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TRADITIONS OF CHAGHATAY MANUSCRIPTS: A STUDY OF CODICOLOGICAL FEATURES

Abstract. Codicology is the field of science that assigns itself the responsibility to interpret the parameters of the original workpiece. This study enables us to reveal when, where, how and why the manuscript was written. Chaghatay language, as the communication tool applied between the nations of Central Asia, plays a crucial role in history, where written heritages in Chaghatay offer valuable insights into the lives of past societies. We have to admit that there is a lack of research made specifically on the codicology of this ancient Turkic language's manuscripts. Codicology is considered as important as the essential meaning of books. The style, aesthetics, and illustration used in writing manuscripts in that historical context, give us valuable messages in their own unique way. The purpose of our work is to study the aesthetic, physical dimensions and provide analysis in the sphere of Chaghatay manuscript's codicology. To obtain findings, this study has primarily relied on the publications of western scholars to conduct a comparative analysis. The findings highlight distinctive features of cover decoration in manuscript production, as found in Central Asian bookbinding traditions, handwriting styles, illustrative elements that are characteristic of Chaghatay manuscripts. We provided Turkish and original versions of specific terminology applied to identify key elements within the data science framework used in manuscript studies. To demonstrate examples in the discussion of physical characteristics, we have employed the digitized versions of the Chaghatay manuscripts from the Berlin State Library, the Süleymaniye Library and hard copies from the Al-Farabi Kazakh National University Library.

Keywords: Codicology, physical dimension, bookbinding tradition, calligraphy, decoration, Chaghatay manuscripts.

Introduction

Chaghatay language (also spelled as Chagatay, Chagatai or Chagatai Turkish) was an old Turkic language widely spoken across Central Asia. It also served as a written language of Eastern Turks who lived outside the Ottoman Empire. We can provide an extensive explanation of the word "Chaghatay". In the 13th century the Karakhanid language, which developed after the old Turkic language, became the common written language for all turkic nations. After the collapse of the Karakhanid state, half of the state used the Khwarezm language, whereas the other side used the Kipchak language. Due to the fact that these languages appeared during the transitional period, by the end of the 14th century, when Amir Temir united the Turkic peoples in Central Asia, the Chaghatay language replaced them as the common language. Starting from the reign of Amir Temir, the Chaghatay language, which was broadly used as a literary, administrative and cultural language among Turkic tribes till the early 20th century, unified the Turkic languages into one single form that was scattered before. From the 15th century, the Chaghatay language served as the official language of the empires such as Amir Temir, Shaybanids, Babur, as well as in the Khiva and Kokand Khanates.

Chaghatay - was the name of Genghis Khan's second son, who ruled over a large region of Central Asia between 1226-1246. However, the term "Chaghatay" came to denote the state and its population - namely, the nomadic Turkic tribes inhabiting the Chaghatay Ulus in the period succeeding his death, along with the language spoken by these communities (Shadkam, 2019).

The period between the 15th and 17th centuries witnessed the flourishing of the Chaghatay language, characterized by the creation of numerous distinguished compositions. There were such prominent figures as Ali Shir Nava'i (1441-1501) a poet, who increased the speech of the Turkic peoples, at the times of Timurid Empire, to the level of a literary language alongside Persian (Schluessel, 2018). Around that particular time period, founder of the Mughal Empire, Babur Zahir ud-Din Muhammad (1483-1530), wrote *Baburnama* in Chaghatay language, the autobiographical work about his conquests, travels and thoughts. This work is considered a classic of Islamic and world literature. Moreover, a number of respected poets and prose writers followed in their footsteps, leaving a significant impact on the literary landscape of Central Asia, with their influence spanning from current Xinjiang to the Ottoman Empire.

The Chaghatay language used the Arabo-Persion script, which was adopted to Turkic people and their language. In this regard, according to Eric Schluessel, an American historian of Central Asia, we can observe the Chaghatay language as a lingua franca for Central Asia that in most places functioned alongside Persian, and in some areas was much more common and prevalent (Schluessel, 2018). Although the written and spoken language varied significantly in various parts of the region, mostly it was comprehensible to diverse readers and listeners throughout different periods and places. That wide progression is affected by how people talked about the language itself: writers and poets of the Chaghatay period applied terms such as "Turki, Turkish language, Turkic language, Turkic lafzi, Turkish Elfasy", or as "the language of the Turks". Nava'i used the term "Chaghatay lafzi" instead of the word "Turkish". He used the words Turkish and Chaghatay in a different meaning (Shadkam, 2019).

Nowadays, there are numerous academic institutions, museums and libraries all over the world, where old Turkic manuscripts of Islamic Central Asian origin are preserved. For instance, we can find precious works of Chaghatay writers and poets in Uzbekistan, Turkiye, Russia, China, the United Kingdom, France, Germany, Iran and India. Valuable works of Nava'i are widely distributed, and currently they are available to read and make analyses in the Suleymaniye Kutuphanesi and the Topkapi Palace Library (Turkiye), Al-Biruni Institute of Oriental Studies (Uzbekistan), and the British Library (London) (Mirsultan, 2019). As the fact that, working with these manuscripts requires at least a long journey to access, nowadays there are a number of institutions and libraries which have published the large parts of their manuscript collections online. Digitisation projects of rare manuscripts allow scholars, researchers and historians across different regions to perform tasks collaboratively with ancient texts remotely. The Digitised Collections of the Berlin State Library (*Staatsbibliothek zu Berlin*) and the Presidency of Türkiye Manuscript Institution of Süleymaniye Library in Istanbul are examples that provide rare collections of manuscripts online.

