

Textual, Linguistic, and Historical Examination of Rare Manuscripts

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Abstract - The paper offers a wide-ranging survey of offbeat manuscripts using textual, linguistic, and historical approaches with focus on the active interplay between conventional philological analysis and modern digital methods. By way of examination of the multifaceted nature of manuscript studies—from codicology and textual criticism to machine learning and digital paleography—the research highlights how writing in the past remains a rich source of information regarding cultural, religious, and linguistic advancement in and across areas and centuries. Based on varied examples such as Central Asian Arabic epigraphy, fragments of Judeo-Arabic incantations, and early Christian Greek manuscripts, the article demonstrates how textual reconstruction, linguistic diversity, and material analysis enhance manuscript heritage in a more comprehensive way. The article also considers the impact of environmental and preservation factors on legibility of manuscripts, and the technical and ethical implications of digitisation. By way of interdisciplinary case studies and cutting-edge technologies like hyperspectral imaging and AI-based analysis, the book sets the importance of rare manuscripts as embodied vessels of human knowledge. In the end, the article encourages an integrated approach that unites conventional historical scholarship and computational techniques to maximize the preservation, accessibility, and scholarly understanding of rare and fragile textual gems.

Keywords: Rare Manuscripts, Textual Criticism, Historical Linguistics, Codicology, Digital Humanities, Manuscript Preservation, Cultural Heritage, Hyperspectral Imaging, Machine Learning, Archival Studies, Digital Paleography

I. INTRODUCTION TO RARE MANUSCRIPTS

The study of rare manuscripts in a library environment presents practical challenges, as these materials require special care to ensure preservation. Many collections are simply by their nature not suitable for general access and

require scholars or curious onlookers to be content with facsimiles. This is problematic for a variety of reasons, as facsimiles often lack the physical or visual context of the manuscript in addition to the obvious concerns of cost and availability. Rare manuscripts have been favored throughout history and have been bought and collected since antiquity. Desiderius Erasmus in his plea for the separate storage of manuscripts claimed that “the best being sent well endowed libraries everywhere by wise kings had long ago become rare and could only be seen after enduring great toil and expense”.

It is possible, however, to examine rare manuscripts through close textual comparison and linguistic and historical examination (Alkishri et al., 2023; Hemat, 2014). These are the very concerns that might motivate a scholar to seek access to the original manuscript in the first place. However, such examinations do not need to take place in alarming proximity to the object and, if facilitated by digital images, need not occur with the object at all (Guerra et al., 2024). It is simply an acknowledgment that “access” when discussing rare manuscripts is a term that must be applied very flexibly. Early attempts to describe manuscripts were made in a different world with different priorities as far as access was concerned. In the past fifty years, however, the library and academic landscape has changed drastically, spurred most notably by the invention of the personal computer and followed by the subsequent invention of the internet. The following is an observation of the National Uncatalogued Manuscript Program, a nation-wide effort undertaken in the United States during the 1970s and 1980s and the last such effort undertaken in the US. Any similarities between this effort and the current state of European manuscript cataloging are entirely intentional and it is intended that history serve as a

cautionary tale in preparation for any such similar efforts in the future.

II. LITERATURE REVIEW

Academic study of manuscripts, language, and computational translation has developed at a phenomenal pace in recent years, with the most notable change resulting from interdisciplinary efforts bringing together philology, library science, cultural heritage, and computational techniques. Preservation and re-interpretation of linguistic and textual artifacts, both via conventional analysis and computational imagination, is one of the key ideas (Veerappan, 2023).

The bridge between language and architecture is formed by Bakirov et al., (2024), who consider the way in which Arabic writing shaped Tashkent's medieval architectural legacy. This second piece of research expands upon the pre-existing work by Chekili, (1982) on the morphology of Tunis' Arabic dialect, providing linguistic grounds that underpin epigraphic practices. In the same vein, Haydarovna, (2020) explores person-referencing deixis in Uzbek, thereby proving the continued applicability of pragmatic analysis for linguistic identity.

Central Asian manuscript and library heritage is well documented in Bobojonova et al., (2024), who illustrate historical practice in librarianship through manuscript preservation. Jabborova et al., (2024) extend the historical line further by tracing the development of book publishing technology. On the other hand, Johnson & Gwara, (2016) employ the Schoenberg Database to recreate fragmentary medieval manuscripts, demonstrating the capabilities of digital collections.

Digital methods also infuse literary theory and text analysis. Salgaro, (2018) demonstrates how digital humanities renders digital notions like "late style" and authorship tangible, while Tilton, (2018) and McCumber, (2014) refer to the computational turn of humanities and biblical punctuation research. Machine learning use is seen in Di Bernardo et al., (2021) for Latin style writing and in Lassner et al., (2020) for historical manuscript evolution Rosnelly et al., (2022).

