collection allowed for a comparison of manuscripts bound in the monastery itself with those bound in an urban centre (probably Paris). What this comparison clearly shows is that, in Clairvaux, there was no "workshop" or bindery and no profession of bookbinder. Instead, a number of people with unrelated, although similar, skills (saddlers, coopers, tailors, shoemakers, etc.) would complete the necessary tasks. Conversely, in Paris or other large urban centres, there would already have existed binding workshops recognisably similar to a modern studio, in terms of division of labour and roles.
Since we have so little documented information regarding the lives of "ordinary" people in the Medieval world, being able to understand how monks were organised in the Medieval monastery, the different trades they engaged in, and the structures and materials they used to create books, provides a telling glimpse into their day to day lives.

Jialong Liu (Leiden University / KU Leuven)

Away from the Capitals: A Temporal and Spatial Analysis of Tang Public Inscriptions (618-907)

This paper studies public inscriptions that were carved or written on steles, walls, bells, or vessels in the Tang Dynasty, to which the public had access. Based on the Complete Tang Prose, a database including 1,617 public inscriptions is built. The An Lushan Rebellion (755-763) was the turning point of the Tang Dynasty. Correspondingly, the average number of epitaphs created per year

declined dramatically after it. However, the average number of public inscriptions created per year after the rebellion was even higher than before it. More public inscriptions were created per year from 763 to 826. A spatiotemporal analysis of the inscriptions proves that the two capitals were the centre of public inscriptions throughout the dynasty. However, their central position was gradually challenged in the mid-late Tang period. The number of public inscriptions in local areas increased significantly after the rebellion, particularly in Southeast China. It is generally believed that the Chinese economic centre began moving southwards after the An Lushan Rebellion. This research demonstrates that the centre of public inscriptions also gradually moved southwards after the rebellion.

Tom Lorenz (Norwegian University of Science and Technology)

Recycling vs Modification: Modes of Palimpsestation in Icelandic Manuscripts

The term 'palimpsest' refers to a specific type of manuscript reuse in which the original content of a manuscript, the so-called 'undertext' or *scriptio inferior*, is partially or completely erased through scraping or washing off the ink and other pigments, and substituted with new content, the so-called 'overtext' or *scriptio superior*, creating a new, multi-layered written artefact. This paper discusses palimpsest manuscripts from Medieval and early Modern Iceland regarding their material and textual composition, that is the interplay between *scriptio inferior* and *scriptio superior* as well as certain retained elements. Based on these palimpsests, it proposes that two distinctive subtypes of palimpsest manuscripts need to be distinguished: 1. palimpsest that are the result of the recycling of waste material as well as 2. palimpsests that are the result of manuscript modification. Furthermore, it argues that these two subtypes of palimpsest manuscripts are not confined to Iceland, but can also be found in other manuscript cultures.

Martyn Lyons (University of New South Wales, Sydney)

In Search of the Common Writer in the Modern Era: Unorthodox Genres, Improvised Materials

My research seeks to uncover and analyse the scribal culture of ordinary people in the modern era, in order to contribute to a New History from Below, giving voice and agency to the subordinate classes.
I identify some general characteristics of 'ordinary writings', before examining three examples of unusual artefacts. Common writers write in unorthodox genres, in their own vernacular style. Their materials were frequently improvised. They did not always apply standard protocols of grammar and orthography, and traces of oral speech and dialect are present in their texts.
These themes are all apparent in my three chosen documents: an Italian peasant's autobiography written on a bedsheet; a five-metre-long cloth scroll carrying a text embroidered by a workhouse inmate; the bark petitions of the Yolnga people, indigenous Australians claiming their ancestral land.
These three examples, representing unorthodox genres and improvised materials, demonstrate some of the characteristics and importance of ordinary writings in the so-called age of print.

Antonio Manieri (University of Naples L'Orientale)

The Kangoshō Genre and the Beginnings of Japanese Bilingual Lexicography (7th–8th Centuries)

The term *kangoshō* (lit. 'notes on Chinese words') refers to a type of bilingual Sinitic-Japanese dictionary that dates back to the early eighth century. These dictionaries, which are now lost and only survive through indirect transmission via quotations in the later *Wamyōruijushō* (Categorized Notes on Japanese Nouns, ca. 934), collected low-frequency terms primarily found in practical documents. They were likely organised according to categories and functioned as passive dictionaries consulted for assistance in comprehending unfamiliar Sinitic terms encountered in reading.

The paper will investigate what can be considered prototypes of the *kangoshō* genre, namely some hand-written wooden tablets, used to practice writing, that contain lists of words sharing a semantic relationship, such as meronymy, co-hyponymy, and antonymy.

Specifically, by providing new evidence from these sources, it will be argued that the *kangoshō* should be reconsidered as educational tools for learning terminologies, and that they were particularly valuable for the technical instruction of state clerks, whose cultural background may not have encompassed the competencies and specialised vocabulary necessary for their assigned office.

Divna Manolova (Université PSL-Observatoire de Paris, SYRTE, CNRS)

On How Scientific Manuscripts Make Readers Move: A Discussion of Scripts, Lines, and Colours in Byzantine Astronomical Diagrams

This paper focuses on a selection of multiple-text codices produced in Byzantium in the fourteenth and fifteenth centuries that collects and preserves introductions to a variety of scientific subjects such as number theory, geometry, cosmology and astronomy, astronomy and astronomical instruments, harmonics and the computus, among others. These scientific collections employ script, layout, negative space, colour, and a variety of tables and diagrammatic types in order to organise mathematical and astronomical knowledge.

In my discussion I focus on astronomical diagrams, tables, and schematic representations of astronomical instruments. I argue that the inclusion of multiple diagrams and schematic drawings which use letters, inscriptions, and colour, in addition to geometric shapes, creates affordances for the representation of movement within and for the execution of movements outside the manuscript codex. By means of analysing graphic representations characteristic for the medieval scientific manuscripts, I aim to test the hypothesis that one distinctive feature of such books is the type of complex dynamic 'reading-movement' of both eye and hand that they prompt, require, and train.