In our article, we are investigating the theories of scholars who have made huge contributions in the sphere of Turkic manuscripts: they are, first and foremost, Adam Gacek and François Déroche, leading specialists of Islamic codicology and palaeography, the authors of a growing number of publications on various aspects of Islamic manuscripts; Fatih Rukanci, a Turkish professor, historian whose scientific researches are dedicated to the written heritages of Ottoman Empire. In conjunction with the works of other scholars, their input facilitated comparative analyses and enabled us to explore the physical design aspects of Chaghatay manuscripts.

Materials and Methods

Codicology is a comparatively emerging field of science that appeared only in the midtwentieth century. It is the study of manuscript books as physical objects. It considers materials and features of their production such as inks, papers, scripts, binding, also including techniques used to make books. Within the "physical" characteristics of manuscripts, its formation and materials, concerning their writing and design, wider and more immediate possibilities for comparison, allow to speak of a "universal grammar" about manuscripts, of the codex in particular, focused on identifying the structural elements typical to the most craft traditions and the insightful reasons for their organization in a coherent system (Maniaci, 2002). According to the AACR2 (Anglo-American Cataloguing Rules 2), physical descriptions of handwritings are examined by their following characteristics:

The length of the work (e.g. numbers of the pages, volumes, slides, maps, and etc.);

Other physical details (e.g. pictures, maps, etc.);

Measurements: (e.g. height, length and width, diameter, etc.);

Attached documents (Keseroğlu, 2006).

It is evident that material characteristics of manuscripts demonstrably diverge from those of printed texts, underlining fundamental distinctions in their production and presentation. Based on Turkish scholar Fatih Rukanci, in order to acquire detailed information about the physical attributes of handwritings, the catalog record can be grouped under 10 headings:

- 1. Binding features;
- 2. Decoration elements;
- 3. Miniature characteristics;
- 4. The size of the paper and the writing area;
- 5. Paper types, materials, colour and watermark information;
- 6. Numbering, raws and/or columns (layouts);
- 7. Types of calligraphy;
- 8. Ink colour and its features;
- 9. Rakabe- possession statement, derkenar- marginal notes, şukka slip notes;
- 10. Physical condition of the book (Rukancı, 2012).

Discussion

Binding, bookbinding

Binding is one of the most essential stages in a manuscript book making process. Bookbinding is a branch of art that encompasses all the processes used to collect all the pages of a handwritten or printed work, for giving it its finalized version, and to put a hard or soft cover both to decorate the work and protect it from possible external damages. In this respect, the binding is a component that ensures both technical and aesthetic advantages. Those who deal with this kind of art are called bookbinders. Chaghatay manuscripts were mainly influenced by the style of Arabic and Persian manuscripts.

Adam Gacek explains that the bookbinding process in the Islamic world is called differently according to its geographical and linguistic variations. For example, *tajlid* - is the term used in the Islamic East, specifically in regions like the Middle East and Central Asia. The term *tasfir* - is employed in reference to the Islamic West, particularly indicating North African countries such as Morocco, Algeria. The final one is *tashif* - is applied within the context of Persian and Turkish manuscripts. Whereas the bookbinders are known as *mujallid*, *musaffir* and *sahhaf* (Gacek, 2009). Accordingly, Chaghatay bookbinders were called *sahhaf*.

There are three main types of Islamic bookbinding. They are referred to as *type II* and *type III* where *type I* denotes early bindings known as "boxed-books". The second, *type II* indicates bindings with flaps. And the last one, *type III* represents manuscripts without flaps (Roberts, Etherington, 1982).

Type I binding: bindings with flaps

Type III binding: bindings without flaps

Type III binding: bindings without flaps

Here in the following table, we have illustrated versions of three types of bookbindings:

Table 1. Types of binding.

Type I boxed books were regarded as one of the earliest forms of bookbinding in the whole Arabic manuscript tradition. This type of binding was probably called $khib\bar{a}$ which can be translated as a tent or cover, or akhbiyah which is the plural form of $khib\bar{a}$ (Gacek, 2009). Boxed binding presents as to have been applied exclusively for Qurans and appears to have been discontinued at the time during the period in which the format changed into vertical in the 4/10th century (Gacek, 2009). Since the Chaghatay language only began to gain widespread usage after the 14th and 15th centuries, boxed $Type\ I$ bindings were not commonly applied during this period. Instead, two other binding styles were predominantly used: bindings with triangular flaps and those without flaps, in alignment with broader Turkish-Islamic manuscript binding traditions.

Chaghatay manuscripts' protective covers were usually made of leather material cardboard since its durability was considered as the strongest. Nonetheless, bindings overlaid with materials such as thin wood, cloth, or marbled paper are also attested. The manuscripts of Chaghatay language usually have a plain front cover with *chain borders* or without, *medallion* (known as *şemse* in Turkish) in the center, *pendants* (*salbek* in Turkish), *corner pieces* (*köşebend* in Turkish) and some bindings have marbled paper on the cover, which is referred to as *ebru* paintings in Turkish language. The medallion is an oval or circular design positioned at the center of the front cover, often adorned with different decorative elements such as floral motifs or intricate patterns. It is called *şemse* in Turkish language which comes from the Arabic "*shems*" meaning "sun". Pendants are two smaller motifs that appear on the top and bottom of the medallion. Corner pieces, generally positioned at the four corners of the manuscript cover, often feature triangular forms or geometrically proportioned circular motifs. Additionally, chain border designs were used as framing elements to embellish the cover binding of the manuscript.

