



Daria Jagiełło*

History of Toruń's New Bielany pump station (1916–1917) in the light of archival records

Abstract

In the years 2022–2023, the adaptation of one of the former Toruń pumping stations – the so-called Nowe Bielany – was carried out (the completion of its construction is dated at 1917). For many years the plant supported the nearby Stare Bielany main station in supplying the city with water. In the 1980s it was taken out of service and remained unused for the following years. Preparations related to the adaptation project revealed that the history of the station was poorly understood and that the facility had not been the subject of research so far.

The article presents an interesting history of the construction and operation of the Nowe Bielany plant. The reasons that ultimately caused its closure are also given. The circumstances of its construction, equipment, architecture, and the realities of the times in which it operated are presented, while the importance of archival research for a better understanding of the facility is highlighted. The text was prepared mainly on the basis of the results of extensive archival research, sometimes confronted with the results of the analysis of the existing facility (before and after the adaptation work).

Nowe Bielany, as can be seen from the materials that have been obtained, was a plant built efficiently and with great care (this is also confirmed by the preserved correspondence). Owing to the recurring problems of water shortages in Toruń, great hopes were placed in its construction. Unfortunately, the station did not meet these expectations (very high production costs, rapidly decreasing pump efficiency and too little water in the wells), which is why in the 1930s the search for a location for a new intake began.

Although the history presented is not a success story, the Nowe Bielany pumping station complex has turned out to be an interesting and valuable witness to the development of the water and sewage infrastructure in Toruń.

Key words: waterworks, Toruń, technical heritage, history, industry in the 20th century

Introduction

Clean, running water is one of the basic human needs, and the methods of its delivery have determined the directions of development of urban centres for centuries. As a result, extensive water supply networks with associated above-ground facilities, often associated with the widespread modernizations of the 19th and 20th centuries, have become a permanent part of the urban fabric. The utilitarian nature, the frequent economy of architecture, its value defined mainly through the prisms of usefulness, efficiency, and importance for meeting basic needs, often effectively blend water supply buildings into the background of everyday life leading to their presence being almost unregistered by the city's residents.

One of such overlooked objects was the former Toruń pumping station, the so-called Nowe Bielany, built in the second decade of the 20th century and intended to support the main station supplying water to Toruń – Stare Bielany, while also serving as an emergency intake (Fig. 1).

The complex is located in the north-western part of the city, amidst a pine forest, on the campus of Nicolaus Copernicus University. It consists of the main station building (machine room), residential and utility buildings, and the underground infrastructure. The facilities are located on a large rectangular plot covered with greenery (Fig. 2).

The machine room is a two-element, symmetrical building with the southern part on a square plan, in the form of a two-story tower covered with a hipped roof, and the northern part on a rectangular plan, single-story, with a high, three-slope roof. A skylight is located on the building's axis, providing light to the extended underground part extending beyond the above-ground perimeter walls.

* ORCID: 0000-0002-4437-0551. Faculty of Fine Arts, Nicolaus Copernicus University in Toruń, Poland, e-mail: dar.jag@umk.pl



Fig. 1. Toruń – location of historic pumping stations: Stare Bielany (red), Mokre (purple), Podgórz (green), Nowe Bielany (blue) (elaborated by D. Jagiełło, based on: www.geoportal.gov.pl 2024)

Il. 1. Toruń – lokalizacja historycznych stacji pomp:
Stare Bielany (czerwony), Mokre (purpurowy), Podgórz (zielony),
Nowe Bielany (niebieski)
(oprac. D. Jagiełło, na podstawie: www.geoportal.gov.pl 2024)



Fig. 3. Toruń – the former Nowe Bielany pumping station: machine room building (photo by D. Jagiełło, 2024)

Il. 3. Toruń – dawna stacja pomp Nowe Bielany:
budynek maszynowni (fot. D. Jagiełło, 2024)



Fig. 2. Toruń – site plan of the former Nowe Bielany pumping station complex:

1) machine room building, 2) residential building, 3) utility building
(elaborated by D. Jagiełło, based on: www.geoportal.gov.pl 2024)

Il. 2. Toruń – plan sytuacyjny zespołu
dawnej stacji pomp Nowe Bielany:
1) budynek maszynowni, 2) budynek mieszkalny,
3) budynek gospodarczy
(oprac. D. Jagiełło, na podstawie: www.geoportal.gov.pl 2024)



Fig. 4. Toruń – the former Nowe Bielany pumping station: residential and utility building (photo by D. Jagiełło, 2024)

Il. 4. Toruń – dawna stacja pomp Nowe Bielany:
budynek mieszkalny i gospodarczy (fot. D. Jagiełło, 2024)

– pump hall (Fig. 3). To the north-west of it there is the former motor driver's house, built on a rectangular plan, single-storey, covered with a gable roof with single extensions on both slopes. The building has a basement and is connected to the pump hall by an underground tunnel. To the north of it there is a farm building with a simple, single-storey structure and a gable roof (Fig. 4).

The complex, although appreciated in many respects from a monumental perspective and largely unchanged

since its construction¹, is subject to conservatory protection only because of the area entry of the university campus (Historyczny układ urbanistyczny... 2020). It is not

¹ This was revealed by analyses conducted in order to formulate conservation guidelines for the planned adaptation project [see: (Jagiełło et al. 2022)]; this was the author's first contact with the facility and the main impulse that resulted in the currently conducted research on the water and sewage infrastructure of Toruń.

individually entered in the register of monuments or even included in the municipal or provincial records². Currently, the station is not performing its original function. In the years 2021–2023, after a period of disuse, it was adapted to house the Copernican Integration Centre of Nicolaus Copernicus University.