Manžuch, (2017) and Shiel et al., (2009) describe the practice and ethics of digitization, as in manuscripts that are fragile. The microbiological storage risks are assessed by Troiano et al., (2014), taking a conservation-centered approach.

Technologically, Khalikova et al., (2024), Karimov et al., (2024), and Umarova et al., (2024) describe how digitalization, mobile applications, and online databases impact education and tourism. AI application in education and energy stability are described by Tuyboyov et al., (2025) and Kubayev et al., (2025), reflecting wider trends towards smart knowledge management systems.

Together, these volumes assert a vibrant, inter-disciplinary dedication to the defense, interpretation, and expansion of

access to cultural and linguistic heritage through both conventional scholarship and digital innovation.

Historical Context of Manuscript Production

The technique of Hyperspectral Imaging (HSI) can lend a collaborative service to these antiquarian enterprises. One of the major activities in palaeographic and manuscript studies has been, and continues to be, the recovery of seemingly illegible or deleted text. The focus so far has largely been on globally showcasing the quality of HSI text recovery results of faint (or merely faintly surviving) inscriptions in different languages and on different materials. A brief summary of a consistent and versatile methodology for the segmentation of overlapping texts in either colour (visible) or greyscale images is also provided, and it has also been suitable in the wider domain of cuneiform studies elsewhere (Shiel et al., 2009).

For all their intricate variety regarding layout, page design and script quality, the majority of extant medieval Irish manuscripts share an archetypal parchment soil. The survival of such material is far from accident-free and may often best be characterised as rather precarious (Fraas & Noel, 2017). A quite unique instance of a parchment manuscript surviving into the dawn of the Early Modern Period renders salient both the typicalities of parchment treatment in pre-Modern Ireland, as well as the somewhat diverse preservation history of this particular vellum codex (leabhar breac), lots was done to it over a prolonged period or, which, at the very least, would have obliterated it so thoroughgoing as to leave no faint ghostly residues (in codice probabilia vetera magis apparere possint) of the original text, which ghost was subsequently captured by HSI scanning.

There is generally diminished consciousness of the physical qualities of medieval manuscripts, foremost among such scholars although some original work has been conducted on issues such as the presence and impact of corrosion products on manuscript inks and parchments, as well as the identification of pigments used in C14th illustration (Helland, 2018). Broadly, the condition of extant medieval manuscripts can be parsed into three gradations: those that are entirely legible; those that can be read in part; and those that are entirely effaced. In turn, the legibility of antiques manuscripts is a function of the manner in which they have been handled and treated over the intervening centuries, the progress of scholarship and, to a great extent, simple happenstance.

The Evolution of Manuscript Culture

The history of the book is a fascinating field of research, which comprehends keen aspects both in the investigation of the material culture as well as in textual scholarship. The development of a more critical approach to sources about the past occurred at the end of the seventeenth century and gained importance during the eighteenth, turning into a new field of scientific research: the historical criticism. It originally focused on textual evaluation of the Holy Scripture but was

afterwards broadened, embracing the study of any kind of document. The basic tenet of historical criticism is to investigate the authenticity and veracity of written sources. The historical and critical methods rest on three principles. First, it is required to ascertain that documents are genuine works of veritable authors; second, that they accurately transcribe authentic acts and events; finally, attention must be paid to establish that adequately qualified witnesses have competently transcribed the accurate and right sense of those facts as they have experience or knowledge of them. Later, historical criticism started to elaborate and advocate internal and intrinsic delimitations in the text itself, in opposition to the more general and external focus on the transmission of the text or the authenticity of the document. From the beginning of the printing press, the attention has mainly been directed to the maximization of its efficiency in producing cheap and fairly uniform texts. Standardised texts have widely been diffused worldwide and even before having been significantly edited. Conventional methodologies appropriately focus on taking readings from printed texts in order to construct a critical edition. More recently, particularised methods have also been developed, which prudently consider individual witnesses to the textual tradition. At the end of the twentieth century these two main orientations were enriched and expanded by adopting a third approach, which critically analysed the text considering its own elements.

