The development of the concept of the “ideal city” in Russian town planning of the 18th century

T. J. Bystrova*, and G. V. Mazaev

Branch of the “CIRD of the Ministry of Construction of the Russian Federation” Uralniiproekt, Laboratory of Theory and History of Architecture, 620075 Ekaterinburg, Russia

Abstract. The concept of the ‘ideal city’ having centuries-long history is analyzed as a significant component of the history of Russian town planning. In the course of the comparative analysis with the notion ‘regular city’, the town planning understanding of the concept ‘ideal city’ is specified. According to the work of the architect with the city plan, three main types of Russian ‘ideal cities’ of the 18th century and four types of their centers are defined, depending on the terrain and its dissection. It is concluded that specific components dominated over the universal and typical ones in the Russian model of the ‘ideal city’.

1 Introduction

The ‘ideal city’ is the point of aspirations of many generations of architects from different regions [12; 19; 22, etc.]. Harappa and Mohenjo-Daro in Ancient India (III millennium BC) already had a clear four-fold structure striving for ‘correctness’ but the study cannot draw any conclusion about their ‘ideality’ since it is impossible to assess the motives for creating such mega-objects in non-literate cultures. The grid plan of ancient poleis (Miletus, Piraeus, Alexandria of Egypt, etc.) assumed rectangular quarters and regular democratic buildings, but did not fix the outer border, the ‘correctness’ of the city’s outlines. The ‘ideal cities’, created consciously as an architectural whole, include the Forbidden City in Beijing (15th century) [9], Sforzinda by Filarete (15th century), Amaurotum by Th. More (1516), the exemplary city of R. Pemberton (1848), the plan of the Greater Helsinki by E. Saarinen (1918) and a number of other implemented, unimplemented or partially implemented projects of cities [1; 7; 14]. All of them respond to certain ideas, most often to social and utopian ones, less often to purely aesthetic [2; 20] or even biotherapeutic [4; 10].

In the 21st century, the issue is being updated in connection with the possibility of searching in the theory and practice of designing and building ‘ideal cities’ of urban, architectural, social solutions that meet the demands of modern society [15]. We turn to the relatively little known history of Russian town planning in this direction. Cities with a ‘perfect’ plan were especially actively built during the reign of Catherine II, in the 18th century [3; 5; 21]. At the same time, unlike ancient or Renaissance architects, their developers

* Corresponding author: taby27@yandex.ru
immediately ‘tied’ the city to the locality [13], which gave a variety of town-planning solutions that is significant for today.

The concept of an ‘ideal city’ [19; 23] goes back to Platonism and, especially in Russian-language literature, can be used in two ways: 1) ‘ideal’ meaning perfect in social or architectural terms, but utopian [11], abstract and unattainable (for the author of the theory of the ‘ideal state’ Plato the idea can incarnate in matter but it never manifest itself fully due to the resistance of matter); 2) ‘ideal’ meaning perfect and correct, modeled and implemented according to some correct laws [13; 16]. As is shown below, Russian town-planning in the 18th century largely used the second option of interpretation and due to this, it introduced a number of its own principles, which did not lose their relevance and are presented in the final part, into the concept of an ideal city.

Almost immediately after acceding the throne, Catherine II issued a decree ‘On making special plans for all cities, their buildings and streets, especially for each government’ (1763), continuing the processes of urbanization on the European basis, started by Peter I. Regular plans were created not only for new, but also for existing cities, during a total of 30 years, this is an unprecedented process for those times, covering 416 cities, not only in terms of their structure, but also a change in the whole way of life, to which the Enlightenment aspired [3; 6; 14]. This unity of the town-planning and socio-political aspects shows the ability to call Russian cities of that time ‘ideal’. In turn, the study of town planning structures of the 18th century, as well as their individual elements (squares, streets, individual buildings), can be a good basis for the development of the territory of modern Russian cities seeking their identity [1; 17; 24].

2 Methodology

We rely on the rich tradition of researching ‘ideal cities’ in Russian art history and the history of architecture. If we look at the works of theorists, then one of the first authors who studied the issue based on their predecessors, K. Zitte, focusing on the functioning of the street network, identified three main town-planning forms in the 19th century – radial, rectangular, and round [26, 139–140]. At the same time, according to K. Zitte, the form does not depend on the size and, in turn, the size cannot be a criterion for assessing the city. This gives us the opportunity to explore cities of different scale, assessing them according to the degree of fulfillment of various ‘urban’ tasks. In turn, K. Lynch is interesting, as the author connecting the structure of the city and its aesthetic, artistic and social value [12]. His approach helps not to forget that an ideal city is not something self-sufficient, but takes into account the citizens. Among studies that are more recent the most productive are in [4].

