

## CALLIGRAPHY IN ENAMEL ART: WORLD AND UKRAINIAN EXPERIENCE

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### **Abstract**

*The article is devoted to the study of the application of calligraphy in enamel art. This publication is the first attempt in art history to analyze the use of inscriptions directly in enamel. The publication sheds light on the relations to the art of calligraphy in different countries. Samples from Ukrainian enamel art are analyzed on specific examples. The publication provides the author's own practical experience regarding all technologies of execution which can be applied in hot enamel at the image of calligraphic elements. Step-by-step instructions for using the technique will be useful for enamellers to implement their own ideas. The scope of calligraphy in enamel art, in particular in jewellery, easel works, monumental art is also outlined in the work. It is emphasized that this direction is quite promising for outdoor use (exterior). Moreover, it is due to the fact, that the anti-corrosion properties of enamel in combination with three-dimensionality, polychromy and durability allow to use it as advertising as an artistic dominant of the street or city. The development of calligraphy in enamel art is becoming increasingly popular, the active use of which requires attention and further study.*

**Keywords:** *Calligraphy; Hot enamel; Enameling; Art metal; Monumental art.*

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### **Introduction**

The history of writing is developing due to the evolution of aesthetic tastes of mankind, which change in terms of technical skills, speed of information, time and space. Writing has come a long way of development and improvement by many folks and nations. It is believed that the origins of European writing date back to ancient Egypt and Sumer (4 thousand years BC). The calligraphy path of development is widely covered in the scientific literature: from Sumerian cuneiform, Egyptian hieroglyphs, through the Phoenician to Greek, and then Latin and Cyrillic alphabets, and up to modern varieties of printed type of the era of printing and computer technology [1]. Modern calligraphy is fairly diverse and varies from household handwritten inscriptions to high art, in which the expression of these letters does not always give rise to clear letter forms. We come across calligraphy samples by analyzing inscriptions carved on ancient stones, historical documents, religious art, graphic design, logos and even graffiti. It can be argued that in today's world, calligraphy surrounds us at all times: as a design on television, advertising, billboards, handwritten postcards and official documents. This study considers the already accustomed image of calligraphic letters from a different angle. Thus, the

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text is viewed as an art, as part or dominance of composition, as a historically and territorially connected component of culture. The publication emphasizes the exploration of the use of calligraphy in the art of enamel.

The Enamel itself is a vitreous alloy of silica with metal oxides, which is applied on the metal surface in various ways. Metal and glass are combined without the use of a binder as a result of high heat treatment (firing in an electric furnace at a temperature of 600-800°C and more for an average of 3-10 minutes).

For three millennia, the technique of hot enamel has been actively developed, improved and modified. Despite the complexity and sophistication of manufacturing, enamel has a number of advantages over other kinds of art. In particular, its durability, which can surpass with this criterion even sculpture [2]. Enamel plates after firing can retain their colour and luster for centuries. That is why we can analyze the first findings of hot enamel of the Cypriot-Mycenaean period, Ancient Egypt and Greece.

Given this property of hot enamel, the artist has a number of advantages in preserving the applied text for many centuries to come. If we talk about the attitude to the calligraphy of different people, it has to be noted that it is not the same. Thus, the European calligraphy, which has historically developed through the copying of large numbers of religious texts, in enameling prioritizes the figurative component and the ratio of colour spots. In the Middle Eastern countries, calligraphy occupies an important place and continues to develop not only to create copies of the Koran but also for artistic purposes [3]. This is prompted by the traditional Islamic restriction on the image of animals and humans. This led to the flourishing of Muslim countries in addition to the calligraphy of all decorative and ornamental art [4]. And until today enamel artwork is being actively created in different calligraphic styles, which harmoniously combines the contrasts of size and thickness of lines with a colour component [5].