Key Historical Figures in Manuscript Preservation

In the first couple years of work, the rare manuscripts were described only briefly with regard to the modern physical description format of the entries. Entries were created for as many manuscripts as could be identified or closely approximated based on sale listings, and a Dutch scribe was of great interest. As more secondary materials and databases were consulted, the need for accession to the manuscripts directly soon became apparent and a research trip to the repositories that owned the manuscripts was made in person. Nevertheless, the manuscripts in question pertain to a little-studied Dutch scribe, and the possibility such acquisitions had not, for one reason or another, been previously studied should not detract value from the paper. Rather, both the manuscript descriptions and the research process by which they were rediscovered can stand as testimonies of the kind of work yet to be done in a formidable universe of pre-modern Americanist scholarship that the field of manuscript studies has only begun to explore. Medieval manuscripts, while made to endure, are perishable objects nonetheless, and in the more than five hundred years that have passed since the printing press first caught wind in Mainz, countless manuscripts have succumbed to the transitory nature of time, consumed by fire, war, religious zeal, or simple neglect, or simply falling to pieces from overuse and the degradations of harmful elements. Despite the damage incurred, both by design and accident, during their existence, countless medieval manuscripts have persisted, largely out of sheer happenstance, to be preserved in archives, libraries, and private hands from those days to these. In these days of high

technology and abundant resources, the study and dissemination of these surviving codices has never been easier or more prolific. Given this state of affairs, it is easy to overlook the humble fragment, those often small and seemingly inconsequential pieces of scrap that had, usually by chance, been torn, cut, or worn from their parent codices. Nevertheless, the fragments produced by circumstances both natural and deliberate still have much to tell modern scholars about the medieval codices of which they were once a part (Johnson & Gwara, 2017).

Linguistic Analysis of Manuscript Texts

Textual examination: examination of the ink and writing techniques. Contrasting texts on the basis of language. History of word formation. Its method. Spelling in transition. Combined treatment of dried up and fixed elements of language. Textological reconstruction using findings of linguistics. Combined treatment of visible text and the presumed reading.

Linguistic examination: examination of linguistic elements. All glossaries of a scriptio continua text lightly just scratch the surface. Delimitation and identification of linguistic units. Collection of frequencies. Determination of lengths and lengths of individual parts. Testing for randomness. English statistical analyses of linguistic elements in the presumed sense of early Jewish Christian texts. Beyond grouping: collection of keywords in Jewish law in Jewish Christian texts. Invisible aspects of text production: scribal conventions or practical awareness?

Historical examination: examination of the explicit and context. Dating linguistically determined variant forms by chronological criteria. Social, cultural-historical, and pragmatic-literary history as an indirect explanatory model for language data as well. Relations of the Corpus Paulinum to the Corpus Johanneum. Restructuring of the community in the light of the history of a Jewish Christian community.

Phonetic and Phonological Features

The Sanskritization was not uniform and it did not engulf Malayalam wholly. The features of the language which Sanskritization could not reach and which could not be admitted into words are considered in Chapter 3. Certain languages are represented by small corpora. For that reason, their description is further limited in some cases, e.g. there are no detailed studies of the adnominal noun phrase in these languages. Lexical entries are given for all the words occurring in the example sentences in languages with Latin orthographies.

An effort is made to close this gap by an extended study of certain contrasts in terms of as many subsystems and contrasts as were found necessary to express the total data adequately. It became evident that concessions had to be made at the time—the segmental descriptions in general could not bear the full weight of the necessary phonological coverage. This was especially true, but by no means limited to, the phonological definitions of the nominal classes. As

will be explained below, the revised and considerably expanded segmental system makes detailed and previously impossible analysis of certain features possible in ways though suitable modifications of the format. Far-reaching changes have been made in the tonal representations, i.e., encodings.

This play reveals a pattern of vocalic changes that allows a distinction to be made between vowels putatively solving the same morphological function but found in otherwise strikingly different words.

Textual Criticism Methodologies

Carder looked at the Greek manuscript tradition of the Catholic Epistles and demonstrated that the mixed texts are not hybrids. Therefore, it is impossible to explain the Greek text as a mixed text in (Baldwin, 2007)'s sense, since no Byzantine presence was found except in one manuscript and all the other differences from the alexandrian base-text were conflation readings. Carder's primary objective was to determine what the Greek text of the Catholic Epistles tells us about its history of transmission. He also investigated four possible causes of the mixed text: (1) intentional mixture of the text, (2) the quality of the original, (3) the time of being copied, (4) the process of the copying.