The concept of the ‘ideal city’ is often viewed by authors in an overview, in a historical retrospective, including along the axis ‘the ideal city is the city of the future’ [16; 18; 23; 25]; however, this topic requires a more detailed study. In particular, we do not agree with the author who believes that the architect of the ‘ideal city’ levels any model change over time and that the city is possible only as a short-term phenomenon [25, 75]. The following demonstrates the viability and adaptability of the plans of the ‘ideal cities’ of Russia; an architect can create such a constant in a project as the possibility of developing a city plan.

The comparative analysis of Western and Eastern ‘ideal cities’ [9] allows us to understand the cultural, historical and sociocultural context of the studied town-planning concept, without absolutizing its individual determinants. For example, in Russia in the 18th century, one of the most significant factors in creating plans for ‘ideal cities’ was their opposition at the state level to cities with the free plan traditional for Russia. Meanwhile the ideological basis of such a concept in China or Latin America [17] are other religious-philosophical, social and scientific ideas.
3 Results

The development of the ‘ideal city’ concept takes place in the course of studying Russian town planning practice and sociocultural processes [6] of the 18th century, which defines the principles for designing such a city. These principles are based on the understanding of the necessity of taking into account the landscape and terrain as the base for Russian architecture as a whole when implementing the ‘ideal city’ concept and at the same time are the contribution of Russian architects to the theory and practice of creating such cities.

According to the study of more than a hundred Russian ‘ideal cities’ of the 18th – early 19th centuries [8], taking into account the sociocultural features of the New Time, the possibility of a partial identification of the concepts of ‘ideal’ and ‘regular’ cities has been proved. Therefore, special attention is paid to the study of cities with rectangular plans and their modifications.

The comparative analysis made it possible to determine the types of planning structures of ‘ideal cities’ with regular plans. The techniques of planning the combination of different types of systems are shown, as well as the methods of ‘transfer’ of one type of planning to another, which allows one to enrich the planning structure of the city during its design.

It has been established that regular layouts have town planning value since they have a high variability, adaptability, and stability.

In assessing the universal and specific determinants of the concept of the ‘ideal city’ in a separate region and at a particular point in time, it was concluded that the specific cultural, socio-geographical, and functional properties prevail over the general ones (typical, universal).

4 Discussion

4.1 On the relationship of concepts: ‘ideal city’ – ‘regular city’

The need to deal with the ratio of concepts in the heading of this part is dictated by the fact that ‘ideal cities’ are often referred to as ‘regular cities’, while contrasting them, including with respect to the Russian experience, to ‘pre-regular’ or ‘picturesque’ cities. ‘Regularity’ is a violent change in the natural composition of a ‘picturesque’ city, merged with the natural landscape and taking into account its features to the maximum. Speaking about the loss of the picturesque layout of the city of Kashin in the bend of the river, one author calls the regular layout one of the reasons for this: ‘The rectangular grid of streets to the cardinal points left a soulless and poorly thoughtful contrast to the unique landscape...’ [13, 12].

J. Słodczyk rightly points out that the ‘ideal city’ is always preceded by a certain philosophical or philosophical-religious concept [22]. The model of regularity is closer to the natural science paradigm of the New Time, with its desire to subordinate nature to the plans of a rational man-researcher. Hence, the ‘ideality’ and ‘regularity’ of the city are different concepts that characterize different qualities: the concept and the objective spatial construction of the city. If regular composition and planning of the city becomes the goal, the idea of the city, in this case it becomes ‘ideal’. In this sense, a ‘regular’ city is always ‘ideal’, since it corresponds to the human idea to create a perfect and splendid, in the aesthetic sense, ‘ideal’ layout of a city, the perfection of which will not require any of its changes over time. Therefore, when we speak about the ‘ideal cities’ of Russia, we mean precisely the regular cities of Russia of the 18th – 19th centuries and do not consider the ‘ideality’ of the city outside the form of its planning organization.