Calligraphy has developed in a very unique way in China and other far eastern countries that have been influenced by Chinese culture (Korea, Japan) [6]. "The Way of Writing" still preserves its own traditions, developing and perfecting ancient handwriting and styles. Moreover, every artist is at the same time a calligrapher, because traditional paintings are always accompanied by hieroglyphs, a kind of reflection on the depicted work [7]. It should be noted, that Chinese art, unlike European, is not focused on the image of a man, but on the reflection of the state of nature, where each element (sky, water, mountains, earth) is symbolic [8]. As in previous cases, this is directly related to religion. When compared to Muslim countries, in Chinese enamels the text component is not in the center of the composition. However, there is a calligraphic element that is necessarily present on all products - the author's seal (signature). Having outlined the general attitude to calligraphy in different countries, we proceed to the study of the Ukrainian experience in this area.

In the course of the research the works devoted to the calligraphy of foreign and local scientists, in particular X.B. Shi [7], Z.Y. Mo [8], V.O. Mihoc [3], M. Fillinger and R. Hubner [6], A. Balbale [4], H. Zadniprianyi [1], M. Chabaiovaska [9] were quite meaningful. The culture of comics has been thoroughly studied in the works of scientists, S. McCloud [10], S. Lee [11], T. Troian [12].

In the Ukrainian historiography we note the works of Yu. Dovgan (Borodai) [13, 14], devoted to the history and development of hot enamel in Ukraine. Enamel art as a component of modern art metal is considered in the two-volume encyclopedia R. Shmahalo [15]. Significant in terms of comparative research are textbooks on the history of enamel by E. Brepol [16], I. Belli Barsali [17].

In the context of this issue, catalogs and publications dedicated to creative exhibitions, symposia, conferences, associations of Ukrainian and foreign enamel artists are additionally analyzed.

## Methods

The publication uses a set of general philosophical, historical, cultural and art methods, taking into account the principles of scientific objectivity, comprehensiveness, scientific reliability, as well as art, technical and technological as well as design approaches [18, 19].

## Results and discussion

Calligraphy in the enamel art of Ukraine does not occupy such a leading place as, for instance, in book graphics. Domestic enamel is mostly a partition and painting technique, which is based on the figurative and color component. If we perceive the letters of the alphabet as certain symbols that have been transformed over time, but have a reference to the historical source, we can note the following: symbolism in enamel works is more common not in the form of calligraphically written letters, but rather as stylized folk patterns or ornaments with floral and anthropomorphic motifs (Colt, XII century, gold cloisonne enamel, Museum of Historical Treasures of Ukraine (MHTU)).

The first use of calligraphy is noticed on bars and colts of the Kievan Rus period. It is mostly a few letters to denote the face of the saints. During the spread of the Baroque style period (XVII - 60s of the XVIII century.) these signatures became clearer and longer, capitalized as if with a pen on paper. These technological opportunities have emerged for artists through work in a new miniature technique of painted enamel. Its peculiarity is that the dyes (metal oxides) were tightly ground and dissolved with turpentine or clove oil [13]. Gradual layering of transparent shades on a white foundation, with roasting after each time, opened up a lot of opportunities for artists. In particular, to convey the subtle nuances of colors, realistically model the volume, process the smallest details, calligraphically sign. During the transition from Baroque to Rococo, some artists immortalized their authorship with captions on the works. For example, the framework of the Gospel of an unknown Kyiv goldsmith with enamel medallions from the collection of MHTU (1764-1766). The enamel with the image of the evangelist Mark was made by Volnovetsky (Latin «Priest Damian 1764»), and the medallion with the Almighty (ruler of all) was made by Master Fedor («MihFedor»).

It is worth noting that durability is the main advantage of enamel compared to other kinds of art. From the analysis of historical experience, it is confirmed that enamels, which were created in the III millennium BC, have not lost their color nor luster and preserved the excellent qualities of the work. Of course, until the twentieth century enamel was used mainly in the art of jewelry and for the decoration of consumer goods and was expensive. With the progress of enameling technology, namely the opening of muffle furnaces, the expansion of the color palette through the development of silicate chemistry, as well as the use of industrial enamels, a new stage has come. At the moment it is a less expensive technique, so calligraphy with enamel on metal is still waiting for its development. It is possible that this will happen precisely under the influence of the revival of the national font, which will become an incentive for use in artistic practice.