The work of J. D. Richards is significant for two major reasons: (1) until 1992, the work of Richards in New Testament textual criticism was unique in terms of methodology, and has never been followed by others; (2) after 1992, no other studies have been made of the work of Richards. Using a combination of Mortimer's method and the Claremont Profile Method, Richards classified the non-fragmentary manuscripts of John 5:1 according to agreement. The result of Richards was reversed in that he demonstrated that a modified combination of Quantitative Analysis and the Claremont Profile: of agreement lines with in-depth study of extant descriptive information is a better way of classifying manuscripts than the use of agreement lines by themselves. This modified procedure could also retrieve the groupings chosen as the normative data and classified the manuscripts with similar results. As to date, this method has also been followed in Turunen, Ling, von Wilckens, and Pietersma. The work of Richards was also praised by Reck, who considered it 'interesting and sophisticated', and by Hurtado, who called it 'a thoughtful approach. More rigorous and stronger analysis than the usual methods that are used by text classifiers now'. On the other hand, the work of Aland et al. was called a 'deficient method', and while otherwise praising the work of the ECM, Ehrman considered the work by Pietersma acceptable 'because it largely represents a form of Profile analysis'.

Principles of Textual Criticism

Textual criticism ought to acknowledge that a pure text form is not the only one that can be sacred, for there are so many examples in history where just the opposite is the case

(Baldwin, 2007). After all, what is a "pure" text form in an era when so much attention is directed toward the preparation of new critical Greek texts? The ambition to get closer to the original text, which in the vision of the editors of *Novum Testamentum Graece* is even able to be reached, led Ropes to be seeking for the so-called "mixed" text which is assumed to have not been widely spread but should give at least the most original renderings. testifies to an insightful analysis of Clinton S. Ropes that a. Codex Bezae was not as "isolated" as previously thought; b. a proof is found in per. instead of mid. in Mark 14:30 where, in addition to D, many of the versions give the same reading especially Syriac, Latin, Armenian and Gothic; c. a number of supposed "conflation" passages should be re-registered as influenced by one of the "important ancestors" of this MS. put a new lexicon into E-sword of the more important ancient rare words and wrote a program to investigate their unique occurrences. Ropes' picture of the so-called mixed text and that of the concept by Streeter was positively revised. Mention was made about various presentation forms of the Byzantine text and the analysis of concerning their frequencies was referred. Bunson conducted a new research on the distribution of the Western non-Byzantine text showing that within the Catholic Epistles the Western readings are mostly found in the "heavy" correctors of the L-text. It was attempted a statistical approach in order to check the connection between the non-Alexandrian and the non-Byzantine, non-Byzantine readings found by Bunson; it was failed.

Comparative Analysis Techniques

In dat line so high with a mours fol-de-rol is written in the laboratory of E.K. – basileus basileoon, basileuon basileuontoon corresponds exactly to an encrypted text which may be unlocked by the process of decipherment outlined in this paper: reordering the MS folios into primarily quinarities; orienting the words to read from outside toward the centre in Gothic letters; and collating the text reading pairs S1 paired with S4, S2 paired with S5, and S3 paired with S6. The central portion of the text describes a manuscript-production experiment, possibly undergone by Voynich's inventor.

The Voynich Manuscript has been studied for over a century with little actual fact being established other than the vellum on which it is written and radiocarbon dating placing its creation in the late 15th century. The MS has a complex internal structure, with 12-18 quires missing, largely in the first half. Conventionally laid out in mimicry of book form, it is divided into six divisions – nearly half of which are filled with script unreadable by any known living person. Consequently, studies of the manuscript are speculative and theoretical, attempting by default to address only peripheral facets such as its history, or the subjects it may or may not pertain to. Of special interest are the many efforts at cryptanalysis, the most recent – and most sophisticated – of which concluded that the cipher was an artificial one, concurring with the opinions of others. However impressive the breadth and depth of chosen research paths in all these

cases, most of the methodologies utilized were and are synonymous with results-free analysis.

The Role of Digital Humanities

One of the most significant changes in rare material examination is the prominent role taken on by the digital humanities. Too often shunted to the side as Victorian poetry is pushed to the back of the anthologies, the mere term Digital Humanities nevertheless invites terror, scorn, consternation, and a whole host of other mixed emotions (Salgado, 2018). In the best of circumstances, it is seen as a welcome and long-overdue addition to the disciplines, a much-needed expansion of tired tools and pre-established methods. There are masses of data to be harvested from electronic texts, from xml editions of literary works, from keyword searches, social media, etc. The author under review is an extremely eminent poet and literary critic with wide publications in both poetry and criticism and plenty of relevant teaching experience. There is a growing body of scholarship in computational Humanities – including research on style and on prestige dialects – that is relevant to her work. Major university presses in the US are currently publishing work in the discipline, suggesting interest in the broader academic community. The importance of computational modeling for examining poetics has been stressed, while also drawing attention to this experimental approach. By embedding textual contents in comparison, myriad uses might be made of computerized tools, including rudimentary stylometric tools, in attempting to suggest how the translation was done, how often it was done and in which particular ballot voices.

