

***О.Є. ТВЕРИТНИКОВА, М.В. ГУТНИК, М. ХАЙНЕМАНН***

## **УРБАНІСТИКА В УКРАЇНІ ХІХ – ПОЧАТКУ ХХ СТ.: КОНГЛОМЕРАЦІЯ НАУКИ І ДЕРЖАВНОГО УПРАВЛІННЯ**

Дослідження присвячено аналізу процесу урбанізації, зокрема становленню та розвитку міст у північно-східній Україні кін. ХІХ – поч. ХХ ст. Особлива увага приділяється місту Харкову та діяльності його мерії в особі Олександра Костянтиновича Погорелка (1848–1912 рр.). Обґрунтовується важливість урбаністики як ключового напрямку досліджень гуманітарної науки, що визначає розвиток нації, громади та держави. Зазначаються основні завдання, з якими стикалося місто в той період, такі як муніципалізація господарства та розширення прав міста на об'єкти приватної власності. Висвітлено роль вчених та дослідників, зокрема Д.І. Багалія та М.Ф. Сумцова, у сприянні модернізації міста через активну участь у міських органах влади. У результаті дослідження виявлено значний внесок О.К. Погорелка та його співробітників у розвиток та благоустрій Харкова наприкінці ХІХ ст. Висновки дослідження підкреслюють важливість об'єднання наукового потенціалу та громадської активності для реалізації проєктів інфраструктурного розвитку міста.

**Ключові слова:** історія науки, біографістика, Харківщина, краєзнавство, Харківський технологічний інститут, О.К. Погорелко.

***O.Ye. TVERYTNYKOVA, M.V. GUTNYK, M. HEINEMANN***

## **URBAN PLANNING IN UKRAINE FROM THE 19TH TO THE EARLY 20TH CENTURY: INTEGRATION OF SCIENCE AND STATE MANAGEMENT**

The research is dedicated to analyzing the process of urbanization, particularly the formation and development of cities in northeastern Ukraine at the end of the 19th and beginning of the 20th cen. Special attention is given to the city of Kharkiv and the activities of its mayor, Oleksandr Kostiantynovych Pohorelko (1848–1912). The importance of urban studies as a key direction of humanities research that determines the development of the nation, community, and state is justified. The main tasks faced by the city during that period, such as the municipalization of the economy and the expansion of the city's rights to private property objects, are highlighted. The role of scientists and researchers, including D.I. Bahalii and M.F. Sumtsov, in promoting the modernization of the city through active participation in municipal authorities is discussed. As a result of the research, significant contributions of O.K. Pohorelko and his colleagues to the development and improvement of Kharkiv at the end of the 19th cen. are identified. The conclusions of the research emphasize the importance of combining scientific potential and civic activism for the implementation of infrastructure development projects in the city.

**Key words:** history of science, biographistics, Kharkiv region, local history, Kharkiv Technological Institute, O.K. Pohorelko.

**Problem statement.** The history of urban planning, or the formation and development of cities, is one of the key directions of research in global humanities, as urban studies are integral to the civilization process of nations, peoples, communities, and states. Cities play a particularly important role in the development of statehood, performing cultural, socio-economic, and political-administrative functions. Indeed, in the general history of Europe at the end of the 18th century, the significant growth of the economic role of cities became one of the defining factors in societal development. In Ukraine, the issue of urbanization within the outlined chronological boundaries had certain local peculiarities, which makes the proposed research relevant today, especially when the need arises for urban restoration.

Of particular interest in terms of studying urbanization processes is northeastern Ukraine, the history of city development in which is both intriguing and instructive. Among such cities, undoubtedly, is Kharkiv – the main city of the regional center of modern Ukraine, which was dynamically developing at the end

of the 19th and beginning of the 20th centuries. During the economic crisis of that period, the city required a clear government policy for its improvement and modernization under the leadership of a specialist who would combine the main qualities of a state official: scientific knowledge, practical experience, and a clear strategic development plan for the city.