In turn, in some cultures the ‘ideal city’ may not be regular, not consistent with the ideas of regularity. For many social ideas embodied in ‘ideal utopian cities’, the authors chose the
‘ideal’ regular patterns of their town planning organization, which emphasized the perfection of the proposed social ideas. However, this has no town planning ideas of regular planning. On the contrary, it is the use of the properties of a form already developed in town planning. In this regard, we rely on the position of K. Lynch, who believes that the form of the settlement is a ‘spatial organization of human actions’ [12, 51]. Therefore, we do not consider such ‘ideal cities’ – social models as city-planning projects, which allows us to distinguish them from ‘non-urban’ social modeling.

4.2 The relationship of architectural and town building forms in the Russian architecture of the 18th century

Without going into numerous discussions about the post-Petrine development of Russia, we note the similarity of the architectural forms of Western Europe with the town-planning forms of Russia of the XVIII century, which has not yet been noticed by researchers and not commented on by the architects themselves (Fig 1). Most likely, two or three generations of Russian architects who studied in Europe or under European teachers perceived the concept of the ‘ideal city’ as being European. The facts presented in the table can hardly be called borrowings. They rather confirm the ‘training’ multiplied by the values of the Enlightenment, implemented by Peter I himself, then by Elizabeth Petrovna, Catherine II, and Pavel, such as order, symmetry, and clarity of form. In this process, the enlargement of the scale of ‘ideal’ projects ranging from individual buildings or estates to cities is noteworthy. The formation of the empire required a universal order, and the concept of ‘ideality’ met it as well as possible. In turn, working with regular geometric figures such as Platonic solids corresponds to the concept.

4.3 Planning parameters of rectangular ‘ideal cities’ of Russia of the 18th – 19th centuries

Cities with a rectangular plan make up the majority of cities built in Russia in the 18th – early 19th centuries. During this period, this form was considered the most appropriate, it enabled to quickly develop a new city and make a breakdown on the ground easily. However, cities with rectangular plans are far from being the same. Our analysis of plans for 110 cities according to [8] and other sources allows us to group them according to the features of their planning.

The first group consists of cities of regular square or rectangular shape with a regular layout and ‘full’ blocks with the shape and dimensions of one or two types (for example, Babinovichi, Kopys, Government of Mogilev). By the degree of correctness and regularity, they approach the truly ‘ideal cities’. They make up a small part of cities with a rectangular plan – no more than seven percent of their total number. Their plans represent rectangles with regular breakdown into identical residential areas. Adjacent to them is the Yamskaya suburb, which also has a regular rectangular shape (Figure 1). The rarity of such ‘ideal’ rectangular plans is explained by the rarity of the necessary landscape conditions – there should be a flat relief without cuts.
The second group consists of cities of an ‘ideal’ rectangular shape, containing one or several dissections in the planning structure, which do not allow for the creation of a completely regular layout. These are cities located on two banks of rivers, or with a specially created dam and pond (for industrial needs), such as in the cities-factories of the Urals. Although the landscape situation creates difficulties for an organic ‘perfect’ layout, such plans are very common: 32 cities with a similar plan form were found, which is 29% of the total number of cities with a rectangular plan. An example would be Yukhnov, Government of Smolensk, dissected by the river into two equal parts, the main area of which is located on two banks of the river, or Starodub, Government of Gomel. Extremely complex dissections are present in the plans of Kashin and Zubtsov, cities of the Government of Tver. The prevalence of this form of the plan indicates the active use by city planners of the advantages of a city on a river, despite the difficulties of its implementation and operation.

The third group of cities is the most common; it includes cities with ‘unfinished’ plans of rectangular shape on three or two sides. However, one or two sides are not regular. These are cities located on the banks of the rivers: Orlov, Slobodskoy, Vyatka (all in the Government of Vyatka), Volsk (Government of Saratov), and others. We found 64 cities with an ‘incomplete’ plan form, they make up 58% of all cities in a rectangular shape.

Here one can note a significant town building controversy. The allocation of groups proves the desire of Russian town planners to take into account the peculiarities of the landscape and the way of life of citizens as much as possible when designing an ‘ideal city’ plan. In such a case the model, which the designer seeks to embody, eliminates any deviations from the ‘correctness’ and, thereby, returns the city to the desired geometric perfection. This is especially well seen in the most representative part – the city center.