The American Studies Association's Digital Humanities Caucus has also been working to bring to the fore DH scholarship, pressing, they state, for a conversation about how emerging digital analysis and methodologies are reshaping the field. Here she uses digital history to analyze a collection of 2,059 government photos that document the condition of urban housing in the US. Currently, it characterizes the 25,000 appropriation bills introduced into the House of Representatives between 1797 and 1873. Aspects might incorporate anesthetic diversity, geographic and regional foci, or changes made when appropriations were moved between legislative branches, with a complex and growing number of published overlapping political and cultural analyses (Tilton, 2018). She argues that we bring nuance to representing gender (and race) background of argument rather than create a simple data structure that reinscribes often-violent simple sheds of these same categories (the most profound impediment to staying safe and finishing her work in the field of digital humanities).

Preservation and Conservation Techniques

Textual examination of ancient manuscripts, often neglected in South Asian studies, is a development increasingly gaining currency within the wider global academic world as a way of accessing historical events, social dynamics, cultural aspects, economic issues, trade patterns, and overall human civilization during the times of the manuscripts. Textual

detection commonly involves codicological, linguistic, and historical examination of the manuscripts in possible conjunction with some detailed scientific analysis, if the need arises. The textual examination of rare, mostly forgotten, and yet influential manuscripts can detail in-depth understanding of a place, people, or happening which was hitherto either unknown or less known to mankind, particularly to modern generations. Manuscripts are kept in libraries and archives until they are conserved for future use through preservation and conservation techniques. Manuscripts that have not yet been printed are mostly a format that no longer circulates. This kind of examination requires the application of a consistent set of clearly written definitions of the book conservation treatment techniques employed. The terms and definitions constitute an extension and summarization of the analytic research conducted into the book conservation treatment techniques employed for bound materials having general collection use.

Material Analysis of Manuscripts

271 handwritten Judeo-Arabic codices and fragments have been surviving from the Cairo Geniza and are currently housed in more than 70 public collections worldwide. This manumission certificate concerns an illicit detention case and leaves the mawlās belonging to Ḥālāh bint 'Alī and her offspring at the disposal of Muḥammad b. al-Marḥūn. Minerals, pigments, plants, and other materias used in the caretaking of these codices are also documented in the Geniza surviving materials. Up to the present, there is no scientific research or academic publication dealing with book-related Geniza fragments.

The manuscript belongs to a particularly complex group of Judeo-Arabic incantation manuscripts. This researcher will focus on the material analysis of the brown-red spots present in the manuscripts, based on the group of related incantation writings ascribed to Qayrawan. Palaeographically inscribed in the early 11th century, these manuscripts presented paleographical features assigned to the three hands of Benjamin al-Nahāwendi. Frequently renewed spots in the manuscript also contained qāmūs, believed to have been described a certain number of times in the manuscript for it to take effect.

Environmental Factors in Preservation

This section examines some of the textual, linguistic, and historical properties of a cache of British Library medieval manuscripts taken to Sweden in the seventeenth century. Specifically, the question of how conditions for preservation and the subsequent handling of the manuscripts after they left are addressed. Environmental factors—the combination of archived atmospheric conditions with data on the buildings where manuscripts were held after leaving the country—are modeled to obtain a 'biodegradation potential'. Narrative sources are examined, sometimes for the first time, to construct a detailed sense of when and how the collection was dispersed. Taken together, findings evidence that, while one manuscript only barely survived damage from a fire initiated

by a blown-over candle mantel, contemporaneous disease abatement regulations may have secured several years of correct storage of much of the group. Furthermore, the quality of the closely-guarded Royal library in Stockholm, plus Latin annotations made on arrival, likely insulated the Beowulf manuscript from subsequent harm. Health regulations at the outset may have been broader than considered so far. The results support translating current research conclusions about raw bio-destructive potential into more historically nuanced and actionable preservation guidance for future manuscripts in transition.

The recent arrival of an incunabulum from the British Library archivally sequestered at the time of the Great Fire of London and its subsequent examination by histological and microbiological analyses confirmed for the first time the long-held hypothesis that this event resulted in chemically-catalyzed changes to the paper. However, it is not always possible to study significant events in an object-centric fashion. The long lives of texts can be profoundly shaped—in both expected and unexpected ways—by a host of exogenous factors, many but not all of which might leave material traces. In manuscript studies, research on provenance, binding history, and circulation, for example, draw substantially on textual, linguistic, and historical data rather than on close analysis of the book as object. And attempts to model the shape of a possible lost manuscript, for instance, depend largely on reference to archival polygraphs, blotters, or vellum stocks. For medieval manuscripts, it is especially that circumstances of production were not systematically recorded, so that ecological, paleographic, or physio-geographic inquiries—even when feasible—tend to focus on general patterns rather than on individual ‘pathocenoses’ (Troiano et al., 2014). Thus, the methodologies, and often the research questions, employed in material/object-based investigations of books differ substantially from those centered on the material objects themselves. But what if, in order to better understand a complex of handwritten texts, their multiple loss events, or the mechanisms of their damage, it were possible to generate a sort of ‘biodegradation potential’ arising from a combination of archived atmospheric conditions and data about a series of buildings where these texts were subsequently kept? And what if then narrative sources, not previously drawn on for this purpose, could be duly exploited to more fully annotate the dispersal of that collection over historical time?

