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CULTURAL AND HISTORICAL HERITAGE OF KHARKIV: THE ELECTROTECHNICAL BUILDING OF NTU “KhPI”

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Abstract. The early 20th century urban development of Kharkiv deserves special attention. At that time, Constructivism became a notable direction developing culture and the arts in Ukraine, a style particularly characteristic of Kharkiv. Today, one of the lesser-known projects in the constructivist style by O. M. Beketov is the building for the Electrotechnical Faculty at the Kharkiv Technological Institute (Kharkiv Polytechnic Institute and National Technical University “Kharkiv Polytechnic Institute” at various times). The aim of the article is to study the features of the construction of the Electrotechnical Building of NTU “KhPI” and to analyze its current state as an object of cultural and historical heritage of the Kharkiv region, outlining the contribution of the academician of architecture O. M. Beketov to the development of constructivism in Kharkiv. This study examines the contributions of Professor P. P. Kopniaiev in establishing the Electrotechnical Faculty and in constructing a separate building for it. Drawing from his experiences during academic trips to leading technical schools in Germany, P. P. Kopniaiev incorporated this knowledge into a project titled “Preliminary Design of the Electrotechnical Laboratories Building at KhTI,” enlisting the collaboration of Academician of Architecture O. M. Beketov. The initial proposal featured a three-story trapezoidal building with a large basement area and spaces for lectures, laboratory practice, and scientific research, with multiple entrances in addition to the main one. The first floor housed laboratories for electrical measurements, electric machinery, high voltage, photometry, radio, electrification, and energy studies. Later, the classical style was adapted to reflect Constructivism. The role of Professor P. P. Kopniaiev in creating the high-voltage hall, where unique research focused on atmospheric voltage and the development of new types of equipment was conducted in the latter half of the 20th century, has been established. The Electrotechnical Building of Kharkiv Polytechnic, constructed according to sketches by the architect O. M. Beketov and the technical project by Professor P. P. Kopniaiev, is well-known to multiple generations of polytechnic students. Built in the late 1920s to early 1930s, it was, at the time, the most modern constructivist-style structure equipped with a variety of advanced equipment. During the military conflict of 2022, the central part of the city of Kharkiv suffered massive damage. This also affected the buildings of the Kharkiv Polytechnic. Of course, as an object of cultural heritage, the electrical engineering building needs to be renovated. When carrying out restoration work, it is necessary to take into account the concept laid down by its creators—a special building for training and conducting scientific research, the most convenient in terms of planning and technical equipment.

Keywords: cultural heritage, monument preservation, local history, history of science, architecture, Modernism, Constructivism, architect, O. M. Beketov, P. P. Kopniaiev, Kharkiv, Kharkiv Technological Institute.

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КУЛЬТУРНО-ІСТОРИЧНА СПАДЩИНА ХАРКОВА: ЕЛЕКТРОТЕХНІЧНИЙ КОРПУС НТУ «ХПІ»

Анотація. Початок ХХ ст. у забудові міста Харкова заслуговує особливої уваги. Того часу помітним напрямом у розвитку культури і мистецтв в Україні став конструктивізм, що найбільше було притаманне Харкову. Маловідомим сьогодні залишається проєкт О. М. Бекетова у стилі конструктивізму – приміщення для електротехнічного факультету Харківського технологічного інституту (Харківського політехнічного інституту, Національного університету «Харківський політехнічний інститут» – у різні роки). **Метою** дослідження є вивчення особливостей будівництва електротехнічного корпусу НТУ «ХПІ», окреслення внеску академіка архітектури О. М. Бекетова в розвиток конструктивізму в Харкові та аналіз сьогодинішнього стану електротехнічного корпусу як об'єкта культурно-історичної спадщини Харківщини. На основі залучення репрезентативної джерельної бази досліджено діяльність професора П. П. Копняєва зі створення електротехнічного факультету та побудови для нього окремого корпусу. Накопичений під час відряджень до вищих технічних шкіл Німеччини досвід П. П. Копняєв втілював у проєкт під назвою «Ескізний проєкт будівлі електротехнічних лабораторій ХТІ», до якого залучено академіка архітектури О. М. Бекетова. Перша пропозиція виглядала як триповерхова будівля у формі трапеції, з великою підвальною частиною та приміщеннями для проведення лекцій, лабораторного практикуму та наукових досліджень, яка мала декілька входів і виходів крім центрального. На першому поверсі були розташовані лабораторії: електровимірювальна, електричних машин, високовольтна, фотометрична, радіолабораторія, електрифікації й енергетики. Далі класичний стиль був змінений на конструктивізм. Визначена роль професора П. П. Копняєва у створенні високовольтного залу, де у другій половині ХХ с. проводилися унікальні дослідження, спрямовані на вивчення атмосферної напруги, розроблення нових типів апаратури. Доведено, що будівництво спеціального корпусу для електротехнічного інституту, який був укомплектований різноманітним новітнім обладнанням, сприяло удосконаленню системи підготовки інженерів-електриків, кадрів вищої кваліфікації для освітніх і наукових установ та промислового комплексу, розвитку науково-дослідної роботи. Електротехнічний корпус Харківської політехніки побудований за ескізами академіка архітектури О. М. Бекетова і технічним проєктом професора електротехніки П. П. Копняєва добре відомий не одному поколінню політехніків. Під час військового конфлікту 2022 р. масових пошкоджень зазнала центральна частина міста Харкова. Торкнулося це й корпусів Харківської політехніки. Безумовно як об'єкт культурної спадщини електротехнічний корпус потребує оновлення. При проведенні реставраційних робіт потрібно, спираючись на сучасні технології, враховувати концепцію, закладену його творцями, – спеціальний корпус для навчання та проведення наукових досліджень, найзручніший за плануванням та технічним оснащенням.