Given the last five years, we can say that the Ukrainian calligraphy at the present stage is self-affirming and returning to its historical origins. Based on the traditions of the Russian era and Cossack cursive, Professor Vasyl Chebanyk returned the graphics of Ukrainian letters to

pre-Petrine Cyrillic. The decorative font "Ruthenia" created by him in 2017-2019 became widely known and is now actively returning to the public space, used in signs, documents and official names, including the National Academy of Arts of Ukraine, Kyiv-Mohyla Academy and others [9]. Ukrainian history is a solid foundation for the work of many artists. Especially for those who use symbols, signs, calligraphy in their works.

At the end of the XX - beginning of the XXI century, there was a breakthrough in the field of enamel art of Ukraine, the transition from jewelry to the use of enamel in easel and monumental forms. Apart from the technological discoveries that were on time, it is undoubtedly connected with the name of Olexander Borodai. He made a breakthrough in new experimental technologies and techniques, introduced the teaching of modern enamel in higher education as well as created an informal school of enamel, which continues to operate actively [20]. More than one series of easel works and installations by the artist is devoted to the connection between the past and the present. Given the calligraphic features identified by the topic of our study, let us consider some of the enamels of O. Borodai in more detail. First of all, enamel «Sarmatian tamgas» (1995, copper, enamel, 50 x 30cm), covered from top to bottom with symbols, in the amount of 132 pieces (Fig. 1).



**Fig. 1.** Olexander Borodai, «Sarmatian tamgas», 1995, cooper, enamel, 50 x 30cm. (photograph from open sources)

These mysterious signs were used by the Sarmatians with a signal-recognition function on the territory of the Bosphorus state, in the cities-colonies and polises of the Northern Black Sea coast from the III century. BC, but became a symbol of power only in the I century. B.C. and eventually transformed into a heraldic form [21]. The brand was used as a sign of authorship, possession, as a chronological indicator of the quality of the amulet. Tamgas were applied to cattle, valuable household items, and coins as a sign of the clan's ownership of land plots [22]. Each line in the tamgas is not accidental and is mainly associated with the religious

and mythological ideas of the Sarmatians. The combination of cult sacred images of sun, sky, and animals, which are schematically united in signs, has a symbolic meaning and occurs permanently. Analyzing the calligraphy of tamgas, it should be noted that the masters of the Sarmatian period, intuitively but still mastered the basic artistic principles of formation and compositional techniques of graphics, including proportionality and unity of elements, the integrity of form [23]. Olexandr Borodai graphically depicted ancient symbols on the enamel «Sarmatian tamgas», supplemented with silhouettes of animals, and made the work obsolete with scratches. This work is unique and has no analogues in the figurative component in enamel art. It is perceived as an encrypted message.

Let us consider another work, where the calligraphic text history was actively used. The Polyptych "Come to your senses, good people" (2009, enamel, copper, steel, 96x74cm) was made by the creative studio of Oleksandr Borodai, in particular O. Borodai, T. Ilyina, A. Ryabchuk, U. Fedko (Fig. 2).



Fig. 2. Creative workshop of Olexander Borodai (O. Borodai, T. Ilyina, A. Ryabchuk, U. Fedko), Polyptych «Come to your senses, good people», 2009, enamel, copper, steel, 96x74cm (photo from open sources)

Nine enamels are combined in one work. The name of the enamel has analogies with the lines from the poem by T. Shevchenko «To my dead, living and unborn compatriots...» 1845. Regarding the plot of this work, we note that each enamel from the polyptych has a figurative image and inscription, which is created in the tradition of comics [10]. The visual and verbal components are well intertwined in the enamels. The depicted characters are thinking about something, talking or calling for a fight. Unlike comics, in its standard sense of plot development, in the above-mentioned polyptych there is not a single story that continues in the following image. Each of the nine enamels contains an autonomous story that depicts the pages of Ukrainian everyday life, the thirst for justice, the struggle for their own future, determination. The advantage of the work created in the comic genre is that it becomes understandable to any average viewer, to some extent claiming to be called a «supranational» art form [11]. The information presented in the form of a comic creates images of heroes who accumulate patriotism, moral values that are easier to live with as well as anti-heroes [12].