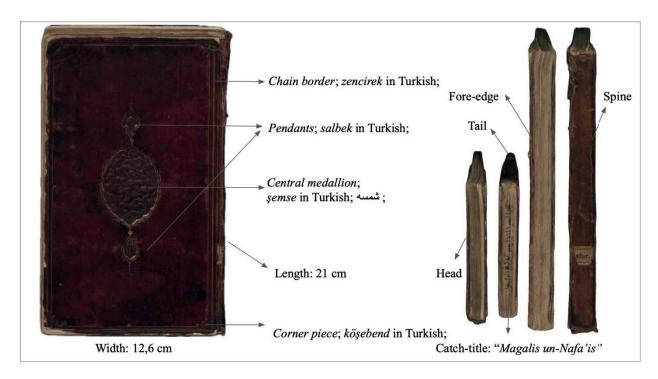


Fig. 1. "Majalis un-Nafa'is" Ali Shir Nava'i 1547, Berlin State Library;

This is the front cover of "Magalis un-Nafa'is" (Assemblies of Precious (or Exquisite) Gatherings), Ali Shir Nava'i's manuscript written in 1574 which is currently preserved in the Berlin State Library. As we have mentioned previously, the library has hundreds of digitized manuscripts that are available to work remotely for foreign scholars, historians and researchers. At present, it is available to study six digitized manuscripts of Ali Shir Nava'i on the site.

The manuscript given below is bound by *type III*, binding without flaps, brown, leather-covered. It has a medallion with floral motifs, pendants, corner pieces and chain borders.

Research Results

Decorative Binding with Marbled Paper/Ebru

Originally the word *ebru* in Turkish comes from Persian language "*abri*" which stands for *cloud*, thus "*kaghaz-i abri*" meaning *cloud paper*. Consequently, there is a general consensus that marbled paper first appeared in Iran as early as in the 9/15th century (Deroche, 2006). Marbling is a method of making an illustrative colourful paper by the application of colours that float on the surface of a gum-based liquid. Deroche (2006) claims that the earliest manuscripts bound with marbled paper can be dated to between 1470 and 1490, and were found only in the Timurid Empire. After 1540, *ebru* gained significant popularity and widespread use in the Ottoman Empire.

An illustrative example of the use of *ebru* painting can be found in a manuscript dated 1737 called "*Shajara'i Turki*" by Abu'l-Ghazi Bahadur Khan (the 17th century khan, Khiwa/Chiva), housed in the Berlin State Library, in which *ebru*-decorated paper was employed for the front and back endpapers.





Table 2. "Shajara'i Turki" by Abu'l-Ghazi Bahadur Khan, 1737; Berlin State Library;

Chaghatay manuscript preserved in the rare and valuable books department; Al-Farabi Kazakh National University Library. MS no. 273;

Signed bindings were a rare phenomenon in Arabo-Persian or Ottoman manuscripts. However, it appears that signed manuscripts were widespread, especially in Central Asia and Afghanistan (Gacek, 2009). Signed bookbindings are manuscripts where we can find the name of a bookbinder, usually on the upper cover, in the middle of the central motif or inside of the top or bottom pendants. Here, in the following table we can see one example:





Table 3. Chaghatay manuscript with front and back covers bound in marbled paper. "Ḥaṭai wa-Ḥotan Ğin wa-MaĞīn Tārīḥ" by Ḥiṭāʾī, ʿAlī Akbar, 1728; Berlin State Library;

Fig. 2. A signed Chaghatay manuscript preserved in the rare and valuable books department; Al-Farabi Kazakh National University Library. MS no. 251



Pendant of the manuscript with the name of a bookbinder: "Amal Muhammad Yusuf sahhaf"



Calligraphy, Types of Calligraphy

Calligraphy is not only the style of writing, it is a representative of mind, intelligence, culture and thought. Calligraphy played and still has a substantial role in Islamic world. To express the greatness of this art, writing masters demonstrated their work on manuscripts and architectural compositions. Different types of handwriting could illustrate and convey information about the history, knowledge, culture and tradition of various periods and places. From time to time, the styles of calligraphy have been changing due to the purpose of writing, regional and cultural diversity, political or religious impacts, and the availability of materials such as paper, ink and pen.

The choice of calligraphic styles in Central Asian manuscripts differ depending on their specific functions and intended purposes. There were scripts suitable for official papers as documents, letters, legal agreements, several more were in decorative ways (literature, prose, etc.) and the rest had non-formal methods that were accessible and more straightforward (Amat, Dwyer, Eziz, Papas, & Sperberg-McQueen, 2018). Certain book hands were used solely for the purpose of writing the Quran. Hence, book scripts in manuscripts of the Islamic world are historically divided into two groups: *khutut al-masahif* and *khutut al-warraqin* which represents *Quranic scripts* and *non-Quranic script* hands. Here are the most commonly used handwriting styles in Chaghatay manuscripts:

Nasta'liq was the script type that was applied predominantly in Chaghatay manuscripts. Ali Shir Nava'i's works are also in nasta'liq style. However, we can discover other types of calligraphy infrequently like: naskh, thuluth and muhaqqaq (Amat et al., 2018). In most cases, headpieces were usually rendered in a highly decorative form. The following presents a more detailed overview of each type of calligraphy:

Nasta'liq was one of the main book-hands used to write Persian manuscripts. This type of calligraphy is also called the Genius of Persian Calligraphy. The word nasta'liq is originally a Persian compound word*: naskh and ta'liq that are translated as: naskh: "transcription", ta'liq "meaning" or "suspended"caused by its exaggerated horizontal strokes. Nesta'lik is the way it is rendered in the Turkish language. Schimmel (1990) calls this script the most significant achievement of Muslim world that served as the ideal vehicle for poetic compositions.