Ключові слова: культурна спадщина, охорона пам'яток, краєзнавство, історія науки, архітектура, модернізм, конструктивізм, архітектор, О. М. Бекетов, П. П. Копняєв, Харків, Харківський технологічний інститут.

Problem Statement. The early 20th century in the urban development of Kharkiv deserves special attention. At that time, constructivism became a notable trend in the development of culture and the arts in Ukraine, particularly characteristic of Kharkiv. Monumental structures in this style were built, including the House of State Industry (Derzhprom), government buildings near Svobody Square, and well-known buildings such as “Slovo,” “Tabachnik,” the “Post Office,” and the “Railway Workers’ Palace of Culture.”

One of the lesser-known constructivist projects by O. M. Beketov is the building designed for the Electrotechnical Faculty of the Kharkiv Technological Institute (now known as the National Technical University “Kharkiv Polytechnic Institute”, 2000).

Academician of architecture O. M. Beketov is well-known to Kharkiv residents for his buildings that have impacted the urban development of both Kharkiv and other major cities. His impressive works include the building for the Kharkiv Medical Society (now the Institute of Microbiology, Vaccines, and Sera named after I. I. Mechnikov), the premises

of the Automotive Transport College (formerly the Land Bank), the House of Science and Technology (housed in a former commercial bank), and many others. According to the demands of the time, O. M. Beketov worked in various architectural styles, including historicism, modernism, neoclassicism, and constructivism.

The Electrotechnical Building of NTU “KhPI” is a part of the constructivist historical heritage in Ukrainian culture, and the history of this unique structure as an object of Ukrainian cultural heritage requires further research.

The aim of the article is to study the features of the construction of the Electrotechnical Building of NTU “KhPI” and to analyze its current state as an object of cultural and historical heritage of the Kharkiv region, outlining the contribution of the academician of architecture O. M. Beketov and professor of electrical engineering P. P. Kopniaieva at the creation of an avant-garde technical project.

Analysis of recent research and publications. Various issues regarding the history of Kharkiv’s urban development are addressed in the works of Ukrainian and foreign researchers. This includes the research by V. V. Chechik¹ on the development of the constructivism movement and an outline of the contributions of lesser-known figures in Ukrainian theatrical constructivism. The contribution of academician O. M. Beketov to Kharkiv’s urban development is presented in publications²³. Based on a variety of sources, authors have highlighted the life and creative path of the scholar, as well as systematized his scientific legacy. Researcher M. V. Gutnyk addresses the legacy of renowned Kharkiv architect O. M. Ginzburg, focusing not only on biographical information but also on Ginzburg’s teaching activities and his contribution to shaping the architectural style of early 20th-century Kharkiv⁴.

