

# Polychromy of objective-spatial heritage of the 19<sup>th</sup> century Voronezh as the basis for conceptual ideas of modern city coloristic

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**Abstract.** Design objectives related to purposeful development of urban colouristics in general and colour design of public spaces in particular must be based on scientific and professional approach with due regard for colour culture of the region, natural colour landscape dynamics, and colour specificity of historical architecture. Colouristic analysis of objective-spatial environment of Voronezh in the 19<sup>th</sup> and early 20<sup>th</sup> centuries can become a colour identity basis for the development of conceptual design ideas of architectural and urban planning colouristics and shaping the city's colour appearance.

## 1. Introduction

The algorithm of urban colouristics at its initial stage presupposes searching for conceptual coloristic ideas, graphic and symbolic colour structures based primarily on historical roots and colour traditions of a region, city or district. It is the search for historical flair and colour palettes that can become a source of coloristic identity and uniqueness of urban spaces, all those things that distinguish the design object from other ones making it individual and original. Cyclic dynamics of natural colour context with its changeable seasonal coloration should also be taken into account. Serving as a background for architecture and being an important component of a city's colour reservoir, natural colour environment forms an integral coloristic system together with pieces of architecture and design objects [1]. Identification of colour palettes of historical polychromy in Voronezh objective-spatial environment is based on the analysis of natural colour landscape, regional colour culture (ornaments, traditional garments, utensils, vernacular architecture) and colour specifics of historical architecture of different style periods (figure 1).

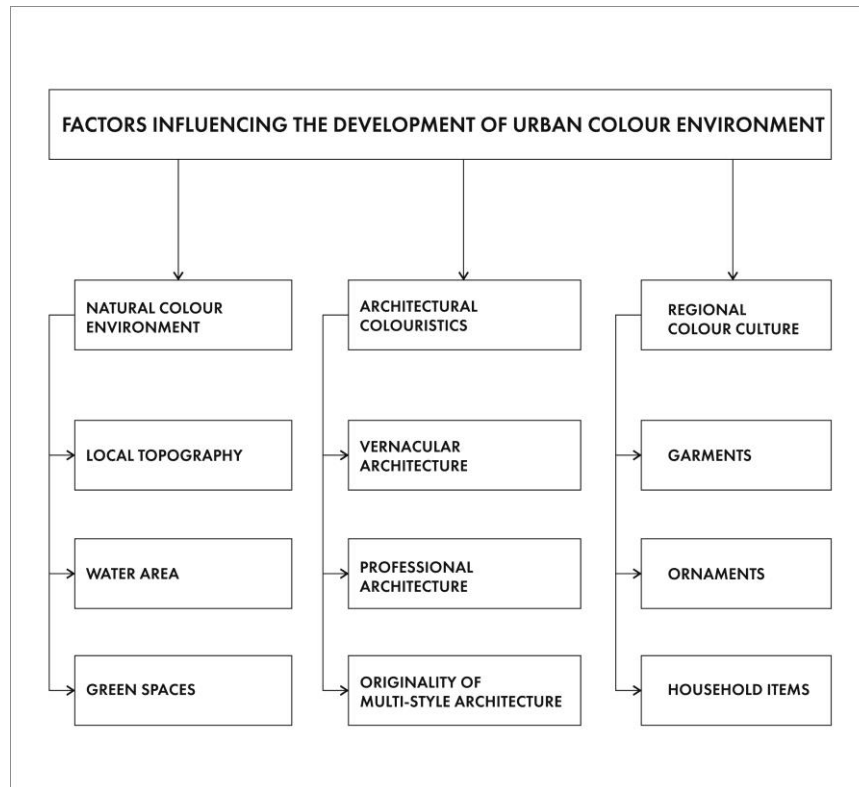
## 2. Main part

The most constant group of factors influencing the development of urban spaces colouristics are regional natural and geographical factors with due regard for daily and yearly dynamics, illumination, local topography, and coloration specifics of the surrounding landscape environment. Northern regions of Russia with short vegetation period and small number of sunny days per year differ markedly from southern regions in colour palette of natural surroundings.

