



International Journal of Innovative Technologies in Social Science

e-ISSN: 2544-9435

Operating Publisher
SciFormat Publishing Inc.
ISNI: 0000 0005 1449 8214

2734 17 Avenue SW,
Calgary, Alberta, T3E0A7,
Canada
+15878858911
editorial-office@sciformat.ca

ARTICLE TITLE MONGOLIAN SEAL SCRIPT REPRESENTATION

DOI [https://doi.org/10.31435/ijitss.2\(50\).2026.5677](https://doi.org/10.31435/ijitss.2(50).2026.5677)

RECEIVED 18 April 2026

ACCEPTED 25 June 2026

PUBLISHED 30 June 2026

LICENSE



The article is licensed under a **Creative Commons Attribution 4.0 International License**.

© The author(s) 2026.

This article is published as open access under the Creative Commons Attribution 4.0 International License (CC BY 4.0), allowing the author to retain copyright. The CC BY 4.0 License permits the content to be copied, adapted, displayed, distributed, republished, or reused for any purpose, including adaptation and commercial use, as long as proper attribution is provided.

MONGOLIAN SEAL SCRIPT REPRESENTATION

Gantulga Bold

Doctor (Ph.D), Professor, Director at the School of Fine Arts and Design Technology, Mongolia

ABSTRACT

The visual arts play a vital role in human civilization, with each nation having its own tradition of elevating writing to an artistic standard. Throughout history, the Mongolians have been renowned for their creation and use of various unique writing systems, such as Mongolian script, square script, and soyombo script, as well as their rich tradition of beautifully depicting them. One particularly noteworthy tradition is the art of folded letters, which has been widely used in seals, coins, decrees, and decorative items from the 13th-14th centuries to the present day.

However, experts are now concerned about the increasing prevalence of low-quality, grammatically incorrect folded typefaces in advertisements, logos, and book and magazine titles.

Therefore, it is essential to analyze the characteristics of folded typefaces, folding principles, and proportions, and to establish a method for precise artistic depiction. This paper aims to discuss the historical context of Mongolian folded typefaces, the basic principles of folding, and representation proportions, and to investigate their potential for artistic use.

Nations around the world have a rich history of developing and spreading their national scripts to a high level of artistic achievement. The embellishment of letters and words in different script traditions varies. For example, in the English, French, Czech, Hungarian, and Latin alphabets, the Gothic letterforms of medieval Europe influenced decorative styles, with each developing its unique approach. Russia and Bulgaria, which use the Cyrillic script, drew inspiration from these traditions and embellished their lettering in various ways in ancient manuscripts. They also utilized these styles in printing, books, and religious texts, as highlighted by Doctor Byambyn Rinchen.

Seal script (literally “folded script”) forms are divided into two main categories: square seal script (also known as patterned script) and curved seal script (also known as ornamental script).

The key feature of folded script is the meticulous treatment of letters to achieve a high artistic quality while maintaining the graceful proportions and rhythm of each character, effectively conveying the word's meaning, content, and visual appeal. The intricate and refined nature of folded script conveys a multitude of symbolic meanings, adding depth to its expressive narrative.

KEYWORDS

Mongolian Seal Script, Square Seal Script, Curved Seal Script, Symmetry Principle, Equal Proportions Principle, Script Representation, Graphic Design

CITATION

Bold, G. (2026). Mongolian seal script representation. *International Journal of Innovative Technologies in Social Science*, 2(50). [https://doi.org/10.31435/ijitss.2\(50\).2026.5677](https://doi.org/10.31435/ijitss.2(50).2026.5677)

COPYRIGHT

© The author(s) 2026. This article is published as open access under the **Creative Commons Attribution 4.0 International License (CC BY 4.0)**, allowing the author to retain copyright. The CC BY 4.0 License permits the content to be copied, adapted, displayed, distributed, republished, or reused for any purpose, including adaptation and commercial use, as long as proper attribution is provided.

The Seal Script

Each seal script¹ and word adheres to specific rules and principles for its unique folding style. If the correct proportions and stroke patterns are not followed, the script may become unreadable. When folded script words resemble decorative designs but still convey their intended meaning, it creates a delightful effect similar to a poem with dual interpretations. This ideal fusion of form and content is a rare occurrence. In folded script, not only the square folding method but also round folding can be utilized for different artistic purposes as any ornamentation can be integrated harmoniously.

A skilled calligrapher who is well-versed in various scripts can analyze the meaning and message of a word or phrase, and then skillfully create it with precise proportions, transforming it into stunning patterns, embellishments, and adornments of unparalleled visual beauty. The evolution of calligraphy has followed a natural progression over centuries: either fading away with time or advancing and refining itself further.

¹ Also named by “Folded script”.

The Russian Seal Script

Each nation around the globe, in enhancing its unique writing style, created a distinct set of folding guidelines and stroke patterns tailored to its writing traits. The intricate decorative features seen on folded script inscriptions, which were folded in a grand, organized fashion reminiscent of patterns and embellishments, indicate the widespread use of folded script not only in book embellishment but also in various ornamental arts.

In the twelfth century, folded script was utilized for book decoration in Bulgaria, and there are references to its presence in Byzantine manuscripts dating back to the mid-eleventh century. By the late fourteenth century, folded script started being used in book decoration in Russia. There were two styles of folded script: round and angular.

The round folded script style consisted of thick, flexible strokes with a pointed overall shape, with many letter elements ending in dots and circular forms. This particular style was commonly seen in Ukrainian manuscripts.



Fig. 1. Square seal script and curved seal script

The Square Seal Script and Its Folding Principles

During the Yuan dynasty in 1269, Phagpa Lama (1235–1280), who held the title of “Imperial Preceptor,” was tasked by Khubilai Khan to create the square script. Referred to by various names in historical sources of the Yuan dynasty such as “Script of the Mongol State,” “Script of the Yuan State,” and “Phagpa Script,” the square script gets its name from the shape of the characters. While it was based on the Tibetan script, the square script was written vertically from top to bottom and left to right, unlike Tibetan which is written horizontally.