The script developed as a separate type of writing from the second half of the 14th century by Mir Ali Tabrizi (Atif, Rahman, 2007). As Chaghatay language was mainly influenced by Persian language, the manuscripts in Central Asia and Mughal Empire applied this script type to a great extent. Schimmel (1990) claims that after the decline of the Timurid Empire in Herat, various regional variants of *nasta'liq* emerged across Iran, Central Asia and India. Indeed, there was Qur'an written in 1538 by Shah Tahmasp (Persian calligrapher, ruler of Iran 1524-1576) with *nasta'liq* script, which lacked aesthetic compatibility with Arabic versions.

Thuluth iliterally means "one-third" from Arabic language, the type of script used in manuscripts especially for writing headings. Characterized by its large and graceful form, this type of cursive script significantly enhanced the manuscripts' decoration, elegance and aesthetics. The reason it is called thuluth is because of the fact that one-third of each letter is diagonal or slanted. In Turkish language, it is recognized as sülüs. There were Qur'ans where the first, the central and the last lines were written in thuluth, whereas the rest of the text applied naskh script (Schimmel, 1990). This type of combination was employed to enhance the aesthetic organization of the page and was popular in the period of Mamluk and Ottoman. Chaghatay manuscripts used this style mainly to write headings in an attractive way.



Table 4. *Thuluth* script: Nehcü'l-Ferâdîs/محمود / by Mahmûd b. Ali el-Harzemî نهج الفراديس 'Süleymaniye Library, Fatih Collection, MS No. 00879, Presidency of Türkiye Manuscripts Institution;

*The components of the word "nasta'liq" are originally from Arabic language, where naskh has meaning as "copy, abolish or replace"; and ta'liq "hanging, comment". However, while the words are derived from Arabic, the term nasta'liq is developed in Persian language [12].

Naskh: is a smaller, clearly legible script of Islamic calligraphy. The script was widely employed across all the Islamic countries, with each region developing its own style of writing with naskh. For instance, in Iran naskh was written rounded and highly vertical, demonstrating refined letterforms. Quranic texts written in the early 18th century in Iran with naskh were highly prized and this round naskh reached India (Schimmel, 1990) where manuscripts in the Mughal Empire were written in both Persian and Chaghatay languages. In the Ottoman Empire, with the script naskh, letters seem to glide swiftly leftward. In 1500, this style was founded by Shaykh Hamdullah and achieved notable excellence by his successors (Schimmel, 1990). Therefore, there is a Turkish expression: "Kuran Mekke'ye indi, Mısır'da okundu, Istanbul'da yazıldı" meaning The Qur'an was revealed in Mecca, recited in Egypt, and written in Istanbul.

Literally, *naskh* is translated as "to copy, transcribe, replace, reproduce, or abolish". Emerging in the 10th century and developed by Yaqut al-Musta'simi, a calligrapher, the script was primarily employed for transcribing formal documents or the Qur'an, valued for its clarity and readability. Whereas *nasta'liq* was written curvilinearly, *naskh* style's main feature was its rectilinear shape, the letters were written right-lined (Amat et al., 2018). In addition to the fact that *naskh* script was primarily applied for the copying of medium and small-sized Quranic passages, it was also adopted broadly as a bookhand for transcribing non-Quranic texts, namely in the fields of tafsir, hadith, fiqh, nahw and other similar texts (Gacek 1989). In the given example below, *naskh* style was used to write historical and genealogical work in Chaghatay language in the mid-17th century.

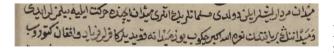


Table 5. **Naskh script**: Abu'l-Ghazi Bahadur Khan, (Khiwa/ Chiwa Khan): Seğere'i Turki, 1150, (1737); Page 24, Berlin State Library;

Muhaqqaq محقق means "fully realized", "ideal" and "strongly expressed". The scripts appeared in the 10th century and became a calligraphic hand in the 13th century. Muhaqqaq style was applied to write large Qur'an in a fine, decorated shape. Its distinctive feature, setting it apart from other script styles, is that muhaqqaq used diacritical marks. Adam Gacek suggests that, muhaqqaq script was exclusively applied for transcribing the Quran (Gacek, 2009).

Shikastah شكسته emerged as the result of writing nasta'liq swiftly. It is a Persian script form, originally translated as "broken script" which was adopted at the beginning of the 11/17th centuries. It blends the forms of both nasta'liq and ta'liq. Shikastah is a cursive way of writing as with nasta'liq (Gacek, 2009). However, this type of book hand may require greater challenges in legibility and comprehension.