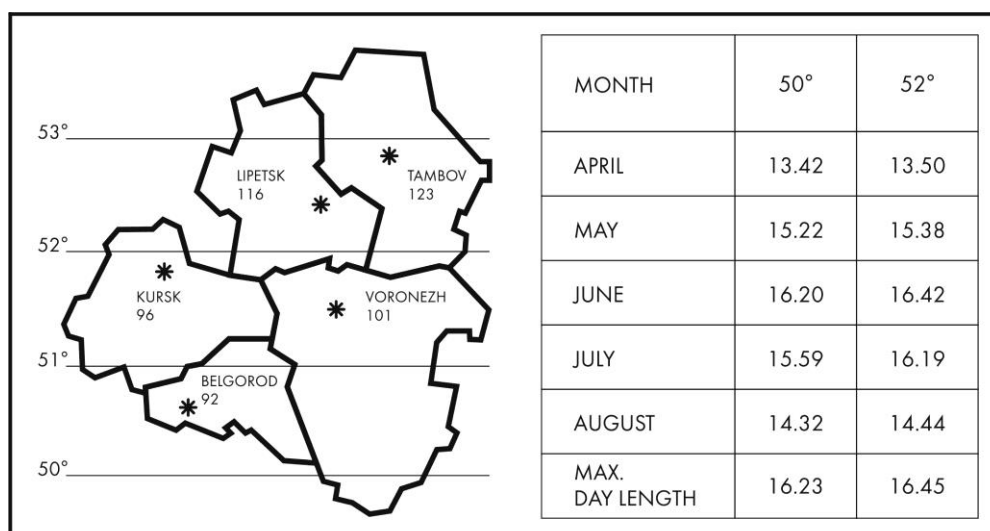
Particular qualities of the region's natural context coloration influence the corresponding differences in architectural environment color scheme where harmonious color balance of lacking natural colors is



compensated for so that environment is perceived more comfortably by people. The Central Black Earth region offers quite favorable climatic conditions with average vegetation period day length from 14 to 16 hours. Snow cover duration is 92-116 days per year (figure 2).

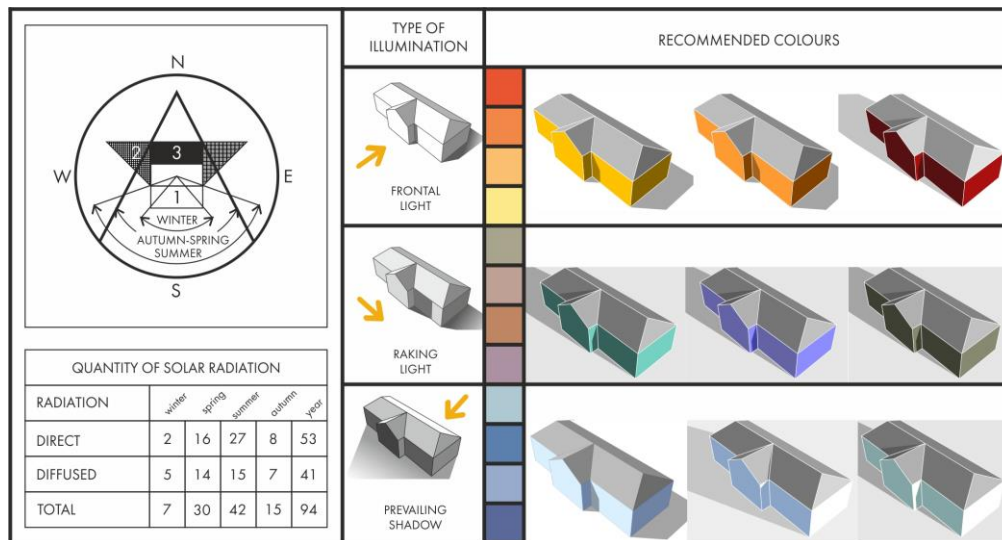


**Figure 1.** Group of factors influencing the development of urban color environment



**Figure 2.** Regional (average) natural and climatic characteristics of the Central Black Earth region: a. snow cover duration (number of days per year) for oblasts of the Central Black Earth region; b. vegetation period day length (number of hours).

Natural illumination analysis for the cities of the Central Black Earth region has accounted for: 53 days of direct solar radiation, 41 days of diffused radiation, and about one hundred days in total. These parameters will be useful for designing the coloristic of urban environment as cold and warm shades are perceived differently depending on the illumination of facades of buildings with frontal raking light or when shadows are dominant. Frontal sunlight “whitens” cold color hues making them faded and lifeless. Warm hues are perceived correctly with frontal illumination becoming dark and obscured if shadows prevail (figure 3).