Leah Mascia (Universität Hamburg)

Pseudo-Scripts and Invented Signs: The Ritual Use of Writing in Roman and Late Antique Egypt

In Roman and Late Antique Egypt, pseudo-scripts and invented signs were used in the composition of a wide variety of ritual texts. The act of writing columns of pseudo-hieroglyphs on a coffin or a sequence of *charaktêres* on a lead curse tablet was primarily a sacred gesture meant to increase the ritual significance of these written artefacts. For instance, as the Greco-Egyptian magical handbooks inform us, the act of writing these unintelligible signs on ritual objects represented an essential stage in the performance of ritual procedures. While presumably originating within the native religious institutions or, at least, taking inspiration from traditional ritual compositions, these pseudo-scripts and invented signs long survived the decline of the Egyptian temples, being part of a ritual knowledge transmitted to practitioners with different ethnic and cultural backgrounds. The present contribution will explore under which circumstances these pseudo-scripts came into being, their value in reconstructing the ritual procedures associated with these practices, and how their uses and functions changed after the decline of the Egyptian temples and the rise of the Christian religion.

Leah Mascia (Universität Hamburg)

Cultural and Religious Identity in Roman Egypt: Texts and Paratexts in a Funerary Context

The funerary practices of Roman Egypt well reflect the results of the long coexistence between native and foreign inhabitants. Coffins, funerary textiles, mummy cases, and canopic chests continued to be inscribed in the Roman period with ritual inscriptions in the Egyptian language. On the other hand, many of these funerary artefacts also preserve Greek inscriptions providing essential information for the identification of the deceased. Interestingly, these latter texts were often scribbled in spaces apparently not meant to host inscriptions but rather originally occupied exclusively by decorative programmes. In this sense, many of these Greek inscriptions should be considered as later paratextual additions that probably reflect a different stage of the funerary praxis, a different audience and perhaps a different agency. While the Egyptian ritual inscriptions remark on the long continuity in the Roman phase of a tradition dating back to the Pharaonic period, these paratextual elements inform us of the adaptation of the native customs to the multicultural society of Greco-Roman Egypt. This paper aims at demonstrating how an in-depth examination of these funerary artefacts and their contexts might help us in understanding the reasons behind the origins of this textual production.

Rosamond McKitterick (University of Cambridge)

Continuities and Innovations: Approaches to Text and Paratext in the Medieval Book

The presentation of a text to a reading public in any medium may provide evidence, either of an accommodation to the expectations of anticipated readers, or of the stimulation of new ways to

read a text. How a text was received by a scribe, letter cutter or printer, as well as how, why and in what circumstances the text was then presented, either as a record for the first time, or in reproducing it in relation to a new context, remain among the underlying considerations in any study of written artefacts. The role of 'paratexts', that is, all those elements in text presentation other than the main text in the extraordinary range of new text formats and new types of books created in late antiquity and the early middle ages, will be considered in this lecture. Identification of continuities and innovations in relation to possible precedents and models, as well as an imaginative engagement with the potential needs of new readers, provide a means of tracing how a text could be communicated across time and space.

Amy McNair (University of Kansas)

From Epigraphic to Decorative: Xu Sangeng and the Divine Omen Stele

The anonymous *Heaven-sent Divine Omen Stele* was an engraved stone record of the discovery of a supernatural inscription that appeared in 276. The inscription was taken as an omen to validate the rule of Sun Hao (r. 264-280). Long in fragmentary condition, the stele was destroyed in 1805. In the form of ink rubbings, its extraordinary calligraphic manner was noted by eleventh-century epigraphers in China, and it was celebrated during the epigraphic school calligraphy movement that began in the seventeenth century. Remarkably, its archaic seal-script characters were written in clerical-script brushwork.
Xu Sangeng (1826–1890) was a professional artist who followed the vogue for taking epigraphic styles as the basis for personal, highly-recognisable calligraphy modes. In an inventive recreated transcription of the *Divine Omen Stele* made by Xu in 1861, he not only transformed its fragmentary text into unbroken columns of standardised characters, but he also transformed the archaic look of the original characters into a distinctive design aesthetic. How did Xu recreate the text? How did he fashion his characters? To what extent was Xu's intent epigraphic or decorative?

John McEwan (University of Saint Louis)

From Archives to Archaeology via Machine Learning: Dating Medieval Seal Matrices Using Archival Catalogue Data

The paper discusses the application of machine learning to the study of Western Medieval cultural heritage, specifically the dating of seal matrices recovered in archaeological contexts. Seals were used in the Western Middle Ages to authenticate records, and seal matrices provide crucial evidence for understanding people outside the nobility. However, to date a matrix, a scholar looks for similar seals among dated seal impressions from the same region, which is laborious. Scholars have therefore only properly dated a fraction of the existing seal matrices. Machine learning can be used to overcome this obstacle, but this requires tens of thousands of dated examples to train the computer, which until now was difficult to gather. The DIGISIG project offers records for over 42,000 seals, and the author has built a machine learning tool that uses this data to date seal matrices. The study tested various ML approaches and identified the algorithm

that provided the most reliable results. The training dataset has been prepared for deposit in a public data repository so that other scholars can replicate the study.

Cécile Michel (Ethics Working Group)

Written Artefacts: Research and Ethics

Members of the Excellence Cluster "Understanding Written Artefacts" (UWA) study written artefacts from past and present and from around the globe in an interdisciplinary approach involving humanities, natural sciences and computer sciences. Research on written artefacts as cultural heritage requires a global perspective that is sensitive towards different research contexts and attitudes in states and societies. It must be carried out in accordance with ethical and responsible and research practice. The "Centre for the Study of Manuscript Cultures" Ethics group has provided the Cluster with the "Ethical and Responsible Research at CMSC" document helping scholars facing ethical dilemmas. This document was approved by members of UWA in November 2021. Its recommendations are also meant to drive forward the discussion of what ethical research on written artefacts means when working on different periods, different materials and different regions.

The three round tables organized in the panel "Written Artefacts: Research and Ethics" propose to pursue ethical reflection through exchanges on these three themes between leading national, European and international representatives from the world of research, politics and non-governmental organisations. These round tables follow the themes developed in the "Ethical and Responsible Research at CMSC" document:

a) Researcher: between ethical behavior and liberty of research, relationships with other researchers, institutions, states and society.

b) Written artefacts as cultural heritage: the ethical treatment of the artefacts in terms of provenance, return to the country of origin, education of the public concerning cultural heritage and illicit trafficking.

c) Data: application of the principles FAIR (Findable, Acceptable, Interoperable, Reusable) and CARE (Collective benefit, Authority to control, Responsibility, Ethics) in producing and handling digital objects and the data researchers produce and use during their research.