The article presents the history of the construction and functioning of Nowe Bielany, reconstructed on the basis of preserved archival materials. The topic under discussion is also an opportunity to illustrate the importance of archival research, not only in terms of basic factual information, but also as a source of valuable information that builds the background and explains the circumstances and conditions. The scope under consideration also includes the station buildings and the area of the complex within the historic boundaries that have been maintained to this day, with the initial caesura designated for the period shortly before the construction of the station, when the construction of a new water supply infrastructure began in Toruń.

The adopted research method has been an archival query conducted in several institutions in Toruń, e.g., in the branches of the State Archives and in the archives of the Provincial Office for the Protection of Monuments, the Municipal Conservator of Monuments, the National Heritage Institute, and the Archives of the Toruń Waterworks. The context for the results of office research is the architectural analysis (in this case presented in its basic range).

State of research

The history of the Nowe Bielany pumping station, including its construction, has not been the subject of in-depth research so far. The complex was mentioned in the form of a short note in a 20-page publication issued in 1993 on the occasion of the 100th anniversary of the Toruń waterworks (Felski et al. 1993)³, and mentioned in articles by Kazimierz Przybyszewski (1980) and Anna Świercz-Prusicka (2005). The only study that presents facts concerning the Nowe Bielany station in more detail is the unpublished documentation of Szczuczko (Szczuczko, Wieczorkiewicz 1982). Our text expands the state of knowledge by numerous additional information items.

Waterworks in Toruń

The first real actions of the city authorities aimed at building “modern waterworks” in Toruń should be dated to 1868, when the construction counsellor Henoeh from Altenburg⁴ undertook to prepare a comprehensive design of supplying the city with water from ground intakes (APT, AmT⁵ C, ref. no. 5976, 3). It was a natural reaction to population

growth, expansion, and developing industry. Although the design was rejected, efforts did not cease. In April 1891, after preliminary studies and negotiations with the authorities of the Toruń Fortress, work began on the design, which in the years 1892–1894 resulted in the construction of the impressive Stare Bielany station in the area of Bielany (a former manor farm), which received water from the “Barbarka” and “Fort Chodkiewicza” intakes located north of the city (APT, AmT D, ref. no. 6180). The station was equipped with steam engines driving two pumps (APT, AmT D, ref. no. 6212; APT, AmT D, ref. no. 1648, 10)⁶. The engineer responsible for the technical design was Heinrich Metzger, the author of the architectural part was the construction counsellor Rudolph Schmidt (APT, AmT D, ref. no. 6227, 293). In the year of construction completion, the Municipal Water and Sewage Plant was established (APT, AmT D, ref. no. 6180). At that time, Toruń had over 27,000 inhabitants (Zielińska 2019, 40), and Stare Bielany supplied it with water within its then administrative borders, which did not include Podgórz (then a separate city) or Mokre (at that time a village with suburban functions), which had had their own pumping stations since 1904. Both plants were built together with gasworks and were powered by gas engines (Szczuczko, Wieczorkiewicz 1982)⁷.

In internal letters and specialist opinions from the turn of the 1st and 2nd quarter of the 20th century, it was estimated that the average daily water consumption per person in Toruń in the early 1990s was 40 litres. Interestingly, after the waterworks were launched, it was supposed to be 170 litres, but after the introduction of water meters in 1894, it dropped again to 41 litres per day. Any system leaks or other faults could also be significant at this initial stage of use. In the following years, however, there was an obvious gradual increase in consumption, which almost doubled in 1918: 79 litres (APT, AmT D, ref. no. 6212).

The Bielany waterworks draw water from a layer of diluvial sands of small thickness (from a few to a dozen or so meters). The amount of water flowing through them is relatively small and varies greatly depending on the amount and frequency of rainfall. This geological structure often caused water problems in Toruń (APT, AmT D, ref. 1648, 9). An additional unfavourable factor was the progressively decreasing level of the groundwater table, which, among other things, forced the construction of further wells for Stare Bielany at the beginning of the 20th century⁸. All this, in addition to the constant population growth intensified by the presence of the army stationed in Toruń (especially numerous during World War I), resulted in water shortages – the subject was considered urgent

² Status as at 11/06/2024.

³ This is the only comprehensive study concerning the Toruń waterworks in the 19th and 20th centuries. Robert Kola and Leszek Kotlewski (2003) wrote a paper on the subject of mediaeval and modern waterworks.

⁴ At a similar time, he was also the author of a design for, among others, Gdańsk [see: (Gerlach 1884, 8)].

⁵ Abbreviations consistently used throughout this article: APT – State Archives in Toruń, AmT – Records of the city of Toruń.

⁶ In the late 1920s, a third pump was purchased – an electric one [see: (APT, AmT D, ref. no. 6252)].

⁷ See also, among others: (Akta miasta Podgórza..., ref. no. 773, 774, 775; APT, Dokumentacja techniczna..., ref. no. 2807; APT, Dokumentacja techniczna..., ref. no. 3229).

⁸ Initially, the “Barbarka” intake was built with four wells, but too little water was extracted which forced the construction of another intake and more wells. In 1927 the station was already operating at 20 wells (APT, AmT D, ref. no. 6212; APT, AmT D, ref. no. 3299).

