#### **PAPER • OPEN ACCESS**

# Preservation and development of historical heritage of gardens and parks in large European cities

To cite this article: Kristina Ivanova et al 2019 IOP Conf. Ser.: Mater. Sci. Eng. 667 012034

View the article online for updates and enhancements.

### You may also like

- A review of the good practices of active mobility measures implemented by European cities due to the COVID-19 pandemic
- Dimitrios Nalmpantis, Fereniki Vatavali and Fotini Kehagia
- CO<sub>2</sub> emissions from C40 cities: citywide emission inventories and comparisons with global gridded emission datasets
   D Y Ahn, D L Goldberg, Toby Coombes et
  al.
- Diesel passenger vehicle shares influenced COVID-19 changes in urban nitrogen dioxide pollution Gaige Hunter Kerr, Daniel L Goldberg, K Emma Knowland et al.



IOP Conf. Series: Materials Science and Engineering 667 (2019) 012034 doi:10.1088/1757-899X/667/1/012034

# Preservation and development of historical heritage of gardens and parks in large European cities

#### Kristina Ivanova<sup>1</sup>, Valeri Kozlov<sup>1</sup> and Sergey Belomestnyh<sup>1</sup>

<sup>1</sup>Irkutsk national research technical University, 664074, 83 Lermontov str., Irkutsk, Russia

Abstract. The aim of the research is the study of the historical architectural and planning heritage, modern concepts of development of open and green urban spaces. A comparative analysis was made, which allowed to supplement the idea of changes in approaches and tools for creating park architecture, recreational urban areas. The sources for this article were cartographic, literary, photographic materials (historical and modern, made during field studies). As a result, the main stages of evolution of gardens and parks of some European cities, modern trends of adaptation of urban gardens and parks to modern requirements are revealed. parks in most cases occupy the largest percentage of the historical environment of the city. Changes in the planning and construction of cities began in the XIX century, when there was an active appeal to the capital's architectural models, which in turn contributed to the renewal of the traditional architecture of parks. The study of the history of the evolution of green spaces in the planning system showed the stratification of many historical and modern urban planning and spatial solutions.

# 1. Introduction

Key issues in modern urban design and architecture focus on sustainable development of the city and landscape. The objects of research are gardens and parks in the structure of open and green spaces of major European cities. Careful consideration of architectural and planning structures, their evolution allows us to compare the latest approaches in the development of traditions of Park building and landscaping. For example, the city of Dresden (Fig.1, 2, 3, 4) always had the reputation of a city where carefully preserve historical heritage, care for quality inhabited living space [1, 2] and care for the active inclusion of the landscape in the citywide structure [3]. The main directions of development of the city, which were discussed in 2008 in the development of the long-term plan affect these problems. "The long-term plan shows in what direction the city should develop and creates regulations for all subsequent stages of planning and activities of the city. Outstanding historical and cultural buildings that fill the city and such a unique landscape as the panorama of the river Elbe, constitute the main capital of Dresden. The preservation of one of a kind the game of the interrelationships of the valley of the river Elbe from the old and new town is the most important value to preserve the identity and power of attraction of Dresden. The uniqueness of the coastal architectural and landscape ensemble of the Elbe is a combination of buildings of the old and new city in maintaining the value of identity and attractiveness of landscaping Dresden. [4] Protection of the emotional historically significant urban silhouette sets strict requirements for the further development of the center in order to preserve the special figures and forms of the terraced landscape as a unique coastal space for future generations. The long-term plan leaves the necessary freedom for the integration of the latest knowledge and

Content from this work may be used under the terms of the Creative Commons Attribution 3.0 licence. Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

IOP Conf. Series: Materials Science and Engineering 667 (2019) 012034 doi:10.1088/1757-899X/667/1/012034

therefore should be carefully supplemented in a certain period of time" [5]. The task of architects is to define a spatially oriented concept together with clearly formulated perspective ideas, goals and ideas about quality. This is not a law, but a pointer developed in the dialogue that connects the desired with the real [5]. As for the urbanized urban landscape, the directions were formulated as follows: "the City and the landscape are interconnected. Perhaps more than in any other city, Dresden's attractiveness depends on this interaction. In this context, it is necessary to consider and develop the city and the landscape in an interrelated way. The links between the city and the landscape, the city and nature should be carefully and thoroughly developed" [5].