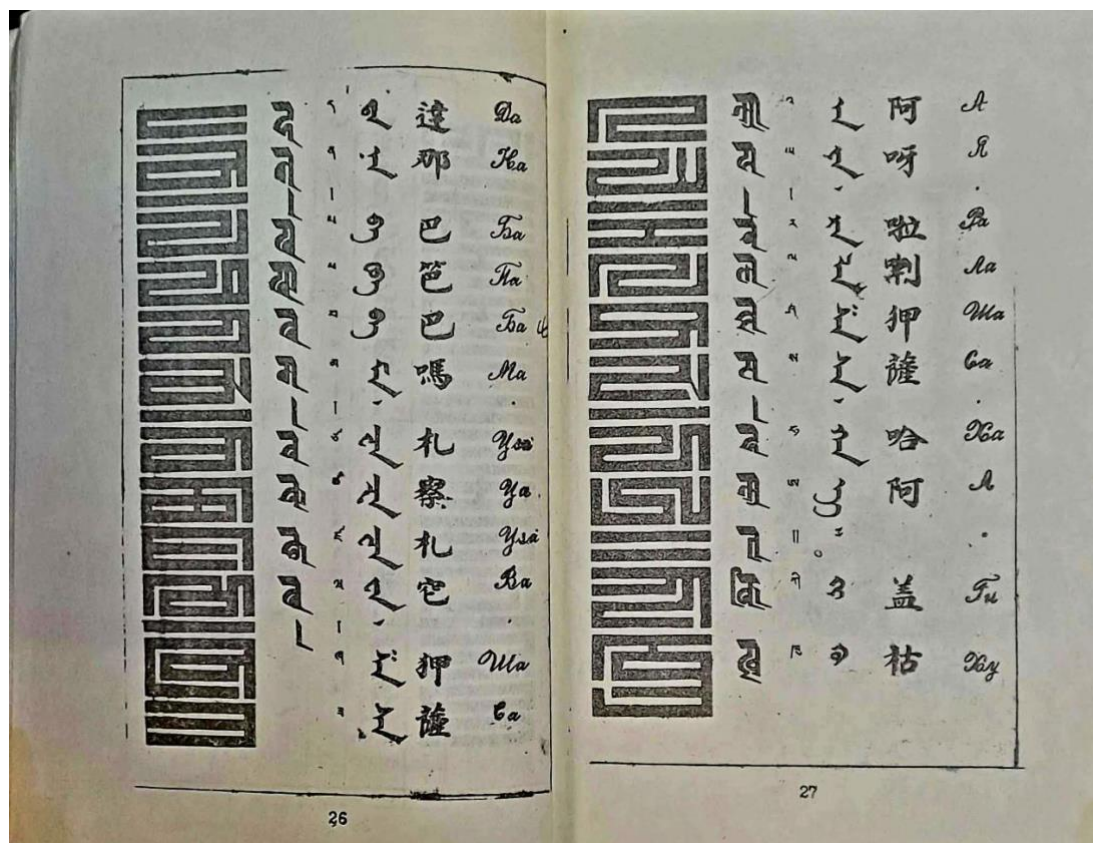


Fig. 2. The alphabet of the square seal script



Fig. 3. Russian angular script forms

In Russian manuscripts, the predominant form was angular, with rigidly rendered strokes and most strokes oriented vertically, creating the appearance of iron lattice ornamentation. This impression was further

emphasized by the strict adherence to upper and lower line boundaries. The peak period of Russian folded script is considered to be the thirteenth century, during the era of Ivan the Terrible, when the printing industry emerged in Russia. During this time, the decorative and ceremonial styles of earlier book ornamentation were revived. Capital letters and large folded letters were printed in gold or red, while the smaller running text was in black. Another notable feature of folded script is the freedom to modify the shape and size of letters vertically and horizontally within the line constraints.

Additionally, the practice of combining the primary strokes of neighboring letters into a unified composite character (ligature) was frequently utilized in the creation of manuscripts. This style gained popularity in Novgorod and Pskov manuscripts, with the most exquisite examples emerging in the mid-sixteenth century at the printing press overseen by Metropolitan Makarius in Moscow. Over time, various ornamental scripts developed from the folded script style.

Consonants						Vowels					
ᠠ	ka	ᠲ	tta	ᠠ	pa	ᠷ	zha	ᠬ	ha	ᠠ	i
ᠬ	kha	ᠲ	ttha	ᠠ	pha	ᠷ	za	ᠬ	'a	ᠠ	u
ᠠ	ga	ᠲ	dda	ᠠ	ba	ᠷ	-a	ᠠ	qu	ᠠ	e
ᠠ	nga	ᠲ	nna	ᠠ	ma	ᠷ	ya	ᠠ	xa	ᠠ	o
ᠠ	ca	ᠲ	ta	ᠠ	tsa	ᠷ	ra	ᠠ	fa	ᠠ	ee
ᠠ	cha	ᠲ	tha	ᠠ	tsha	ᠷ	la	ᠠ	gga		
ᠠ	ja	ᠲ	da	ᠠ	dza	ᠷ	sha				
ᠠ	nya	ᠲ	na	ᠠ	wa	ᠷ	sa				

Fig. 4. In *Fǎshū Kǎo* (法書考, *A Study of Calligraphic Models*) written by Sheng Ximing (盛熙明) in 1334, a Uyghur official from the Yuan dynasty, it is stated that the script consists of 43 letters.

The Phagpa script, also known as the square script in European literature, was used from 1269 to 1368. While it was based on the Tibetan script, scholars have observed a significant influence from the Mongolian writing system. The formal style of the square script is the folded type. This script has been used in official seals, paizas (authority tablets), treaties, stone inscriptions, and personal seals from the twelfth century to the present day. Despite being influenced by Eastern writing systems, the square script was in use for about a century.



Fig. 5. Gerege (passport), paiza, circular gerege, inscriptions on stamp impressions, and inscriptions on cast coins are examples of square folded script.

When examining artifacts from the Yuan dynasty, it is evident that the square script's folded forms were commonly used on various items such as illuminated steles, seals, silver tokens, books, sutras, banknotes, and silk textiles. The use of square-script artifacts suggests that the Mongols were influenced by Chinese characters when folding their letters.

When writing in folded type, a key principle is to fold the letters in a square manner following the stroke directions of the formal script. There are multiple folding forms of the square script, allowing for different ways to fold a single letter with strokes depicted as horizontal, vertical, or diagonal lines. Horizontal and straight strokes are the most common in folded script, with diagonal straight strokes appearing in only a few letters.

Seal script/Folded script consists of various types of strokes such as horizontal, vertical, diagonal, curved, and angled strokes. To write in folded square script, one must understand the phonology of the square script. It is not possible to randomly fold words or letters into a square shape, create syllables, or form words as desired.