Gregor Meinecke (Universtität Hamburg)

Collectors of Scripts. Andrea Mantegna and Bernardo Parentino at the Court of Isabella d'Este

My poster presentation uncovers the use of pseudoscript as an artifice of Italian renaissance paintings and takes the court of Mantua as well as the role of Isabella d'Este as an example. Her humanist advisor, Paride da Ceresara, studied Hebrew and plays a crucial role for the appearance of writing in Isabella's commissions, for he supplies her with samples of so called "Holy letters." Their correspondence proves Isabella's interest in historic authenticity of script images, which appear in the paintings of her court artist, Andrea Mantegna. His paintings *Ecce Homo, Sibyl and Prophet* and *Minerva chasing the Vices* are full of pseudo-Hebrew letters and evoke a biblical or

even *sacred* context. In addition to that, Mantegna's student, Bernardo da Parenzo, was also working for Isabella d'Este and used an identical script image in his *Temptations of St Anthony*, which he painted around the same time as Mantegna. My poster juxtaposes Isabella's correspondence with Paride to the mentioned paintings in order to understand the importance of script images for humanism and paintings around 1500 in the Italian Renaissance.

Anuj Misra (University of Copenhagen)

Drawing Lines on Paper: Modernity, Mathematics, and Materiality in Sanskrit Manuscripts

The manuscript traditions of Sanskrit astral sciences contain a variety of methods in which mathematical, astronomical, and calendrical tables were committed to paper. The numbers and symbols displayed in grid-like tables were a representation of the computational relationships between them, and quite often these representations were conditioned by the physical dimensions and layouts of the material mediums on which they were written. Through a sequence of illustrative examples, this talk explores how the pre-ruling of grids on empty paper folia (before being filled with numbers) allowed for modernity, mathematics, and materiality to contend and cooperate in late medieval and early-modern Sanskrit table-text cultures.

Ralf Möller (Universität zu Lückeck)

Data Linking Supported by Generative AI

Data linking research in UWA investigates the development of standardised information systems for (humanities) dataset archives stored in long-term research data repositories (RDRs) in general and in the RDR of UniHH in particular. Users interested in research datasets for specific purposes can use search facilities (Google or internal RDR search) to find datasets in RDR as usual, but, in addition, focusing on specific RDR entries, information systems for data viewing can be started on the fly (with underlying database facilities started on demand). Due to our research, for the first time, respective parts of computed presentations of data shown in these information systems can indeed be cited by users. Based on possible citations, and using techniques from generative AI (GenAI), data linking supports the inclusion of UWA data in RDR archives into humanities large-language models for question answering, such that natural language queries can be posed to the RDR (and its information systems) to investigate UWA datasets and research papers. Answers given by GenAI systems are equipped with explanation or justification links to underlying information system presentations (and possibly web resources) from which answers are extracted, together with useful follow-up questions. Based on GenAI and natural language queries, users can jump to conclusions by easily navigating to respective information system presentations for investigating details about datasets in RDR. In the presentation, recent advances to achieve the above-mentioned goals of data linking in UWA are presented. The systems we developed are relevant for ongoing research, and also for FAIR principles of long-term storage.

Hussein Adnan Mohammed (Universität Hamburg)

Pattern Analysis for Written Artefacts

Scholars studying written artefacts generate an increasing amount of digital data, which comes in different modalities and formats. Manual analysis of this data is typically time-consuming and prone to errors and biases. Therefore, computational methods can facilitate more efficient studies and benefit from rapid advancements in pattern recognition and machine learning.
Computer vision approaches can be utilised for a variety of important tasks on the visual modality in research data, such as scribal hands identification, pattern detection and layout analysis. Natural language processing is another field of research which can be very useful in analysing textual modalities such as transcriptions, descriptions, and scholarly editions. Other modalities of data can benefit from the utilisation of machine learning approaches, such as physical measurements and tabular data generated by advanced acquisition techniques.
In this talk, an overview of the developed approaches in the CSMC will be presented along with actual use cases from Humanities research. Furthermore, an outlook of current and future research will be presented.

Ettore Morelli (Universität Basel)

The Writing of the Shades, and of Tlali and Tsekelo Moshoeshoe: Speaking, Engraving, Drawing, and Writing in Lesotho and Cape Town, 1858

What is the difference between drawing, engraving, and writing? What is their relationship with orality? This paper investigates these questions starting from the processes of transcription of a previously oral African language, Sesotho. The case study is a handwritten hardbound manuscript from 1858, now housed at the National Library of South Africa, in Cape Town. The authors, Tlali and Tsekelo, were the sons of the first king of Lesotho Moshoeshoe and among the first Basotho to write in their language, after two French missionaries started to transcribe it two decades earlier. The paper studies the Sesotho word that they adopted to define their revolutionary act, *ho ngola*, which meant 'to engrave', 'to draw', and which was used in Lesotho for the San rock art of the Maloti mountains. In at least one occasion, such drawings were reputed to have been made by the 'ancestors'. Partially written as spoken, the manuscript by Tlali and Tsekelo is therefore a complex matrix which seems to contain most of the forms that a language can take.

Alessandro Musino, Stefano Valente, Eva Wöckener-Gade (Akademie der Wissenschaften in Hamburg / Universität Hamburg)

Crossroads of Knowledge in Greek Lexicographic Manuscripts: Exploring Mutual Interactions between the Etymologicum Gudianum and the Etymologicum Genuinum

In the Greek Middle Ages, a considerable number of lexica were produced in contexts of learning and scholarship. Usually, lexica were not regarded as fixed texts but each new manuscript might

transmit a revised or enhanced version of older lexica, adapting the contents to the changing interests and needs of new generations of users. In this intense cultural and material process of reshaping form and content, the boundaries between different lexica blur.

These entanglements are particularly evident in the manuscripts transmitting two outstanding and closely related Byzantine Greek lexica, the *Etymologicum Genuinum* (9th c. CE, Constantinople) and the *Etymologicum Gudianum* (11th c. CE, Southern Italy). In presenting and discussing the mutual interactions in several written artefacts of particular importance for the transmission of both lexica, we aim to illustrate some core dynamics of knowledge transfer in the Medieval Greek Manuscript Culture.

Chapane Mutiua (Centros de Estudios Africanos, Universidade Eduardo Mondlane)

The Role of Paratext in a Multilingual and Multiliteracy context of Portuguese Mercantile Imperialism

When the Portuguese arrived in the Western Indian Ocean in 1498, they had to use in the administration of their mercantile empire different literary traditions and languages for correspondence and reports, as is evidenced through the manuscripts hosted in the archives in Mozambique, Portugal, Zanzibar, and Goa. This paper aims to describe the types and functions of paratexts produced in the context of the Portuguese mercantile imperialism. It argues that long distance trading network involving different cultural hubs influenced the process of multiliteracy manuscript production, as the use of written speech became fundamental and the interaction of the different literary traditions became a way of expressing different identities of the region that led to the production of different types of paratexts with diversified roles and meanings.

