

VITKOVICE IRONWORKS

MASTER'S THESIS

A JOURNEY INTO THE STEEL HEART OF THE CZECH REPUBLIC / ANTHONY VIOLA / LUCAS SHOONER

EPFL ARCHITECTURE

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Nothing is more responsible for the good old days than a bad memory.

—FRANKLIN PIERCE ADAMS

Abstract

This thesis focuses on understanding how the ironworks in the lower area of Vítkovice in Ostrava, Czech Republic, has evolved amidst the shutdown of its mines and factories during the last twenty years. Through an in-depth historical analysis of this compound, we propose a narrative on how the site was transformed from the early nineteenth century to this day.

We see this infrastructure as a reflection of Ostrava: in our view, this piece of Czech heritage has never been a finished ensemble, but rather an ever-evolving industrial cathedral. With this in mind, we demonstrate the architectural qualities of emblematic fragments and the ability of the site to keep evolving and absorb new programs in response to changing needs. To better grasp this evolution and understand how these succeeding changes have been embodied in the iron works over the years, we are complementing our work with an in-situ photographic survey as a separate book.

Acknowledgements

This work has been made possible thanks to the generosity of the architect Josef Pleskot, who took the time to introduce us to his network in Vítkovice. We are thankful for the access into the Dolní Vítkovice association (DOV) facilities and for Mgr. Ondřej Štarman, who received us at the archives kept by Cylinders Holding a.s. since the dissolution of the ironworks and mining state companies. We also thank professors Stefana Parascho and Jeffrey Huang for their guidance and our tutor, Georg-Christoph Holz, for his involvement and great advices.

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1 Introduction

Here is an idea: areas dominated by heavy industry are great for heavy industrial activities but not so good for other things such as living one's life. It may not be a *well-developed* idea but it is arguably a *sensible* one. As such, having fewer of them in one's city may seem a good outcome indeed. This would be made conveniently easy if the ebb and flow of economic liberalism could wash these infrastructures away and clear the ground for new developments.

Here is another idea: industrial monuments are a thing and they are worth preserving. French architectural historian and theorist Françoise Choay declares that the very notion of architectural heritage — alongside regulatory frameworks and institutions — evolved during the industrial revolution. Initially in France and England, there has been a painful increase in awareness about the sudden and irreversible shift of the built environment towards industrialisation and that “it would never be the same again.”¹

If the 18th century also gave rise to romanticism as a reaction to the brutality of this rupture, we should probably introduce the city of Ostrava by its most prominent nickname, *the steel heart of the [Czechoslovak] Republic*. Heart and reason, here are two faces of the city that we witnessed during our stay in Moravia-Silesia.² We experienced nostalgia for a bygone era and the industry's metallurgical feats, melancholy in the face of capital flight and dilapidated facilities. We also witnessed the pragmatic efforts made to preserve large infrastructures in what has been a key industrial complex in Europe from the beginning of the 19th century up to the final years of the 20th.

¹ Françoise Choay, *L'Allégorie du Patrimoine [The Invention of the Historic Monument]* (Paris: Ed. du Seuil, 1992), 104

² We were in Ostrava for a week, 27–30.11.2023.

3 Dolní oblast Vítkovice, LAV in this work

Vítkovice Ironworks, the company that shaped the lower area of Vítkovice,³ in the southern section of Ostrava, was a unique example of technical infrastructures:

[...] it represents the complete “technological flow” of the iron and steel production process, with the entire sequence of activities concentrated on a single site — from coal mining to coke production, pig iron production, the refining of the iron (steelmaking), and various forms of subsequent processing (forges, rolling mills producing sheet metal and tubes).⁴

4 Miloš Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, trans. Christopher Hopkinson (Ostrava: Národní památkový ústav, územní odborné pracoviště v Ostravě, 2015), 13

The economic situation of the 1990s, with the opening of the steel market to neighbouring producers such as Poland and Germany but also the Asian competition, in conjunction with the closure of coal mines between 1994–1995, led to the termination of steel production in the LAV. The Hlubina mine closed in 1992 and the last production of pig iron in blast furnace no. 1 happened on September 27, 1998.⁵

5 Vendula Hurníková, “Iconic Industry: The Making of Meaning in the Lower Area of Vítkovice” (master’s thesis, 2017), 40

Lighter industries such as tube rolling and gas cylinder manufacturing were preserved and are still in business in the LAV but the historical colliery and blast furnaces of Vítkovice Ironworks became a brownfield. Although it is tempting to view the current form of this evolution as a self-contained industrial cathedral, we will place this site within the broader European post-industrial context. The lower Vítkovice area has a unique history and identity, that is important to understand and preserve, but it also faces challenges in terms of future use and economic viability. This is why it is critical to consider it in the light of earlier reconversions.

