

The Influence of State Policy on the Development of Zinc-, and Lead Metallurgy in the Szopienice settlement (With a Particular Emphasis on the Environmental Impact of the Industry)

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The article deals with the interrelationship between state policy and the development of metallurgy in the Szopienice settlement and the impact of industry on the environment. The Szopienice settlement was part of the Habsburg monarchy from 1526. In 1742 it was annexed to the Kingdom of Prussia, and in 1922 to the Second Polish Republic. Back in the Habsburg times, the state granted Georg von Giesche a monopoly to exploit calamine deposits in Upper Silesia (1702). Calamine was initially used to produce brass, but in the late 18th century, zinc production using calamine began in Upper Silesia. Expanding its road and rail infrastructure, the Prussian state contributed to establishing new smelters by private capital in the 19th century. The “Wilhelmine” zinc smelter was established in 1834 by the Giesche concern in Szopienice. In the 1860s, a lead smelter was also established next to the zinc smelter. Both smelters had a disastrous impact on the environment and residents’ health, which went hand in hand with the dramatic housing-, and hygiene standards. At the beginning of the 20th century, a metallurgical hospital was established at the initiative of the Giesche concern. However, the recording of lead poisoning cases did not begin until the 1920s. After World War II, the problem of environmental impact was attempted to be publicized in the 1970s through studies of children who had contracted the disease. The population was resettled from the most endangered zone, and children were treated during months-long stays in sanatoriums.

Key Words Szopienice; Upper Silesia; Georg von Giesche’s Erben Company; Zinc Smelter; Lead Smelter

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This article focuses on the influence of the state-, and private capital on economic development and subsequent environmental impact in Szopienice, a district of the city of Katowice, located in the heavily industrialized Upper Silesia region in Poland. Szopienice has been a smelting-, and manufacturing center as part of the Habsburg monarchy from 1526, and became an important industrial center as part of the Kingdom of Prussia from 1740 to 1918. Since then, it has been part of Poland (the Second Polish Republic, the Polish People’s Republic, and the Third Polish Republic).

Because of its long-term industrial history, the non-ferrous metal smelter in Szopienice has been in the center of scholarly investigations especially with regard to the history of technology. A monograph by Emanuel Wilczok, who used the available archival sources concerning the history of the plant from its establishment in the 19th century to the 1980s was published in 1984.¹ An account for the earlier development of industry in Szopienice was carried out in the work of Ludwik Musioł.² Besides historical studies, literary documents such as a poem by Walenty Rożdzieński from the early 17th century,³ and the memoirs of Anton Oskar Klausmann from the 19th century⁴ signified the importance of Szopienice in the history of technology and the environment. Despite substantial scholarly-, and literary accounts, the scientific community still knows little about the environmental circumstances and ecological change associated with the industrial activities of the Szopienice metallurgical mills.

This paper aims to fill that gap in the scientific knowledge by examining the pre-emptive actions of states: the Habsburg Monarchy, the Kingdom of Prussia, and Poland regarding the protection of the environment and the health of the population in the area degraded by industry in and around Szopienice, to shed light on the degradation of the environment and subsequent measures to save the health of industrial workers and their families as well as the local environment.

With regard to East-Central Europe a significant proportion of environmental history scholarship focuses on the state-socialist period, and when not, it is often confined to discuss environmental issues of particular political historical eras. However, it has been suggested by Pál that when connecting the environmental histories of consecutive political history periods new insights could be discovered, especially with regard to the role of the state.⁵ We adopt that frame by observing and analyzing how nature has been paternalistically overseen and controlled by the state for nearly two centuries to generate profit and to serve what had been perceived by different governments as the “needs of the nation”. These tendencies have been overarching historical periods up to the present day, and the paternalistic-, and controlling state have been pursuing goals in Szopienice, similarly to other states in East-Central Europe since the beginning of the 19th century. By doing so we aim to contest the earlier status quo about the environmental history of East-Central Europe, and join the cohort of new scholarship and recent lively scientific discourse over East-Central-, and Eastern European environmental history that aims to re-interpret and identify environmental continuities overarching traditional historical periods.⁶

¹ WILCZOK, Emanuel: *150 lat hutnictwa metali nieżelaznych w Szopienicach : Dzieje Huty Metali Nieżelaznych “Szopienice” i jej zalogi*. Katowice 1984.

² MUSIOŁ, Ludwik: *Szopienice : monografia historyczna gminy*. Manuscript, Silesian Library, signature: R 1035 III.

³ ROZDZIEŃSKI, Walenty: *Officina ferraria abo huta i warstat z kuźniami szlachetnego dzieła żelaznego : Poemat z roku 1612*. Wrocław 2013.

⁴ KLAUSMANN, Anton Oskar: *Górny Śląsk przed laty*. Katowice 1997.

⁵ PÁL, Viktor: Orbán's View on Nature. The State and the Environment in Modern Hungary. In: MÖRNER, Nina (ed.): *CBEES Annual Report 2022*. Stockholm 2023, pp. 88–95.

⁶ BRAIN, Stephen: *The Song of the Forest : Russian Forestry and Stalinist Environmentalism, 1905–1953*. Pittsburgh 2011, p. 2; BRUNO, Andy: *The Nature of Soviet Power : An Arctic Environmental History*. Cambridge 2016, p. 198; GILLE, Zsuzsa: *From the Cult of Waste to the Trash Heap of History : The Politics of Waste in Socialist and Postsocialist Hungary*. Bloomington 2007, pp. 1–3; PÁL, Viktor: Toward Socialist Environmentalism? Scientists and Environmental Change in Modern Hungary. *Environment and History* 29, 2023, no. 2, pp. 239–259.