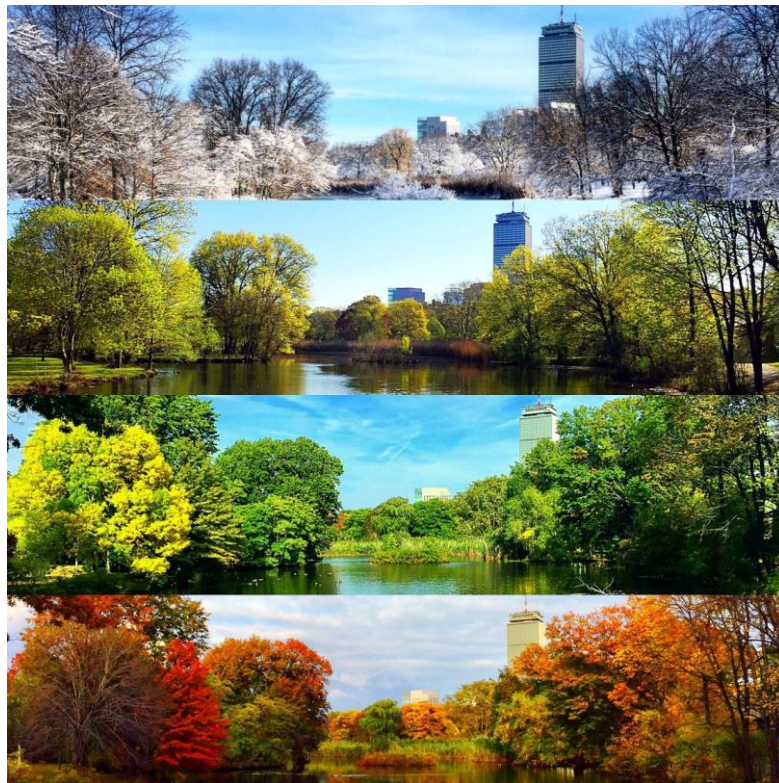


**Figure 3.** Natural illumination analysis for the cities of the Central Black Earth region

Abundance and diversity of plants and green spaces in Voronezh Governorate, with the color palette changing according to the seasons, had been described as early as in the middle of the 19<sup>th</sup> century by a General Staff officer, lieutenant colonel Vladislav Mikhalevich, “Out of three kingdoms of nature, Voronezh Governorate is rather poor in the products of the kingdom of minerals but is rich in the products of the kingdom of plants” [2]. Vertical dominants of white and many-colored churches and cathedrals with gilded domes look picturesque and natural against the background of spring and summer greenery of Barkhatnye hillocks on the right bank of the river Voronezh. Autumn landscape view of the city is even more impressive, adding to the richness of natural variety of colors. Graphics and monochromaticism of winter color landscape contrasts with polychromy of architectural objects highlighting their coloration. Natural color environment dynamics provides new interpretation of architectural objects polychromy and requires thorough analysis when designing urban coloristic in each particular situation (figure 4).

Local topography actively participates in perception of the Right bank view of the city Voronezh as there is a prominent slope extending from the historical center plateau to the floodplain of the river Voronezh. Apart from abundant vegetation, multiple slopes, gullies and ravines with supporting walls, wooden steps and sheer slopes as well as crumbling ground can be seen. The whole Right bank slope area had been considered the outskirts of Slobodas (Troitskaya Sloboda, Chizhovskaya Sloboda) and built up with craftspeople and poor folk’s wooden houses.

The descriptions of the 19<sup>th</sup> century Voronezh by a well-known local history expert, publisher, and public figure G. M. Veselovsky allow imagining the picture of that time, “... going radially from the center, buildings gradually change from mixed brick and wooden ones to wooden only. Almost all the outskirts of the city are poor: here buildings look more like a rich village than like a rich city” [3].



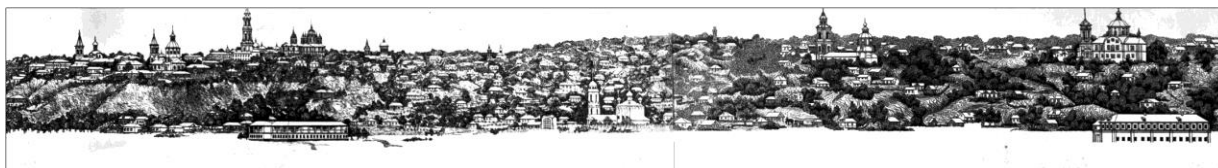
**Figure 4.** Natural color landscape dynamics of the Central Black Earth region

Rugged topography adjoining the floodplain can be easily spotted on the estate land plan of the provincial town Voronezh in 1851-1852 (Figure 5). One-storied housing of the slope and waterfront area had silvery-grey colors of aged wood; some buildings covered with clay and ochre were yellow or ochre-colored while houses limestoned over clay cover were the richest in contrast against the background of picturesque topography. On the whole, as against the variety of colors in the surrounding natural context, low ribbon building of the 19<sup>th</sup> century Voronezh created luminous contrast which was supplemented by color accents of high dominants of bell towers in numerous churches and cathedrals, thus shaping a unique and scenic panorama of an old Russian provincial town (figure 6).