Viviana Elisa Nicoletti (Österreichische Akademie der Wissenschaften) and Patrick Layton (Akademie der Bildenden Künste Wien)

Recovering the Methodology and Materiality of the Books of Kosterneuburg Abbey. Bindings, Materials, and FTIR Spectra

As part of the ABC project, more than 400 medieval bindings are being systematically described for the first time, with special attention being paid to the materials and manufacturing techniques. Traces of repairs over the centuries, some of which used similar materials, methods, and tools, will also be recorded in detail – be it original or added later. At the junction between codicology and scientific measurements, these investigations form an essential basis for a correct evaluation of the data obtained. (VN)

The aim of this work is to systematically investigate the potential of infrared spectroscopy for the non-destructive dating of written materials, including their bindings. Using the External Reflectance (ER) module of the Bruker Alpha II Fourier-Transform Infrared (FTIR) instrument and multivariate statistical analysis, a calibration set is developed using well-dated manuscripts. This work aims to demonstrate that the use of FTIR is a viable method for dating. (PL)

Nina Niedermeier (Deutsches Studienzentrum in Venedig)

From Handwriting to Printing and Back –Illuminated Ester Scrolls as a Hybrid Medium

In the Hebrew handwriting tradition, the reproduction of sacred texts on horizontal parchment scrolls is bound to most accurate instructions on textual sources, calligraphic norms, and material qualities of the writing utensils. In order to ensure the perpetuation of the original wording, the Jewish scribe (sofer) has to write not by memory but to copy from an accurate textual source. In contrast to the Torah scrolls, which did not absorb medial innovations of recent writing cultures and therefore stuck to their appearance over the centuries, the Esther scrolls (Megillot Ester), however, have changed their features fundamentally in the early modern period. Particularly when produced for private devotion from the second half of the 16th up to the 18th century, they display engravings, ornamental decorations, narrative illuminations and colorations, altogether elements, which do not derive from the antique textual source, but from the medial and artistic innovations of current cultures. Including freely designed images together with handwritten text, copied from the antique textual source, early modern Esther scrolls could be referred to as a hybrid medium, bringing together innovation and tradition.

Hagit Nol (Goethe-Universität Frankfurt)

The (un)Forgotten Dipinto Texts of Early Islam: Chronology and Distribution

Primary sources from the Islamicate World prior to the mid-9th century are limited in scale and in geography, mainly including papyri and engraved graffiti. Another type of source, not as common and often understudied, is the *dipinti* (lit. painted): texts which are inscribed by ink or pigment. Dipinti comprise writings on structures, objects, artefact fragments, and raw materials. The main advantage of these texts is the physical durability of the materials which has led to their world-wide survival in various conditions. This durability allows for a comparison between areas and rethinking 'centres' of literacy. Another advantage is archaeological, allowing for a comprehensive synthesis of a broad region, which is rarely possible. In this talk, I will present primary results from working on dipinti of the 6th to the 10th century in Africa, Europe, and West Asia. I will focus on the chronology of dipinto-inscribed finds from excavation contexts in three sub-regions — Egypt, Iraq, and Jordan-Israel/Palestine. A chronology could imply networks, centres of innovation, and diffusion of writing.

Denis Nosnitsin (Universität Hamburg)

Manuscript Making Photographed: Scribes and Their Work as They Appear in Early Photographs from Ethiopia and Eritrea

Starting from the second half of the 19th century, the arrival of Europeans in the Horn of Africa yielded a growing amount of photographic material. Images related to the local manuscript culture also occur among those photographs, including a few that show Ethiopian or Eritrean

scribes at work. The presentation deals with several photos of a scribe taken by the German scholar C. Troll in the *Colonia Eritrea* in 1930s, a Baratti postcard from the *Colonia Eritrea* showing a writing monk, and a photo of a scribe at work printed in 'Quarterly Notes' of the London Society for Promoting Christianity among the Jews in the beginning of the 20th century. There is some uncertainty about the original purpose, the location and time of the creation of those photos. However, they show details of the scribal equipment hardly known before and situations of which we otherwise learn only from the literature. Old traits of the scribal work appear along with some striking innovations, visualising the adaptation of the local scribal culture during the gradual transition to modernity.

Anne Peiter (Université de la Réunion)

Manuscripts under the Ashes. On the Survival of Written Testimonies of Murdered Prisoners of the Auschwitz-Birkenau Extermination Camp

Buried in glass bottles at Auschwitz, manuscripts have survived that were written by prisoners in the hope of providing information about the monstrosities that befell them. In fact, none of the men who wrote these testimonies survived the extermination machinery. The texts, on the other hand, although partially spoiled by humidity and no longer readable, have come down to posterity.

In my contribution, I would like to discuss an editorial problem, the importance of which the editors do not seem to have been sufficiently aware: In the book, omission marks are used to indicate where a word or words could no longer be deciphered. However, these marks are not used in a differentiated way, i.e.: Whether the « spoiled » of the manuscript concerns only a single word or rather longer passages, this is not recognisable for the readership.

The purpose of my contribution is to illustrate in detail the problems that arise in relation to the disappearance of writing for the reception of the manuscript as a whole.

Metoda Peršin (Freie Universität Berlin)

Potmarks in the Bronze Age Lebanon: The Lebanon Potmark Database as a Medium for Understanding the Visual Communication in the Levant

Potmarks, often defined as isolated signs located on ceramic vessels, represent an important remnant of the Bronze Age visual communication. They have been found at many sites across the Near Eastern region and interpreted in various ways. Potmarking practices from the Bronze Age Lebanon were until recently almost unknown and the present paper represents the first comprehensive potmark dataset coming from the area. The Lebanon Potmark Database (LPD) was created to aid the analysis of the studied marking practices. With noting dozens of parameters for individual potmarks, focusing on their carriers and contextual information, and cross-referencing these parameters with the use of computational and statistical approaches in order to obtain patterns of use, this research provides new data on the communication in the Levant.

It furthermore ventures into the realm of other contemporary systems of graphic information processing, and examines their inter-relations with one another and the Byblos script.