4.4 Planning organization of the centers of ‘ideal cities’ of Russia of the 18th century

The analysis of the planning systems of the centers of Russian cities of the 18th – early 19th centuries shows the diversity of their forms, i.e. dispersed, linear, ray and mesh, existing in the planning structures of low complexity. The compositions of the layout of town centers demonstrate their functionality. The system of centers in the ‘ideal’ cities of this period is usually reduced to the planning and development of central urban areas on the principle of ensemble development. The tradition of this assessment has long historical roots and is based on a holistic understanding of architecture and town planning as an organic unity of form. At the same time, in the system of simple building, frameworks of star and mesh types can be provided, which are introduced types that are not typical of the types of complexity of the planning system.

A monocentric city is closest to the historical ‘absolute’ [2; 12; 19], it has one center, and all long streets lead to it from residential areas. An example is the city of Karsun, Government of Simbirsk.

The dispersed center occurs when the terrain or river does not allow us to preserve the unity of the planning decision. Thus, the layout of the city of Vytegra, Novgorod
governorship, is cut by the river into two parts and each has a dispersed frame of the center: one is monocentric, the second contains two central elements. In some cities, in the event of the appearance of an additional link between the centers, dispersed frameworks can form a linear center (Danilov, Myshkin, Opochka, etc.). In this case, the clarity of the solution begins, as it were, to ‘dissolve’ in the natural basis of the city, leading it further and further away from ‘ideality.’

The developed linear form of the center systems acquire in the riverside cities that have an elongated plan shape. Thus, in the plan of the city of Samara, it is formed along two streets: on a street distant from the river there are two elements in the form of diagonally arranged squares, on a street closest to the river the center is in the scale of a residential quarter. The layout of the center of Voskresensk, Moscow governorship, is formed by two linear centers leading from the entrance to the city to the river; they are connected among themselves by a street running through the whole city.

The radial or ray planning system of centers may also arise in a rectangular regular planning system when included in the rectangular layout of diagonal streets. This decision is in the spirit of the ‘ideal city’ because it directly affects the behavior of a person in it: it allows you to identify the main directions of the shortest movement to the main elements of the center. Such is the planning of the cities of Vasilursk, Nizhny Novgorod governorship, and Khlynov, Vyatka governorship. In both cases, the two diagonal streets, in combination with the regular axial street, form a classic planning approach of three rays, which is complemented by two small centers at the intersection of the radial and regular streets.

5 Conclusion: the principles of designing an ‘ideal city’ in Russia in 18th century

The concept of an ‘ideal city’ in Russia in the 18th century was implemented in a special way – with the maximum understanding of the realities of life by architects. It allows one to leave from impersonal and standard decisions in favor of regular and at the same time connected with a landscape and a way of life of citizens. This allows one to highly appreciate the findings of the Russian town planning of the 18th century and to rethink the scale of the influence of architecture on society, lifestyle, tastes, and mindsets.

The study of the structure of ‘ideal cities’ of Russia in the 18th century made it possible to clarify the principles of the planning of an ‘ideal city’ that distinguish it from any other. Let us denote them.
– The principle of integrity – an ‘ideal city’ is considered as an integral, simultaneously created and fully completed single town development facility.
– The principle of architecture – an ‘ideal city’ is designed as an architectural object based on general compositional planning ideas and techniques, an ‘ideal city’ is similar to an architectural object.
– The principle of the unity of timelessness and synchrony. An ‘ideal city’ exists in time but if the authors consider that it needs development, it is possible to foresee the growth of its structure at the planning stage and preserve the ‘regularity’ of the decision. In addition, at each separate stage it exists as if in its unchanged form, it has no past and future, only the present.
– The principle of geometric composition. An ‘ideal city’ is built according to strict geometric rules; it always has a regular composition of the plan and the entire planning system, symmetrical, often with several axes of symmetry, and includes Platonic solids as composite elements. The composition covers the whole territory of an ‘ideal city’ and all planning elements.
– The principle of authorship. An ‘ideal city’ is developed by one author like the author’s work.
The plans of rectangular ‘ideal cities’ analyzed in the work show that, for all its rigidity, this form is suitable for use in difficult landscape conditions, and is relevant in this sense. An ‘ideal city’ is intended to serve not only as an architectural structure, but also as a place of upbringing, improvement of its inhabitants.

Landscape dissection forms are used to enrich the architectural and town-planning composition of the city and individualize the design solution. In Russia of the 18th century, the most common type is that of cities of ‘incomplete’ rectangular shapes, located on the banks of rivers.

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