Proto-industrial Traditions in Szopienice and Roździeń in the Modern Era

Szopienice is a village located almost on the very border of Upper Silesia and Lesser Poland. It appears in sources together with the adjacent settlement – Roździeń – in 1360 on the occasion of the boundary of the property associated with the town of Mysłówice, set aside by Prince Nicholas of Racibórz for knight Otto of Pilcza. The towns listed there were: Mysłówice, Bogucice, Szopienice, and Roździeń were supposed to have been founded under German law for some time already.⁷

Metallurgy in Upper Silesia in the Middle Ages developed in two ways. The mining and processing of silver and lead can be seen throughout the Silesian-Lesser Poland borderland, where crushed-bearing dolomites were present.⁸ At the same time, iron was extracted from local turf ores. From the 13th century, forges (hammer mills) began to appear, facilitating iron processing with hammers driven by water wheels. Small settlements were established around the forges, and with the development of industry and technology, towns appeared on their site, an example being nearby Katowice. The forges played economic-, and socio-cultural roles.⁹

The presence of iron ore, forests from which charcoal was extracted, and watercourses that allowed industrial plants to be set up meant that numerous forges were established in the region. Because of the scarcity of written sources and their random nature, it is impossible to indicate the time of their establishment. In Roździeń, which is now part of the Szopienice municipality, a forge was established by Stanisław Salomon in 1546, but whether it was the first or a subsequent venture remains unknown.¹⁰ According to a document from 1640, there were four forges on the Rawa River – in Załęże, Bogucice, Roździeń, and Szopienice (all are currently districts of Katowice).¹¹

Both forges: Szopienice and Roździeń, did not survive into the era of industrialization. However, it can be said that they became part of the tradition that started the development of the industry there. The forge in Szopienice operated until the 1830s. The last time it appears in sources is in 1734, while on Johann Wolfgang Wieland's map of 1736, it no longer appears.¹²

The settlement of the village of Szopienice should also be mentioned at this point. At the time of the establishment of the Mysłówice state in the 16th century, Szopienice was described as an “empty village”. It was populated in the second half of the 16th century, but wars and epidemics prevented the population from developing. According to the

⁷ MUSIOŁ, Ludwik: *Materjały do Dziejów Wielkich Katowic (1299–1799) z 5 planami i 13 rycinami*. Katowice 1936, p. 35.

⁸ BORON, Piotr: Zanim powstał wielki przemysł – górnictwo i hutnictwo srebra i ołowiu na terenie Górnego Śląska i zachodniej Małopolski do połowy XVIII wieku. In: PAWLAK, Zbigniew – CHRÓST, Leszek – BORON, Piotr et al. (ed.): *Badania i analizy warunków pracy zawodów przemysłowych*, Tom1: *Poszukiwanie śladów dawnego wydobycia i przetwórstwa kopalni użytecznych*. Gliwice 2021, pp. 86–111.

⁹ PLEWAKO, Andrzej: *Działalność Kuźnicy Boguckiej w Katowicach*. Katowice 1985, p. 5.

¹⁰ TOFILSKA, Joanna: Kuźnice żelaza w wiekach XIV–XVIII. In: BARCIAK, Antoni – CHOJECKA, Ewa – FERTACZ, Sylwester (eds.): *Katowice : Środowisko, dzieje, kultura, język i społeczeństwo*. Katowice 2012, p. 213.

¹¹ WUTTKE, Karl (Hg.): *Codex Diplomaticus Silesiae* : Band 21: *Schlesiens Bergbau und Hüttenwesen. Urkunden und Akten (1529–1740)*. Breslau 1901, No. 876, p. 192.

¹² TOFILSKA, J.: Kuźnice żelaza, pp. 213–214. On Wieland's map, however, there is a “Szabelnia” (“Sabelhütte”) in this area – at the mouth of the Rawa River to the Brynica River. “Szabelnia” was established around 1720, the first master-sabblers in it was Stanisław Mikulovsky. Sabelhütte was immobilized back in the 18th century.

Carolingian cadaster censused in 1725, the two settlements that gave rise to the later municipality of Szopienice had eight homesteaders and nine cottagers (including one empty), while Roździeń had 15 peasant homesteads (including three empty) and 11 cottagers. Almost each owned one cow, a few pigs, and a small acreage for sowing. All of them probably worked on manors belonging to the Myslowice state.¹³

The number of inhabitants did not begin to grow rapidly until the middle of the 18th century, and its peak was during the time of the Myslowice count Józef Mierszowski (1755–1768). Mainly poor peasants were brought in, who established ten cottage farms (27 in total).¹⁴ As a result of the reforms of the 19th century, the process of the enfranchisement of the peasant population began. In Szopienice, the beginning of enfranchisement dates back to 1827.¹⁵

Influence of the Habsburg-, and Prussian States on the Development of Industry via the Examples of the Giesche Company and “Wilhelminehütte” in Szopienice

The von Giesche (Giza, Giese) family had been in Poland's bourgeois and noble circles since the 15th century. One of its most prominent representatives was Georg Giese, a merchant and royal clerk in Gdańsk, whose image is known from a portrait by Hans Holbein. The Polish king granted the Giesche family a privilege of nobility in 1536. One of its members, Adam Giesche, was a military officer in the imperial service for more than a dozen years. After completing his military service, he acquired an estate near Breslau. His son Georg was initially involved in the cloth trade in Breslau and, from the end of the 17th century, proceeded to exploit calamine in Upper Silesia at the Bobrek estate, then owned by Kasper von Pelchrzim. The calamine from the Bobrek estate was used to melt it with copper to obtain brass, as the technique of smelting zinc from calamine was not yet known at the time. The contemporary understanding of calamine viewed it as if it was a plant, because it could regenerate itself underground. The consequence of this was a recognition that the extraction of that mineral did not violate previous mining privileges.¹⁶ However, the mining of calamine stirred up resentment from large landowners, such as Count Henckel von Donnersmarck of Świerklaniec. Georg von Giesche, wishing to avoid disputes with landowners, applied for an imperial monopoly on calamine mining in Silesia, which he obtained in 1702 initially for 20 years.¹⁷ Giesche's lending to the emperor undoubtedly influenced this decision. Incidentally, Giesche obtained the approval of the nobility in 1712. The monopoly on calamine mining was also extended when almost all of Silesia belonged to Prussia from 1742 until 1802.¹⁸

¹³ OBETKON, Rafał: *Mieszkańcy pszczyńskiego wolnego państwa stanowego i ich dochody w świetle katastru karolińskiego z lat 1722–1727*. Pszczyna 2021, pp. 240–241, 274–275.