**Figure 1.** Dresden. Historical panorama of the city in the orientation of the river landscapes.



**Figure 2.** Dresden. The scheme of the existing structure of green and open spaces of the city, where the identification of green objects as planning elements is of key importance.





**Figures 3, 4.** Dresden. The Central alley of a Large garden and the project of peripheral development of urban areas around a Large garden with preservation of the park landscape.

#### 2 Materials and methods

ICRE 2019 IOP Publishing

IOP Conf. Series: Materials Science and Engineering 667 (2019) 012034 doi:10.1088/1757-899X/667/1/012034

A comparative analysis was made, which allowed to supplement the idea of changes in approaches and tools for creating park architecture, recreational urban areas. The sources for this article were cartographic, literary, photographic materials (historical and modern, made during field studies). The materials mainly concerned the origin and transformation of gardens and parks of some historical European cities.

# 3 Results

Very often parks in the past were part of the hunting grounds of the nobility, for example, Tiergarten park was a swampy forest, where they hunted mainly deer, wild boar and waterfowl. In the second half of the XVII century Kurfurst Brandenburg Friedrich Wilhelm I ordered the road from his residence to the forest and around her young lime trees. Then the road turned into the main street. At the beginning of the XVIII century, King Frederick I [6] expanded the street. Animals from the noise ran away, and the forest after the accomplishment turned into a park. On the site of another famous park Lustgarten in the XVI century was a subsidiary farm (vegetable garden and herb garden) of the Royal Palace in Berlin, and even earlier were flood meadows. In 1646, the wife of the Great Kurfurst Friedrich Wilhelm – Louise of orange – decided to expand the garden and create a park at the city Palace – the Lustgarten (pleasure Park, pleasure garden). Famous Charlottenburg in the past was the residence of Frederick I. Friedrich Wilhelm II in 1793 [6] Created on the river Hafen on the island of a small zoo. The next ruler Friedrich Wilhelm III wished to arrange his residence on this Peacock island and ordered to carry out the necessary works on the improvement of the park. In 40-ies of the XVIII century Prussian king Frederick II commissioned the court architect Georg Knobelsdorff to build in Potsdam on an area of more than two hundred hectares of beautiful hilly landscape of the residence of the rulers of Prussia. Built a Palace and Park ensemble, called Sanssouci (French: "without worries") [7, 8, 9].

In the XVIII century in Dresden there were two magnificent palaces – the Water Palace [10, 11] and the Mountain Palace (1723-24) (Fig. 5). Around the Mountain Palace laid out a decorative Park in the Baroque style. The interest of Augustus the strong in exotic and Chinese (Shinoazri – Chinese European style) was manifested through the architecture of the Palace (the shape of the roof, decorative ornaments on the buildings). According to historical photos of this place, we can also note the addiction to lush flower beds, in the center of which we see exotic plants (palm trees, Cannes). Now in front of the palace there is a blooming lawn decorated only with a low border (Fig.3) [12].



Figure 5. Dresden. Mountain Palace and the Palace park of the Baroque.

At the end of the XVIII century, the excessive population density in Munich led to the terrible living conditions of citizens (poisoned air and water, the lack of opportunities to communicate with nature). Then in Munich, it was decided to create a city people's park in the valley of the river ISAR to the North of the city. The Park was founded by a member of the electoral College of Bavaria Carl Theodore and British-American scientist, sir Benjamin Thompson. However, the Park was completed