To help us interpret the significance of this heritage, we can make use of some epistemological distinctions. According

to the Viennese art historian Alois Riegl, who was a contemporary of the first phases of the LAV, there are three kinds of monuments; *intentional* monuments (intentional commemorative value), *unintentional* monuments (historical monuments with intellectual value) and *age-value* monuments (the value of age in a monument is immediately apparent through its antiquated appearance, it brings to light the lifespan of the artefact and reflects the broader life cycle of culture itself).⁶

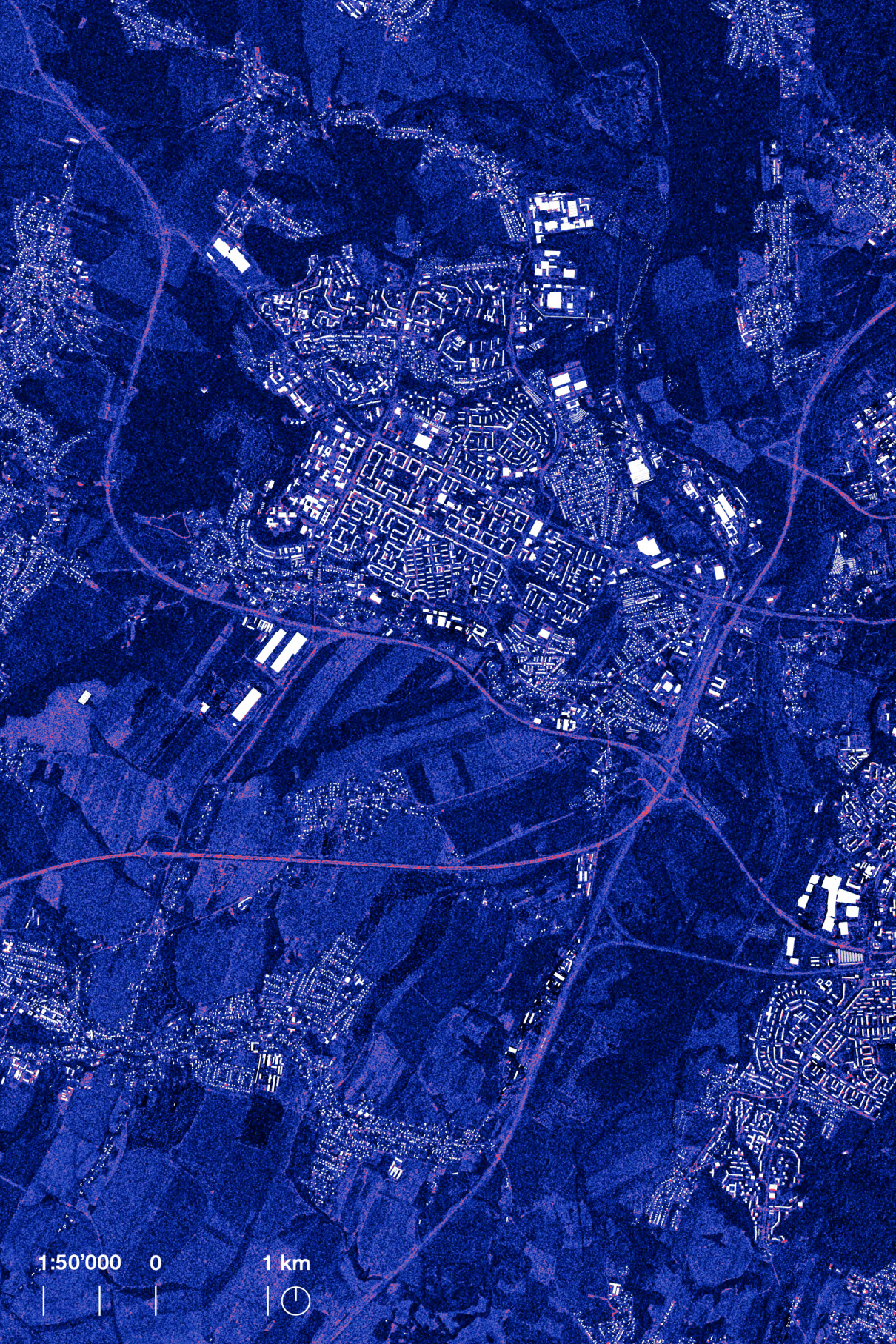
What value do we place on the industrial heritage that has defined the regional identity of Ostrava and Czechia as well? How is the meaning of these infrastructures evolving in the post-industrial context? How can we strike the right balance between preservation and transformation? Depending on how we define the monumentality of the Vítkovice Ironworks, we implicitly establish our relationship towards them and our attitude regarding their conservation. Stating that they are already age-value or still unintentional (i.e. historical) monuments is a way to pick a position on the architectural preservation and restoration spectrum. In the first case, Riegl would argue that the monument fits in a “purely natural cycle of growth and decay”⁷ where the aesthetic value comes precisely from the act of not restoring it. This superficial age value contrasts with historical value, which is based on the “monument’s original form” and strives for “the best preservation of the monument in its current state.”⁸

This work looks at these questions through a chronological structure. Since we are interested in the evolution of the ironworks, we divide its history into periods representative of key technological progresses. This allows us, through emblematic fragments, to tackle the self referential nature of a factory that produced itself.