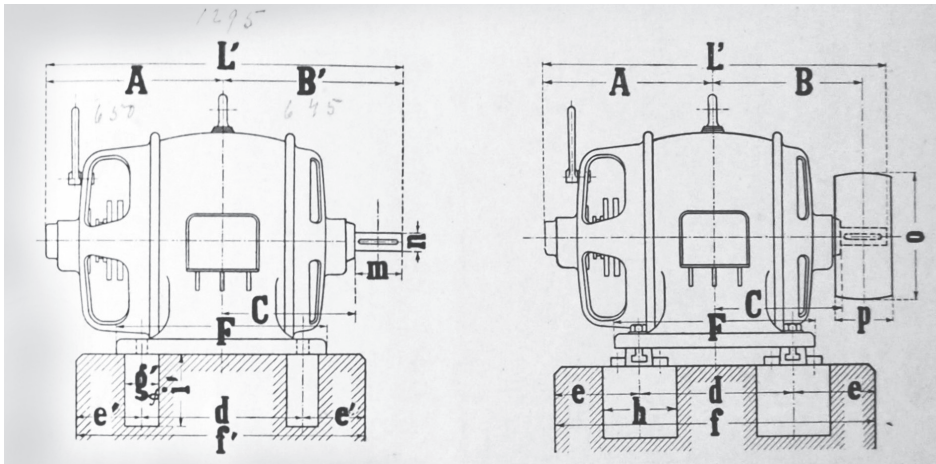


Fig. 5. Excerpt from the technical specification sheet of the Dr. type motor (source: APT, AmT C, ref. no. 5990)

Il. 5. Fragment karty specyfikacji technicznej silnika typu Dr. (źródło: APT, AmT C, ref. no. 5990)

both in internal official and plant correspondence⁹, as well as in the local press¹⁰ (APT, AmT C, ref. no. 5976, 61).

Construction

The minutes of the meeting of the Water Supply Deputation of the City Council on 8 December, 1915 indicated that the existing intakes were insufficient to meet the demand for water, so a decision was made to build a new station for Toruń operating on its own wells (APT, AmT C, ref. no. 5990, 69)¹¹.

According to plans based on drilling analyses conducted by Prof. Konrad Keilhack from the Geological Institute in Berlin, nine wells were planned to be built to guarantee a daily water supply of at least 6,000 m³, with the demand at that time being 3,000 m³ (APT, AmT C, ref. no. 19687, 2; APT, AmT C, ref. no. 5990, 8–10, 66–74). The estimated cost of the investment was 160,000 marks, of which 50,000 was covered by the city reserve fund. The remaining 110,000 marks was a loan from the Municipal Insurance Company (APT, AmT C, ref. no. 19687, 2, 4–6; APT, AmT C, ref. no. 5990, 27).

The station was located less than a kilometre south-west of Stare Bielany. Construction began in 1916 and was completed in May 1917. It was headed by city councillor Karl Walter. Councillor Klingendorf was responsible for cooperation with companies supplying machines and devices (APT, AmT C, ref. no. 5990, 79). The work was carried out by Toruń workshops: M. Bartel, P. Borkowski, O. Bartlewski, J. Freder, F. Konkolewski, E. Pidun, G. Soppart, R. Lodke, E. Preuss (APT, AmT C, ref. no. 5976, 61).

⁹ In November 1916, Stare Bielany produced only 1,300 m³ water, which was partly explained by design flaws (pumps located too high above the water level) (APT, AmT C, ref. no. 5990, 1; Der neue Thorner... 1917; APT, AmT D, ref. no. 3220a).

¹⁰ The water shortages in 1916 were caused by the fact that a period of severe drought coincided with a period of increased consumption by war hospitals and a large garrison (Der neue Thorner... 1917). In the pages of *Gazeta Toruńska* from 1915, the Municipal Office called for *careful handling of water* (Toruń i okolica 1915, 3).

¹¹ The possible expansion of the existing intakes was assessed as impractical owing to the probable adverse impact on their efficiency (APT, AmT C, ref. no. 5990, 69).

Despite the initial plans, seven brick wells¹² with a diameter of 2 m each were built, located to the north and south of the plant, at intervals of 95 m, with an average depth of approximately 12 m (owing to hydrological conditions and terrain topography, contrary to expectations, the northern wells yielded the most water, the southern ones – surprisingly little). Water was drawn from them using a siphon with a diameter of 150–300 mm and delivered to the lowest collection well (the eighth) with a depth of 7.95 m, located in the machine room (APT, AmT D, ref. no. 6212; Der neue Thorner... 1917).

The machine room was equipped with two high-pressure centrifugal pumps operated by 380 V, 50 HP three-phase motors¹³ supplied, like almost the entire machinery from 1916, by Maffei-Schwartzkopff-Werke GmbH based in Berlin (APT, AmT C, ref. no. 5990, 231) (Fig. 5). The station's equipment included, among other items, a vacuum pump, a three-phase current reducing transformer with a voltage of 6,000–380 V and an electrical switchboard (APT, AmT C, ref. no. 5990, 192–198, 234, 236).

The water obtained was of good quality and did not require treatment (Der neue Thorner... 1917)¹⁴. It was pumped directly from the collection well into the city network, and any surplus was directed to the tank in the water tower in Stare Bielany (APT, AmT C, ref. no. 5990, 77). In theory, the capacity of the pumps at the Nowe Bielany station made independent supply of water to the city possible (Der neue Thorner... 1917)¹⁵.

The station was connected directly by telephone to the Stare Bielany water tower: its employee communicated

¹² In later materials, eight wells and one collective well most often appeared.

¹³ The motors (Dr. type) were redesigned at the order stage at the request of the Toruń plant from 220 V to 380 V, which was overlooked by the contractor who, after delivery and verification, was forced to convert them at his own expense and with compensation to versions with the appropriate parameters (APT, AmT C, ref. no. 5990, 286). Pumps: Zentrifugalpumpe Type LX, 3 stufig, vacuum pump Vacum (APT, AmT D, ref. no. 1648, 10; APT, AmT C, ref. no. 5990, 318).