In the historiography of NTU “KhPI,” there are many publications dedicated to the institute’s history⁵⁶. In the monograph by A. G. Zhurylo and D. Yu. Zhurylo⁷, attention is drawn to the construction of the institute’s first buildings, outlining the role of architect R. R. Henrichsen. The issue of constructing the architectural complex of NTU “KhPI” and the contributions of architects O. M. Beketov, Yu. S. Tsaune, V. V. Feldman, among others, is explored in the work of G. V. Pavlova, L. P. Semenenko, and S. A. Nazarenko⁸.

A review of the scientific literature provides grounds to state that the history of the construction of the Electrotechnical Building remains under-researched. The most intriguing study on this topic is by O. Balysheva, who, based on documents from the Central State Archive of Ukraine, established the stages of the building’s construction⁹.

Main content. The architectural monuments of the Kharkiv Polytechnic certainly include the building known as the Electrotechnical Building. The organization of the construction of

¹ Чечик В. В. «Доба першесного конструктивізму» в мистецтві України (1921–1925): досвід сценографії. *Вісник Харківської державної академії дизайну і мистецтв*. 2017. № 1. С. 117–125.

² Видатний архітектор Олексій Миколайович Бекетов: бібліогр. покажчик / уклад.: О. М. Штангей, Н. В. Маришук; техн. ред. О. М. Запороженко. Харків: ХНУМГ ім. О. М. Бекетова, 2014. 51 с.

³ Олексій Миколайович Бекетов: життя і творчість (1862–1941): до 160-річчя від дня народження та до 100-річчя від дня заснування університету: біобібліогр. покажчик Харків: ХНУМГ ім. О. М. Бекетова, 2023. 270 с.

⁴ Гутник М. В. Харків – Залізобетон. Внесок архітектора Олександра Гінзбурга у розбудову міста. *Часопис української історії*. 2024. Вип. 49. С. 109–118.

⁵ Харьковский политехнический на рубеже тысячелетий / Л. Л. Товажнянский и др. Харків: Прапор, 2000. 384 с.

⁶ Історія Харківського технологічного інституту в особах. URL: <http://library.kpi.kharkov.ua/vustavki/PREPODAVATELY.html> (дата звернення 25.12.2024).

⁷ Журило А. Г., Журило Д. Ю. Нариси історії Харківського політехнічного інституту: монографія. НТУ «ХПІ», Харків: ФЛП Панов А. Н. 2021. 216 с.

⁸ Павлова Г. В., Семененко Л. П., Назаренко С. А. Зодчие и строители Харькова: из истории Национального технического университета «Харьковский политехнический институт». *Бібліографічні студії пам'яті харківського бібліографа-краєзнавця Галини Каширіної*: матеріали, 23 травня 2019 р. Харків. 2020. С. 47–65.

⁹ Бальшева Е. К истории создания электроэнергетического факультета. *Політехнік*. № 16. 2006. 21 черв. С. 2.

this new facility over seven years was overseen by Professor P. P. Kopniaiev, a key figure in the establishment of higher electrical engineering education in Ukraine and the founder of a scientific school in the field of electrical engineering. Through his initiative, the electrical engineering direction at KhTI (Kharkiv Technological Institute) expanded, with the strengthening of the material and technical base, which included the creation of an institute power plant and specialized laboratories¹⁰. Thanks to his efforts, a powerful electrical engineering faculty was established at KhTI in 1921. In its first year, the faculty's enrollment was set at 70 students, and within five years, it increased to 130 students. The main areas of electrical engineering science initiated by P. P. Kopniaiev at KhTI gradually developed into separate specializations. Furthermore, the rapid growth of the electrical industry in Sloboda Ukraine required scientific support, testing, and the advancement of theoretical research. At that time, no specialized research laboratories for electrical engineering existed in Ukraine, which further supported Professor Kopniaiev's view of expanding the faculty and relocating it to a separate building¹¹.

Initial proposals for creating a new, modern building were made by the professor as early as the beginning of the 20th century. The electrical engineering field at KhTI was growing rapidly, and in 1903, P. P. Kopniaiev proposed the establishment of an electrical engineering faculty and a separate building for conducting laboratory work and research. However, his memorandum, which justified the need for both the faculty and a new building, was rejected. Further attempts were made by P. P. Kopniaiev in 1907 and 1912. A compromise proposal for an extension near the physical building was rejected by P. P. Kopniaiev, as the powerful electrical equipment interfered with classes and did not meet safety standards¹².