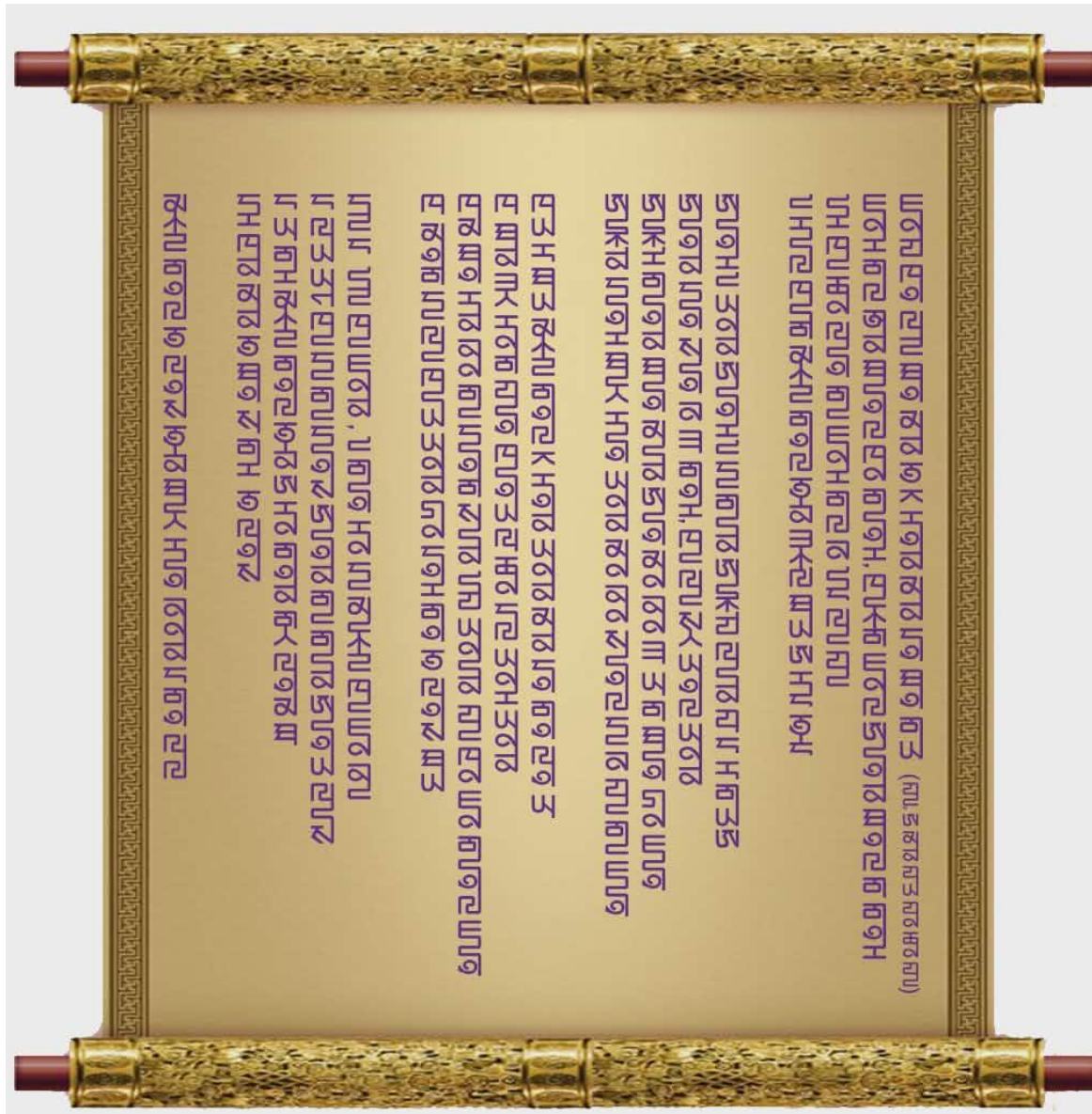


Fig. 6. The national anthem of Mongolia written in square seal script

Tulgar Script (Formal Decorative Script)

During the Qing dynasty in Central Asia, the Manchu script was developed using the Mongolian script as a foundation. The term “tulgar script” originates from the Manchu phrase “fujingga hergen,” which, as documented in dictionaries, was formalized using a traditional term from Chinese calligraphy. Academic studies validate that the artistic practice of folding and writing the tulgar script was prevalent in Manchu literature and books.

When analyzing the meanings associated with the terminology of tulgar script, it becomes evident that the forms represent different elements from nature, including animals, plants, predators, and bird tracks. Examples of established types include willow-leaf tulgar script, dragon tulgar script, tasseled tulgar script, and tiger-claw tulgar script, among others, with a total of 41 named varieties described in both Mongolian and Manchu.

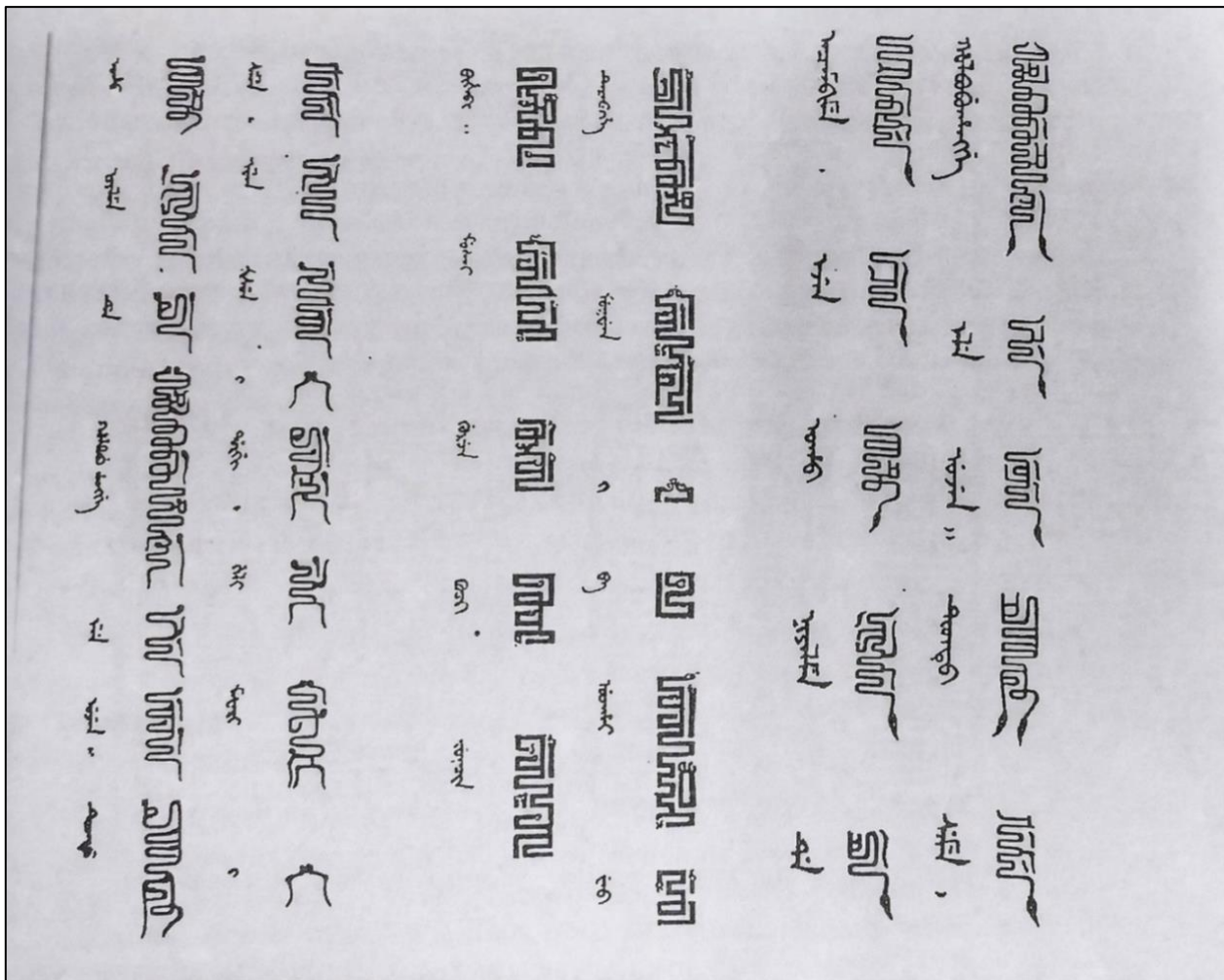


Fig. 7. Manchu seal script (*fukjingga hergen*) examples: the Tadpole style, the Bird-trace style, and the Willow-leaf style.

The Manchu “*fukjingga hergen*” (folded script) was influenced by Mongolian square folding and ornamental folding, adhering to the principles of Mongolian folded script. The Tulgar script is known for its diverse folded forms and had reached a high level of artistic and intellectual development.

Mongolian Seal Script

Examining the various written artifacts utilized by Mongols throughout history, it is evident that there existed well-defined techniques and norms for writing and illustrating. These norms encompassed three main styles: cursive script (*tatalgan*), formal script (*hicheengüü*), and folded script (*evkhmel*). Cursive script was typically employed for composing original works, jotting down personal notes, creating rough drafts, writing swiftly under time constraints, quickly transcribing words accurately, and outlining ideas, artistic concepts, and compositional arrangements. The formal style was reserved for drafting petitions, expressing gratitude in letters, extending invitations, and producing official documents.