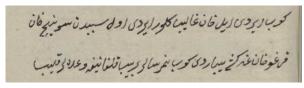


Table 6. **Shikastah script**: Abu'l-Ghazi Bahadur Khan, (Khiwa/ Chiwa Khan): Seğere'i Turki, 1150, (1737); Page 97, Berlin State Library;

Characterized by diverse bookhands revealing the value of calligraphy within Muslim communities. In fact, scripts like *thuluth* and *muhaqqaq* are already providing evidence for being the principal category of art in Islam. According to religious tradition, it is unacceptable to represent the images of living beings as of humans or animals, resulting in the elevation of calligraphy as the most esteemed art in the society by embracing aesthetic, religious and spiritual values altogether. Annemarie Schimmel (1979) called calligraphy "an art that can be defined without exaggeration the quintessential art of Islam" to specify its indissoluble tie with the religion of Islam. Therefore, the most high-priced treasure for muslims was considered the calligraphy of the Quran. There is a Turkish saying that: "In spite of the fact that foreign artists could build mosques, yet they were not able to write a copy of the Quran". Moreover, calligraphers have been considered as destined for Paradise for the ability of copying the Quran, whereas painters were regarded as food for Hell (Schimmel, 1990).

Qalam or Calamus: Writing Accessories

Since the earliest periods, the instrument applied for writing in Islamic tradition was a pen made from a reed that was commonly known as *qalam* in Arabic language (also in Greek "kalamos", in Latin "calamus"). The word appears multiple times within the Quranic texts, and significantly, one surah carries the name "Al-Qalam".

Before using the reed pen as a writing tool, one side had to be sharpened or cut, to make a nib, as it makes the writing process suitable. The trimming process was the most important part of making the pen. The nib was shaped in various ways to suit the particular requirements, depending on the type of calligraphy and manuscript. As noted by Adam Gacek, there were three main types of cutting the nib:



Table 7. Types of nib cuts (Gacek, 2009).

Deroche (2006) demonstrated the types of reed pens depending on their geographical location. Accordingly, the nibs of the qalam varied from region to region. For instance, in the Maghribi calligraphic tradition (western part of the Islamic world: Morocco, Algeria, Tunisia, etc.) the nibs were more rounded, like an arc of a circle. The inner curve was slightly flattened, thus making it comfortable to hold (Deroche, 2006). Maghribi calligraphy mostly developed directly from Kufic script and this style of nib could support to make curvilinear strokes typical of Maghribi scripts. Whereas in the Muslim East, Deroche demonstrated (2006) the application of angled nibs. It can therefore be inferred that angled nibs were used in writing the *Nasta'liq* script in Chaghatay Turkish.

Ink

There are numerous ancient works written in Arabic language where the ways and techniques of manuscript production are described with details. They provide information about the names, terminologies of each device and instruments employed in bookmaking tradition and the methods how the inks, pens and papers were made. They are: *Umdat al-Kuttab* (the Pillar for the Penmen) by Ibn Badis (1062 CE); *Zinat al-kataba* (The Ornament of the Scribes) written in the 10th century by Al Razi, well-known chemist and physician of his time; *Al-Muhtara fi funun min aṣ-ṣuna* (The Findings on the Techniques of Craftsmanship) by al-Malik al-Muzaffar Yusuf al-Gassani (1294-1295 CE), *Kitab al-azhar fi 'amal al-ahbar* (The Most Beautiful Flowers on the Production of Inks) by Muhammad Ibn Maymun al-Marrakusi al-Himyari (mid. 13th century) are the oldest sources about the ingredients and the process of inkmaking (Fani, 2021). These works are essential for scholars and scientists in the sphere of codicology and paleography.

Generally, two types of ink making process were applied predominantly in early Arabic-script manuscript production: carbon ink which was called *midad* مداد and iron-gall ink - *hibr* in Arabic language (Gacek, 2009). These were also the way the ink was called. The third kind of ink could be supposed to be the combination of these two types. Consequently, there was another name referring to the ink as شسته *murakkab*, which is literally translated as "composition, combination". This term is still used in the modern Turkish language as *mürekkep*, meaning *ink*. Based on Deroche, (2006) there was no exact facts about the variation between the types of inks, whereas the terms were used interchangeably in culturally or linguistically non-Arabic regions.

Carbon-based inks were composed using soot (lampblack) dispersed in gum arabic and water. The ingredients and the methods of preparing the soot broadly varied. However, the most widespread components applied were the vegetable substances such as olive, rice, seeds of radish, sesame, hazelnut and walnut oil (Gacek, 2009). As stated by Ibn Badis, an Indian ink was produced

by mixing vegetable and animal fat (Deroche, 2006). Whereas, Austrian orientalist Grohmann and Tunisian historian Chabbouh claimed the utilization of petroleum in making the carbon ink (Chabbouh, 1995). The carbonization process was generally made by burning the substance and turning it into powder. Most commonly, the powder was suspended in gum arabic. Although, Deroche claims, in Ibn Badis's work, it is stated that mostly manuscripts of Iraqi background employed the egg white instead of gum arabic (Deroche, 2006), while Gacek adds the using of honey to bind the ink (Gacek, 2009).