Fiona Phillips (University of Oxford)

Karian Writing. Analysing What Survives and Glimpsing What Was Lost

Of all the alphabetic scripts of pre-Hellenistic Anatolia, Karian is uniquely befuddling. Although it resembles Greek (and Lydian, Lycian, etc.), familiar Karian letters encode unexpected sound values. The relationship of the early Karian and Greek alphabets can be better understood via their intertwined epigraphic cultures. This paper argues that discontinuity in Karian-language inscribed habits encouraged rapid deviation of epichoric scripts, much unlike how the continuous usage of Greek promoted consistency in the same region. Formal development of Karian presumably occurred in now-lost perishable formats. This approach can in turn be used to critique the dominant hypothesis for explaining the peculiar origins of Karian: a similar process of 'cursivisation' and 'restandardisation' from a Greco-Phrygian model (esp. Adiego 1998, 2007, 2018). That hypothesis is compromised by quantitative analysis — both on account of the weakness of Karian-script epigraphic culture, and on the improbable timescale for cursivisation at the origins of Karian rather than its final centuries.

Ali Mashhadi Rafi (Farhangian University of Alborz)

Key Indicators for Identification of the Persian Epistolography Handbooks from Safavid Era (1501-1722)

Handbooks for Persian Insha (=epistolography) are among frequent titles in Persian manuscripts collections of the world, which have been catalogued mostly under some formal titles i.e. Monša'āt (منشآت) or Tarassol (ترسل). During the reign of Safavid dynasty over Persia (1501-1722), by considering the increased need of the governmental bureaucratic system, in which a huge number of scribes for official correspondences worked, Persian epistolography reached a notable level of perfection. As a result, a new format for epistolary handbooks was normally prepared and compiled in form of pocket manuscripts aiming to instruct young scribes. This new format characterised itself both in terms of appearance (size, script, paper, illumination, etc.) and the content (text structure, chaptering, literary style, etc.).
This article aims to identify and introduce the characteristics of Persian epistolography handbooks from Safavid era as well as to introduce a series of key indicators for identification of this kind based on the key features of the existing examples in terms of appearance and content.

Lucia Raggetti and Marianna Marchini (University of Bologna)

The Stage Magic of Writing. Written Artefacts for Entertainment and Deception in Arabic Technical Literature.

The Arabic tradition (12th-15th cent.) has preserved four treatises all dedicated to the technical knowledge that lays the foundations of entertainment and deception. The court and even more the streets were the stages of these performers, and these two worlds tapped into the same technical knowledge: 'street science' shared the same interests of its erudite counterpart. Writing, in general, plays a central role, and ordinary inks find place in these handbooks next to more extravagant substances and procedures. The replication of the material reality behind the texts helps differentiating the technical elements from the literary ones, and allows to define the kernels of knowledge that constituted 'street science'. Moreover, the reconstruction of the performance opens a fresh perspective on the position that writing and written artefacts occupied among people, involving their cognitive dimension and shared knowledge.

Ariles Remaki (ERC Philiumm, CNRS)

Genetic Method on Tabular Practices: How to Think about the Writing of Tables?

In mathematical sources, the table is a very special diagrammatic artefact because it can accommodate a lot of implicit reasoning within it. The handwritten table has another property: it allows actors to inscribe procedures and algorithms diachronically in time, which are then rendered invisible to the observer, who has no choice but to look at the source synchronously. Leibniz's early work on differential calculus and quadrature problems is a remarkable illustration of this specificity of tables. Indeed, the table constitutes one of the main methodological tools on which the young philosopher relied to develop his mathematical heuristics. The genetic approach of the manuscripts is thus a natural way to study the way in which the tables are inscribed in the practice and thought of the actors, but it is also the means to highlight the eminently problematic character of these diagrams for the historian of mathematics.

Alex Rodriguez Suarez (independent researcher)

Reading the Religious Soundscape: The Epigraphy of Jerusalemite Bells

The bells of Jerusalem have not received much scholarly attention. While their sound is a significant element of the religious soundscape of the holy city, no major study has been devoted to the instruments. This paper will focus on these unknown artefacts by looking at their inscriptions. Bell founders and donors could inscribe messages on the bronze instruments, for instance, their names and the date of production. Through their examination we learn that most bells in the city were cast abroad, mainly in Italy, Russia, Germany, Greece, United Kingdom, and Spain, countries that supported the local Christian communities. Indeed, the production of bells in the Holy Land emerged late and did not last long. Depending on where the artefacts were cast, their

inscriptions could also include other details such as the weight. Thus, different religious denominations and casting traditions resulted in a distinct way to inscribe bells. Moreover, the analysis of the information provided by bells from several churches and monasteries, both Catholic and Orthodox, sheds light on the introduction and expansion of bell ringing in Late Ottoman Jerusalem.

Kristine Rose-Beers (Cambridge University Library)

Following Threads: Materiality as an Indicator of Provenance in Islamic Bookbindings

This paper will explore the role that identification of specific features can play in dating and locating Islamic manuscripts. Both historic binding characteristics and repairs made throughout the lifetime of a manuscript may be indicative of the original production place of an object, as well as the peregrinations made throughout its lifetime. Endbands, board attachment, and board materials may suggest specific production locales, whilst the papers or spine treatments used to repair a manuscript may give an indication to who repaired them. Similarly, analytical examination can add to our understanding of local production techniques or uncover previously hidden information which can be used to confirm later interventions. Using examples from international collections, this paper will discuss ways of looking and the lifetimes of the manuscripts that can be revealed.

Kuniyoshi L. Sakai (University of Tokyo)

Better Brain Use by Writing on Paper than on Tablet or Smartphone

We compared three groups of participants who wrote down the scheduled appointments on a calendar using a paper notebook (Note), an electronic tablet (Tablet), or a smartphone (Phone). Contrary to the popular belief that digital tools increase efficiency, the Note group completed note-taking about 25% faster than the other groups. During the retrieval phase, brain activations, measured with functional magnetic resonance imaging (fMRI), were significantly higher for the Note group than those for the Tablet and Phone groups. The significant superiority in both performance and activations for the Note group suggested that the use of a paper notebook promoted the acquisition of rich encoding information and/or spatial information of real papers, and that this information could be utilised as effective retrieval clues, leading to higher activations in the bilateral hippocampus, visual cortices, and language-related frontal regions [*Front. Behav. Neurosci.* **15**, 634158, 1-11 (2021)]. The unique, complex, spatial, and tactile information associated with writing by hand on paper is likely what leads to improved memory, and gives brain more details to trigger memory that can be utilised in creative thinking.