The city had to address a number of urgent tasks in municipalizing the economy and expanding the city's rights to privately owned objects, as well as developing issues that were just beginning to emerge on the agenda of entrepreneurial activity of municipal self-government and a range of others awaiting their resolution. And such a person was found in the history of urban planning: physicist, private lecturer at Kharkiv University, professor at Kharkiv Technological Institute, and Kharkiv mayor, Oleksandr Kostiantynovych Pohorelko (1848–1912).

Alongside O. Pohorelko, at the end of the 19th century, particularly at the university and in the Kharkiv city council, or in modern terms, the municipality,

exceptional individuals worked, representatives of the Ukrainian intelligentsia, members of the liberal bloc, professors of Kharkiv University: historian D. Bahalii, ethnographer M. Sumtsov – like-minded individuals and associates of Oleksandr Kostiantynovych. The implementation of new provisions granting more powers to the city administration and interference in the affairs of the city council contributed to the renewal of the composition of the new council. The new composition proposed to strengthen measures aimed at the city's restoration.

**Analysis of recent research and publications.** An analysis of research and publications highlighting various issues of the formation of the urban space of Kharkiv has shown that researchers were drawn to questions of urban development, including publications by V.O. Nesterenko [1]. The wide range of ethnographic research and everyday history were presented in works [2–4]. O.M. Donik's research proved to be interesting, where the experience of building water supply and sewerage networks in Ukrainian cities is summarized, emphasizing the contribution of municipal authorities and entrepreneurs to the development of Ukrainian cities in the early 20th century [5]. The life and scientific career of Professor O. Pohorelko have been studied by A.N. Holovko, A.N. Yarmish, O.Ye. Tverytnykova, and others [6–7]. Some information can be obtained from anniversary collections on the history of NTU “KhPI”, the Department of General and Experimental Physics. However, there are no special comprehensive studies on the activities of Professor of Physics at the Kharkiv Technological Institute O. Pohorelko as the mayor of Kharkiv.

The **purpose of the paper**. Based on the documents from the State Archives of the Kharkiv Region and the archive of NTU “KhPI”, reconstruct the activities of Professor of Physics O. Pohorelko and evaluate his contribution to the development of the city of Kharkiv in the early 20th century.

**Main body.** On August 5, 1885, at the suggestion of Viktor Kyrpychov, the Ministry of Education appointed Associate Professor of Physics at Kharkiv University Oleksandr Pohorelko to the position of adjunct professor (Fig. 1). At the institute, he began teaching physics with a workload of three hours per week in the mechanical department, supervised the physics laboratory, and was elected to the economic and construction committees [8; 9].



Fig. 1 Professor O.K. Pohorelko

Research in the field of theoretical physics by O. Pohorelko began under the guidance of Professor A. Shymkov of Kharkiv University, who had a significant influence on the formation of the future lecturer's personality. It was at his suggestion that in 1878, O. Pohorelko went on a business trip to Germany to enhance his scientific level, where he worked under the supervision of H. Helmholtz and the German scientist-physician H. Quincke on issues of deformation of solid bodies under the influence of electrical pressures. His scientific developments were published in a well-known publication in physics and chemistry, initiated by the German physicist J.C. Poggendorff, “Annals,” and attracted considerable interest among European scientists [10; 11, p. 5–43].

The scientific work of the scholar includes works towards obtaining a scientific degree and over ten papers and publications dedicated to the development of electricity and optics, as well as 27 scientific reports and abstracts for the physical-chemical society of research sciences at Kharkiv University. In addition, textbooks on the theory of electricity, electrical engineering, and general physics. O. Pohorelko paid great attention to methodical literature, which was lacking at that time, and in 1899 prepared for publication a course of lectures on the physics section “Theory of Electricity.” In 1902, O. Pohorelko summarized his lecture experience in an author's textbook “Electrical Engineering,” which was distinguished by simplicity, clarity, and consistency of the material presented [13].