¹⁴ GOŁASZEWSKI, Janusz: Uwłaszczenie chłopów. In: BARCIAK, A. – CHOJECKA, E. – FERTACZ, S. (eds.): Katowice, pp. 255–256.

¹⁵ Ibidem.

¹⁶ JAROS, Jerzy: *Tajemnice górnośląskich koncernów*. Katowice 1988, pp. 144–145.

¹⁷ WENDT, Heinrich: *Geschichte der Bergwerksgesellschaft Georg v. Giesche's Erben : Festschrift zum 200jährigen Jubiläum der Gesellschaft am 22. November 1904*, Band 2: *Verfassungs- und Verwaltungsgeschichte der Gesellschaft*. Breslau 1904, pp. 3–34.

¹⁸ After the death of Georg's son Friedrich Wilhelm von Giesche in 1754, the estate was inherited by his sister Christiane Eleonore von Pogrell and nieces Marianne Elisabeth von Teichmann and Johanne Gottliebe Amelie von Walther und Croneck. JAROS, J.: *Tajemnice*, p. 146.

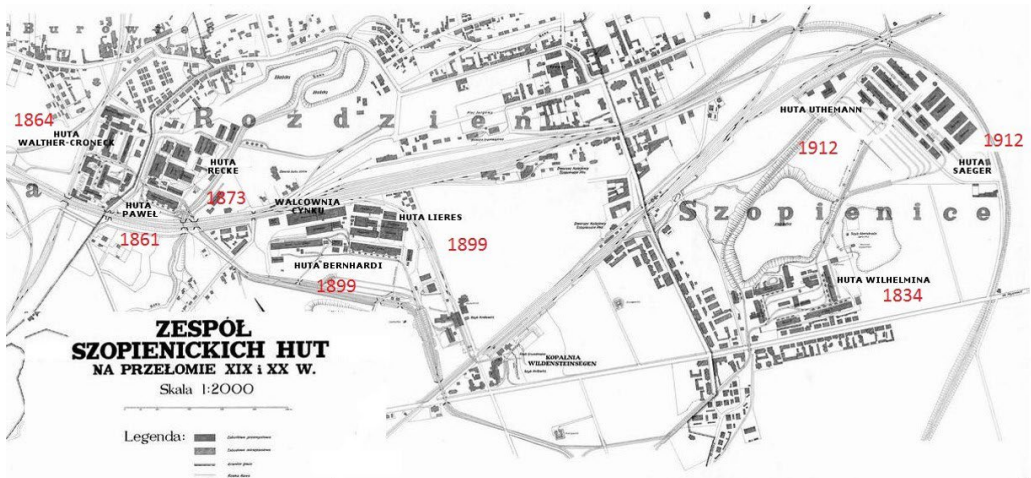


Figure 1: Complex of smelters in Szopienice.
(<https://szopienice.pl/2012/08/24/o-szopienickim-hutnictwie-slow-kilka/> with additions P.B.)

The loss of the monopoly coincided with the development of a new method of smelting zinc from calamine around 1798. The inventor was Johann Christian Ruhberg – an employee of a glasswork in nearby Wesoła, owned by the count of Pszczyna. The secrets of the technology were learned by an employee there – Antoni Ziobro, who ran away from the prince of Pszczyna and found employment at the Royal Glassworks (Today it is Chorzow). He revealed the secrets of Ruhberg’s technology for an appropriate remuneration to Prussian officials. Prussian authorities knew about the development of the new method of zinc production.¹⁹ However, it was only after Ruhberg’s death in 1807 and after A. Ziobro was hired as a tin master that larger quantities of metallic zinc began to be produced. Ziobro received appropriate remuneration and a commission on each centum weight of smelted metal.²⁰

Ruhberg’s invention must also have come to the attention of Georg von Giesche’s Erben Company. For the latter, which was at the forefront of calamine mining in Upper Silesia, the discovery of zinc production was a gift of fortune. In 1809, the company established its first zinc smelter in Szarlej near Bytom; its second zinc smelter was opened four years later. At that time, it switched from brass production to the production of zinc from calamine.²¹

However, as it soon turned out, smelting zinc from calamine, although yielding profits, also required large amounts of energy. At that time, coal began to be widely used in metallurgy, replacing the increasingly expensive charcoal. However, the managers of

¹⁹ This is according to an 1805 report by Karl Johann Bernhard Karsten. JAROS, Jerzy: *Polscy inżynierowie górniczy i hutniczy w służbie pruskiej w I połowie XIX wieku*. *Kwartalnik Historii Nauki i Techniki* 16/1, 1971, p. 111.

²⁰ PIERNIKARCZYK, Józef: *Historia górnictwa i hutnictwa na Górnym Śląsku*, 2. Katowice 1936, pp. 51–52; JAROS, J.: *Polscy inżynierowie*, pp. 109–113.

²¹ JAROS, J.: *Tajemnice*, p. 148.