Paolo Sartori (Österreichische Akademie der Wissenschaften)

Like an Image in a Rearview Mirror: Vernacular Ethnography and Archival Blind Spots in Khiva

In a recent study, I have argued that the Central Asian documentary collection known as the 'Archive of the Khans of Khiva' represents in fact a colonial aggregate of records, most of which were destined to be disposed of after their perusal by court chroniclers and which were rescued in 1873 by the Russian military. While a centralised archive administered by a khanal chancery never existed in Khiva, at the same time one can discern a broader culture of documentation which consisted of various writing practices and record-keeping activities. Not always, however, is immediately clear why specific records that have come down to us were crafted and preserved in Khiva. One such record is a genealogy of the Turkmen, i.e., a legendary narrative of the birth of a Turkmen tribe, which is clearly reminiscent of local hagiographical traditions. The text in question has for long deified categorical description in Uzbekistan and therefore it has been carefully avoided by historians. My aim in this paper is to offer two alternative interpretations of this record and suggest a way to elicit meaning from the culture of documentation which evolved under the rule of Khans of Khiva.

Murtaza Shakir (Aljamea-tus-Saifiyah)

Conversing with the Inverse: Contextualizing the Inverse Calligraphy in the ṭirāz of the Fatimid Era

While Fatimid ṭirāz has been admirably preserved and analysed from various perspectives by scholars of Islamic art, the purpose of this paper is to contextualise the often eschewed feature of 'inverse calligraphy' observed on Fatimid ṭirāz, in the light of Fatimid philosophy. This type of arrangement of two pairs of inscriptions facing each other is typical of Fatimid textile art. This study will try to deepen our observation and interpretation of the creative representation of parallelism in the usage of such inversed inscriptions on these particular textiles. For the onlookers of such ṭirāz worn by the Fatimid Imams in their grand processions or for the seekers of its sacredness, these ṭirāz textiles stand witness not only to the opulence of the Islamic art of the Fatimid era, but also to the extensive scope of its artistic appeal that goes far beyond the commonly perceived dichotomy of the secular and the sacred. This paper shall focus on a few ṭirāz specimens from the era of the Fatimid Imam-Caliph al-Mustanṣir billāh (1036 CE- 1094 CE), currently preserved in the Cleveland Museum of Art in Ohio, the Victoria & Albert Museum in London, the Museum of Islamic Art in Cairo, and the Royal Ontario Museum in Toronto

Ondrej Škrabal (Universität Hamburg)

Documenting Graffiti Past and Present: Disparate Traditions, Shared Objectives

Historical graffiti and contemporary graffiti are often regarded as two incommensurable entities: The former have been recognised as invaluable sources for the study of long-perished soci-

eties, while the latter are commonly perceived as acts of vandalism that pollute urban landscapes. However, our society has reached the point where the interest in documenting modern graffiti goes far beyond prosecutors and police departments: linguists, art-historians, sociologists, cultural anthropologists, human geographers – to name just a few – constitute a research cohort relying on collection and analysis of wall-written data. The demand for recording graffiti in today's towns gradually matches that for salvaging scribblings from ancient sites. To be sure, the sheer scale of these two enterprises can hardly be equated, yet many of the methodological and technological issues and challenges are common for both: the need to process overlapping layers, disentangle elements in the textual and pictorial mass, identify units for cataloguing, link them to preserve their immediate context, create overarching ontologies, provide for digital storage and retrieval, and maintain the digital platform are just a few touchpoints between the study of historical and modern graffiti. A number of collaborative projects sets the pace in formulating best practices for documenting graffiti; however, the exchange of ideas has typically been disciplinarily circumscribed, limiting itself to particular subfields of archaeology, history, art history, or linguistics, while links between historical and contemporary graffiti studies have often been purposefully avoided. Rather than further deepening the perceived abyss between the two fields, this panel brings the two parties together to share their experience, explore possibilities of learning from one another, and identify steps towards mutually beneficial collaboration.

Alessio Sopracasa (Sorbonne University & CNRS - UMR 8167 Orient et Méditerranée, Paris)

Creating a Sigillographic Search Engine for Byzantium: Preliminary Results

The Byzantine Empire has a lack of documentary evidence, but the seals that accompanied the documents have survived in large numbers, providing information on various research fields in Byzantine Studies. The ANR/DFG project DigiByzSeal aims to use digital presentation to enable new understandings of Byzantium and its written culture by transforming Byzantine Sigillography. The project focuses on SigiDoc 1.0, which provides an XML-based and EpiDoc-compliant encoding standard for the digital scholarly edition of Byzantine seals. The DigiByzSeal team is working on the first scholarly digital edition of approximately 4,000 seals, which will be freely downloadable and based on open-source software. The goal is to create a centralised hub for Byzantine Sigillography, with a unified federated search interface for all seals encoded with SigiDoc, based on a highly customised and enhanced instance of EFES (EpiDoc Front-End Services - https://github.com/EpiDoc/EFES). This paper presents the preliminary results of the unified search interface and discusses its methodology and challenges, while showing how the project promotes open and accessible information and overcome the issue of accessibility and lack of interoperability in Byzantine Sigillography.

Rebecca Sturm (Deutsches Literaturarchiv Marbach)

Between Literature and Performance. Stage Scripts as Written Artefacts

In this paper, I want to highlight stage scripts as a specific kind of written artefact found in the archives of theatre publishing houses. They are neither intended for publication nor is it their ultimate purpose to be read, but instead to reach a wider audience through their realisation on stage. The stage scripts of Henschel Schauspiel, which occupied a monopolist position as the sole East German theatre publishing house, are particularly interesting, as they provide much more information than just the dramatic text itself: stamps and sign-offs of approval by GDR state officials render the political conditions and party-state oversight visible under which Henschel and East German theatres operated. The stage scripts are also filled with handwritten comments and corrections by authors, translators, or editors, sometimes across several versions that show revisions over years or even decades.

With literary studies' focus on drama as a text to be read, and theatre studies' understanding of a drama's realisation on stage being its primary purpose, stage scripts invite both approaches, and form a crucial link between the two perspectives.

Barend ter Haar (Universität Hamburg)

The Extra-linguistic Use of Written Signs in Chinese Religious Practice

Writing is not always used to convey a message and there is even a body of writing in Chinese ritual (including ritual healing and politico-religious activities) which uses symbols which can and often do operate independently of reading or pronouncing them. In this paper I look at two groups of such symbols or signs, namely a. the Eight Trigrams (乾 Qián ☰, 巽 Xùn ☴, 離 Lí ☲, 艮 Gèn ☶, 兌 Duì ☱, 坎 Kǎn ☵, 震 Zhèn ☳) and the 64 Hexagrams from which these are derived; and b. so-called talismans, amulets or charms, which may contain more or less regular Chinese characters, simple pictures of divine figures and completely abstract symbols all in one representation. These signs can be recited aloud, at least in part, but very commonly they are represented to act as a numinous force, to protect prophylactically or to exorcise some kind of demonic force.