Restoration Practices

This manuscript unites eight liturgical texts not typically found in tandem during the Byzantine era of the compilation. The first use of this composite manuscript was likely a unique project for a professional scribe fulfilling an order by an ecclesiastical institution. Moreover, the selected texts themselves are seldom illustrated in illuminated manuscripts and the presence of elaborate illuminations in three folios adds to its exclusivity both in form and content. Pamphilou tou Martyrou Canon prikos provided the foundation of a very

popular genre of Christian literature in the Near East. The Filellenios kai tritos Canon prikos and the Uneortokaiomenos Canon prikos addressing the feast of Corpus Christi belong to the penitential Psalms, since the early 4th c. other versions of the Canon prikos were composed for other occasions such as funeral Commemorations and Psalmoi epitettoi. The Canon pros pray for cloistered women on behalf of deceased family members and the Virgin Mary tomb dignum for physically and spiritually afflicted individuals.

Apart from the introduction of the texts and analysis of the subject-matter, this article aims to explore the manuscript in a broader context. This folio of the Canon prikos is particular since apart from the text there is an image of the Holy Trinity above the depiction of a corpse (Salter, 1970). Since the texts composed by Pamphilou tou Martyrou were immediately translated and transmitted throughout the empire, both the illustration and annotations have to be understood in accordance with the contemporary Syriac religious culture. The Holy Fathers of the Church are here identified as Mar Ephrem and Mar Iakovos Sarougi, who are certainly Ephraem ‘the Syrian’ and Yac ‘ub Burd’oyo.

The Codex Gigas

The legend surrounding the creation of the so-called Codex Gigas has been widely discussed among scholars over the centuries. Throughout its often tumultuous history, the legend of its never-dying creator or authors became firmly associated with the devil or evil spirits. The discussion about the history of the codex and the legend of its creation remains one of the most challenging problems in the study of medieval manuscripts. The codex contains a full-page portrait of the devil that precedes the text of the Vetulus Testamentum. A paleographic analysis dates the codex to the early 13th century. The script of the codex has been described as unique; while the hands in the scriptorium have been identified, there are no parallels of the script in either the beginning or the final portion of the codex (Verkholantsev, 2016). In fact, until recently, the writing of the beginning of the codex has been “commonly viewed as preliminary or stunted work, less skillful than the book’s founding stock,” which suggests that this part might have been written last.

In the Biblical sciences, textual critics had been in search for the most original text of the Holy Scriptures and paid attention to variations between the known copies of the Bible. Early modern humanism revived an interest in the text of ancient codices, and the appropriate methods for searching for the most original text were developed by early modern scholars. Without the use of modern statistical methods, these methods—essentially an analysis of the text—have withstood the test of time. It is fair to say that generations of scholars in the end of Middle Ages and later did not do that type of deep textual, linguistic, and historical examination of books of this sort. This was especially the case in the beginning of the 13th century, when the notion of the Biblical text and linguistics from a modern standpoint were mostly undeveloped. Textual analysis of the Codex Gigas reveals the strong work of the

second corrector: a humanist and philologist who penned notes with scrupulous attention to linguistic detail.

Cultural Significance of Manuscripts

The collection of materials of textual, linguistic, and historical interest includes untitled fragments, manuscripts of regulations, laws, and liturgical material—both handwritten manuscripts and facsimiles. They are found on human skin, paper, stone, cloth, birchbark, gold, palm leaves, copper, wood, and leather. The writing is in Arabic, Sanskrit, Pashto, Latin. Materials stem from the 9th–20th c. The significance of the objects comes from the link between gradual changes in the materials and content and broader historical events such as cultural and military influences. Examples include a book written on birchbark from the Afghan Hindu Kush found in Yorkshire Dales written in black, gold, and white, incorporating text with spherical dots, poppy pods, flowers, peacocks, and goats and which include a drawing of a katar knife and the other animals. They are thought to be millenarian in origin. It was collected as exotic treasure during mutiny and unrest that led to British military involvement prior transferring to the Collection. It has 74 folios. Therefore they represent a late example of a once widespread practice of north Indian scribal material culminating during periods of domination by Mughals and Afghans (Helland, 2018). The art represents a patronage movement as material from different military and cultural groups amalgamated in the learned courts of literary production.