IOP Conf. Series: Materials Science and Engineering 667 (2019) 012034 doi:10.1088/1757-899X/667/1/012034

only in 1804, when the new court landscape architect Friedrich Ludwig von Schell was hired [13]. There were many natural and artificial canals and old fortifications, ditches, bastions, which were supposed to be removed, and in their place to create a Park that should be open to everyone. The traditions of the national Park are preserved to this day and is called English. Also known is one of the oldest Botanical gardens in Germany, created by Albrecht von Haller in 1736 (Göttingen, Niedersachsen) is the same age as the University. Now it is called "Old Botanical garden". It grows more than 10,000 varieties of frost-resistant and tropical plants. This garden and the New Botanical garden (1967) are part of the Botanical garden at the University of George-Augustine [13]. Interested in the origin of the Park on the ILM (Weimar, Thuringen): at the beginning of 1776 the poet Goethe went home Gartenhaus in Elmdale. In 1778 – 1833, under the influence of German romanticism, he was engaged in designing a landscape Park, creating numerous garden buildings and planting trees [13].

Garden Museum architect Carl Forster (Potsdam-Barnim, Brandenburg) was designed in 1912, the Garden was designed to showcase the grown hybrid plants. In an effort to create flowerbeds that bloom all year round and resist the harsh German winters, he developed an original approach to gardening, which was then used by various garden architects around the world. The emphasis in the garden of art Nouveau style is not only on color shades, but also the shape of plants [13].

In post-war Germany, it was customary to celebrate garden festivals on a national and international scale. This resulted not only in the design of new gardens, but also allowed landscape architects to demonstrate the results of creative research in new styles. In 1983, the international horticulture festival was held in Westpark, South of the city of Munich, and this Park is still an important heritage in the history of landscape architecture. The Park with its lakes, valleys and hills affects not the breadth of open space, but numerous attractions that have survived since the festival. Speaking of the XX century, it is worth remembering the famous gonneranlage rose garden (Baden-Baden, Baden-Wurttemberg), created in the style of art Deco, designed by German Potter and landscape architect max Lauger at the expense of the American-German coffee industry magnate Hermann Silken (the garden was founded in 1909 – 1912).

In the South of Germany in the village of Aqualen (Baden-Württemberg) is a garden WALA, established for the cultivation of medicinal plants for well-known pharmaceutical company "Dr. Haushka". The basic principle of biodynamics, which formed the basis for the creation of this object, takes into account the entire ecosystem as a whole, a person should take care not only of the plants of his new garden, but also of the soil and all wildlife [13].

Stuttgart – one of the European cities, where carefully preserve the architectural heritage and at the same time there is a continuous development and enrichment of the environment with new objects including landscape (Fig. 6, 7) [14].



**Figure 6.** Stuttgart. Reception of the upper green terrace overlooking the historic center.

ICRE 2019 IOP Publishing

IOP Conf. Series: Materials Science and Engineering 667 (2019) 012034 doi:10.1088/1757-899X/667/1/012034



Figure 7. Stuttgart. Parterre square in front of the Parliament building.

From some modern editions we learn about park architecture of Shtudgart XIX in more detail – the beginnings of the 20th century. Parks of country houses of that time decorated sculptures of mythological heroes of Antiquity, arbors like "rotunda" were popular. The arrangement of country houses on difficult reliefs of mountainous areas of Shtudgart promoted formation of interesting landscape gardening [15].

# 4. Discussion

In the XVIII - XIX centuries mainly parks emerged as components of the residences of the nobility (kings park, hunting ground, garden), as well as the creation of parks and gardens showed the initiative of wealthy citizens, often with artistic inclinations, having in his possession a large area. In the XX century there were the parks created at the initiative of the city authorities, rich Industrialists, and then and at the initiative of large firms, corporations. There are a lot of recreational facilities that have gained popularity thanks to exhibitions and festivals.

Nowadays, historical landscape objects are actively used by local residents and tourists. Thanks to the rational management of these areas, the status and attractiveness of the city increases.

# 5. Conclusion

Result of the research, the main variants of the origin of gardens and parks were identified, namely, initially under the influence of beneficial initiatives of the city authorities, wealthy citizens, creative people, owners of large plots of land in the parks turned into hunting grounds, farms, residences of the nobility in the XVIII-XIX century. In the XX century, along with the city authorities, the initiative was taken by wealthy Industrialists, large firms and corporations. Cases are known, when they become popular site, which hosted exhibitions and festivals, taking over subsequently the role of the city park.