In 1913, Kharkiv architect Yu. S. Tsaune developed a sketch for a specialized building, but this initiative also stalled. Another proposal for constructing a building based on a memorandum was considered at a meeting of the Electrical Department of the Council of National Economy in 1919. It was planned to build a facility with electrical engineering laboratories equipped with specialized electrical equipment. However, the political events of that time again prevented the construction of the building¹³.

After the faculty was established, Professor P. P. Kopniaiev developed a detailed plan for constructing the building (Fig. 1). Between 1923 and 1929, he went on three business trips abroad to study the advancements in higher electrical engineering education in Germany, Belgium, and France, specifically regarding the organization of education and scientific research (Fig. 2).

All of P. P. Kopniaiev's accumulated experience was embodied in the project titled "Preliminary Design of the KhTI Electrotechnical Laboratory Building." In 1924, it was completed and then passed on to be refined by the academician of architecture, O. M. Beketov. The initial proposal was revised, resulting in a three-story building in the shape of a trapezoid, with a large basement and spaces for lectures, laboratory practice, and scientific research. The building had multiple entrances and exits in addition to the main entrance, which featured a colonnade (Fig. 3)¹⁴.

In the new version of the building project, the classical style was replaced by constructivism. On the first floor, there were six laboratories: an electrical measurement lab,

¹⁰ Тверитникова О. Є. Електротехніка, енергетика, електропромисловість. *Історичні нариси з розвитку техніки в Україні*: колективна монографія / за заг. ред. Л. О. Гріффена. Київ: ДПМ при НТУУ «КПІ», 2023. С. 332.

¹¹ Тверитникова О. Є. Зародження і розвиток науково-технічної школи професора П. П. Копняєва: монографія. Харків: НТУ «ХПІ», 2010. 212 с.

¹² Отчет о состоянии института за 1907 г. ДАХО (Державний архів Харківської області). Ф. 770. Оп. 1. Спр. 598. Арк. 2–3.

¹³ Докладная записка уполномоченного группы предпринимателей для осуществления указанного ниже проекта – архитектора Юлия Семеновича Цауне в Харьковскую городскую думу: [черновик] [Проект реорганизации центральной части города Харькова]. ЦДНТА України (Центральний державний науково-технічний архів України). Ф. 47. Оп. 1. Спр. 468/1–468/5. 9 арк.

¹⁴ Профессор Павел Петрович Копняев. К 25-летию научно-учебной деятельности. Бюллетень Комиссии по празднованию 5-летия основания электротехнического факультета ХТИ и 25-летней научно-учебной деятельности профессора П. П. Копняева. *Электротехнический Вестник*. Харьков. 1926. № 1. С. 20–23.

an electric machines lab, a high-voltage lab, a photometric lab, a radio lab, and an office for electrification and energy, as well as lecture halls and rooms for laboratory practice. The height of the building's floors (laboratories and offices) ranged from 3.25 m to 4.30 m. The total volume of the updated building project was 69,863 cubic meters. The total cost of constructing the building and equipping the laboratories was 2 million 820 thousand rubles¹⁵. However, due to various circumstances, the construction did not begin until five years later (Fig. 4).

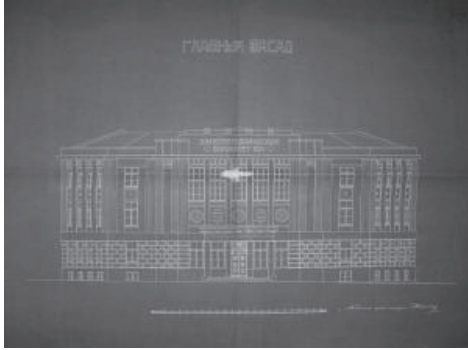


Fig. 1. Project of the Electrotechnical Building, 1928 [№ 1, c. 2]



Fig. 2. Professor P. P. Kopniaiev with his daughter Olena during a business trip, Germany, 1928
(collection of the Historical Museum of NTU "KhPI")



Fig. 3. Sketch of the Electrotechnical Building
(collection of the Historical Museum of NTU "KhPI")



Fig. 4. The beginning of the construction of the Electrotechnical Building, Academician O. M. Beketov (fifth from the right) and Professor P. P. Kopniaiev (fourth from the right)
(collection of the Historical Museum of NTU "KhPI")

In particular, Professor P. P. Kopniaiev noted that in 1925, a project for a tram network through the territory of KhTI was approved. This meant that the tram line was supposed to run alongside the new building (now known as Politekhnichna Street). The electric supply for the tram network would have had a negative electromagnetic and mechanical impact on the equipment in the building's laboratories, hindering the operation of the electrical equipment. Thanks to the authority of Professor P. P. Kopniaiev, who insisted on relocating the tram line further away from the territory of KhPI, this issue was resolved positively¹⁶.