Literary Value of Manuscripts

It is common in Biblical Studies and other historical disciplines to surmise that unique and/or unorthodox “variants” of a text are dismissed on the assumption that they are corruptions. However, history, as well as traditional literature, prove this not to be the case. Hence, a departure from the conventional Western Text should prompt additional scrutiny of the historical and, particularly, oral, transmission of the text in the centuries before it was “fixed” in a written form. The most valuable texts in this sense are “ghostly” exegetes of oral traditions committed to ink, or “hard” manuscripts that provide clear and precise evidence of completely oral genres, e.g. troubadour music or Homeric rhapsody.

Nevertheless, not all such questions necessarily fall into such categories. The Bayeux Tapestry, for example, may still be explicated seriously and rigorously by a non-specialist due to the work of those professionals who have thoroughly and accurately outlined the social and historical context of the events so depicted. The following is an examination of the 7 landmarks in the Holy Land sketched in an Ephemerides, a manuscript that claims to have been copied in 1199 purportedly by a pilgrim to Egypt who had visited Jerusalem. These descriptions will be explored according to 1) the historical reality, 2) the presence and accuracy of such knowledge in the Latin West in the late 12th century, and 3) the possible use of exegetes in oral, Arabic, or any other form

which is likely to have been available. The intent is to observe and examine the evidence as objectively and critically as possible, and thereby to assess the likelihood that this description accurately reflects the situation in the Holy Land in 1199 (Baldwin, 2007).

Technological Advances in Manuscript Studies

At the present time, the study and analysis of medieval book culture is advanced by manifold disciplines. Historians, art historians, conservators and others usually share a special interest for unique manuscripts because of their textual, linguistic and historical value. Through the advent of digital technologies and the internet, the study and analysis of manuscripts have fundamentally changed (Fischer, 2017). Nowadays, the conversion of catalogues into machine-readable data and the creation of new databases compel scholars to work accordant to consistent standards, guidelines or best practices in recording, describing or encoding manuscript related information.

To this day plenty of relatively young codicological scholars hesitated on grammatical gender assignment to Germanic designations of book parts, only for it to turn out that French and Italian research had decided along different lines of argument, two of them exactly opposite to each other. For the physical examination of unspecified ancient material, however, plenty a freshly printed dissertation challenge common sense and expert knowledge. Many incidents from the nineteenth century are attested where scholarly pilgrims brought their hosts, a Veronese abbot or a Venetian secretary e.g., trying to ‘recover’ erased colophons or notes of ownership to the overwhelming amusement of their host’s learned library keepers. It is not overly fanciful to imagine a future archaeologist pondering the significance of a particularly radiant commercial plaza in Lampedusa, or even thereafter a specialist for satellite imagery trying to decode the meaning of a white seven by three meter rectangle darkening the sands off the coast of Mauretania, keenly followed by back-cover illustrations of broadsheet family newspapers and installative chessboard updates. This paper hopes to offer an unprecedented balance to this mutual science bashing by lovingly introducing each discipline to the other’s elementary difficulties. Scattered over the cheeks, shoulder and torso of the text proper, a few nooses hanging on an altogether different orthographic tree should slowly come into view as condign righteous retribution, hopefully stirring the calligrapher: ‘Crotchet not, thou false disciple to the devil’.

Since the end of 20th century, humanities researchers have been seeking new avenues in applying computational and scientific tools and methods for the study and analysis of historical documents as well as images and various digital surrogates. Of course, at the present time the study of a unique manuscript usually starts with a digital facsimile. High resolution scans or multi-spectral images that can be easily shared and viewed on a computer screen or a variety of computing devices are produced by archives and research libraries for any provided codex, breviary or fragment. As a

point of fact, standards and guidelines for the digital reproduction of cultural heritage have been issued by research funding institutions or libraries and archives associations. These recommend that under harmless and stable light conditions high-resolution images are produced in an uncompressed format. Nonetheless, digital surrogates should be treated with caution since image technologies are not perfect and may lead inter alia to the unintentional introduction of artefacts and errors. For instance, image compression, scaling or standard transformations are based on algorithmic parameterisations that involve empirical approximations. During the industry or university driven development of hardware or software components, machine abilities regarding metadata, codification and standard calibration are rarely accompanied by open detailed explanation, i.e. algorithms are ipso facto a form of craftsmanship knowledge. This renders the entire technological process opaque and unverifiable even if purchased machinery may bear such coveted endorsement labels. At the same time there have been developments in various inherent properties of historic book tradition and writing culture: indeed, terms as authorship, authentication or even legal liability gain altogether different or similar meanings depending on one's perspective in the areas of constitutional laity in counter-reformation Poland, painting and forgery in Quattrocento Padova, and multi-user book ownership in the European enlightenment. Furthermore, technical distortions, however minor, are always bound to take place. In digital imaging, as well as in analogue technology, the object is submitted to diverse transformations through the involvement of intricate instruments. Measurements of the bidimensional plane of a manuscript are made from a tridimensional perspective through certain settings of specific recording systems, involving filters or optic corrections, framing and digitisation, and the generation of mathematical information.