All components of the polyptych "Come to your senses, good people" and enamel "Sarmatian tamgas" are united by the technique of execution – «sgraffito». This method is revealed in its own name, which translated from Italian means scratched [24]. Technologically, to create work in this technique, it is necessary to cover the plate with enamel, after it dries with the help of trowels to apply the planned pattern. After firing and descaling, the lines on the copper plate look dark brown. The line covered with the foundation can change color in the range from golden to greenish-golden shade [25]. The popular metal for a basis under this technique is steel. Among the advantages of its application in the art of enamel is the price, among the disadvantages - the isolation of the metal base layer of soil, which prevents the use of translucent and transparent paints [13]. These shortcomings are not noticeable at all, when the technique of «sgraffito» is used, since here only the graphics, the contrast of light and dark are important. The applied light-covering body paint contrasts well with the black lines, which are even more pronounced on the steel after firing.

Among the many techniques of hot enamel, there are only a few in which, given the technology of execution, it is possible to write the text in calligraphy. The art of legible, beautiful and clear handwriting is best manifested if the words are written by hand, and not laid out with a wire as in cloisonne enamel. With regard to font, pressure, relaxation, and a combination of thin and thick lines, as well as details are important. That is why the advantage of writing the text is given to graphic techniques in the manufacture of products with enamel. In addition to «sgraffito» where scraped letters are baked forever, the clarity of the lines can be reproduced in the «pencil technique». To do this, one should cover the metal plate with white paint and roast it at a temperature of 700-900°C. The next step is a rough grinding of the surface to achieve texture, applying the desired text with a graphite pencil, re-firing. As a result, the surface becomes smooth, graphite is engraved in the enamel, accurately reproducing the graphic image.

It is worth noting another technology that will come in handy when depicting the text in enamel work. The stencil method will allow you to apply colour, do colour gradation and tonal stretching. To do this, one should cut out the selected text on paper or cardboard, apply it to the metal, apply a layer of enamel by spraying and firing one or more times. Due to the sprayers, which work from the compressor, there is an opportunity to make it quickly and evenly. This method is valuable because here the text goes beyond the application of purely graphic techniques. It is possible to combine it with a colour background or even a plot component. In practice, this can be applied as follows: for example, first an enamel work is created with a certain plot in colour (still life, landscape, figurative, abstraction). Here it is important that the colors are not too contrasting, it is better to use a restrained palette, which will help to show the

text more eloquently. Putting a stencil on top, when applying the enamel, you can vary the thickness of the applied layer. After firing, you can achieve a change from clearly depicted letters to barely noticeable. Moreover, the unpredictability of the result when working with enamel provides endless opportunities for exciting variations and experiments. Even working with one painting, you can consider each time its new capabilities, which vary infinitely depending on changes in temperature, firing time, paint components, the number of re-firings. That is why it is impossible to create two identical copies – from this enamel works acquire special value.

If the artist has a task to create a certain number of enamels works with an identical text image, you can sometimes use ceramical decal for faience ware (derived from the French «decalcomania»). To do this, paper with decals is glued to the enamel, which is then removed with water. After firing at low temperature, the «transfer picture» will be fused into the enamel.