¹⁴ The composition of water is presented, among others, in the description of Toruń intakes from 1927 (APT, AmT D, ref. no. 6212).

¹⁵ Water was measured at the station with a Ventury water meter (APT, AmT D, ref. no. 1648, 10).

the stoppage or resumption of pumping (the area of the main station could have been flooded if too much water had been pumped into the water supply network)¹⁶ (APT, AmT D, ref. no. 6183). The complex was also connected to the sewage system, and the machine room had a heating system that protected the pumps from freezing (Der neue Thorner... 1917).

The machine room building was built on the basis of a design from October 1916 (drawings from March of that year included a different shape of the staircase and size of window openings). Unfortunately, the design of the basement where the pumps were placed has not been preserved. The entrance to the tower was located on the axis of the southern wall. On the axis of the northern wall, however, extended steel stairs leading to the lower level of the machine hall were located (Fig. 6). The passage from the ground floor antechamber to the pump hall was preceded by a shallow vestibule. The tower's vertical communication was placed at the western wall (straight concrete stairs with a grate impressed in the tread¹⁷). A toilet was planned under the first full flight of stairs (the tower still has the original steel door with remnants of the “vacant”/“occupied” sign). The location of the switchboard is marked in the south-eastern corner of the first floor of the tower (*Schaltschrank*). Drawings of the above-ground floors document the building in an almost unchanged form today (Fig. 7). They are not signed with any name (APT, AmT D, ref. no. 6226, 104–106).

The design documentation for the single-family house for the machine operator built as part of the complex has not been preserved. It is known that it was occupied in December 1917 by the machinist Hohlfeldt, former manager of the Mokre pumping station (closed on 21 May 1916¹⁸). At that stage, only minor work remained to be done, such as fencing, levelling the ground, and planting. The house (without garden) cost over 10,000 marks (Der neue Thorner... 1917). In 1918 a stable building was erected. It was noted that thus [...] *the accommodation of the machine operator is now complete* (APT, AmT D, ref. no. 6240). Almost everything went according to plan except for one thing: in the autumn, wild rabbits ran rampant in the complex and caused a lot of damage to the new plantings – a large part of Hohlfeldt's garden was destroyed, so an urgent reduction in the number of rabbits was ordered (APT, AmT D, ref. no. 6226, 69).

The station was opened at the end of August 1917 and was extensively reported in the Toruń daily *Die Presse* from September 2, however, it was noted that the celebra-



Fig. 6. Toruń – the former Nowe Bielany pumping station: stairs leading from the pump hall to the ground floor of the machine room building (photo by D. Jagiełło, 2024)

Il. 6. Toruń – dawna stacja pomp Nowe Bielany: schody prowadzące z hali pomp na parter budynku budynku maszynowni (fot. D. Jagiełło, 2024)

tions were quite modest, with only a few representatives of the City Council present. The complex itself, owing to the inevitable comparison to nearby Stare Bielany and its 30-meter water tower towering over the surroundings, was characterized as [...] *little more than a delicate Chinese-style tower* (Der neue Thorner... 1917)¹⁹.

In the article about the opening of the station, it was poetically compared to a living organism whose work is almost invisible (it takes place beneath the skin) and could be carried out continuously, without human intervention, until old age. The only obstacle is that stopping and resuming pumping does not happen automatically. This observation was accompanied by the opinion that the operator working there [...] *does not have much to do at the station* (Der neue Thorner... 1917).

The construction costs of Nowe Bielany amounted to 169,000 marks and exceeded the planned budget by only 9,000 (mainly owing to inflation), and Stare Bielany, also compared artistically, cost 1.3 million marks (Der neue Thorner... 1917; APT, AmT D, ref. no. 6240).

¹⁶ The importance of the connection is confirmed by internal regulations requiring, among other things, constant control of its quality and synchronization of the clocks in both stations (APT, AmT D, ref. 3220a). In *Księga adresowa miasta Torunia wraz z Podgórzem i powiatem Toruń-Wieś* (1923) the Nowe Bielany waterworks station was listed as number 1715.

¹⁷ It was intended to prevent slipping, similar to the pea-grain texture of the tiles on the ground floor of the tower and in the pump hall.

¹⁸ As can be seen from press reports, among others, this was due to high operating costs related to the high iron content, rising gas prices, and falling efficiency of the station (Der neue Thorner... 1917; APT, AmT D, ref. no. 6240).

¹⁹ The actual height of the tower is approximately 40.5 m (from ground level to the top of the roof).