The second type of ink, iron-gallic inks were derived from gall-nut, vitriol and gum arabic. Gall-nuts are usually found in oak trees, consequently, they are also known as oak apples. They are small round formed swellings made by insects to keep their eggs. It is said that oak trees contain high concentrations of tannic acid (Deroche, 2006). Vitriol was taken from the alum, then by mixing with the powder of gall-nuts and gum arabic resulted in the production of a perfect black colour. Deroche (2006) also states that the regions influenced by Persian manuscript tradition applied an alum as vitriol. Considering the strong cultural ties between Chaghatay Turkish and Persian traditions, it is reasonable to presume that alum was used in the preparation of this type of ink.

Because of the acid, the colour of iron-gall inks were considered unsteady and could change over time. Indeed, when the amount of ingredients were not added properly and contained too much acid, it could even lead to the burns and written areas could be deteriorated. Whereas carbon-based inks were also not persistent and could be rinsed off easily, due to this fact *midad* was not generally applied to write on parchment (Gacek, 2009).

Chaghatay manuscripts were predominantly written in black ink for the main text, and red colour for special definitions, decorative framing or rubrications. The aforementioned facts reveal that the ingredients could be different due to the region and did not have a strict single method of making the ink. Additionally, the additives of the ink may depend on the availability and accessibility of the product.

Paper

Early Islamic manuscripts before the widespread consumption of a paper, found in various types of writing materials such as papyrus, parchment or palimpsests. Papyrus was the oldest material applied for writing documents or manuscripts, since one of the better preserved Arabic papyrus manuscripts found in Cairo written in approximately 843-844 CE. While the latest manuscript produced on parchment material was found in Syria dated to 1572-1573 in Arabic language (Deroche, 2006). Apart from the parchment's durability, the original text from parchment could also be erased easily, making it suitable for reuse. They are referred to as palimpsests.

By the time Chaghatay Turkish emerged broadly in Central Asia, the paper had already replaced earlier materials and established itself as primary manuscript production throughout Central Asia, Iran and India. In fact, it is said that Islamic world was introduced with paper making technology in the year 751 in Central Asia, specifically after the battle Atlakh on the river Talas (currently Taraz in Kazakhstan), via captured Chinese artisans and they were taken to Samarkand where the first paper mill was set up (Gacek, 2009).

Multiple terms were used to refer to paper reflecting different historical and cultural shifts. Qirtas قرطاس or waraq ولو نزلنا عليك كتابًا في " - "And even if we had sent down to you, [O Muhammad], a written scripture on a page/paper..." denoting that the word was used as a general writing material which could be a paper, papyrus or a parchment. Kāghaz كاغذ originated from Persian language, was transmitted to Turkic languages (Ottoman and Chaghatay, Uyghur Turkish) (Deroche, 2006) and currently became a dominant term for true paper in Arabic and most Turkic languages. For example, in modern

Turkish language paper is called *kağıt*, in Kazakh language *καεα*3 (qağaz), in modern Uzbek *qog'oz*, in Kyrgyzκαεα3and in Uyghur ἐκὸτὸ ἐεtc.

Until recent times, due to the lack of accurate data and for the reason that most Arabo-Persian scripted manuscripts were generally non-watermarked, it still remains challenging to find out the exact origin or typology of the paper. In European manuscripts, watermarks were prominent and served to indicate the geographical origin of the material. Therefore, origins of papers produced in the Arab and Islamic world are identified through their types and variations (Gacek, 2009). Most Chaghatay manuscripts were not usually ruled or spaced with chain-lines. From digitized Chaghatay manuscripts preserved in Berlin State Library and Süleymaniye Library in Türkiye, we can state that papers are not laid or chain-lined, they tend to be generally wove and pattern-less. According to Gacek (2009), such types of papers were used from the earliest times, and were popular in Iran, Iraq and India, too. They had some erratic patterns with pale-brown or cream colour. Nevertheless, Deroche implies (2006) that for some manuscripts written in Mughal India from the eleventh/seventeenth and twelfth/eighteenth century, papers with chain-lines spaced between 30-55 mm were applied.

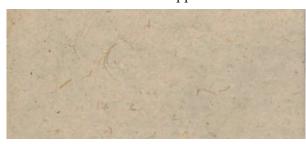


Fig. 3. Wove paper from "Majalis un-Nafa'is" Ali Shir Nava'i 1547, Berlin State Library;

Apart from Samarkand, paper manufacture was also widespread in cities as Isfahan, Khurasan (current Mashhad, Iran), Bukhara and Fergana (Afshar, 1997).

Ali Shir Nava'i, one of the figures who established classical Chaghatay Turkish literary tradition, lived during a period when paper mills were well-established across these cities and characterized by their extensive distribution and high quality. Nava'i spent most of his life and composed his prominent works in Herat, when the city was the capital of the Timurid Empire and considered as one of the important centers of trade, culture and civilization. In fact, French art historian Porter (1992) stated about his findings from the text of *Baburnama* about papermills situated in Herat. The evidence indicates that paper making, first originated from Samarkand, appears to have spread through the entire region. Thus, we can assume that Ali Shir Nava'i and other prominent Chaghatay Turkish authors applied indigenous papers for manuscripts. Amat et al. (2018) stated that 20% of manuscripts preserved in the Jarring Collection at the Lund University Library in Sweden are found to be indigenous paper. They are in the colour of yellow or yellowish with various thickness and page sizes, being polished, slightly polished or unpolished.