The folded style, on the other hand, was utilized for seals and stamps, edicts, silver tokens, coins, bookplates (*ex libris*), and ornamental objects are each with its own specific function. This tradition is shared by every nation and ethnic group worldwide that has employed different forms of script. The folded version of Mongolian script has always intrigued scholars and researchers.

Mongolian scholars and writers who wrote in Mongolian, Tibetan, and Sanskrit, along with Indian and Tibetan scholars, made significant contributions to this field. Starting in the late nineteenth century, as Mongolian studies gained recognition worldwide, European Mongolist scholars began to address the tradition of Mongolian folded script to different extents in their works. The oldest known instances of folded script that have been found so far are seal impressions on official documents from the thirteenth to fourteenth centuries.

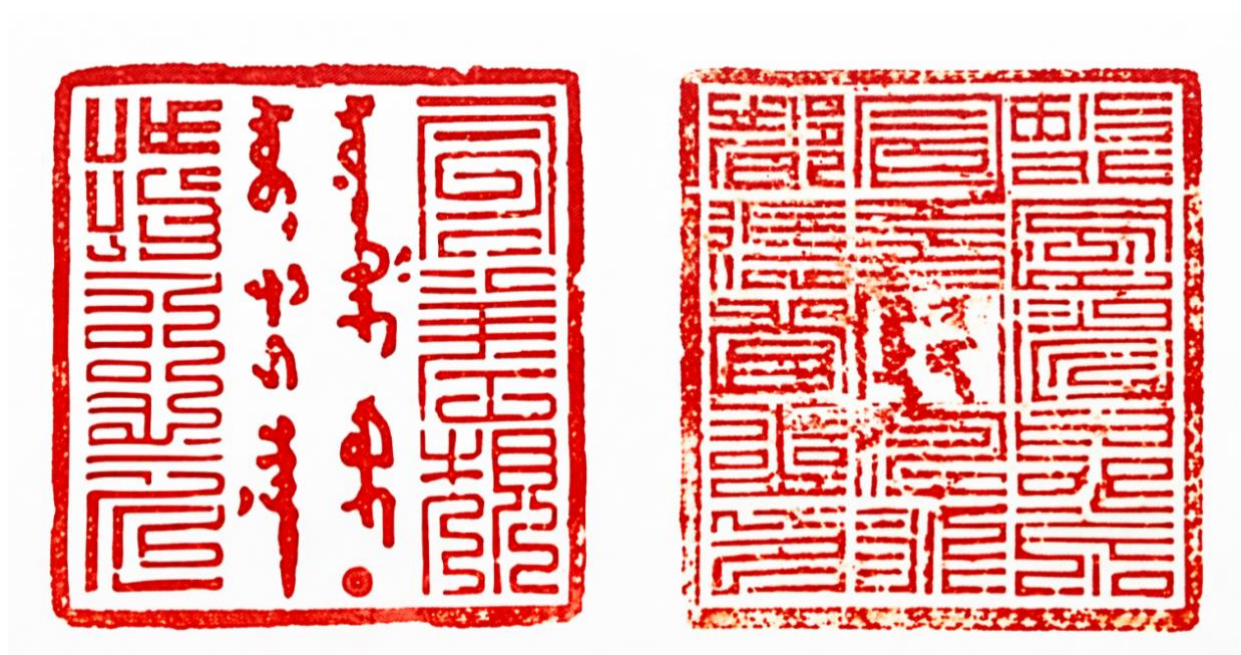


Fig. 8. Seal of the Imperial Envoy;

Seal of the State-Governing Princess

In the realm of folded script representation, various types can be found, including folded forms in the Mongolian script, the square script, the Soyombo script, and the Manchu script, also known as "Black Cursive" in certain areas and influenced by Mongolian. Notably, no folded version of the Clear Script (Tod bichig) has been found so far. Apart from the mentioned Mongolian scripts, Mongols also utilized folded styles from the Indian and Tibetan scripts for architectural embellishments.



Fig. 9. Seal of the Bogd Khan, 1911

Methodology for Drawing Mongolian Folded Script

As literacy became more important, different styles of script emerged, including folded script. It is believed that folded script was influenced by the square script used during Khubilai Khan's reign in the thirteenth century. Mongolian script has various forms, including cursive, folded, and ornamental. The folded script, which follows a symmetrical principle, comes in round, square, and ornamental varieties. Square folded script was commonly used for official documents, while round and ornamental folded scripts were used for decorative purposes. Folded script involves folding each letter according to specific rules and is closely connected to artistic expression and creativity.

When looking at Mongolian folded script styles and designs, there is a noticeable range of variation, which can be generally categorized into two main groups: square folded script and ornamental folded script. Square folded script was mainly employed for official seals, stamps, decrees, bookplates, and other official and administrative uses, and was written following folding guidelines aimed at ensuring readability.

Ornamental folded script, on the other hand, was primarily created for decorative reasons. At first glance, it may seem like just a design or ornament, but upon closer inspection, one can find auspicious words and blessings skillfully incorporated by the calligrapher or scribe. This style is traditionally used for decorative

purposes, with intricate ornamental forms beautifully intertwined. Both styles of writing followed strict conventions, including the principles of symmetry and equal proportions.

The concept of symmetry is prominently displayed in the design of square folded seals and stamps. Words were carefully placed within a square area following specific guidelines. Therefore, when writing a word, it was important to ensure it was symmetrically balanced, with no extra or missing strokes, no unintended spaces, and with equal proportions. In the case of Mongolian folded script, individual letters were elongated horizontally to fit perfectly within the square shape.

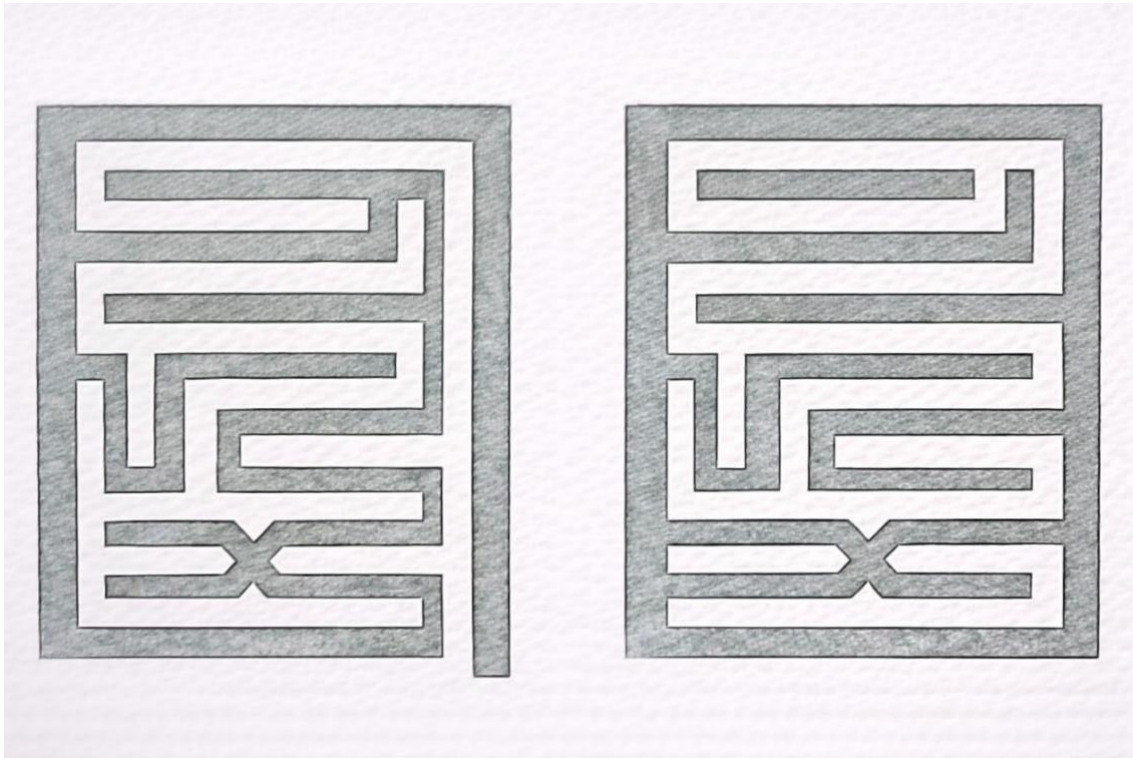


Fig. 10. The word “Bayar” (celebration) folded in two different ways according to the principle of symmetry.