Of landscape architecture the European countries in XIX – early XX centuries was influenced by various fashion trends. First of all, at this time the ideas of classicism were popular. Architects once again turned to the ideals of antiquity, as it was, for example, in the Renaissance. The previous Baroque era gave the world a pretentious sensual architecture of buildings and regular French gardens. However, in the XIX century, the strict geometry did not satisfy the needs of the public. In the architecture of pavilions and pavilions there was a gravitation to the classical volumes, elements of the architectural order were used. For example, in the parks of that time were widespread rotunda, grottoes, antique sculpture. But all this was without frills and decorations. The fascination with Chinese landscape gardens resulted in the emergence of a new style of "chinoiserie". And then there was a concept of "English landscape Park", which synthesized the Chinese and European culture. After England, landscape parks have become widespread in other European countries. The exoticism

ICRE 2019 IOP Publishing

IOP Conf. Series: Materials Science and Engineering 667 (2019) 012034 doi:10.1088/1757-899X/667/1/012034

of the elegant forms of the Middle East was also used in the small architecture of gardens, parks and streets.

The study of the evolution of parks in the structure of green and open spaces of European cities showed that the stratification of temporary layers of urban planning and spatial elements created a unique environment of centuries-old monuments of urban planning and architectural heritage. They contain the remains of the Greco-Roman planning structure and dense development of areas with traditional Arab houses with their focus on strict privacy. Mansions and houses of the early twentieth century, located on the periphery of the city, formed by the XIX century., demonstrate a turn towards the principles of European housing construction, which continued throughout the twentieth century. Reconstruction and restoration work in the historical centers of cities should go the way of maintaining the architectural and planning identity of the environment.

## References

- [1] Meerovich M.G., Malko A.V., Kozlov L.V., Gladkova E.A. Renovation of panel building of the 1960-1980th in Germany. News of higher education institutions. Investments. Construction. Real estate. T.7. No. 1(20), 117, (2017)
- [2] Meerovich M.G., Frantseva Yu.V. The problems complex regeneration of the inhabited environment of areas of large-panel building. Possibility of adaptation of the German experience to social and economic and legal conditions of the CIS countries. News of higher education institutions. Investments. Construction. Real estate. T.7. No. 1(20), 124, (2017)
  - [3] Wines J. Gruene Architektur. Tasches.–2000, 240 p.
- [4] Dagdanova I.B., Kozlov V.V., Engel B. Dresden. Center. Trade. Impulse development of the historic center. Irkutsk, IRNITU. 2015. 136.p.
- [5] Holger Evets. Living history urban landscape of the city. Dresden is a perspective plan of city centre, 5, (2008)
- [6] Litbuk. Frederick the Great. Historical portraits [Electronic resource]. Access mode: http://litbook.ru/article/9251/(date of the address on May 29, 2019)
- [7] Gorokhov V. A. Green nature of the city. Gardens and parks of Europe: Studies. The manual for high schools. In 3 TT. Vol. III, 510, (2014)
  - [8] Germany. Facts. editor A. Hoffman. p. 29 (1993)
  - [9] Parks. Gardens. edition group: M. Aksenova, T. Evseeva. p/ 94 (2007)
- [10] Historisch cjntra modern. Erfindung oder Rekonstuktion der historische Stadt am Beispiel der Dresdener Neuemakrts. Dresden.–2008, 144 p.
  - [11] Das historische Dresden. Dorothee Baganz. c.197 (2013)
  - [12] Dr. Barbara Munch Kienast. Unser Dresden. Einekleine Zeitreise, 170, (2011)
  - [13] Spencer-Jones R. 1001 garden to see, 463, 474, 488, 492, 494, (2008)
  - [14] Dagdanova Z., Kozlov V., Vogt W. Stuttgart: city of the pedestrian spaces, 6, (2017)
- [15] Ulrik Barth. Der Stuttgarter Bobser. Hauser Familien–Geschichten, 126, 132, 136 (2014) 276 p.