Georg von Giesche's Erben Company faced a dilemma – whether to bring hard coal to the vicinity of the calamine mine or to bring calamine to the site of coal mining. Initially, coal was delivered to the Szarlej area, but this was not very profitable. It was more profitable to build a zinc smelter near the coal mine than to haul fuel over roads that were in poor condition. As early as 1818, the zinc smelter near Bytom's Szarlej was decommissioned, and in its place, the "Georg" smelter was built in Michałkowice, right next to the "Fanny" coal mine. The best location for the company's flagship smelter in the following years was sought. In 1825, the "Lieres" smelter in the Bytom Forest was purchased, and the "David" smelter was built in Chropaczów next to the existing "König Saul" coal mine. In 1831 the smelter "Francis" next to Katowice was leased.²²

The Prussian authorities met this search for a suitable site with a program to build new roads. In 1816, an 18 km "Coal Road" (Kohlenstrasse) leading from the Royal Steelworks to Tarnowskie Góry was completed, and in 1830 work was completed on the "Road of the Heir to the Throne" (Kronprinzenstrasse), which connected the Royal Steelworks, Zabrze and Gliwice. Work was also undertaken on the road leading to the borders of the Kingdom of Prussia to Mysłowice. This road followed a new route, bypassing the old route, which originated in the Middle Ages, running through Rozdzień and Szopienice. The construction of this road, which ran near a coal mine, brought Szopienice to the attention of Georg von Giesche's company management. The land that was purchased lay along the royal railroad. The company had already bought shares in local mines, and in 1834 zinc production began at the newly established zinc smelter "Wilhelmine".

Another element of the state's influence on industrial development in the Szopienice area was its support for the construction of an iron railroad. In 1842–1846, a railroad was built from Breslau to Mysłowice, which later gained a connection to Berlin and the entire railroad network in Prussia. Although the construction of the railroad was a private venture led by the Upper Silesian Railway Company (Oberschlesische Eisenbahn AG), it was headed by the president of the governmental district of Opole (Regierungsbezirk Oppeln). The Upper Silesian Railway project was designed to connect with the planned Warsaw-Vienna and Kraków railroad in the future.²³

Unfortunately, the first draft of the railroad did not plan direct connections to industrial plants, which raised transportation costs. This shortcoming began to be rectified in the 1850s. Between 1857 and 1868, the Tarnowskie Góry-Katowice-Czechowice-Dziedzice railroad line was built, thanks to which Georg von Giesche's Erben concern was able to use rail transportation between the galvanic mines in the Tarnowskie Góry-, and Bytom areas and the "Wilhelmine" smelter in Szopienice.

The "Wilhelmine" smelter thus found itself, thanks to the modernizing policy of state authorities, in an excellent position to transport raw material (calamine) and finished products throughout Europe. In the 1850s, it was decided to concentrate the industrial production of Georg von Giesche's Erben concern precisely in the vicinity of the "Wilhelmine" smelter. In 1861, the existing zinc smelter in the area of Dąbrówka Mała was taken over,²⁴ and two years later, construction began on a lead smelter, which was named

²² Ibidem, pp. 148–150.

²³ FREMDLING, Rainer: *Eisenbahnen und deutsches Wirtschaftswachstum 1840–1879 : Ein Beitrag zur Entwicklungstheorie und zur Theorie der Infrastruktur*. Dortmund 1985; PIĄTKOWSKI, Andrzej: Etapy pruskiej polityki kolejowej w XIX wieku. *Zapiski Historyczne* 66/4, 2001, pp. 111–129.

²⁴ WILCZOK, E.: 150 lat hutnictwa, p. 42.

“Walther Croneck”.²⁵ The latter played an infamous role in the next century due to the poisoning of the area.

Nevertheless, in addition to the construction of the lead smelter and the concentration of industry in a small area, the housing and living conditions of the smelter’s employees also played a role, which left much to be desired. The first housing for workers of the “Wilhelmine” smelter began to be built in Szopienice only in the 1840s. Workers’ apartments still did not meet today’s housing standards for a long time after that. They consisted of one room and a chamber and had an area of 32 square meters. Only houses built since the 1850s had cellars and outbuildings (pigsties).²⁶

Mostly private rental houses were built in the area, with apartments rented by workers. The Giesche Heir’s concern carried out its housing construction on an ad hoc basis at various times. Many workers from distant localities lived in one of the six so-called “Schlafhaus” or dormitories.²⁷

The Impact of the Upper Silesian Metallurgy on the Environment in the 19th Century and in the first half of the 20th Century

Air poisoning was known already in ancient times.²⁸ The territory of Upper Silesia is located in the so-called “sulfuric triangle”, a triangle whose vertices are marked by Dresden, Prague, and Kraków. In Upper Silesia, the first blast furnace was built in Gliwice in 1796, which became the symbolic beginning of the region’s industrialization.²⁹ Comparisons of the region with the Ruhr, which in 1900 was the most significant industrial area in Europe and probably the one with the most polluted air come to mind.³⁰

In Szopienice, the first residential houses were built near the smelter. Even before it was implemented, people were aware of its harmful effects on human health. In 1833, when permission was given for the construction of the smelter, it was officially stated that *all existing and forthcoming police-industrial regulations regarding zinc smelters are to be followed as closely as possible*.³¹ The 1845 ordinance meant that Georg von Giesche’s Erben concern had to reckon with claims from its neighbors due to the damage that zinc production was causing. Company director Friedrich Bernhardt responded to a neighbor’s complaint, stating that nothing grew in the area while the old furnaces were operating at the smelter.³² Also, in other industrial centers of Europe – for example, in Britain in the second half of the 19th century we have the first legal regulations on environmental poisoning. However, these rules were quite primitive and could not be effective for this reason.³³

²⁵ Ibidem, p. 53.

²⁶ Ibidem, p. 32.

²⁷ Ibidem, p. 70.

²⁸ McNEILL, J. R. : *Something new under the sun : An environmental history of the twentieth-century world*. New York – London 2000, pp. 55–56.

²⁹ Ibidem, p. 89.

³⁰ Ibidem, p. 87.

³¹ WILCZOK, E.: 150 lat hutnictwa, p. 33.

³² Ibidem.

³³ PÁL, Viktor: *Technology and the Environment in State-Socialist Hungary : An Economic History*. London 2017, pp. 17–18.