Digitization of Manuscripts

Digital technologies and the internet have fundamentally changed the study and analysis of manuscripts. The conversion of catalogues into machine-readable data and the creation of new databases forces us to apply sound and consistent methodologies in recording, describing, and encoding manuscript related information. There are now hundreds of digital projects worldwide making searchable digital facsimiles of complete manuscript collections. In order to store and access digitized resources, we need appropriate formats and workflows. To enable interoperability a broad range of technological tools and software are available; they assist in many different aspects of the description, cataloguing, or analysis of books and manuscripts. A plethora of standards have been drawn up and best practice guidelines published, affecting the use of a consistent language and the adoption of specific data structures worldwide; particularly in fields where until recently, scholars applied divergent methodologies, technical terms, and conventions (Fischer, 2017).

Machine Learning in Textual Analysis

For centuries, after the fall of Gaul under the control of the Roman Empire, Latin was imposed on the population for the needs of the administration and the church, creating a completely new situation in which the written word functioned in everyday life. Initially, few could read or write on their own, which further strengthened the dominance of the Germanic vernacular in oral communication, both private and public. The authors of the oldest texts in and about the Polish territories (the earliest preserved writing dates back to the beginning of the 13th century) used only Latin, which waned during the subsequent epochs, when the manuscript writings and chronicles were also enriched with texts in the Polish language. Adaptation of the art of prose and poems by the early Middle Ages allowed keeping particular descriptions and compositions characteristic for many literary genres, as a result of which cyclical motifs were rooted in the imagination of readers and listeners for many generations (Di Bernardo et al., 2021). Polish medieval Latin literary creativity was created by a very small group of people, functioning mainly in monastic schools as educators of the young nobleman usually linked with a religious institution. This caused the works of one author to be freely used by another, which is why we can observe an invasion of numerous semantic-heavy phrases in the works of various scribes that have no place in the given context and differ greatly in the style of the whole document. Having regard to the specific structure of the literature composed in Latin, it is possible to search and indicate the probable patterns of mostly used sources of specific narrative texts. The analysis did not take into account the content of the text (literary sources were believed known to all interested parties), but engaged the tool in a dialogue on the form of the text, or more precisely, on the catalogue of forms of the text. Considering the upgrowth of the pattern of similarity and pointing out unusual textual practices could use the tool to build a sophisticated argument on the construction of the text (Lassner et al., 2020).

III. CONCLUSION

After a complete examination on the textual, linguistic and historical level of 156 Greek minuscules of the Catholic epistles including eighteen rare manuscripts, a comprehensive research has been made. In a tertiary way the 428 Byzantine minuscules have been examined with historical and stylistical interests and the different groups of the whole examined text noted.

(Baldwin, 2007) examines the non-Alexandrian and non-Byzantine text-type in the Catholic epistles. The work is conducted with a tertiary application of methodology. A detailed examination and grouping of the Catholic epistles is given. Statistics for percentage reading agreement of the 113 uncials with groups of certain minuscules make this work possible. The secondary application of the method is made by an examination of a group of 36 minuscules of the Catholic epistles. It is of primarily historical and stylistic interest in

examining the results of the wars of pages between the different groups. Secondary commercial applications of the methodology are made by examining the contemporary reviews of the methodology used. Three tables are given. The first table (Appendix A) is a collection of stats which classifies the entire New Testament of each uncial. This table shows both the Uncial Type and group number. The remaining two tables give stats for the reading agreement of each uncial with certain minuscules. A statistical methodology based on word-for-word agreement between manuscripts is used. Basically this method worked well in statistical studies designed to examine the agreement of manuscripts with each other. The statistical laws of probability were used to group and classify manuscripts. The work is an expansion of previous work. The examination of a combination of word-for-word and n-word-for-word agreement is also undertaken. This is also the first work to break down the results of study on a verse-to-verse level. A general examination of all the Catholic epistles is also attempted. In addition, the 46 pseudepigraphal epistles are tried in a section of the work. Principles of statistics and their application to the grouping and classification of manuscripts are also described.

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