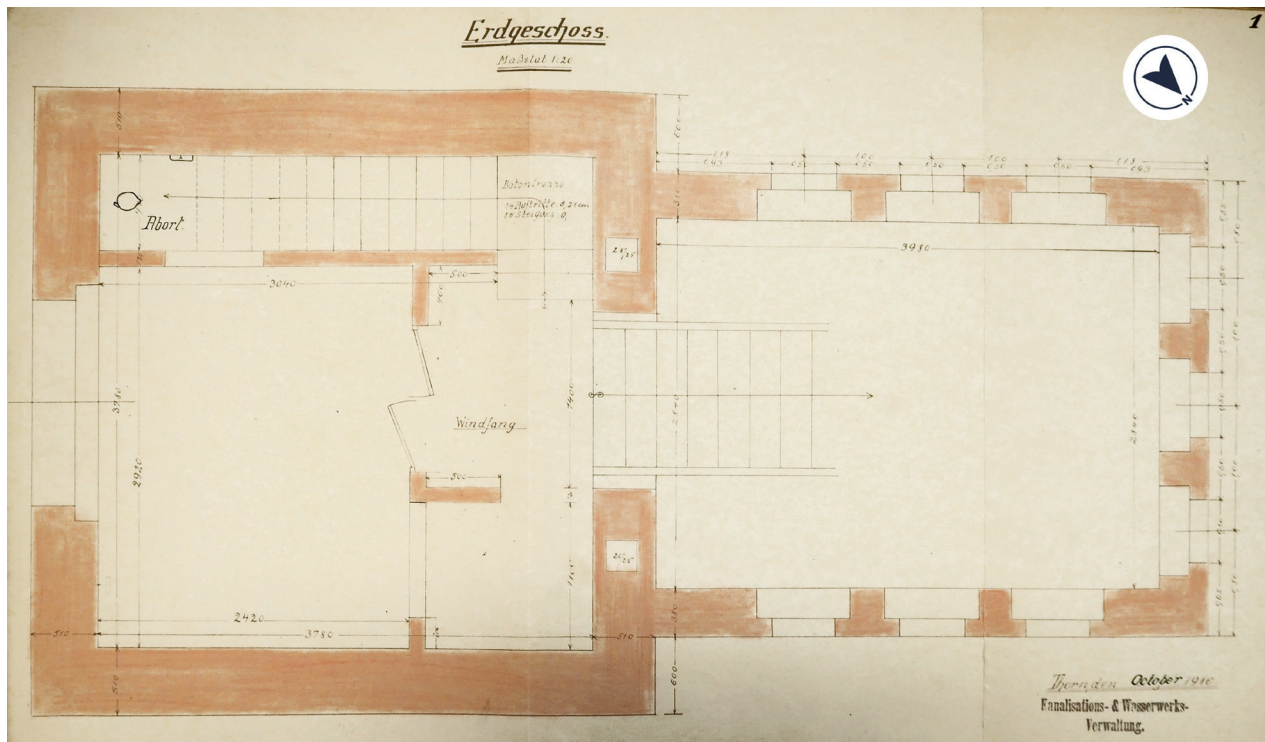


Fig. 7. Toruń – the former Nowe Bielany pumping station: plan of the machine room building (ground floor); original scale 1:20 (October 1916) (source: APT, AmT D, ref. no. 6226)

II. 7. Toruń – dawna stacja pomp Nowe Bielany: rzut budynku maszynowni (parter); skala oryginału 1:20 (październik 1916) (źródło: APT, AmT D, ref. no. 6226)

As highlighted in *Die Presse*, Walter [...] managed to complete the construction in a short time despite the hardships of war, taking care to obtain the most suitable machines. His name will always be associated with the Nowe Bielany waterworks (Der neue Thorner... 1917).

The interwar period

In the water supply system, the basic operation was to be at Stare Bielany, and when water stopped flowing to the underground reservoir through the gravity pipeline, it was assumed that Nowe Bielany would be launched, which proved to be very successful in the first years of operation (APT, AmT D, ref. no. 6212). In 1918, the operation of the station was reported as excellent and fully meeting the demand for water, although the main station was periodically closed (annual consumption of the main station: 866 073 m³, the Nowe Bielany station: 745 405 m³) (APT, AmT D, ref. no. 6240).

Despite the construction of a new intake, water shortages were still felt at times. In 1919 this was caused by problems with coal shortages and the basic water level continued to fall. From June 13 to November 1 it was delivered only between 9 a.m. and 9 p.m. The situation was saved by the withdrawal of the army, the closure of military hospitals, and the emigration of many families (APT, AmT D, ref. no. 6240). After November 1, earlier water supply hours were restored. At that time, a two-shift sys-

tem operated at both stations: Nowe Bielany worked from 8:00 a.m. to 4:00 p.m. (1st shift) and from 9:00 p.m. to 5:00 a.m. (2nd shift). On Sundays and public holidays there was a continuous 12-hour shift (APT, AmT D, ref. no. 6239, 137–138). In 1919, the main station produced 690,119 m³, and Nowe Bielany: 741 123 m³ of water (APT, AmT D, ref. no. 6240). In 1920, Toruń had 37,000 inhabitants (APT, AmT C, ref. no. 5990, 45), and in 1932 58,000 (APT, AmT D, ref. no. 1648, 9).

The mechanical parts of the Nowe Bielany pumps wore out quickly (this was one of the explanations for their decreasing efficiency: the amount of pumped water dropped from 61,813 m³ in 1920, 32,652 m³ in 1921, 36,366 m³ in 1922, and 7,954 m³ in 1923; *Wykaz statystyczny...* 1924). According to the data from the administrative year 1931/1932, the pump efficiency was estimated at 0.47% compared to 1918 (APT, AmT D, ref. no. 1648, 10).

However, machine wear and tear was not the primary problem. Nowe Bielany was expensive to maintain owing to high energy prices. Owing to cost savings, the station was closed in March and June 1923, April and May, August, and then from October to December 1926 (APT, AmT D, ref. no. 6241; APT, AmT D, ref. no. 6228). That situation repeated itself several times. According to the data for the years 1928–1930, the cost of 1 m³ of water pumped out in Stare Bielany was 2 groszes, in Nowe Bielany – 9 groszes, and in 1930 as much as 12 groszes (APT, AmT D, ref. no. 6212). More importantly, the intake the station was



Fig. 8. Toruń – aerial photo with the Nowe Bielany pumping station visible (1933) (source: APT, AmT D, ref. no. 1648)

Il. 8. Toruń – zdjęcie lotnicze z widoczną stacją pomp Nowe Bielany (1933) (źródło: APT, AmT D, ref. no. 1648)

operating on was estimated to be depleted within 24 hours (according to staff)²⁰. In later assessments, Keilhack was even accused of making a mistake in assessing its quality, as a result of which Nowe Bielany, although classically furnished in terms of equipment, did not provide [...] *even approximate* expected results. In 1927 the plant was described as [...] *operated sporadically*²¹.