The project to build a new lead smelter on the road from Rożdzień to Katowice – was protested in 1864 by the director of the “Louisenglück” mine, Kremsky, as an undertaking that would endanger the health of the miners living nearby. The authorities criticized that Kremsky was concerned with his own orchard and consulted the district of Cologne. The district doctor (Kreisphysicus), taking into account the length of the underground channel for catching dust (117 meters) and the height of the smoke stack (61 meters), concluded that the investment would not harm the health of the residents.³⁴

Steel mills were a distinctive feature of the Upper Silesian landscape in the second half of the 19th century. As recalled by Anton Oskar Klausmann, who knew the “Wilhelmine” smelter very well because his father worked as a railroad official at the Szopienice smelter: *To one who grew up amid the Upper Silesian zinc smelters, no cloud of smoke or dust – phenomena that give trouble to the sensitive eyes and lungs of the unadapted – seemed unusual. However, such a complex of smelters working at full steam presented an impressive sight.*³⁵ Hugo Solger, was the district manager (Landrat) of Bytom in 1860–1873, when the Bytom district included the area of today’s Katowice, described the working conditions at the smelter in detail. When the atmospheric low came, the pollution from the smelters constituted *one gray cloud, enveloping everything around it in a gloomy fog*, with occasional flashes of fire from the smelting furnaces appearing. The rooms of the smelters had ventilation due to the lack of glass in the windows and open windows, *all the blustery winds huffing freely throughout the interior, bringing dangerous fresh gusts to the people huddled around the furnaces in the monstrous heat and itch*. Nature in the vicinity of the smelters has completely died down, according to Solger’s description – *the trunks of the needle-laden pines and spruces in the nearby forest mournfully surround the area where greedy human activity has chased away the beautiful greenery of animated nature.*³⁶ As Klausmann adds, in the winter, the smelters attracted many homeless vagabonds who, to stay warm, often became victims of poisonous gasses or suffered extensive body burns. Interviews with a house doctor at the time, who worked at the zinc smelter for some time, show that almost every second smelter worker had falsified information on his death certificate regarding the cause of death, as the doctor still refused to enter “metal poisoning”.³⁷

In 1905, regulations were introduced to improve working conditions at the Giesche concern’s steel mills, for all workers in contact with lead fumes were given half a liter of milk daily. The milk allowance was available to 70 people, however, these preventive measures have proven to be ineffective; the number of lead infections from 1896–1906 reached 30 % of the workforce.³⁸

In the 19th century, the negative impact of work in the steel industry on workers’ health was noticed. A hospital was established at the “Wilhelmine” steelworks as early as 1840. A qualitative change was the establishment of a modern metallurgical hospital in Rożdzień in 1906–1908, on the 200th anniversary of the Giesche company. This hospital had 110 beds.³⁹

³⁴ WILCZOK, E.: 150 lat hutnictwa, p. 43.

³⁵ KLAUSMANN Anton Oskar: *Górny Śląsk przed laty*. Katowice 1997, p. 127.

³⁶ Ibidem, pp. 128–129.

³⁷ Ibidem, p. 130.

³⁸ WILCZOK, E.: 150 lat hutnictwa, p. 98.

³⁹ Ibidem, p. 63.



Figure 2: Scharley mine about 1869. (Free licence <https://polska-org.pl/> from Les grandes usines de Turgan, Paris 1888.)

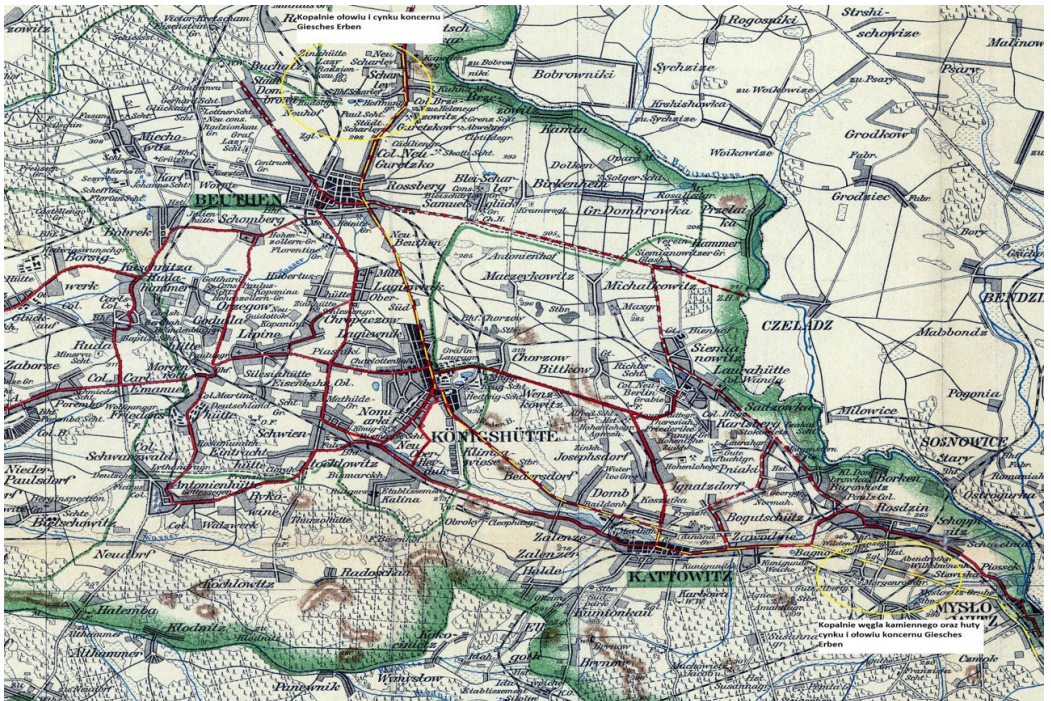


Figure 3: Road to the zinc smelter in Szopienice. Fragment of Übersichtkarte der Kreise Tarnowitz, Beuthen, Zabrze und Kattowitz. (Free licence with additions P.B.)