The scientific and pedagogical work of Professor O. Pohorelko was closely related to public activity. On September 15, 1900, O. Pohorelko was elected mayor. He remained in this position for three terms until 1912 and did a lot for the improvement of Kharkiv, focusing on the implementation of forward-looking, innovative projects and drawing on European experience. The scholar's works on various issues of urban improvement were developed based on the experience of Western European cities. The author paid particular attention to public health protection, organization of market trade, and waste sanitation. The scholar prepared a report of 113 printed pages titled “On the issue of removal of waste from the city, their neutralization, and destruction,” where he even conducted a classification of urban waste. He provided a thorough analysis of the global experience in waste removal from cities. Analyzing the experience of managing Western European cities, O. Pohorelko convincingly demonstrated the necessity of implementing diverse urban projects in Kharkiv [14].

The central market, pawnshop, eye hospital, Mykolaiv hospital, primary schools, Higher Women's Courses, water supply system, municipal sewage system, municipal bank building, pawnshop, covered market, art school, and tram movement, all built at the initiative of the scholar, remain relevant today.

O. Pohorelko initiated the publication “Bulletin of the Kharkiv City Council,” which was of great importance for the work of self-government. The bulletin contained minutes of council meetings, monthly reports on self-government activities, reports and decisions, current

information, official council documents, and analytical articles by experts and public figures on urban management issues. The existence of this publication contributed to the detailed development of the urban reform program and monitoring of its implementation. Undoubtedly, these works have not only theoretical but also practical and historical significance for the [7, p. 54; 15].

In 1879, the construction of a water supply system began in Kharkiv, but it was only due to the perseverance of O. Pohorelko and public figures M.F. von Ditmar and I.K. Hryshchenko that the first water intake booths began operating in 1904, and a project for the city's sewage system was developed, which was implemented in 1912 [5].

The special place in O. Pohorelko's activities was occupied by the project for the construction of an eye hospital, which remains the central ophthalmological center of Kharkiv to this day. This project was carried out by O. Pohorelko together with his friend, Professor Leonard Girshman. Later, the ophthalmological center was named after Professor L. Girshman.

After returning from training in Germany in 1895, L. Girshman founded the Department of Ophthalmology and insisted on the need to establish an eye hospital for the city. The first opening took place on March 25 (April 7), 1908, and the hospital was located in building no. 55, Velyka Moskovska Street. The building was small, with only 10 beds. Professor L. Girshman also conducted additional patient consultations in his own home, often free of charge, but this was not enough [16; 17, p. 673].

The city government supported O. Pohorelko's proposal for the construction of the hospital, and a fairly large area in the city center was allocated for this purpose. Funds were raised for construction, including private contributions, donations from public organizations, and proceeds from charitable events. According to the project by engineer L.K. Terven, a large beautiful building was constructed with its own laundry, kitchen, staff quarters, outpatient clinics, laboratories, operating rooms, separate wards for patients, and doctors' offices. The building had heating and water supply. A separate room was allocated for Professor L. Girshman. The new building, housing the eye hospital with 65 beds, was opened on April 8 (21), 1912 [6, p. 12–19] (see Fig. 2).

The emergence of the first tram line directed towards the industrial districts became an important project for Kharkiv. Considering the growing industrial and commercial activities, the transportation issue held paramount importance. At that time, the city had a tram system supported by the Belgian Society of Municipal Horse Railways. This contract negatively impacted the expansion of tram transport in the city.

The municipal government, led by Professor O. Pohorelko, considered the issue of buying out the tram system. However, the terms of the contract did not satisfy the municipal government, and upon the proposal of the scholar, the construction of the tramway in Kharkiv was entrusted to domestic experts. In 1906, tram traffic opened in Kharkiv from Pavlovska Square to Petinska Street near Balashov Station.