**Figure 5.** Reduced plan of estate land of provincial town Voronezh, 1851-1852.





**Figure 6.** Retrospective panorama of the 19<sup>th</sup> century Voronezh. Graphic reconstruction by V.P. Shevelyov.

Folk color traditions of the Central Black Earth region and Voronezh region in particular gives the brightest evidence of its individuality and originality, identifying specific features of the national ideal of beauty, lifestyle, labor, and appearance of a Russian person. Female traditional costume of the Voronezh oblast, its ornamental motifs and patterns express thoughts, feelings, and spiritual connection of a man and natural diversity of colors through symbolic language of color and shape. From the earliest times, the image of a Russian beauty in folklore had been associated with the image of a magnificent bird – a swan, a grey-winged dove, a swallow, a peahen, a fire-bird [4]. It is no coincidence that female headdresses have “bird” names: kichka, soroka (meaning “magpie”), kokoshnik (hen’s crest), shapes of which were often used as ornaments in Russian architecture. The most favorite color triad consisted of black, white and red, these colors are often seen in ornaments and traditional costumes of Voronezh region creating powerful color and luminous contrasts symbolizing love and admiration to home nature, people’s cheerful and poetic attitude and their spiritual life. Symbolism of the black color for Voronezh Governorate, where fertile black earth is the soil that feeds people, is quite obvious. Red check on the black background symbolizes peasants’ plots of land. A square with criss-cross lines or a rhomb with red or yellow dots represent a field planted with seeds. A solar symbol – rhomb – is the most wide-spread in Russia. Evolutional-graphic and symbolic transformation of a rhomb assumed great importance on Voronezh land. Additional outer lines on the sides and in the corners of the rhomb turned it into a symbolical sign resembling burdock which grows across the Black Earth region. The crested “Burdock rhomb” is a symbol of the sun, fire, fertility, life, and it also signified family home – the first joist floor of a new wooden house – or the shell of a well, source of clean water, source of life. The cross had been a symbol of a man, head, master, and prop of a family since pagan times. Further evolution of the cross made it a “inter-burdock symbol locally named “little pole” [4]. The symbolism remained the same – a man as a prop and pole holding his family and responsible for their lives and well-being” (figure 7).



**Figure 7.** Ornamental motifs of the Voronezh Governorate

The cross and the burdock symbol, being the main elements of the ornamental system, were often used by carvers in Voronezh traditional wooden architecture decorating pediments and cornices of houses, pilasters and window trims.

Architectural works of different stylistic periods forming historically developed districts or historical center of a city, with their specific polychromy features, hold the significant color potential which can become a powerful boost for conceptual ideas of modern city coloristic. As for the historical center of Voronezh and its stylistic dominance, there is mostly the architecture of eclectic styles of the 19<sup>th</sup> and early 20<sup>th</sup> centuries that survived to our days with some changes and simplifications as a result of restoration work after destructions of the Great Patriotic War and reconstruction during the post-war time. The most numerous eclectic buildings in Voronezh were constructed in the Russian style ordered and sponsored by Voronezh merchants. “The merchant class is responsible for the widely-spread use of the Russian style in civil architecture. Merchants act as the principal owners of city mansions, manor houses and country houses built in the Russian style [5]. Historical architectural polychromy of the period of various eclectic styles, modernist style, and retrospectionism is presented in figure below (figure 8).



**Figure 8.** Architecture color range of Voronezh in the middle of the 19<sup>th</sup> – early 20<sup>th</sup> centuries.

### 3. Conclusion

When color palettes of the whole group of factors are compared, the question that has to be answered is the priority of one or component significance. Also, all the components needed for designing the concept of city coloristic must be taken into account. To a large extent, it is a creative task, and successful visual-symbolic design solution of color depends on experience, professionalism, high artistic and esthetic as well as color preferences of an architect or a team of architects. However, professional approach to the design of urban color environment is based on consideration of all the above-mentioned factors.

### References

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