If a single stroke was unexpectedly extra or lacking, a flourish or diacritical mark could be included to correct and harmonize the composition to the necessary proportions.

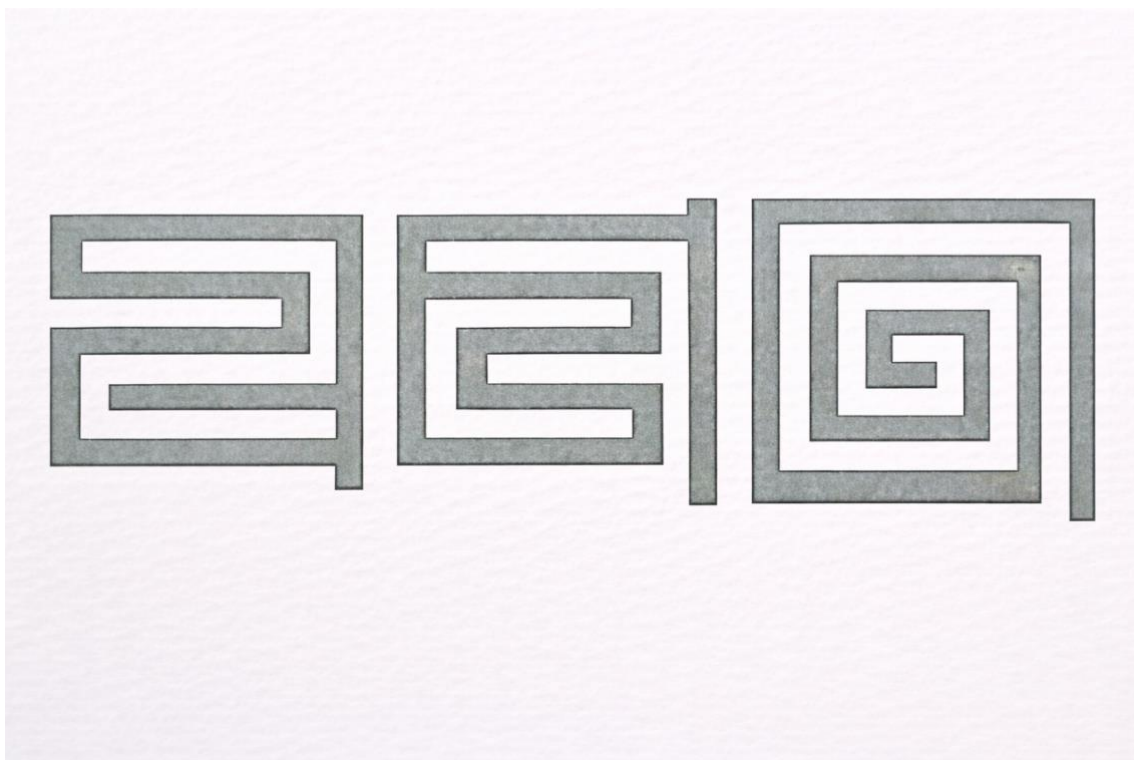


Fig. 11. *Stretching the belly and tail elements when rendering Mongolian folded script.*

The principle of symmetry was utilized for precise matching of dimensions and spacing, not commonly in sequential or row writing where stroke count did not need to be matched. The principle of equal proportions is distinct from symmetry. In Mongolian folded script, spacing within a word follows equal rhythmic proportions, requiring all strokes and spaces to be perfectly equal for visual harmony.

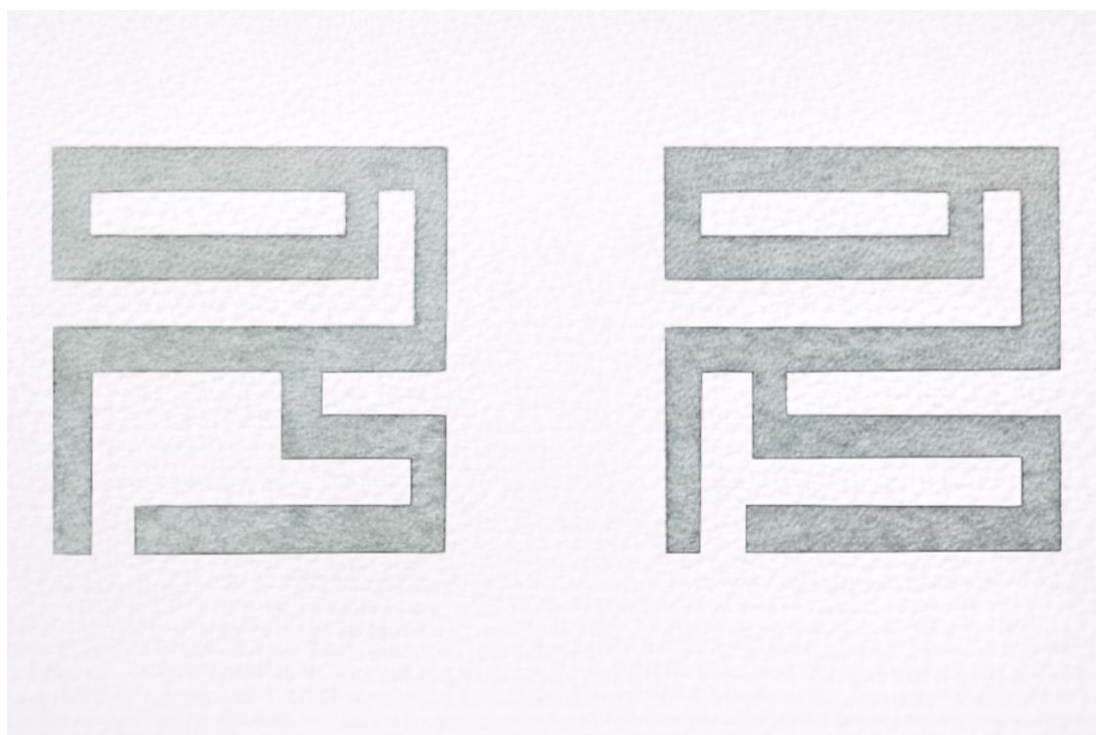


Fig. 12. *An example where failure to observe the principle of equal proportions resulted in uneven, excessive gaps, compared with a correctly proportioned rendering of the following word.*

In order to ensure consistent length in Mongolian script, adjustments were made to the vertical dimension by counting and modifying the number of horizontal lines from top to bottom. If there was a discrepancy of one line, it was addressed by finding ways to complete the folding. When determining the vertical length based on horizontal strokes, adjustments were made to the horizontal dimension based on visual appearance rather than a specific stroke count.