After P. P. Kopniaiev's trip to Germany in 1928, the technical project for the Electrotechnical Building was once again modernized based on the accumulated materials of contemporary global achievements. The area allocated for the high-voltage hall was increased. Moreover, P. P. Kopniaiev personally designed several laboratories: the measurement lab,

¹⁵ О постройке здания электротехнического факультета. 1924 г. ДАХО (Державний архів Харківської області). Ф. Р-1682. Оп. 1. Спр. 158. Арк. 4–6.

¹⁶ Хинкулов А. Научно-педагогическая деятельность проф. Павла Петровича Копняева. Бюллетень Комиссии по празднованию 5-летия основания электротехнического факультета ХТИ и 25-летней научно-учебной деятельности профессора П. П. Копняева. *Электротехнический Вестник*. Харьков. 1926. № 1. С. 24–28.

the electric machines lab, the high-voltage lab, the radio engineering lab, and others. The equipment for the laboratories was produced at Kharkiv factories the electromechanical and electrical engineering plants. Following the scientist's suggestions, the design of the new building allocated significant space for workshops (Fig. 5, Fig. 6, Fig. 7, Fig. 8)¹⁷.

A large lecture hall was expanded. From the memories of the scientist's daughter, Olena Pavlivna Kopniaieva, who helped her father with his work, we see that Pavel Petrovich



Fig. 5. Construction of the Electrotechnical Building, front facade

(collection of the Historical Museum of NTU "KhPI")



Fig. 6. Construction of the Electrotechnical Building, inner courtyard

(collection of the Historical Museum of NTU "KhPI")

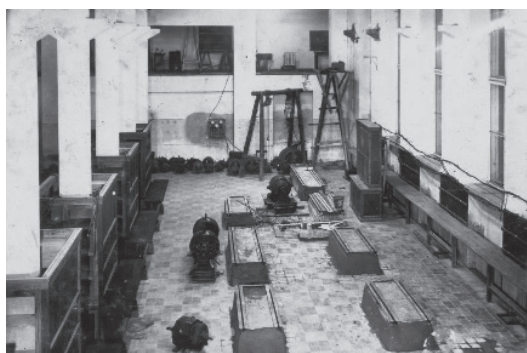


Fig. 7. Laboratory of Electric Machines

(collection of the Historical Museum of NTU "KhPI")



Fig. 2. Main Entrance, Grand Stairs

(collection of the Historical Museum of NTU "KhPI")

Kopniaiev paid special attention to the comfort of students during lectures. He personally measured all the parameters of the large lecture hall, including the sizes of the desks and benches, the distance between rows, and the height of the stairs. Today, the large lecture hall of the Electrotechnical Building bears the name of Professor P. P. Kopniaiev (Fig. 9)¹⁸.

The professor allocated a special place for laboratory equipment for practical classes, relying on the fact that laboratory practice accounted for 40% of the total number of disciplines at the Electrotechnical Faculty. He developed a system of laboratory equipment that allowed for the maximum number of laboratory works to be conducted. P. P. Kopniaiev placed particular importance on equipping the lecture halls. He insisted that the demonstration of experiments should occupy a significant place in the structure of the lecture material. The professor himself designed a special demonstration table, to which power was supplied.

¹⁷ Коротка довідка з історії Харківського електротехнічного інституту. 1930 р. ДАХО (Державний архів Харківської області). Ф. Р-5404. Оп. 2. Спр. 59. Арк. 4–6.

¹⁸ Фонди історичного музею Національного технічного університету «Харківський політехнічний інститут». Фрагменти з біографії професора ХТІ П. П. Копняєва. Спогади доньки О. П. Копняєвої. Рукопис. Арк. 2–6.

The lecture hall was equipped with power sources for both direct and alternating current, allowing for the demonstration of various types of electrical machines. Thus, each lecture on the theory of electrical machines was accompanied by demonstrations. All lecture halls in the building were equipped with additional movable tables for demonstrating experiments and specialized equipment¹⁹.