After the division of Upper Silesia in 1922, four-fifths of the plants belonging to the Giesche concern suddenly found themselves within the borders of Poland. This necessitated the establishment of a new company, Giesche SA, headquartered in Katowice, but with the “old” management. In 1926, the company was almost entirely taken over by an American firm. A few years later, as a result of the Great Depression, hygienic-, and sanitary conditions at work deteriorated, as can be seen in the sudden increase in lead disease. In the 1920s, the number of lead cases remained at an average of 34 people per annum; in 1930 it reached 102 people.⁴⁰

Table 1: Lead cases treated at the metallurgical hospital in Roździeń in 1922–1932

| | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|
| Number of lead cases | 47 | 44 | 41 | 28 | 26 | 25 | 41 | 53 | 102 | 81 | 29 |

Source: WILCZOK, E.: 150 lat hutnictwa, p. 145.

It was not until 1931 that mandatory record-keeping of lead cases was introduced with disastrous results for the company, as it revealed that the vast majority of the workforce suffered from the disease. Because of the statistics, the company was threatened with liquidation due to poor working conditions, forcing it to reorganize its occupational safety service in 1934. Unfortunately, this did not help. Although a new bathhouse and a modern lead oxide plant were built, production was reduced several times, and 190 workers were subsequently laid off. At the end of the 1930s, compulsory rest periods for steelworkers began to be organized to improve the health of employees⁴¹. However, the steelworkers were forced to partially finance these holidays, which meant they could not take advantage of the treatment offered or the meals prepared.⁴¹

In 1936 and 1938, two strikes halted production. Workers protested the dire working conditions. On 13 October 1939, all industrial plants in Upper Silesia, including Giesche SA, were placed under the receivership of the Main Trustee Office for the East (Haupttreuhandstelle Ost). Dr. Albrecht Jung was the commissioner plenipotentiary. On 14 April 1942, the Giesche Company Ltd. (Gieschebetriebe GmbH) was established, a merger of Giesche’s assets under one management.

Polish People’s Republic – Caring for the Environment and Workers or the Propaganda of Success?

Undoubtedly, an important date determining the Szopienice plant’s future was 3 January 1946, when its nationalization occurred. More precisely, a decree of the National Council on the state takeover of the primary branches of the national economy was issued at that time.⁴² The scenario of a state takeover of the economy was, moreover, also implemented in other countries under the political-, and military influence of the Soviet Union. In Czechoslovakia, the nationalization of the economy took place at the same time.⁴³

⁴⁰ Ibidem, p. 145.

⁴¹ Ibidem, p. 161.

⁴² Ibidem.

⁴³ PÁL, V.: Technology and the Environment, p. 63.

Communism, through its ideology, was to focus on the human being. Life in a communist state was, in theory, to be about better working-, and living conditions than in capitalism, and related to that, the natural environment was supposed to have a positive-, and healthy effect on citizens.⁴⁴ However, social-, and environmental issues were subordinated to extensive economic policies for many years.

At the time, it was impossible to hide the problem with the Szopienice industrial plant's impact on workers' lives and health. In 1950, there were 593 occupational accidents and four lead poisoning cases. With an increase in lead poisoning in the following years reaching 84 cases in 1955. Propagandists tried to explain the situation with the economic 6-year plan, which was to employ new industrial workers who had previously lived in rural conditions.⁴⁵

Ministerial authorities launched a preventive action. In 1950 a reduction in the 4-shift work system was introduced. In 1956 working hours at the lead mill and cadmium plant were reduced. In 1953 records-, and a strict control of accidents and illnesses were introduced. Workers at risk of lead poisoning were transferred to other departments, and compulsory medical examinations were carried out. From 1952 employees at risk of lead poisoning, about 300 workers per annum, were sent to sanatorium treatment in Łądek-Zdrój, and later to the Świnoujście-, and Szczawno-Zdrój sanatoriums. In 1954 a preventive semi-sanatorium was opened for employees at risk of lead poisoning, and 25 employees of the smelter stayed per treatment period lasting for three weeks. In 1958 the function of the semi-sanatorium was taken over by a newly built clinic with a hospital ward. A new bathhouse was opened during the same year. In 1955 another remedial measure by the authorities was the introduction of free high-calorie lunches for lead smelter workers to prevent lead toxicity. On 1 September 1981, in connection with the designation of the Non-Ferrous Metals Plant "Szopienice" as a particularly onerous-, and harmful plant, the use of regenerative meals was extended to all workers at the smelter. Additional health leave was also introduced for all employees.⁴⁶

Naturally adverse changes in the natural environment had to occur. Moreover, this is what the authorities of the People's Republic of Poland, to whom the smelter was subordinated, wanted to remedy. During the 1950s, 9.2 million zlotys worth of dust extraction equipment was built in the lead smelter, in the tin roasting plant, and in the zinc smelter. During the 1960s, further intensified activities to protect the environment took place. Shaft furnaces were decommissioned and the galena roasting plants were equipped with converters. Boiler plants were decommissioned in favor of combined heat-, and power plants with a scrubber. The lead-, cadmium-, and zinc electrolysis departments were equipped with scrubbers. The roasting department was equipped with an electrostatic precipitator.⁴⁷

According to official propaganda data, in 12 years dust emissions into the atmosphere decreased 20-fold. In 1970, the smelter emitted 7124 tons of dust, including 1415 tons of lead and 1098 tons of zinc. In 1982, dust emissions were only 378 tons of dust, including 5 tons of lead and 25 tons of zinc.⁴⁸