Adjusting the folding is necessary when organizing content into two or three rows. If only one word or row is needed, there is no need to change or extend the folding to fit the space; you can simply choose the most visually appealing fold and use it. In folded script, the spine stroke (connecting line) of the Mongolian script is drawn to accommodate the letters above and below it. As a result, the spine line may not always follow a perfectly straight vertical path and could be drawn downward at a right angle to connect with the next letter.

Proportional System for Rendering Mongolian Folded Script

In recent years, there has been significant progress in our culture and arts, especially in the visual arts field. Graphic design and ornamentation have become more refined, showcasing the enhanced skills and intellectual abilities of professionals. The rise of international festivals, competitions, conferences, sporting events, film festivals, exhibitions, and other events focused on exploring ancient script culture is evident. Artists and creative professionals are increasingly integrating traditional ancient script culture into their work, including ornamentation, advertisements, posters, corporate identity designs, publications, badges, and various other applied art projects.

Therefore, it is essential for contemporary professionals to acquire the skill of accurately and artistically reproducing the traditional Mongolian folded script, ensuring it is appropriately sized for its intended platform and executed with aesthetic finesse. This proficiency has become a crucial requirement for present-day practitioners.

My teacher, D. Tserenpil, drew inspiration from the works of renowned masters of Latin typeface design and “polygraphic rendering” from the Renaissance onwards, including Leonardo da Vinci, Pacioli, Jean Baptiste, Geoffroy Tory, and Albrecht Dürer. He also studied later masters such as Germany’s Albert Kapr and his student Mrs. Korger, Bulgaria’s Vasil Yonchev, Villu Toots who designed the academic rendering of the Cyrillic script, Telingater from the Soviet Union, and Tagirov from Uzbekistan who designed Korean and Sanskrit-style type constructions. In his various designs for Mongolian folded script, he developed a “balanced” proportional system that took into account the structural and representational characteristics of the script.

Every script, no matter its visual appearance, has a type construction that serves as its physical foundation. This construction involves the graphic depiction of a letter's elements and shapes using strokes of different widths. Each stroke creates a distinct form, which is created with specific proportions and precise measurements. These measurements are known as the module, which is the fundamental unit of measurement for that particular script. To accurately and beautifully render a script, one must have a thorough understanding of its module.

The Mongolian folded script, used since ancient times, follows strict conventions for the physical form of each letter. It maintains precise measurements, symmetry, and equal proportions, as established by ancient scholars, sages, and craftsmen. In contrast to the Latin and Cyrillic scripts used in our country, which are square, the ancient Mongolian folded script is designed for a horizontal rectangular module.

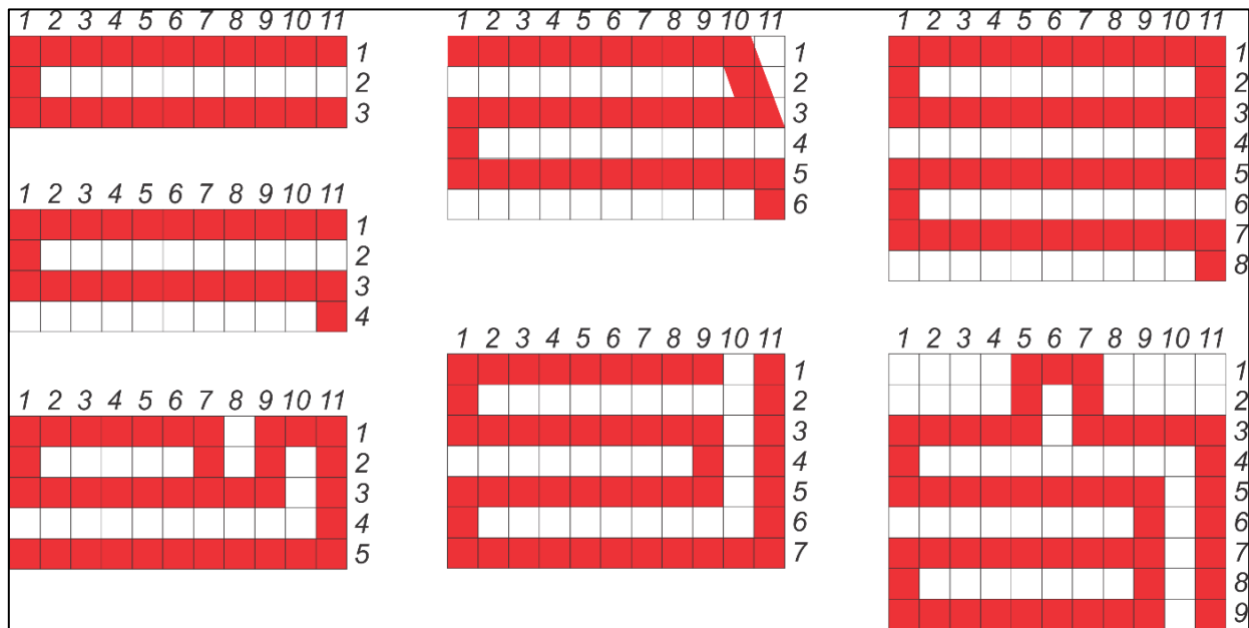
When looking at ancient Mongolian folded script, it is evident that most of the works were created within horizontal rectangular shapes with proportions of around 3:1 or 4:1. In various sources such as books, sutras, scholarly writings, Mongolian grammar texts, and textbooks, the script was mainly written using single strokes in the specified proportions, with intentional design elements being very uncommon.

As a result, a consistent proportional standard for rendering our ancient Mongolian folded script has become necessary, similar to the established standard proportions for rendering the Latin and Cyrillic scripts used in European countries, the hieroglyphic-style scripts used in Eastern countries, and scripts of many other styles. This standard should preserve the characteristic forms and proportions of the Mongolian folded script while allowing for even more elegant rendering.

Due to the unique rendering of Mongolian folded script compared to the Latin and Cyrillic scripts, and its various forms, it is recommended to choose multiple average proportional ratios.

The Mongolian folded script is distinct due to its unique features: it can be written in over one hundred variations based on the position of a letter within a word. Unlike the standard square module used for Latin and Cyrillic scripts, where letters are typically proportioned in ratios like 10:10, 10:8, 10:7, 10:6, 10:5, etc., Mongolian script requires a different approach.

Considering the distinct features of the Mongolian folded script forms and upholding the practice of presenting them in horizontal rectangular spaces, I suggest a standard module of 11:3, 11:4, 11:5, 11:6, 11:7, 11:8, and 11:9 are depicted within horizontal rectangular spaces that extend downwards are as a universal proportional guideline.



The 11:3 ratio is essential for creating the key structural components of Mongolian folded script, including the tail, tooth, shaft, and belly. By carefully examining and choosing the most clear and readable forms for each letter in Mongolian folded script, and adjusting the proportions to fit each letter's individual shape within a horizontal rectangle, accurate ratios have been determined.

The width of 11 for the letter is the ideal measurement for folding and rendering all folded script letters. It maintains the elegant form of each letter and ensures the best average ratio for rendering based on symmetry and equal proportions. The center line can be utilized effectively without the need for additional measurements: once the center is determined, equal dimensions are distributed inward from both sides. Therefore, a proportional range of 11:3 to 11:9 is most suitable for rendering Mongolian folded script. This should be considered the fundamental proportional metric for creating, illustrating, and writing all forms of Mongolian folded script.