The waterworks did not have a good press either. In January 1928, a mocking article appeared in Bydgoszcz newspaper “Toruń-les-Bains” on the quality of Toruń water, which praised the health properties of the city’s mud baths ([...] *recommended in severe cases of atherosclerosis, brain softening, and xenophobia*). This medicinal sludge of questionable quality was supposed to flow through the city pipes at least once a month (Toruń-les-Bains... 1928).

In 1930, in Nowe Bielany, it was planned to deepen the three southern wells by 2 m, which was to increase their efficiency (it was estimated that one well would take up to 3 weeks of work and the maximum cost would be 458.32 zlotys) (APT, AmT D, ref. no. 6212). The problem of water shortages and the poor assessment of the water supply network, which was growing in a chaotic manner and was not adapted to further expansion, were constantly recurring (APT, AmT D, ref. no. 6213, 1).

In his opinion, Krajewski drew attention to possible problems related to the electric motor. He wrote: [...] *when Germany was preparing for war, the City was secretly advised in 1911 and 1912, owing to the probable*

expected longer siege, internal combustion engines, for which fuel can be easily stored in large quantities, the electric drive was strongly discouraged [sic!] and so were power plant cables (APT, AmT D, ref. no. 6212). During the construction of Nowe Bielany, such fears seemed unfounded (a weakened Russia, a strong Germany, and Toruń no longer being a border fortress). After World War I, the political conditions changed radically (APT, AmT D, ref. no. 6212) (Fig. 8).

The wartime atmosphere thickened in the following years. This can be seen in the preserved documentation from that period – it consists of numerous circulars and internal correspondence, which draw attention to the need for reliable preparation of anti-aircraft and anti-gas defence in peacetime, including determining the personnel of individual teams and proper maintenance of their Anti-aircraft Defence and Gas Defence equipment and clothing²², the requirements to supply the plant with a detector or tube radio with its own power source, and to have spare parts of machines, apparatus and devices (1937) (APT, AmT D, ref. no. 6183)²³. Additional activities were to include, among others:

3. *Masking of terrain, buildings, roads, water towers, tanks, etc. on the factory premises by:*

a) *appropriate planting of trees in the area (pines, firs, poplars, etc.),*

²⁰ Engineer Krajewski, the author of the 1927 report on the Toruń waterworks, called on the authorities, among other things, to examine the actual condition and operational capabilities of Nowe Bielany (APT, AmT D, ref. no. 6212).

²¹ According to Krajewski, Keilhack’s advice *exposed the city to significant costs, with absolutely no benefit* (APT, AmT D, ref. no. 6212, APT, AmT D, ref. no. 6252).

²² Equipment such as breathing apparatus, anemometers, and hand sprayers. The Anti-aircraft Defence and Gas Defence organization consisted of, among others, the alarm service, messengers, sanitary, fire and disinfection services, and included large plants – in the case of the Toruń waterworks, these were the sewage treatment plants in Rybaki and Stare Bielany. Nowe Bielany was subordinated to Klemens Lewandowski, commander of the Anti-aircraft Defence and Gas Defence main station (APT, AmT D, ref. no. 6183).

²³ The expense was to be covered from the account intended for well maintenance (APT, AmT D, ref. no. 6183).

b) *protective painting or its preparation /with splashes of background and surrounding colours/* (APT AmT D, ref. no. 6183).

In a letter dated April 1939, the director of the Municipal Water and Sewage Works, Orłowski, asked for the consent of the District Office for the guards of waterworks plants (Stare and Nowe Bielany and Podgórz) to carry short firearms. Such a permit for a firearm with seven rounds was issued to Nowe Bielany in May (APT, AmT D, ref. no. 6183).

The preserved documentation shows that the first operator, Hohlfeldt, was replaced by semi-skilled operator Józef Brzozowski, and after his dismissal in 1921, this function was taken over by Albin Kołaczyński²⁴. In the same year, a storm tore off the roof tiles of a residential building (12 m²) and broke 10 windows (APT, AmT D, ref. no. 6226, 74). In 1935, the operator's house, which was renovated (including work on the roof truss, plastering, painting, removing the linoleum), was inhabited by Antoni Grabowski (APT, AmT D, ref. no. 1648, 148–149).

After 1939

There is no information about any significant transformations or changes in the machine room building after the war. According to the 1959 inventory, the station was equipped with *two centrifugal pumps Maffei-Schwarzkopff-Werke GmbH*²⁵ (Maffei-Schwarzkopff-Werke GmbH) and the vertical *piston pump "Vakum" by ALG Dechne Halle O.S.*²⁶ ("Vacum", A.L.G. Dehne Maschinenfabrik) with electric drive, centrifugal pump²⁷ (made by A. Borung) with electric drive, switchboard²⁸, central heating furnace²⁹, high-voltage full-oil switch with manual drive, two current transformers: oil transformer and dry-type oil transformer (APT, Miejskie Przedsiębiorstwo..., ref. no. 143, 15).