In the archives of the historical museum of NTU “KhPI,” there are memories from one of Professor P. P. Kopniaiev’s students, Associate Professor Saul Markovych Fertik (head of the department of electrophysics in later years): *“...I first heard lectures from P. P. Kopniaiev in 1926; he was an outstanding methodologist. Pavel Petrovich was convinced that for a deep, ‘engineering’ understanding of electrical engineering disciplines, the lecturer’s ‘word’ must immediately be supported by a lecture experiment. He rightly believed that even a perfectly organized laboratory practice could not replace the demonstration during lectures, which had its own specificity and different paths of psychological influence on students. The great importance he placed on lecture experiments can be judged by the fact that in his original project for the large high-voltage hall of KhTI, a classroom was supposed to adjoin it, separated by a sliding wall, so that lectures on high voltage techniques could be accompanied by interesting demonstrations of phenomena at such voltages ...”*²⁰.

A significant place in the system of laboratories of the Electrotechnical Building was occupied by the high-voltage hall. P. P. Kopniaiev attached particular importance to lectures on high voltage and laboratory practices. In creating the project for the Electrotechnical Building, he allocated considerable space for a laboratory with a transformer rated at $1 \cdot 10^6$ V. The high-voltage hall was established based on the high voltage laboratory, which had been organized back in 1925. The foundation for creating this laboratory was the research conducted by P. P. Kopniaiev on the electrical industrial complex of Slobozhanshchyna. As a result, a report was prepared with proposals for creating a specialized testing laboratory for high-voltage equipment. At that time, there were no laboratories of this profile in Ukraine. Meanwhile, a large-scale electrification of sugar factories was underway. High-voltage transformers were manufactured at the Kharkiv Electrotechnical Plant, and the production of high-voltage insulators began at the factory in Sloviansk. Equipping the industry with the necessary equipment required the establishment of a powerful experimental base for conducting comprehensive scientific research²¹.

The high-voltage hall was designed by Professor P. P. Kopniaiev with the assistance of Professor O. B. Bron and began functioning in early 1930. It holds both educational and scientific significance. In 1930, according to the order of the Supreme Council of National Economy no. 1240 dated April 17, the reorganization of the Kharkiv Polytechnic Institute took place. The Kharkiv Electrotechnical Institute was established based on the Electrotechnical Faculty, becoming the first specialized higher educational and research institution of electrical engineering in Ukraine. It was one of the best specialized electrical engineering institutions in the USSR, both in terms of planning convenience and technical equipment. Engineer training was conducted in specializations such as electrical machines, electrical apparatus manufacturing, electrical traction, central power plants, and transmission and distribution of electrical energy. Additionally, it was planned to continue scientific research and testing of electrical equipment, which was of great importance for the development of electrical engineering and the electrical industry in Slobozhanshchyna.

In 1930, the talented scientist S. M. Fertik became head of the High-Voltage Laboratory and the High-Voltage Department of KhET I. His scientific work focused on studying atmospheric voltage in field conditions and developing new types of equipment and measuring instruments for high-voltage research. A unique mobile artificial lightning generator was

¹⁹ Отчет по учебной части ХТИ за 1922–1923 учеб. год. ДАХО. Ф. Р-1682. Оп. 1. Спр. 133. Арк. 3–4.

²⁰ Фонди історичного музею Національного технічного університету «Харківський політехнічний інститут». Особова справа С. М. Фертика. Спогади. Рукопис. Арк. 2.

²¹ Копняев П. П. К истории электротехнического факультета ХТИ. *Электротехнический вестник*. Харьков. 1926. № 1. С. 29–31.

designed and constructed to study phenomena in high-voltage networks. This enabled the expansion of research into the protection of high-voltage lines from the destructive effects of various factors (overvoltage, short circuits, etc.).

An analysis of archival materials shows that in 1933 alone, there were more than 700 network accidents in the Kharkiv district under the “Donbasenergo” system, with atmospheric overvoltages accounting for over 40% of the incidents. Thanks to the advanced equipment in the high-voltage laboratory and high-voltage hall, extensive research was conducted, resulting in a halving of network accidents. Subsequent scientific investigations focused on the protection of substations from lightning overvoltages, calculations for substation protection, and the prevention of high-voltage line failures²².