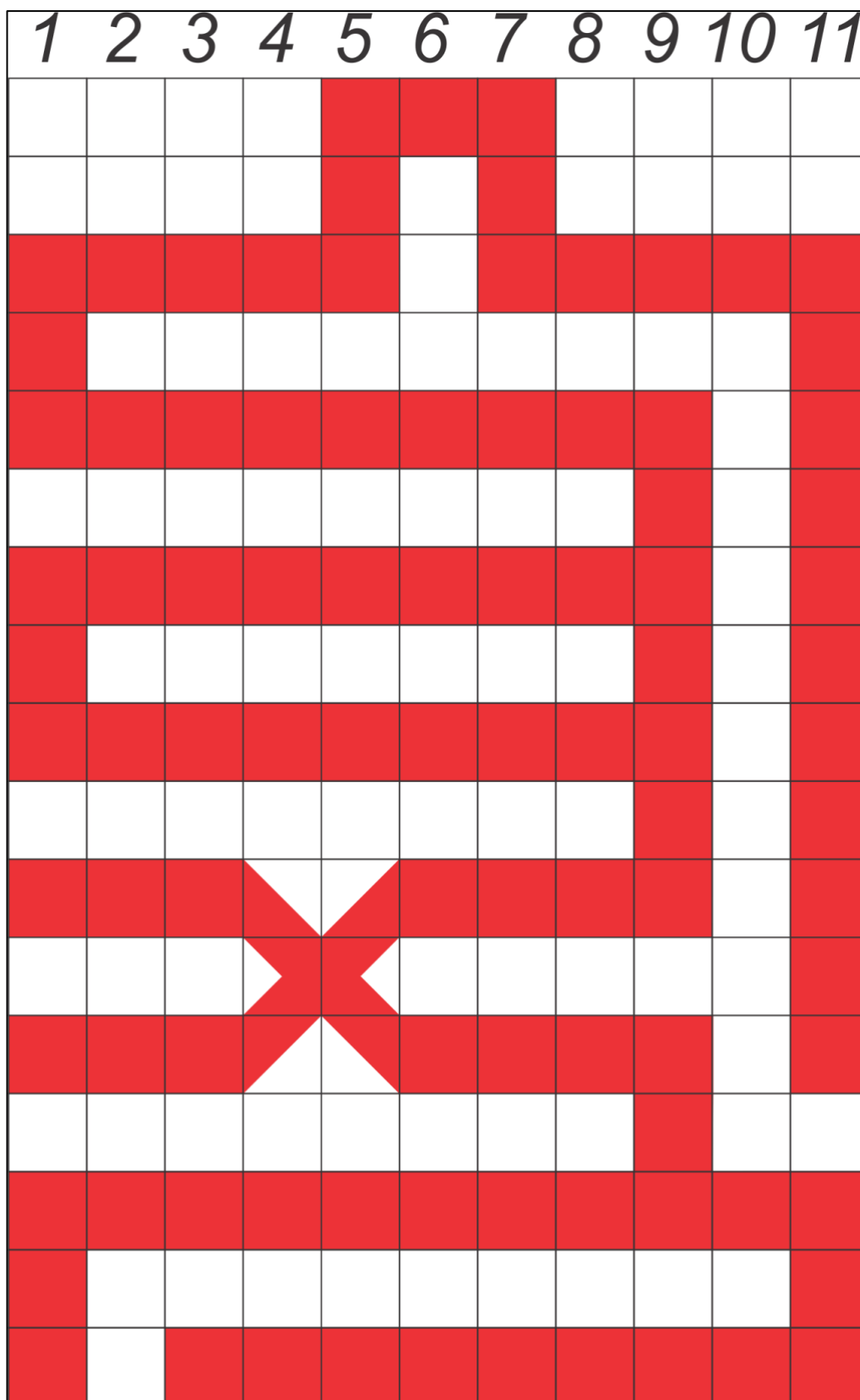


Fig. 13. The word “mori” (horse) folded and rendered using the width dimension of 11.

The standard proportions for European Latin and Cyrillic scripts, such as 10:10, 10:8, 10:7, and 10:5, were established by the great masters of typeface art during the Renaissance period and have been maintained to this day. The average module ratios of 4:4, 4:3, and 4:2 were set in the nineteenth and early twentieth

centuries. Despite the widespread use of the 10 base square module, the Mongolian folded script utilizes a module of 11:3 to 11:9 due to its inherent rendering in a horizontal rectangular space with vertical top-to-bottom connectivity. This unique aspect may be of interest to scholars and professional artists. The reasons are as follows:

1. The Mongolian folded script is designed to be written within a horizontal rectangular space with vertical top-to-bottom connectivity.
2. All artistic expressions of the Mongolian folded script are enhanced when created within this framework. Additionally, utilizing the center line allows for symmetrical construction of letters without the need for additional measurements are once the center is determined, proportions can be evenly distributed from both sides.
3. This framework is ideal for maintaining symmetry in letter formation, ensuring that even the most intricate designs can be accurately and artistically rendered while preserving their elegant proportions. Moreover, this feature is especially well-suited for depicting the crown, peak, top, and headband components of the letters M and L found at the start of words.

The basic ratio of 11:3 indicates a width of 11 units horizontally and a height of 3 units vertically, with the stroke width for rendering the letter body being one-third of the height, maintaining a consistent width for all letter bodies.

This establishes the basic stroke width and thickness for rendering Mongolian folded script forms. Consonant letters are then rendered with their corresponding vowels based on their position within a word is initial, medial, or final. The text also presents different artistic folding options for consonant letters.

Conclusions

The evolution of Mongolian writing systems has seen ongoing improvements and progress, with Mongolian folded script having unique features and specific rules and stroke patterns for folding. Traditionally, folded script has been used in two styles are square folding and ornamental folding and scholars and researchers have greatly aided creative practitioners by documenting the folding principles and linguistic aspects in their publications.

This study has explored the proportions and dimensions that maintain the distinct features of Mongolian folded script, the recognized type standard, and the techniques for artistically representing it. It shows that the script can be folded while staying true to its forms and proportions, following established measurements.

Using these proportions and dimensions, folded script can be creatively folded in various ways and used artistically in emblems, logos, and graphic design elements like advertisements, posters, corporate identity systems, product labels, and packaging.

In recent years, graphic design students in our country have been conducting significant research and creating innovative works using folded script. I believe that the folded script type, proportional system, and artistic rendering variations that I have examined will provide some valuable insights for this effort.

Based on the research, the following conclusions are drawn.

Mongolian folded letters are a writing art with a rich history and unique order that dates back to the 13th century. They come in two main forms: square folded and round folded. Square folded letters are used for official items like official seals, decrees, and paiz, while round folded letters are used for decorative purposes, showcasing their versatility.

The two fundamental principles of folding Mongolian folded letters are symmetry and equal proportion, which are essential rules for any artist to adhere to. Ignoring these principles can result in illegible letters and the loss of elegance and rhythm.

Maintaining a horizontal square ratio of 11:3 to 11:9 is considered optimal for preserving the distinct characteristics of Mongolian folded letters, as opposed to the 10:10 ratio of Latin and Cyrillic letters. This ratio serves as the main measurement for drawing various parts of the letters.

Using the established ratio and scale, Mongolian folded letters can be creatively incorporated into modern graphic design applications such as emblems, advertisements, posters, company name styles, product labels, and packaging.