Headpiece

Headpiece is the ornamentation applied in the first page or in the beginning of any work or a composition. This is usually used in order to decorate and separate particular parts or chapters of a work. Accordingly, we find headpieces usually with or without the basmalah (بِسْمِ ٱللَّهِ الرَّحِيمِ - in the name of Allah, the Most Gracious, the Most Merciful) in the first pages, as well as in the middle of the manuscript for indicating the next part of the work.

In Turkish language headpiece is termed as *serlehva*, which comes from Persian *sar* and Arabic *lauh*. As mentioned in different Persian and Arabic sources, there are different ways to name this part of decoration: *turrah*, *tughra*, *tarjamah*, *sarlawh* and *dibajah*. Though, most scholars and majority of papers use the terms (illustrated) *unwan* or *sarlawh* (Gacek, 2009).

Illustrated unwans had various types of forms, shapes and measurements. Adam Gacek divides the types of headpieces into several categories:

- One, two rectangular boards (placed one above the other);
- Rectangular panel crowned by an illustrated tape;
- Rectangular board crowned by triangular pieces;
- W-shaped pieces on rectangular panel;
- Semi circular or a dome rectangular panel;
- Single triangular pieces;
- Single semi-circular pieces (Gacek, 2009).

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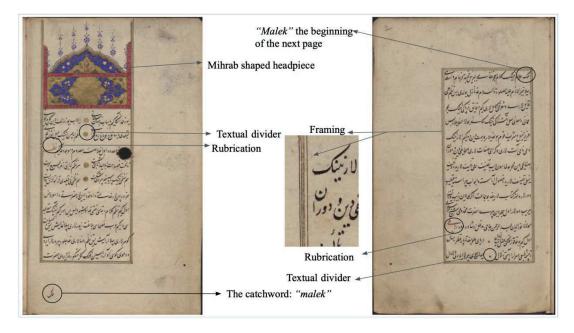


Fig. 4. Majalis un-Nafa'is" Ali Shir Nava'i 1547, Berlin State Library: pages 8-9

Mihrab shaped (prayer niche) headpieces were popular in Turkic manuscripts, where Turkish scholars call them *mihrabiye*. The panel of the headpieces could be left blank or hold the title of the work or the *basmalah*.

This is the beginning of "Majalis un-Nafa'is" where we can see its writing style as nasta'liq with black ink on a wove paper. A mihrab-shaped headpiece without a title piece was used to decorate the first page of the manuscript. The headpiece is decorated with vegetal decorations in blue, yellow and red colour and floral motifs.

The ruler-border or a frame is a single or multiple parallel lines drawn around the main text in differing colours. Such forms of decoration are widely employed in the Quranic texts, too. The most commonly used phrase to indicate the framing is *jadwal*, even so there are words such as *jadwalah*, *tajdawil*, *jadilah*, *itar* or *mustatil* and *sharit* which denote the same meaning (Gacek, 2009). In the Turkish language, *jadwal* is transcribed as *cetvel*. The given pages are bordered by three parallel black and brown or golden coloured lines.

The work starts with divan poetry where verses were separated with round yellow points. On the left corner at the bottom we can find a horizontal catchword *malek* which addresses the next page. *Catchwords* were one of the types of numbering, to ensure the correct order of the work. They were termed *rakkabah*, *tasfih* or *ta'qibah* in Persian and Arabic languages (Gacek, 2009). Another essential feature to note is the rubrication design. The main body here was written in black ink. It is

evident from the text that there are several words penned in red or red/brown ink. This category of writing was used for keywords, marginal notes, retouching, outlining horizontal strokes in a decorative manner, and for textual dividers or paragraphing marks (Gacek, 2009). As demonstrated here, rubrics of the work were applied to illustrate the beginning of the poetry or separate poetry lines from prose passages. In the role of textual divider marks, yellow/brown discs and points are illustrated in the manuscript. Decorative round discs are demonstrated on the first page where the headpiece is situated, serving to enhance the overall aesthetic and elegance of the page. On the second folio, punctuation marks - specifically dots - were employed to demarcate individual poetic passages.

As demonstrated, even a single manuscript can serve as a rich source of insight into the life, traditions, culture, and historical context of a specific period of a particular area. This underlines the scholarly significance of individual works, which may serve as foundational sources for broader research and contribute to numerous discoveries.

Conclusion

Chaghatay language was the main lexicon and literature language of people who lived in Central Asia from the 15th century till the beginning of the 20th century. The written heritages of those times give researchers very valuable information about the social, historical and cultural dimensions of early Central Asian communities. The manuscript emerges as a cohesive masterpiece through the integration of its binding, decorations on the cover, each page design, ink, paper type and calligraphy used throughout. Here we should mention, the physical aspects of the manuscripts hold highly sophisticated meanings and value. Studying and analysing them give us subsequent data and reveal incomprehensive interpretations. As a result of this work, the principal types of bookbinding, paper, inks, and decorative features characteristic of manuscripts in Chaghatay Turkish have been pointed out and analyzed. In addition, particular attention has been given to distinctive binding practices, such as signed bindings, which were especially prevalent in Central Asian manuscript traditions.