Henryk Zimny's design for a chlorination plant located in the former fuel room, at the pump hall level, at the southern end of the storey, comes from 1967 (Zimny 1967) (Fig. 9). After 1980, the original slate roofing was replaced with sheet metal (roofs) and roof tiles (wall cladding of the top floor of the tower) (Szczuczko, Wieczorkiewicz 1982). The original solution was restored during adaptation work.

²⁴ In later years, Kołaczyński was moved to the waterworks' service apartment at 16 Szosa Chełmińska (?) (APT, AmT D, ref. no. 6180; APT, AmT D, ref. no. 6183; APT, AmT D, ref. no. 6240).

²⁵ Technical specifications: 1) pump serial number 1321, N 1450, Q 20000l/min, pumping height 65 m, outlet diameter 125 mm, motor type: Dr. 50/1500, serial number 13176; 2) pump serial number: 1322, pumping height 60 m, motor serial no. 13177; other parameters as above (APT, Miejskie Przedsiębiorstwo..., ref. no. 143, 5, 7). The data is consistent with the order from 1916 [see extensive correspondence (APT, AmT C, ref. no. 5990)].

²⁶ Pump serial number 2177, motor type N 1350, serial number 30913 (APT, Miejskie Przedsiębiorstwo..., ref. no. 143, 11).

²⁷ Pump type Na 10-26, serial number 4939, motor type 2850, serial number 1232 (APT, Miejskie Przedsiębiorstwo..., ref. no. 143, 3).

²⁸ Serial number 54273 (APT, Miejskie Przedsiębiorstwo..., ref. no. 143, 9).

²⁹ Specification – type RV III Ż(or Z)R, serial number 10648 (APT, Miejskie Przedsiębiorstwo..., ref. no. 143, 17).

Much greater changes took place within the residential building. In 1949, a reconstruction project was submitted for approval, which envisaged the addition of a vestibule to the western gable wall, providing direct access to the stairs leading to the attic, and partial reconstruction of the ground floor. In the attic there is a rectangular living room (?). The changes on the ground floor were limited to the north-western part of the building (Fig. 10). The drawings are signed with the name M. Lewandowski. The acceptance of the work carried out was made on November 24, 1950. The then address of the pumping station complex was Projektowana Street 106 (APT, AmT G, ref. no. 1227, 1–14). In later years, the attic was fully adapted: a separate apartment with a separate entrance was created there. Extensions were introduced in the roof areas in order to enlarge the interiors and provide more light; it is also possible that the eastern gable was pierced at that time and one large window was placed in place of a pair of narrow windows (as in the western elevation). Two families lived in the building for the following years (Teczka osobowa...).

The utility building was also expanded and extended towards the south. On the basis of historic photos and plans, it can be concluded that this must have happened after 1949 and before 1980 (Szczuczko, Wieczorkiewicz 1982; APT, AmT G, ref. no. 1227). Before the adaptation, a seam was still visible on the façade where part of the longitudinal wall had been added³⁰.

Both in earlier aerial photos from the 1930s and in the site plan of 1949, the area of the plot on which the complex was located was not divided by a fence into the northern part (residential and utility buildings with a garden) and the southern part (machine room building). The division in force in later years was introduced before 1980 (APT, AmT G, ref. no. 1227) (Szczuczko, Wieczorkiewicz 1982, Fig. 90). During the adaptation, the original solution was restored.

In the years 1952–1953 the intake wells were modernized (filters were replaced). The development of municipal housing in their immediate vicinity (including the planned construction of a university campus), the construction of an intake in Mała Nieszawka and the impossibility of providing protection zones were (according to a study from 1966) the main reasons for the planned disconnection of Nowe Bielany from the city network (Wilczyńska 1966, 2–3). In the years 1973–1974 four replacement wells were drilled (at that time the intake consisted of a total of 12 wells); the old ones served as piezometers (Zimny 1967, 2).

In 1983 the intake was decommissioned. Some of the wells belonging to the complex served as emergency intakes, which could be connected to the city network at any time in the event of failure of other municipal intakes³¹. In

³⁰ The building was marked with a different colour in the 1949 documentation (APT, AmT G, ref. no. 1227). Perhaps the creation of an additional living space in the attic was connected with the expansion of the building and the allocation of additional utility rooms to the new tenant. Another possibility is that the facility was built in 1949, e.g., on the site of a former stable, which was not characterized in any way in the archives, and it was expanded in later years.

³¹ According to the documentation, in 1990, four of the eight wells were inactive [see, among others: (Karta rejestracyjna...)].



Fig. 9. Toruń – the former Nowe Bielany pumping station: machine room, in the lower left corner the casing of the collecting well, in the background the passage to the chlorination plant (photo by D. Jagiełło, 2024)

Il. 9. Toruń – dawna stacja pomp Nowe Bielany: maszynownia, w lewym dolnym rogu obudowa studni zbiorczej, na dalszym planie przejście do chlorowni (fot. D. Jagiełło, 2024)

2002, the Nowe Bielany intake was the fifth largest in terms of water production in cubic metres per day in Toruń (capacity and production: 1680 m³). Its quality was still within the norm for drinking water, and the wells were still marked as emergency intakes (Świerszcz-Prusicka 2005, 46). The last resident of the building at today's 16 Olszewskiego Street (an employee of Toruńskie Wodociągi Sp. z o.o.) left it in 2020 (Teczka osobowa...).

Summary

Even though the Nowe Bielany station operated for many years, supplying water to Toruń, it never attracted much interest (either from researchers or the city residents themselves). Hidden in a forest on the university campus, it slowly fell into oblivion. This situation has changed only recently thanks to the adaptation of its buildings (initially the plans included the possibility of demolishing the complex, which was opposed by the Municipal Conservator of Monuments).