Antonina Tetzlaff (Warburg Institute, London / Universität Hamburg)

'aiutando l'arte con le parole'? – Evaluating Writing as a Visual Component of Images in the Italian Renaissance Art Theory

The misconception that Italian Renaissance art and the use of writing in pictures are incompatible seems to be backed by art theory, when Vasari's derogatory anecdote in the *Vita* of Buffalmaco is referenced as the only prominent example. He refers to the use of inscriptions as *gofferia* (Vasari: *Le Vite* (1568), I, 512). At a closer look though, the picture becomes less clear. Assessments of image-script-ensembles are both surprisingly scarce and contradictory. They can range

between rejection as a 'cheap trick' for incompetent painters and skilful solutions for complex ideas.

My paper will trace the various statements of art theory on the subject, to reveal a more differentiated picture of the theoretical debate that forms the basis for practical artistic implementation. What are the most important arguments for and against inscriptions? Were there particularly scripture-friendly or particularly scripture-hostile phases or intellectual environments? Subsequently, Vasari's and Paolo Giovio's theoretical positions will be related to their frescoes of the *Sala dei Cento Giorni* (Rome, 1547), to confront theoretical demands with practical implementation. Does Vasari do justice to the debates, or do theory and practice diverge in this example?

Susana Torres Prieto (Harvard Ukrainian Research Institute)

Travelling Books: from Archive to Canon in Kyivan Rus'

An analysis of the catalogues of monastic scriptoria in Kyivan Rus', to the extent to which we can confidently reconstruct them, has enabled us to trace down the networks in which the codices travelled from Kyiv to the rest of the monastic foundations in Kyivan Rus'. Using the MAPA module on "The Golden Age of Kyivan Rus'", and drawing evidence not only from the few colophons we have, but also from linguistic, palaeographic, and codicological analysis, I have been able to draw a map of travelling codices from and to monastic scriptoria in Kyivan Rus', and beyond. This map not only shows the relevance of certain works in certain areas, but also allows us to understand which works were available to whom, where, and when, so we might be able to understand the possibilities and accessibility that the authors of the newly converted Rus' had to previous sources. It is under this new material approach of accessibility that we can start understanding the shaping of the literary canon that subsequently emerged.

Scott Trigg (Université PSL-Observatoire de Paris, SYRTE, CNRS)

Manuscript Diagrams as Tools of Reasoning in Islamicate Astronomy

In this talk, I explore examples of manuscript diagrams as specific physical objects found in several Islamicate astronomy texts and commentaries produced from the 13th-16th centuries, arguing that diagrams were not merely helpful visual aids but in fact fulfilled a vital function as tools of reasoning, reflecting specific ways of thinking about problems, concepts, and models in astronomy and communicating these thoughts to other readers/viewers. Diagrams not only helped to illustrate celestial phenomena, but served as a crucial means by which astronomers could visualise problems associated with the three-dimensional structure of complex astronomical models, propose new solutions, and analyse and critique the work of their predecessors. This re-focusing on the visual and material dimensions of Islamicate manuscript diagrams highlights their function as creative tools of reasoning and communicating knowledge in ways that text alone could not, and opens the way to new approaches to studying the cross-cultural transmission of astronomical models in the medieval and early modern period.

Nazlı Vatansever (Universität Wien)

On Categorization of Ottoman MTMs: Criteria, Method, and Practice

Particularly during the last twenty years, research has proved that creating Multiple-Texts Manuscripts (MTMs) was a very common practice for all manuscript cultures. As for the Ottoman MTMs, the vast majority of academic studies on these manuscripts so far have been dominated by an attempt to identify and categorise them. This paper focuses on the criteria and methods for the categorisation of Ottoman MTMs (*mecmua*s) based on the compilation practices of their compilers. This paper asks to what extent the attempts made so far by researchers to categorise Ottoman MTMs correspond to the compilation practices of their compilers. The arguments of this paper are based on the Ottoman book titling tradition as well as the formal characteristics of Ottoman MTMs as written artefacts. Finally, this paper proposes a classification method for the categorisation of Ottoman MTMs based on the criteria of the compilers of these manuscripts.

Jochen Hermann Vennebusch (Universität Hamburg)

Leaves, Busts, Letters. Filling Space in Inscriptions on Medieval Bronze Baptismal Fonts

In northern Germany, a remarkable number of medieval bronze baptismal fonts have survived. Besides very different relief applications, a majority of the baptismal fonts have extensive, often elaborately executed inscriptions that provide information about the donation or the production of the artefacts or also explain theological aspects. A great variance in the ways these inscriptions are arranged can be observed, which is often due to the production technology. In addition to the individual characters, the word separators and initial markings as well as the disposition of the spaces between the words have to be taken into account. It can be assumed that, apart from technological aspects, content-related and conceptual reasons also determined the respective design of these inscribed spaces. On the basis of some examples of bronze baptismal fonts from the 14th and 15th centuries, these different ways of filling space (in the broadest sense) within inscriptions will be examined.

Laura Vermeeren (University of Amsterdam)

Yearning for Rice Paper: Chinese Calligraphy in the Digital Domain

In China, the fear of the decline in handwriting skills due to our global move from print-based reading and writing to the production and consumption of digital and screen-based representation remains pervasive. It bears significant implications for culture, identity, and national heritage. New technologies, broadly speaking, reduce the time actually spent writing characters on paper, and the way in which Chinese characters are being written today is undoubtedly changing in nature because of it. I would like to talk about a paradoxical movement I observe on Chinese platforms. New technologies, as well as online platforms are being employed not to replace

handwriting, but rather to emulate it, so as to continue the practice of handwriting. We find these instances taking different shapes and forms: from calligraphers writing sutra's on Kuaishou to WeChat handwriting communities and digital teaching apps. I will argue how these instances of handwriting walk the tightrope between nostalgic desire and technological prowess.

Akiko Walley (University of Oregon)

Seeking Gods' Autographs: Inclusion of "True Hands" by Deified Individuals in Tekagami

Focusing on the fragments of Korean sutra that were (mis-)attributed to a seventh-century Japanese court official, Fujiwara no Kamatari (614-669), this presentation analyses the impact of the professional calligraphy appraisal within the Edo-period boom in collecting fragmented calligraphy. Heralded as the patriarch of the most powerful courtier family in the history of Japan, the Fujiwara, Kamatari was also increasingly idealised as a loyal retainer beginning in the medieval period, and as the this-worldly manifestations of Buddhist layman par excellence, Vimalakirti, and the "Luminous God of Silla" or Shinra Myōjin. By unpacking the layers of association, the presentation demonstrates why and how the hand-copied sūtra of Korean origin was deemed appropriate as the embodiment of Kamatari's image both as a historical figure and divinity. Within this circumstance of premodern art appreciation, the selection of Korean sūtra fragments to encapsulate Kamatari, I argue, had the effect of destabilising the ontology of this mythohistorical figure, allowing his presence to oscillate between a heroic human and a mighty god.