Another notable contribution of investigating the physical characteristics of manuscripts is for cataloguing ancient books. In the process of cataloguing, it is pivotal to highlight the categories of handwriting style, binding and headpieces. Understanding and being knowledgeable in the sphere of ancient written heritages is substantial, since they are representatives of a specific history, guiding the enlightenment and wisdom. There are numerous studies on codicology and paleography in western countries. The studies of Adam Gacek, François Déroche, Annemarie Schimmel are widely regarded as exemplary, where they have observed the intricate details of manuscripts. It should be pointed out, the western studies on manuscripts encompass all Muslim-majority countries altogether, primarily categorizing them by naming the regions or ethnicities, as Turkic, Arabic, Persian or Central Asian manuscripts. Turkic manuscripts occasionally mean both Ottoman and Chaghatay manuscripts. As research in codicology, especially of Chaghatay manuscripts in Kazakhstan, is in the position of deficiency, the field suffers from a lack of comprehensive scientific studies, articles, books or other kinds of analysis made on the physical appearances of handwritings. Although this study has both general and specific analyzes of the Chaghatay Turkish language, it should be regarded as a preliminary stage in a wider and more in-depth investigation that will be essential for future research. We hope this article will serve as a useful source of information for scholars working in this field.

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ШАҒАТАЙ ҚОЛЖАЗБАЛАРЫНЫҢ ДӘСТҮРЛЕРІ: КОДИКОЛОГИЯЛЫҚ ЕРЕКШЕЛІКТЕРІН ЗЕРТТЕУ

Аннотация. Кодикология – түпнұсқа қолжазбаның материалдық және құрылымдық параметрлерін зерттеуді өз міндетіне алатын ғылым саласы. Бұл зерттеу арқылы біз қолжазбаның қашан, қайда, қандай жағдайда және қандай мақсатпен жазылғанын анықтай аламыз. Орталық Азия халықтары арасындағы өзара байланыс құралы болған шағатай тілі тарихи тұрғыдан айрықша маңызға ие. Шағатай тіліндегі жазба мұралар өткен қоғамдардың рухани және мәдени өмірінен құнды мәліметтер береді. Алайда осы көне түркітілді қолжазбалардың кодикологиясына арналған арнайы зерттеулердің жеткіліксіз екенін мойындауымыз қажет. Кодикология ғылымы кітаптың мазмұны сияқты оның материалдық болмысында маңызды деп есептейді. Қолжазбалардың жазылу мәнері, эстетикалық

шешімімен көркем безендірілу тәсілдері өз кезеңінің мәдени және идеялық көзқарастарын айқын бейнелейді. Біздің зерттеу жұмысымыздың мақсаты — шағатай қолжазбаларының эстетикалық және физикалық өлшемдерін зерделеп, кодикологиялық тұрғыдан кешенді талдау жасау. Зерттеу барысында негізінен батыс ғалымдарының еңбектеріне сүйене отырып салыстырмалы талдау жүргізілді. Нәтижесінде Орталық Азиядағы кітап түптеу дәстүрлеріне тән мұқаба безендіру ерекшеліктері, жазу мәнерлерімен шағатай қолжазбаларына тән иллюстрациялық элементтер айқындалды. Сонымен қатар қолжазба тану саласында қолданылатын деректерді талдау әдіснамасы шеңберінде маңызды терминдердің түрік және түпнұсқалық нұсқалары ұсынылды. Қолжазбалардың физикалық сипаттамаларын көрсету үшін Берлин мемлекеттік кітапханасының, Сүлейман ие кітапханасының цифрландырылған шағатай қолжазбаларымен әл-Фараби атындағы Қазақ ұлттық университеті кітапханасындағы түпнұсқа көшірмелер пайдаланылды.

Түйін сөздер: кодикология, физикалық өлшем, кітап түптеу дәстүрі, каллиграфия, безендіру, шағатай қолжазбалары.

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ТРАДИЦИИ ЧАГАТАЙСКИХ РУКОПИСЕЙ: ИССЛЕДОВАНИЕ КОДИКОЛОГИЧЕСКИХ ОСОБЕННОСТЕЙ

Аннотация. Кодикология представляет собой научную дисциплину, изучающую материальные и структурные характеристики оригинальных рукописей. Данная область знаний позволяет установить время, место, условия и причины создания рукописного памятника. Чагатайский язык, служивший средством общения между народами Центральной Азии, занимает важное место в историческом развитии региона. Рукописное наследие на чагатайском языке раскрывает особенности духовной и культурной жизни прошлых обществ. Следует отметить, что специальных исследований, посвящённых именно кодикологии рукописей на этом древнетюркском языке, крайне мало. Кодикология рассматривается как столь же значимая, как и смысловое содержание самих книг. Стиль, эстетика и художественное оформление рукописей отражают мировоззрение и культурные ориентиры своей эпохи. Цель данного исследования – изучить эстетические и физические параметры чагатайских рукописей и провести их кодикологический анализ. В ходе работы были использованы в основном труды западных исследователей, что позволило осуществить сравнительный анализ. Результаты выявили характерные черты оформления переплётов, присущие традициям книгопереплётного искусства Центральной Азии, особенности почерков и иллюстративные элементы, свойственные чагатайским рукописям. Кроме того, представлены турецкие и оригинальные версии терминологии, применяемой для обозначения ключевых понятий в системе анализа данных рукописей. Для описания физических характеристик были использованы цифровые версии чагатайских рукописей из Государственной библиотеки Берлина, библиотеки Сулеймание, а также печатные экземпляры из библиотеки Казахского национального университета имени аль-Фараби.

Ключевые слова: кодикология, физическое измерение, традиции книгопереплётного искусства, каллиграфия, оформление, чагатайские рукописи.

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