It is the responsibility of today's young generation and professional artists to preserve and advance our national writing culture. The findings of this study, including variations in size, proportions, and artistic depictions, aim to assist graphic design students and artists in effectively and beautifully utilizing folded letters in their work.



REFERENCES

1. Jalair, B. (2001). *Mongol uran bichlegiin tüükh* [The history of Mongolian calligraphy]. Ulaanbaatar.
2. Ionchev, V. (1976). *Shrift perez vekov* [Typography through the centuries]. Hudozhnik Bolgarski.
3. Luvsanbaldan, Kh., & Shagdarsüren, Ts. (1971). *Mongolchuudyn üseg bichig, üg khellegiin garlaas* [On the origins of Mongolian script and vocabulary]. Ulaanbaatar.
4. Nadmid, J. (1968). *Mongol khel, tüüinii bichgiin tüükhen khögjliin tovch toim* [A brief overview of the Mongolian language and the historical development of its script]. Ulaanbaatar.
5. Poppe, N. N. (1941). *Kvadratnaya pismennost* [The square script]. Publishing House of the Academy of Sciences of the USSR.
6. Renchin, B. (1966). *Mongol bichgiin khelnii zui: Ded devter, avia zui* [Grammar of the Mongolian script: Volume II, Phonetics]. Ulaanbaatar.
7. Shagdarsüren, Ts. (2001). *Mongolchuudyn üseg bichgiin tovchoon* [A concise history of Mongolian scripts]. Ulaanbaatar.
8. Spiegel, R. (1956). *Schriftkartei* [Type catalog]. Berlin.
9. Toots, V. (1966). *Sovremenniy shrift* [Modern typography]. Estonian SSR, Tallinn.
10. Tserenpil, D. (2015). *Üseg bichgiin urlag* [The art of writing and script]. Ulaanbaatar.
11. Tsoltem, N. (1987). *Mongolyn goyol chimegleliin urlag* [The decorative arts of Mongolia]. Ulaanbaatar.
12. Tsolmon. (1996). *Mongol tamga siilmel* [Mongolian seals and engravings] (in Mongolian traditional script). Hohhot.
13. Vladimirtsov, B. Ya. (1931). *Mongolskii mezhdunarodnyi alfavit XIII veka: Kutura i pismennost Vostoka* [The Mongolian international alphabet of the 13th century: Culture and writing of the East].

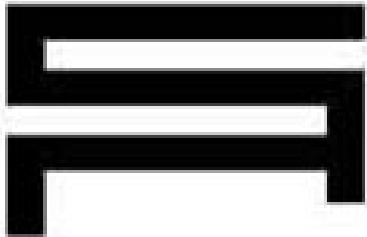
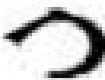
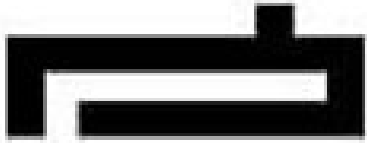
Appendix 1

In Cyrillic	Position	Written	Folded form
А	In the beginning		
	Medium		
	In the end		
			

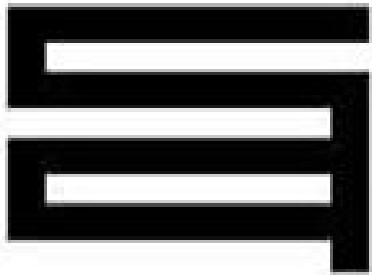
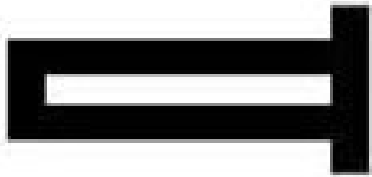
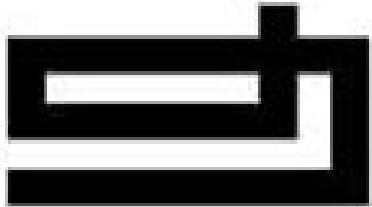
The letters A and E are rendered symmetrically, making them relatively easy to fold.

Э	In the beginning		
	Medium		
	In the end		
			

Letters with bow-shaped or horned and notched forms, however, are more complex to fold in terms of their rendering.

И	In the beginning		
	Medium		
	In the end		

When the letter “I” is folded directly in connected form at the initial, medial, and final positions, the principle of equal proportions is violated and excessive gaps appear; therefore, the folding must be properly adjusted and rendered.

O, y	In the beginning		
	Medium		
	In the end		

The letters O and U follow the same rendering principles.

Appendix 2

ø, y	In the beginning	ᳵ	ᳵ
	Medium	ᳶ	ᳶ
		᳷	᳷
	In the end	᳸	᳸

The letters Ö and Ü also follow the same rendering principles.

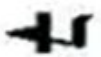
H	In the beginning		
			
	Medium		
			
	In the end		

The tooth and preceding dot of the letter “N” are extended to match the dimensions of the letter.

M	In the beginning		
	Medium		
	In the end		

The lobe of the letter “M” is extended to varying degrees.

Appendix 3

Л	In the beginning		
	Medium		
	In the end		

The horn of the letter “L” is extended to varying degrees.

Hr	Medium		
	In the end		

When rendering the letter “NG,” the shaft of the letter in medial and final positions may be extended and adjusted compositionally.

Й(Y)	In the beginning		
	Medium		
	In the end		

The letter “Y” may be extended in any manner depending on the word in question.

P	In the beginning		
	Medium		
	In the end		

In addition to the standard rendering of the letter “R” with a hook at the initial and medial positions, when it follows the letter “I,” it may be rendered as a short loop incorporated into an elegant artistic composition.

Appendix 4

Б	In the beginning		
	Medium		
	In the end		

The letter “B” has a bow-shaped form; therefore, the spine line of the fold is shifted forward.

K	In the beginning		
	Medium		
	In the end		

X	In the beginning		
	Medium		
	In the end		

The downward-curving portion of transliteration letters is extended as rendered.

Appendix 5

The Alphabet of Mongolian Seal/Folded Script

In Cyrillic	Position	Written	Folded form	In Cyrillic	Position	Written	Folded form	In Cyrillic	Position	Written	Folded form	In Cyrillic	Position	Written	Folded form
А	In the beginning			Б	In the beginning			Б	In the beginning			В	In the beginning		
	Medium				Medium				Medium				Medium		
	In the end				In the end				In the end				In the end		
Э	In the beginning			М	In the beginning			Х (op үгшил)	In the beginning			П	In the beginning		
	Medium				Medium				Medium				Medium		
	In the end				In the end				In the end				In the end		
Н	In the beginning			Л	In the beginning			Г (op үгшил)	In the beginning			Ф	In the beginning		
	Medium				Medium				Medium				Medium		
	In the end				In the end				In the end				In the end		
О, У	In the beginning			Нр	Medium			Г (op үгшил)	Medium			К	Medium		
	Medium				In the end				In the end				In the end		
	In the end														
Ө, Y	In the beginning			П(Y)	Medium			Г (op үгшил)	Medium			П	Medium		
	Medium				In the end				In the end				In the end		
	In the end														
Ж, З	In the beginning			П	Medium			Д	Medium			З	Medium		
	Medium				In the end				In the end				In the end		
	In the end														
И, Ч	In the beginning			И	Medium			Т	Medium			Х	Medium		
	Medium				In the end				In the end				In the end		
	In the end														
Ц	In the beginning			Ц	Medium			С	Medium			С	Medium		
	Medium				In the end				In the end				In the end		
	In the end														