*The project and construction of the eye hospital named after Professor L. Girshman were carried out free of charge by engineer L.K.Terven, 1911–1912*



Fig. 2 Eye Hospital of Professor L. Girshman (top view at the time of opening, 1912), now Kharkiv City Clinical Hospital no. 14 named after Professor L. Girshman

O. Pohorelko advocated for the necessity of further development of the tram network in the city (Fig. 3).

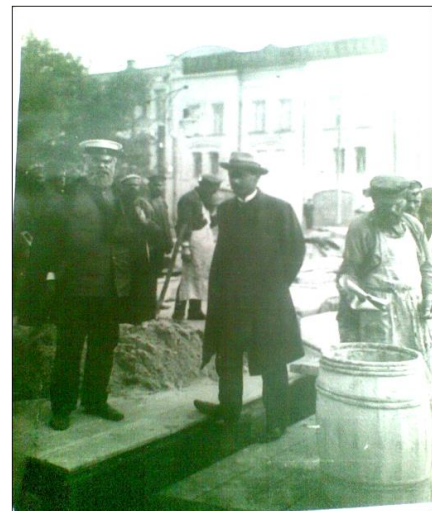


Fig. 3 O. Pohorelko at the construction site of the tram line, Hryhoriia Skovorody Street, Kharkiv

Between 1909 and 1912, six tram routes were opened in Kharkiv: June 3, 1906 – Petinska line; December 17, 1909 – Klochkivska line; December 23, 1909 – Panasivska line; December 20, 1910 – Pushkinska line; July 17, 1911 – Grekovsko-Zaikovska line; February 2, 1912 – Tsvintarna (Cemetery) line.

To implement this project, O. Pohorelko invited Professor P. Kopniaiev, who began scientific research in this direction at Kharkiv Technological Institute [18].

O. Pohorelko was appointed as the head of the commission for the city's electric lighting. He worked in



this position for three years and made a significant contribution to the introduction of electric street lighting in the city and the construction of a power station. Electric lighting began operating in 1895, and Kharkiv was one of the first cities in the Russian Empire to utilize it. In 1897, the municipal power station started operating – one of the first projects of the scholar. In 1902, Professor O. Pohorelko left Kharkiv Technological Institute (KhTI) but maintained close ties with colleagues, inviting institute lecturers to participate in municipal projects. By the early 20th century, there was a need for substantial improvement in Kharkiv's electricity supply.

The emergence of the tramway and the growth of industrial enterprises required the reconstruction of the city's central power station. Similar stations in Moscow, St. Petersburg, and Kyiv were entrusted to foreign firms. At the proposal of O. Pohorelko, the Kharkiv City Duma decided to construct a municipal power station without involving foreign concessionaires. The project was authored by Professor M. Artemiev from the Kyiv Polytechnic Institute (KPI). Professor P. Kopniaiev was invited for consultations, as he already had experience in designing and building the institute's power station. He conducted an expertise and technical justification of the project. By 1910, the total capacity of the station reached 1750 kW. The electric station became one of the profitable municipal initiatives and contributed to solving the urban transport problem [18–21].

The history of the construction of the Blagoveshchenskyi Market begins in the early 19th century when trade was flourishing in Kharkiv. At the end of the 19th century, Kharkiv had three markets, including the Blagoveshchenskyi Market (Fig. 4).

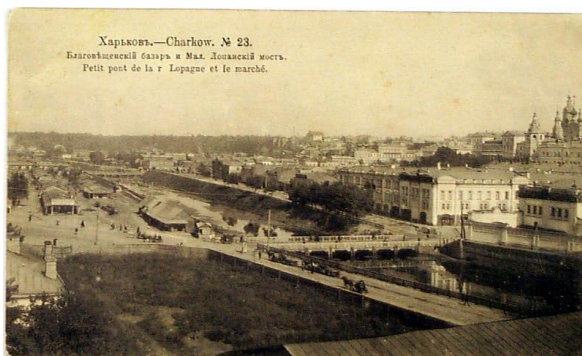


Fig. 4 – Blagoveshchensky Market in 1901 (top) and after restoration in 1916

This market was characterized by unsanitary conditions, especially in the meat and fish sections, which spread viruses during the hot summer months. The Kharkiv City Duma, led by O. Pohorelko, decided to build a new covered market. The scholar planned to build this market based on the model of German municipal markets, with refrigeration chambers, electric lighting, and specialized quality control services [22; 23].