On the basis of the analysis of archival documentation, historic iconography, and excerpts from texts published in the local press, it was possible not only to trace the history of the station from the moment of its construction to its decommissioning, but also to build a broader context, i.e., to indicate its role in the city's water supply system and to show the realities of the times when it was in operation. This approach to the topic makes it possible for us to both get to know the facility itself and to understand better its functioning. The station, which was built in 1916–1917, turned out to be, on the one hand, a facility built, despite external adversities, in an efficient and well-thought-out

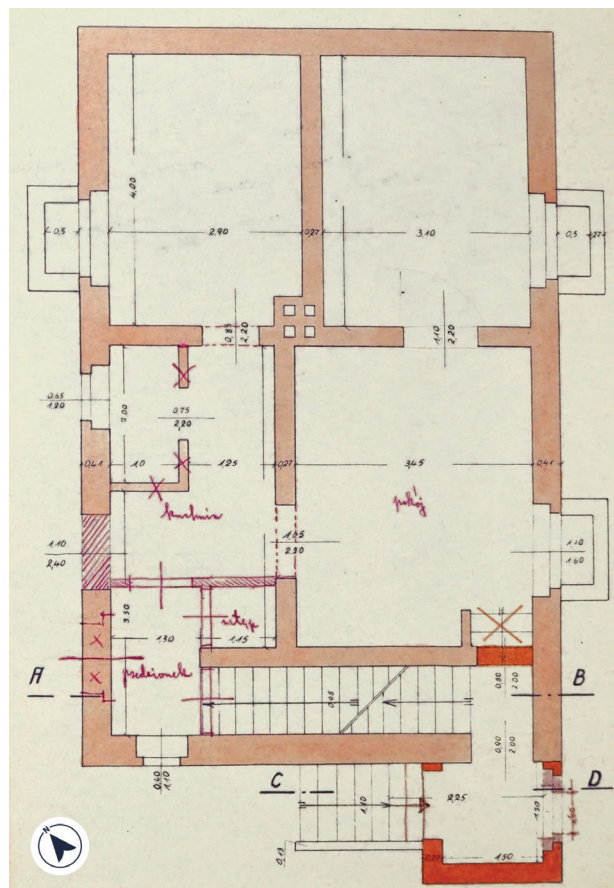


Fig. 10. Toruń – residential building in the complex of the former Nowe Bielany pumping station, reconstruction design: building plan (ground floor); original scale 1:50 (1949)

(source: APT, AmT G, ref. no. 1227)

Il. 10. Toruń – budynek mieszkalny w zespole dawnej stacji pomp Nowe Bielany, projekt przebudowy: rzut budynku (parter); skala oryginału 1:50 (1949) (źródło: APT, AmT G, ref. no. 1227)

manner – a station with a (projected) significant role for the efficient operation of the waterworks, and on the other hand, a quickly realized disappointment, perhaps resulting from the overestimated capacity of the intake, or perhaps the geology of the terrain, or an unfortunate type of drive for the conditions at that time, or perhaps something completely different. It is significant that after the 1930s, a new location was sought for another urban intake.

Nowe Bielany, however, still remains a potential research subject owing to the quite unusual architecture of the station at the time of its construction (not discussed in more detail in this text), as well as the need for a more detailed analysis of the plant's operation from the technological perspective, and relating the obtained results to other facilities with a similar role.

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Streszczenie

Historia niewielkiego zespołu stacji pomp Nowe Bielany (1916–1917) w świetle źródeł archiwalnych

W latach 2022–2023 przeprowadzona została adaptacja zespołu jednej z dawnych toruńskich stacji pomp – tzw. Nowych Bielany (zakończenie jej budowy datowane jest na 1917). Zakład przez wiele lat wspomagał pobliską stacją główną Stare Bielany w zaopatrywaniu miasta w wodę. W latach 80. XX w. został wyłączony z eksploatacji i przez kolejne pozostawał nieużytkowany. Przygotowania związane z projektem adaptacji uświadomiły, że historia stacji jest słabo rozpoznana, a obiekt nie był dotychczas przedmiotem badań.

W artykule przedstawiono interesującą historię budowy i działania nowobielanckiego zakładu. Podano także powody, które ostatecznie zadecydowały o jego zamknięciu. Zaprezentowano okoliczności budowy, wyposażenie, architekturę, a także realia czasów, w których pracowała, równocześnie uwypuklono znaczenie badań archiwalnych dla lepszego rozpoznania obiektu. Tekst przygotowano głównie na podstawie wyników szeroko zakrojonej kwerendy archiwalnej, niekiedy dokonując konfrontacji z wynikami analizy istniejącego obiektu (przed pracami adaptacyjnymi i po tych pracach).

Nowe Bielany, jak wynika z materiałów, do których udało się dotrzeć, były zakładem budowanym sprawnie i z dużą dbałością (potwierdza to również zachowana korespondencja). W związku z powracającymi problemami niedoborów wody w Toruniu pokładano w ich budowie duże nadzieje. Stacja niestety nie sprostała tym oczekiwaniom (bardzo wysokie koszty produkcji, szybko spadająca wydajność pomp oraz zbyt mało wody w studniach), dlatego już w latach 30. XX w. rozpoczęto poszukiwania lokalizacji dla nowego ujęcia.

Mimo że przedstawiona historia nie jest historią sukcesu, zespół stacji pomp Nowe Bielany okazał się interesującym i cennym świadkiem rozwoju infrastruktury wodociągowo-kanalizacyjnej w Toruniu.

Słowa kluczowe: wodociągi, Toruń, dziedzictwo techniki, dzieje, przemysł w XX w.