Rafał Wieczorek (University of Warsaw)

A New Analysis of Wood and Inscription from the Berlin Rongorongo Tablet

Rongorongo is a non-deciphered writing system developed on Easter Island. The Island was discovered and settled by Polynesians around 1100 AD. Among the developments on the island was the *rongorongo* writing system. The script fell into disuse in the middle of the 19th century; its date of origin is unknown. The script is known from only two dozen artefacts, but some of the texts are substantially long with over one thousand glyphs. All of the rongorongo objects are made of wood with majority of them comprising of specially manufactured tablets.
The Berlin Rongorongo Tablet is the biggest of all extant rongorongo artefacts. We report here on a detailed analysis of the Berlin *rongorongo* Tablet, including botanical wood identification, radiocarbon dating, and photogrammetric study as well as Reflectance Transformation Imaging. Prior to its collection, the tablet had spent a significant amount of time within a damp cave context that destroyed 90% of its content. By comparison with other objects of the same glyph size we were able to estimate the text length before the erosion to slightly over 4000 glyphs long.

Eloise Wright (Ashoka University)

Fixed in Space: Mobility and Renewal in the Interpretation of Stele Inscriptions in Dali, Yunnan

This paper addresses the tension between the fixity of inscriptions carved on stone and the mobile communities that produced them, read them, and gave them meaning. In the city of Dali 大理, in the southeastern foothills of the Himalayas, stone steles from as early as the 8th century have long been of interest to pilgrims and tourists. At scenic sites and Buddhist temples, 16th and 17th century steles explained the significance of each site for literati visitors. More recently, short inscriptions on stone markers guide tourists around the precinct, supplementing signage on wood, metal, and paper. The meaning of the site – and of the earlier inscriptions themselves – is reconstructed and rewritten by the addition of these written artefacts. How have the juxtapositions of these written artefacts informed the ways that viewers have engaged with the text, the artefact, and the landscape around them? To what extent does the movement of people, buildings, and even of time destabilise the apparently fixed location of a stone stele?

Lei Xue (Oregon State University)

Calligraphic Walls: Constructing Inscribed Spaces in Early Modern China

Monumental stone inscriptions have historically been displayed in open air and played a significant role in conveying religious or political powers and defining sacred places in traditional China. This study examines a parallel phenomenon in interior spaces, investigating the enshrinement of engraved writings in select architectural settings, including the Shrine of Royalty and Diligence erected in 1588 by a prestigious clan in Huantai, Shandong, the Tower of Viewing the Antiquity in Qianlong emperor's (r. 1735–96) garden in Beijing, and carved-brick calligraphic walls at a vast mansion complex in Yuci, Shanxi, built in the late eighteenth century by a merchant family. Through these cases, the study illustrates how calligraphic writings were embedded in constructed interior spaces to reclaim desired cultural, social, and political authority or prestige. Such enclosed writing spaces can be traced all the way back to ancient bronze vessels, where inscriptions were cast on the inner wall, and can be seen in contemporary artworks like Xu Bing's installation *A Book from the Sky* (1988).

Xiao Yang (Chinese Academy of Social Sciences)

Image, Sutra, and Miracles: Buddhist Rock Carving of Bishui si in Mianyang

This paper considers how the perceived efficacy of miracle tales related to the concept of *ganying*, or "sympathetic response," acts as an active agent in the construction of an early-seventh-century Buddhist rock carving site named Bishui si in Mianyang, southwest China. It is significant because the *Diamond Sutra* [following the translation of Kumārajīva (344-413 CE), T235] and the image of Amitābha Buddha and fifty-two Bodhisattvas were carved in the same niche on this site. While there are few connections between the sutra and the Amitābha, we may surmise that

their identical nature mainly inspires their pairing: the textual and material evidence shows both of them were circulated as the signs of *ganying* in the society of Mianyang during this period, although one refers to "*ruijing* (auspicious sutras)" and the other belongs to the "*ruixiang* (auspicious images)." Moreover, the prevalence of the *ruijing* and the *ruixiang* in the making of Buddhist rock carvings in Mianyang can be better understood in the context of the increasing struggle between Buddhism and Daoism in the local area in the early Tang Dynasty (618-907 CE).

Roberta Zollo (Universität Hamburg)

The paradox of the porbuhitan *corpus of manuscripts: hidden to the colonial establishment in the past, forgotten by the Batak people in the present.*

Produced in a context of restricted literacy, the Batak manuscripts (so-called *pustaha*s) were the physical embodiment of the power and of the exclusiveness of the group of people that were producing them, the *Datu*s. The texts there preserved functioned mainly as *aide-mémoire* for the *Datu*s to prepare magic remedies and perform divination rituals. Because of this very specific domain, access to the *pustaha*s for non-initiated readers was prevented in different ways.
I will focus my presentation on the *porbuhitan* corpus of manuscripts, and I will argue that this corpus represents a very peculiar case of neglected accessibility. Not only the contents of these manuscripts were limited to the *Datu*s, but also the written artefacts were kept hidden from the other members of the society as well as from the first Western intruders.
Because of this prevented accessibility and because of the fatal effect that coloniality had generally on the Batak manuscript culture, the *porbuhitan* manuscripts nowadays have no cultural meaning for the Batak people and are left accumulating dust in the basements of European museums and libraries. A question thus arises, *cui prodest*?

Pinyan Zhu (Kent State University)

Performative and Duplicable: Inscribed Buddhist Texts at the Longmen Grottoes

This paper contextualises a group of five Buddhist scriptures carved inside Leigutai Central Grotto from the late seventh century, at the Longmen Grottoes, Luoyang. The group includes both the time-honoured classics and the newly translated texts that had only become available prior to the initiation of the cave-shrine. I argue that the engraved passages are performative texts which bring forward the long-lost Buddhist teachings by promoting the newly developed methods of repentance practices. I will discuss the location of the texts, at the bottom register of the exit walls, in relation to the entire visual program inside the cave-shrine, and the limited accessibility to some of these texts outside the imperial court. I propose that the inscribed Buddhist texts in Leigutai Central Grotto were intended to be duplicated, possibly via ink rubbings. As a result, they both reminded the visitors of the efficacy of practicing repentance and made the methods of repentance available to a larger audience.