**Conclusion.** Therefore, analyzing the public and organizational activities of Professor of Physics at the Kharkiv Technological Institute O. Pohorelko, it is worth concluding that the fruitful work of the scientist as the Head of the city council was of great significance for the city's economic development and the implementation of achievements of electrical engineering into municipal projects. He not only initiated the construction of large-scale and important initiatives for the city's development but also insisted on rejecting the participation of foreign concessionaires in financing any construction. In the thorough work of D. Bahalii and D. Miller, the importance of this initiative by O. Pohorelko for the city is emphasized, particularly for the construction of the tramway: "Kharkiv found itself, one might say, in the clutches of entrepreneurs. It had no right to build branch lines or transfer their construction to another city due to the contract, as the exclusive right to operate the horse tramway in all main directions was granted" [16]. Additionally, the contract with foreign entrepreneurs for the construction of water supply in Kharkiv was concluded by the city council in 1878 and turned out to be extremely unsuccessful from a legal point of view.

Through meticulous analysis and historical context, it becomes evident that Pohorelko's contributions were instrumental in shaping Kharkiv's trajectory, leaving a lasting legacy of progress and innovation in municipal governance and infrastructure development. Being a talented scientist, he managed to unite scientific foresight with the implementation of public projects, drawing on European experience, successfully incorporating scientific achievements into practical projects for the improvement of the city of Kharkiv.

## References

1. Nesterenko V.O. (2018). The State as an actor: on the issue of Kharkiv's territory formation (second half of the 18th – early 20th century). *Sumy Historical and Archival Journal*. No. XXX. Sumy. P. 12–20.
2. Khovtura A.S. (2020). Development of Infrastructure and Changes in the Social Space of Kharkiv at the Turn of the 19th-20th Centuries. *Bulletin of V.N. Karazin Kharkiv National University. Series "History"*. Iss. 57. P. 190–211.
3. Center of Local Lore named after Academician P.T. Tronka. Retrieved from [tronkocentr.univer.kharkov.ua](http://tronkocentr.univer.kharkov.ua).
4. Chorny D.M. (1995). *Kharkiv at the beginning of the 20th century: history of the city, fate of the people*. Kharkiv. 118 p.
5. Donik O.M. (2017). Introduction of centralized water supply and sewerage networks as an important factor in the modernization of urban economy in Ukraine (last third of the 19th - early 20th century). *Problems of the history of Ukraine of the 19th – early 20th centuries*. Iss. 26. P. 81–112.