A successful example of the application of this technique is the work of Ukrainian enameller Oleksiy Koval. The volume of etched metal in the marked pattern is often left unpainted by the artist, the color itself is placed side by side on smooth areas. The segmented etched copper plates resemble etchings prepared for printing. Series «India. Portraits» (2008-2013), «One Thousand and One Nights» (2010-2014), «Ukrainian Series» (2015) demonstrates the full range of benefits of using in-depth relief and translucent enamel overflows in one work to convey a striking optical rich dimension. The division of the metal into small modules allows to bypass the restrictions on the format of the finished picture (related to the size of the muffle furnace) and bring additional plastic accents to the composition [26].

Having identified the main technological techniques that will come in handy when depicting a calligraphic message, we focus on the fact that depending on the size of the enamel, shape, components, one can add other additional techniques (including painting or notching). For example, if it is an easel work consisting of many small enamel components. For instance, O. Borodai's series «Relativity of Time» (2013, copper enamel 64 x 64cm) or diptych «Cartier and recruit» (2014, copper, enamel, wood, 220 x 100cm). In this case, combinations of elements in different techniques play on contrasts and show the versatility of hot enamel in which graphic elements can be harmoniously combined with picturesque, flat with dimensional, detailed parts of the image with textured abstractions.

The technique of hot enamel has long been considered purely jewelry and applied. Since the twentieth century artists have been actively creating easel works that reach over 2m in size and even monumental compositions. In particular, in Ukraine, the interior of metro stations in Kyiv, the Main Observatory of the National Academy of Sciences of Ukraine, the Palace of Leisure «Lystopad» in Poltava (artist O. Borodai) are decorated with enamel in combination with metal and stone. The monumental author, who set about decorating the interior, got acquainted with the technique of enameling in the Hungarian town of Kecskemét, where symposia of artists are held annually.

Hungary has all the conditions for the development and dissemination of enamel art. The Faculty of Art Enamel at the Academy of Arts operates in Budapest, and symposia and exhibitions are held with the participation of artists from all over the world. So, in the city of Peja facades of public institutions are decorated with a steel panel with industrial enamel of bright colors. In Kecskemét, the city administration together with professional enamellers went on an experiment, by decorating the whole street with enamels. On Vilag Street, everything from the original construction of house numbers to the names of streets, signs, and signs is decorated with hot enamel [14]. The calligraphic font, the originality of the design created by professionals now attracts tourists to visit this place. Enamel organically fits into the exterior of houses, enriching the image of the city. Not only this street attracts attention, but also the whole

city of Kecskemét, which is decorated with enamel in the signs, friezes, various compositions, where the metal is combined with wood and carving.

The problem of distinguishing the appearance of a store, gallery, restaurant or public institution by name and color can be solved by an original sign created in the technique of hot enamel. As the experience of Hungarian cities shows, such experiments with the text definitely attract the attention of consumers and impress with their skill. In the XXI century with the development of technology and mass production, the sign in a single copy created by himself stands out from the others. It is worth emphasizing the significant advantages of using enamel in the exterior, because enamel compared to other monumental techniques does not change color and looks three-dimensional, changing the image and feel of work depending on the angle of illumination.

In addition, the enamel does not require restoration, combines well with various materials, is not subject to sudden weather changes, temperature changes, does not grease and does not require special care. The problem of high cost is solved when copper is replaced by steel, and artistic enamel by industrial one.

## Conclusions

To sum up the research, one could emphasize that at the present stage to the ancient technique of hot enamel refer artists of various professions: painters, graphic artists, calligraphers, designers, jewelers, sculptors as well as artists of decorative and applied art. After all, enamel makes it possible to combine in one work different approaches and aesthetic visions. Attractive for artists in the implementation of their ideas are the possibilities of enamel, including versatility, uniqueness, three-dimensionality, polychrome and durability. Having outlined the general attitude to calligraphy in different cultures, as well as analyzed some examples in a more detail, we can note that calligraphy in enameling is at a stage of development. Calligraphy does not disappear with the decay of sheets of paper, it regenerates, finds new areas of expression and application. Through the technical and technological techniques described in the study and the artists' own artistic experiments in the process of work there is an opportunity to expand the expressive possibilities of calligraphy in enamel, open new areas of application as well as promote further research.

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