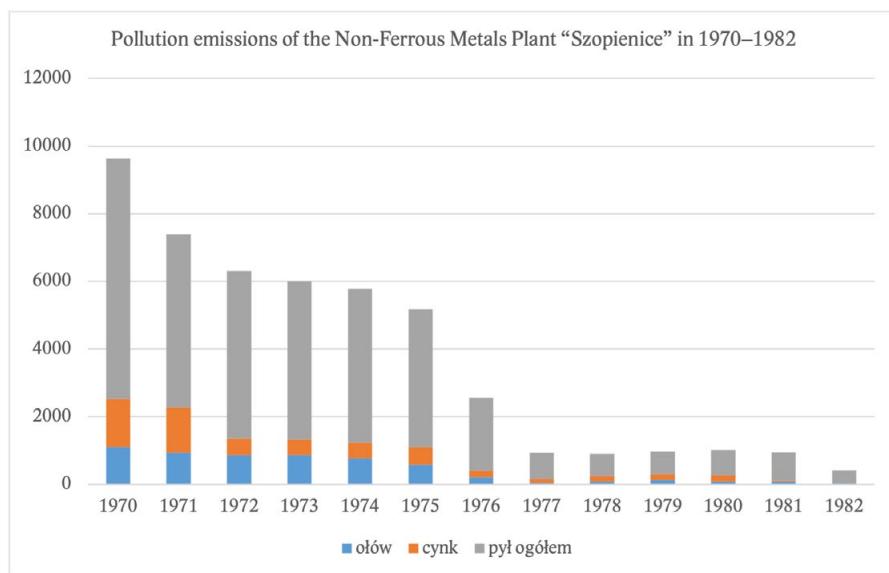
⁴⁴ Ibidem, p. 2.

⁴⁵ WILCZOK, E.: 150 lat hutnictwa, p. 224.

⁴⁶ Ibidem, pp. 225–226.

⁴⁷ Ibidem, pp. 227–228.

⁴⁸ Ibidem, p. 229.



Source: WILCZOK, E.: 150 lat hutnictwa, p. 180.

In the 1970s, a copper processing department was built where modern technologies were used, and the smelter was equipped with dust collection equipment and a wastewater treatment plant. At the same time, several old departments that were troublesome to the environment were eliminated. All this resulted in a sharp reduction in dust-, and gas emissions and the volume of industrial wastewater.⁴⁹ Such activities were part of a broader European context of a greater awareness of air pollution since the early 1970s. In the German Democratic Republic, the Ministry of Environmental Protection and Water Management was established in 1972.⁵⁰ Similar environmental efforts took place in the Federal Republic of Germany, through issuing relevant laws and ordinances. In 1972 the Ministry of Land Management and Environmental Protection was established in the People’s Republic of Poland. However, similar measures in East Germany regarding the reduction of sulfur dioxide emissions into the atmosphere were ineffective due to technological backwardness.⁵¹

According to authorities in Poland, multidirectional measures were to replace existing equipment with new technologies, modern filters, dust removal plants, and treatment plants. In 1970–1974, the complete gasification of the Szopienice plant was carried out. In 1975–1980 steam locomotives were eliminated from rail transportation at the steel plant. In 1970–1982 all heaps around the steel plant that occupied 20 hectares were eliminated.⁵²

⁴⁹ Ibidem, p. 228.

⁵⁰ DUPUY, Michel: Retention of sulfur dioxide emission in the GDR : Between technology, economics, diplomacy and public opinion. In: BRAIN, Stephen – PÁL, Viktor (eds.): *Environmentalism under authoritarian regimes : Myth, propaganda, reality*. London – New York 2019, p. 166.

⁵¹ DUPUY, M.: Retention of sulfur dioxide emission, p. 175.

⁵² WILCZOK, E.: 150 lat hutnictwa, p. 229.

In 1983–1985 pro-environmental projects were implemented to restore ecological conditions in the vicinity of the smelter via land reclamation. In addition the liquidation of detention facilities, micro-leveling and resurfacing of agricultural land took place in 30 hectares.⁵³ These actions to improve the industry's environmental impact can be compared to similar actions that happened in connection with the "environmental shift" in Hungary, which was appropriately presented by communist propaganda. It should be added that the deteriorating economic conditions in the socialist bloc during the 1980s caused a further crisis of environmental degradation.⁵⁴

In addition, public pressure helped to publicize mass lead poisoning, especially of children. The provincial consultant in pediatrics, Prof. Bożena Hager-Małecka, together with the doctor of the local clinic, Jolanta Wadowska-Król, discovered cases of lead poisoning among children living in the area of the Szopienice smelter in 1974. Symptoms of the disease included a sweetish taste in the mouth, headaches, and lack of appetite. This was later compounded by torpor, a drop in blood pressure, and a lowered body temperature. Other symptoms included yellowish-gray skin and a black border on the gums, the sign of the lead seam. Poisoned children were characterized by inactivity and reduced concentration. Another symptom was peripheral neuropathy. Chronic lead poisoning could lead to kidney damage and, eventually, to death. The disease was sporadic outside of industrial zones because children could be exposed to it through exposure to lead in the air, water, contaminated soil, and food. Prof. Hager-Małecka immediately associated Szopienice children's symptoms with lead poisoning because she had coincidentally been at a scientific conference in Bern, Switzerland a few weeks earlier, where, among other things, the topic was discussed.⁵⁵

As it soon turned out, when the extent of the disease was investigated, the most severe cases were close to the smelter. In the autumn of 1974 the doctors met with the head of the government administration (Voivode) of Katowice, General Jerzy Ziętek, who, on the one hand, understood the seriousness of the situation, on the other hand, was displeased because the matter would have led to a confrontation with the First Secretary of the Provincial Committee of the Polish United Workers' Party in Katowice, Zdzisław Grudzień.⁵⁶ It was expected that the latter would take advantage of the difficult situation in Szopienice to carry out personnel changes involving the removal of colleagues inconvenient to him. At this meeting, it was decided not to publicize the matter but to take care of the sick children by sending them to sanatoriums in Rabka and Kubalonka.⁵⁷

A relocation plan was also formulated at the governor's office, i.e., resettling the children with their families as far away from the smelter as possible. This goal was to be carried out by Szopienice Nonferrous Metals Plant itself. At the meeting between J. Wadowska-Król and the director of the smelter, Ryszard Motyl, as well as Romuald

⁵³ Ibidem.

⁵⁴ PÁL, V.: *Technology and the Environment*, pp. 6–7.

⁵⁵ JĘDRYKA, Michał: *Ołowiane dzieci: Zapomniana epidemia*. Warszawa 2020, pp. 43–44.