6. Golovko A.N., Yarmysh A.N. (1998). "Did what he could...". *Kharkiv city mayor Alexander Konstantinovich Pohorelko*. Kharkiv. 138 p.
7. Tverytnykova O.Ye., Posviatenko N.I., Melnyk T.V. (2015). *Essays on the history of development of applied technical sciences in Ukraine. From the experience of Kharkiv Technological Institute*. Monograph. Kharkiv : NTU "KhPI", 276 p.
8. State Archives of Kharkiv Region, f. 770, Desc. 1, Case 242, Personal File of A.K. Pohorelko, 15 sheets.
9. State Archives of Kharkiv Region, f. 770, Desc. 1, Case 10, Case of the Appointment of Members of the Economic Committee by Prof. O.K. Pohorelko 19 sheets.
10. Andreasov L.M. (1952). Activities of the Physical-Chemical Society at Kharkiv University (1872-1915). from the *History of domestic chemistry: the role of scientists from Kharkiv university in the development of chemical science*. Kharkiv : Kharkiv University Publishing House. P. 250–280.
11. Birkenmaier W. (1995). *Das Russische Heidelberg, Zur Geschichte der Deutsch-Russischen Beziehungen im 19. Jahrhundert*. Verlag Das Wunderhorn GmbH, Heidelberg. 208 p.
12. Central Historical Archive of Kyiv, f. P-1680, Desc. 1, Case 24. Correspondence with the main directorate for press affairs and the Kharkiv governor on the supervision of print shops, photographic shops, and bookstores with higher educational institutions in Kharkiv, June 30, 1898–December 17, 1899, 22 sheets.
13. Pohorelko A.K. (1902). *Electrical Engineering*. Kharkiv : Ivanchenko Printing House. 227 p.
14. Pohorelko A.K. (1903). Explanation to the Kharkiv city дума by the mayor regarding complaints about municipal management expressed in the Kharkiv provincial news. Kharkiv: Petrov's Printing and Lithography. 72 p.
15. Central Historical Archive of Kyiv, f. 1680, Desc. 1, Case 146. Pohorelko A.K. – Editor of "News of the Kharkiv City Дума", 1908. 2 sheets.
16. Funds of the Museum of NTU "KhPI". Excerpts from the Biography of Professor of KhTI A.K. Pohorelko. Memories of V.A. Pohorelko's Daughter, 9 p.
17. Hermann D. (1912). Die Organisation der Wissenschaft (Section A.VI: Scientific Societies and Congresses). In: *Die Allgemeinen Grundlagen der Kultur der Gegenwart*. Berlin und Leipzig, pp. 632-692.
18. Tverytnykova O.E., Gutnyk M.V. (2022). Ecological urban planning of Ukrainian cities in the late XIX – early XX centuries: tram traffic and research in the field of electric traction (to the 130th anniversary of the first electric tram of Ukraine). *Pages of History. Collection of Scientific Papers*. Kyiv : NTUU "KPI". Iss. 55. P. 234–247, <https://doi.org/10.20535/2307-5244.55.2022.269592>
19. Pohorelko A.K. (1897). *Electric Lighting of Cities*. Kharkiv : KhTI. 98 p.
20. *Development of electricity in Ukraine: contribution of Professor M.A. Artemiev to the implementation of practical projects in the history of science and biography*. 2023. No. 1. P. 43–72. [doi.org/10.31073/istnauka202301-03](https://doi.org/10.31073/istnauka202301-03)
21. State Archives of Kyiv, F. 18, Desc. 1, Case 8. About the Service Activities of Extraordinary Professor Artemiev N.A., 32 sheets.
22. Bagalii D.I., Miller D.P. (1993). History of the City of Kharkiv for 250 Years of Its Existence (1655–1905). In 2 vol. Vol. 2. XIX – early XX century: Historical Monograph. Kharkiv: [w. p.]. 982 p.
23. Calabi D. (2004). *The market and the city. square, street and architecture in early modern Europe*. Historical Urban Studies, Aldershot. 332 p.

Надійшла (received) 12.04.2024

#### Відомості про авторів / About the Authors

**Tverytnykova Olena (Тверитникова Олена Євгенівна)** – National Technical University "Kharkiv Polytechnic Institute", Doctor of Historical Sciences, Professor, Head of the Department of Ukrainian Studies, Cultural Studies, and History of Science, Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0001-6288-7362>;

**Gutnyk Maryna (Гутник Марина Валеріївна)** – National Technical University "Kharkiv Polytechnic Institute", Candidate of Historical Sciences, Associate Professor, Associate Professor of the Department of Ukrainian Studies, Cultural Studies, and History of Science, Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0002-2723-2755>;

**Manfred Heinemann (Хайнеманн Манфред)** – Leibniz Universität Hannover, Doctor of Historical Sciences, Professor, Hannover, Germany.