The improvement of the portable impulse generator allowed for the generation of artificial traveling waves of higher voltage. In the post-war years, the high-voltage hall, which had been completely destroyed during World War II, was gradually restored. With new technical capabilities, KhETI continued and advanced its research in high-voltage impulse technology, utilizing unique high-voltage equipment. For the first time, powerful high-voltage forming lines for physical research were created as a single integrated structure (Fig. 9)²³.

In the second half of the 20th century, the Electrotechnical Building continued to serve as an educational and research facility, housing technical departments, deans’ offices, and laboratories. The main entrance was renovated and decorated in the style of “Stalinist Empire” (Fig. 10).



Fig. 9. High-Voltage Hall, second half of the 20th century

(collection of the Historical Museum of NTU “KhPI”)



Fig. 10. Electrotechnical Building, second half of the 20th century

(collection of the Historical Museum of NTU “KhPI”)

In 2011, on the initiative of the Chairman of the Association of Electrical Engineers of Ukraine, V. B. Klepikov, a monument to Professor P. P. Kopniaiev was installed in the Electrotechnical Building. The event was attended by the grandchildren of the building’s creators: Doctor of Physical and Mathematical Sciences, Professor O. D. Bruno (grandson of P. P. Kopniaiev) and Doctor of Physical and Mathematical Sciences, Professor F. S. Rofe-Beketov (grandson of O. M. Beketov) (Fig. 11, Fig. 12).

Conclusions. The Electrotechnical Building of NTU “KhPI,” designed by the architect O. M. Beketov and based on the technical project by Professor P. P. Kopniaiev, remains well-known to generations of Kharkiv polytechnic students. Created in the late 1920s-early 1930s, it was the most modern constructivist-style building of its time, equipped with advanced technical equipment. During the 2022 military conflict, the central part of Kharkiv sustained

²² Обзоры аварий на электростанциях Донэнерго и Харьковэнерго за 1933 г. ЦДАВО України (Центральний Державний архів вищих органів влади та управління України). Ф. 4506 (Український науково-дослідний інститут промислової енергетики). Оп. 1. Арк. 3.

²³ Тематический отчет по выполнению кафедрой передачи электрической энергии работы по теме исследование перенапряжений в высоковольтных сетях Донбасского бассейна с перевозным генератором импульсов. 1937 г. 1907 г. ДАХО (Державний архів Харківської області). Ф. 5404. Оп. 2. Спр. 17. Арк. 3, 4, 16.



Fig. 11. Auditorium № 1 named after P. P. Kopniaiev, 2011

(collection of the Historical Museum of NTU “KhPI”)



Fig. 112. O. D. Bruno (left) and F. S. Rofe-Beketov (right), 2011

(collection of the Historical Museum of NTU “KhPI”)

extensive damage, affecting nearly every structure to varying degrees, including the Kharkiv Polytechnic buildings. As a cultural heritage site, the Electrotechnical Building undeniably requires restoration. Any future restoration work should incorporate modern technologies while respecting the creators' original concept: a dedicated building designed specifically for education and scientific research, optimized for functionality and equipped with advanced technical resources.

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НАЦИСТСЬКІ ЗЛОЧИНИ ПРОТИ ЛЮДЕЙ З ОСОБЛИВИМИ ПОТРЕБАМИ. ВИПАДОК ТОМАКІВСЬКОГО РАЙОНУ ДНІПРОПЕТРОВСЬКОЇ ОБЛАСТІ¹

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Анотація. Стаття присвячена локальному сюжету з історії злочинів німецьких окупантів на території Томаківського району Дніпропетровської області. Однією з рис нацистської політики і в самій Німеччині, і на окупованих нею територіях були вбивства людей з особливими потребами, які перебували у спеціалізованих закладах на утриманні держави. До окупації на території Томаківського району існувало декілька установ соціального захисту: дитячий будинок та психоневрологічний диспансер. Із початком німецько-радянської війни частину утриманців дитячого будинку місцеві селяни забрали до себе. Але до будинку евакуювали дітей з інвалідністю з Житомира, і під час окупації вони становили більшість утриманців. Після окупації Томаківського району Михайлівський дитячий будинок та Степанівський психоневрологічний диспансер опинилися у скрутному становищі. Їхні утриманці страждали від браку харчів, з настанням холодної пори вони мерзли, оскільки опалення теж було конфісковане. Численні звернення керівників закладів залишалися без відповідей. Ситуація набувала загрозливого масштабу, тому була створена спеціальна комісія, до якої входив лікар та представники окупаційної адміністрації та силових

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