⁵⁶ The entire letter to Voivode J. Ziętek is published by A. Dziurok. DZIUROK, Adam: *Ołowiane dzieci. Czasypismo o historii Górnego Śląska* 2014, no. 2(6), pp. 94–98 as well as Idem: *Lead Children. Totalitarianism in the Borderland: Ethnicity, Politics, and Culture in the Industrial Area of Upper Silesia (1933–1989)*. *Special Issue of Czasypismo*. Katowice – Warszawa 2019, pp. 264–270.

⁵⁷ JĘDRYKA, M.: *Ołowiane dzieci*, pp. 85–88; *Tajna lista ołowików. Uratowała tysiące chorych na ołowicę*. – *Historia (wprost.pl)*, cited 1 November 2022.

Mycka, who was responsible in the plant for the social-, and living affairs, demolishing the old colony of workers' houses near the smelter and the creation of a protective zone around it was discussed. The first secretary wished to keep the issue a secret. The smelter was to be a monument to socialism, so there could not be doubts regarding its ill effects on health and the lives of nearby residents.⁵⁸

The senior Voivode of Katowice, Gen. Jerzy Ziętek, stepped down from his post on 31 May 1975. The matter of the “lead children” and new housing for their families was henceforth depended on the will of the First Secretary of the Central Committee of the Polish United Workers' Party, Zdzisław Grudzień. The latter, however, was widely distrusted and feared to be petty and spiteful, so Hager-Małecka turned directly to Poland's First Secretary of the PZPR Central Committee, Edward Gierek. Thanks to her professional connections (she knew Gierek's wife, who was also a doctor), she managed to gain access to the first secretary of the Central Committee during his economic visit to Silesia. During the brief meeting, she handed him a letter in which she described the Szopienice affair. During another meeting with Deputy Industry Minister Gerard Kroczyk, Hager-Małecka learned that Gierek had given a favorable opinion on her request to deal with the housing issue in Szopienice.⁵⁹

Thus, it seemed that the issue of lead poisoning of children by the smelter had finally been dealt with positively with the help of the state. However, this did not end the environmental poisoning itself.⁶⁰ Communist propaganda announced that emissions radically decreased in 1976, when the lead refining technique was changed, and zinc production in distillation furnaces ceased. The beginning of the era of capitalism, however, brought the collapse of the smelter. The result was a nightmare because of unemployment, which was the price to stop polluting the environment.

Although the smelter was already decommissioned at the beginning of the 21st century, scientists from the University of Warsaw's Department of Biology found that the area near the Szopienice zinc smelter in Katowice was heavily contaminated with poisonous thallium. The amount of this chemical element exceeded acceptable standards by several hundred times. Nearby, a dangerous zinc sludge was stored in earth-settling ponds. In 2007, tests were carried out for cadmium-, and lead content in the soil at Szopienice playgrounds, near kindergartens, and at housing estates. It turned out that the presence of these heavy metal elements still exceeded environmental standards several times.⁶¹

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⁵⁸ JĘDRYKA, M.: Ołowiane dzieci, pp. 104–107.

⁵⁹ Ibidem, pp. 175–178.

⁶⁰ Taking the whole world into account, lead air poisoning increased sevenfold between 1900 and 1990. McNEILL, J. R.: Something new under the sun, table 3.3.

⁶¹ *Co pozostato po hucie w Szopienicach | Życie na bezhuciu – Polityka.pl*, cited 1. 11. 2022.

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Summary

The Influence of State Policy on the Development of Zinc-, and Lead Metallurgy in the Szopienice settlement (With a Particular Emphasis on the Environmental Impact of the Industry)

The Habsburg-, and Prussian states were undoubtedly stimulators of industrial development. It was thanks to the fact that Georg von Giesche was granted a monopoly by Emperor Leopold I of Habsburg on the mining of calamine, from which brass could be produced, that a considerable fortune began to accumulate in the hands of the former, which his descendants invested in the further development of the industry. This policy, which dovetailed with cameralism and intended to increase state revenues through exporting industrial products, continued in the 18th and 19th centuries when Szopienice, as well as most of Upper Silesia, was annexed to the Prussian state. The Prussian rulers saw industry and the taxes flowing from its development as an important source to extend their power. The state initially tried to invest in the industry itself, but after the Napoleonic wars, due to lack of funds, the Prussian state supported the industry in private hands. The Giesche concern took advantage of this opportunity, facilitated by the social relations prevailing in Prussia. The abolition of the peasants' attachment to the countryside in 1807, linked to concerns about the transfer of revolutionary relations from the West, freed up many human resources. At the same time, it was decided not to give all groups of peasants land at once for ownership; homesteaders and cottagers were to obtain it at the latest and tie themselves to industry. Upper Silesian workers were paid less than workers for analogous work in Western European industrial districts. Their living conditions were also much worse. Housing in poor sanitary conditions and, above all, the lack of control over the poisoning of the environment made working in the Szopienice steelworks very dangerous to their health. Awareness of this fact existed on the part of state authorities and industrial owners, but the latter lacked the technical means to limit the emission of poisonous fumes. Another aspect of state stimulation was a program to expand beaten roads and railroads, from which Szopienice, located in a convenient border location from an industrial point of view, benefited greatly.

The health of steelworkers and their families was attempted to be saved in the steelworkers' hospital that existed nearby. However, this problem was embarrassing until after World War II. Also, the socialist economy tried to push this problem under the rug. It was only in the 1970s, by reaching out to the highest party authorities in the region and the state, the problem was publicized through a policy of treating children in sanatoriums and resettling residents from the most endangered areas. The losses, however, were irreversible.

By presenting industrial development in a small town on the border of Silesia and Lesser Poland helps us to expand our horizon of describing history to several centuries, overarching historical periods. It is apparent how the state(s) influenced the transformation of the village into an industrial settlement and the construction of new industrial plants that gave work and livelihood to thousands of people. The price for this was high: the destruction of the environment and the poisoning of generations of industrial workers. On the other hand, the state and the Giesche concern itself primarily reaped profits from the industry.