⁶ Alois Riegl, “The Modern Cult of Monuments: Its Essence and Its Development,” in *Historical and philosophical issues in the conservation of cultural heritage*, ed. Nicholas Stanley-Price, M Kirby Talley Jr, and Alessandra Melucco Vaccaro, trans. Karin Bruckner and Karen Williams (Los Angeles: Getty Publications, 1996), 69–83

⁷ Riegl, 73

⁸ Riegl, 75–76



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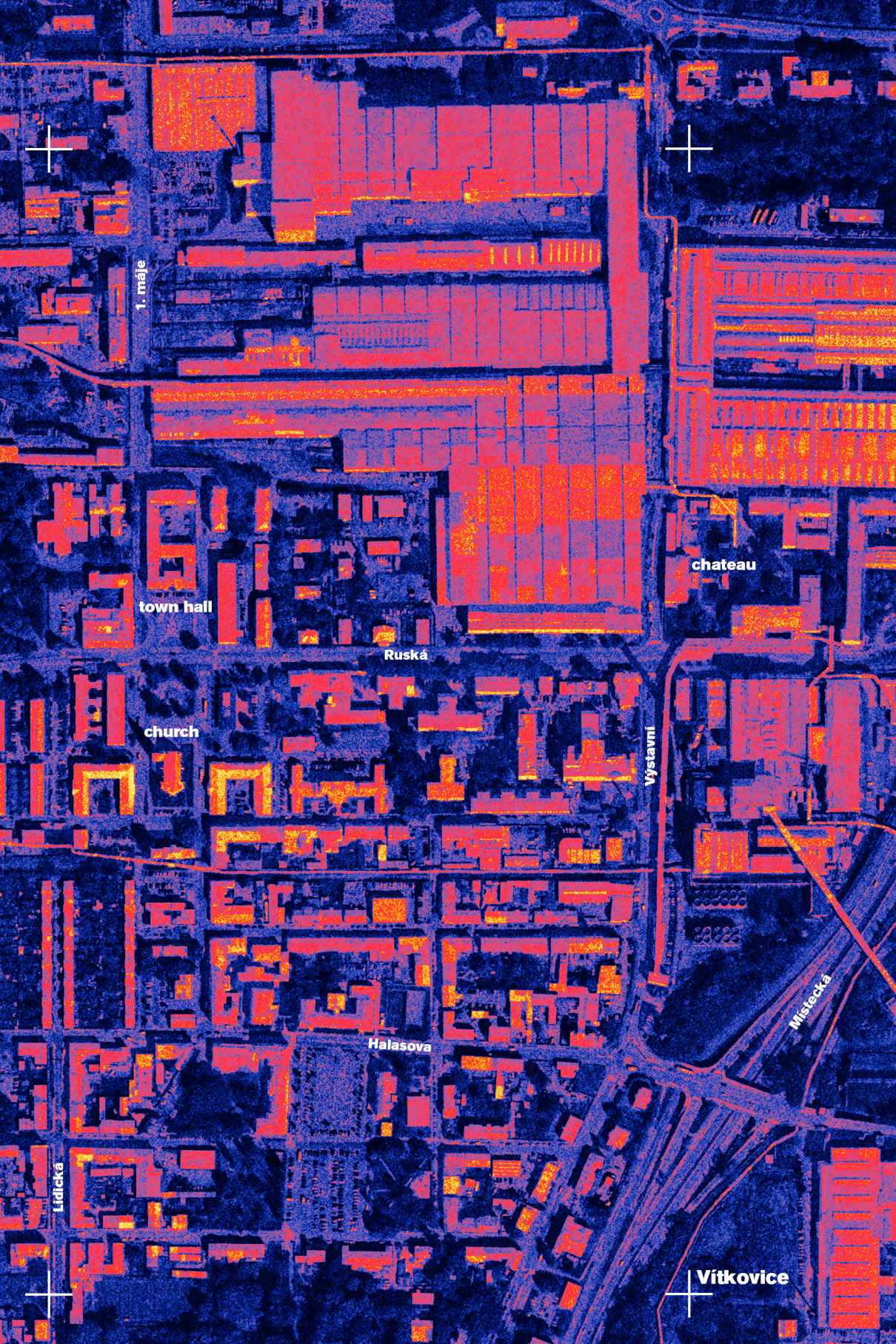
1 km





Ostrava

Vítkovice



1. máje

town hall

church

Ruská

chateau

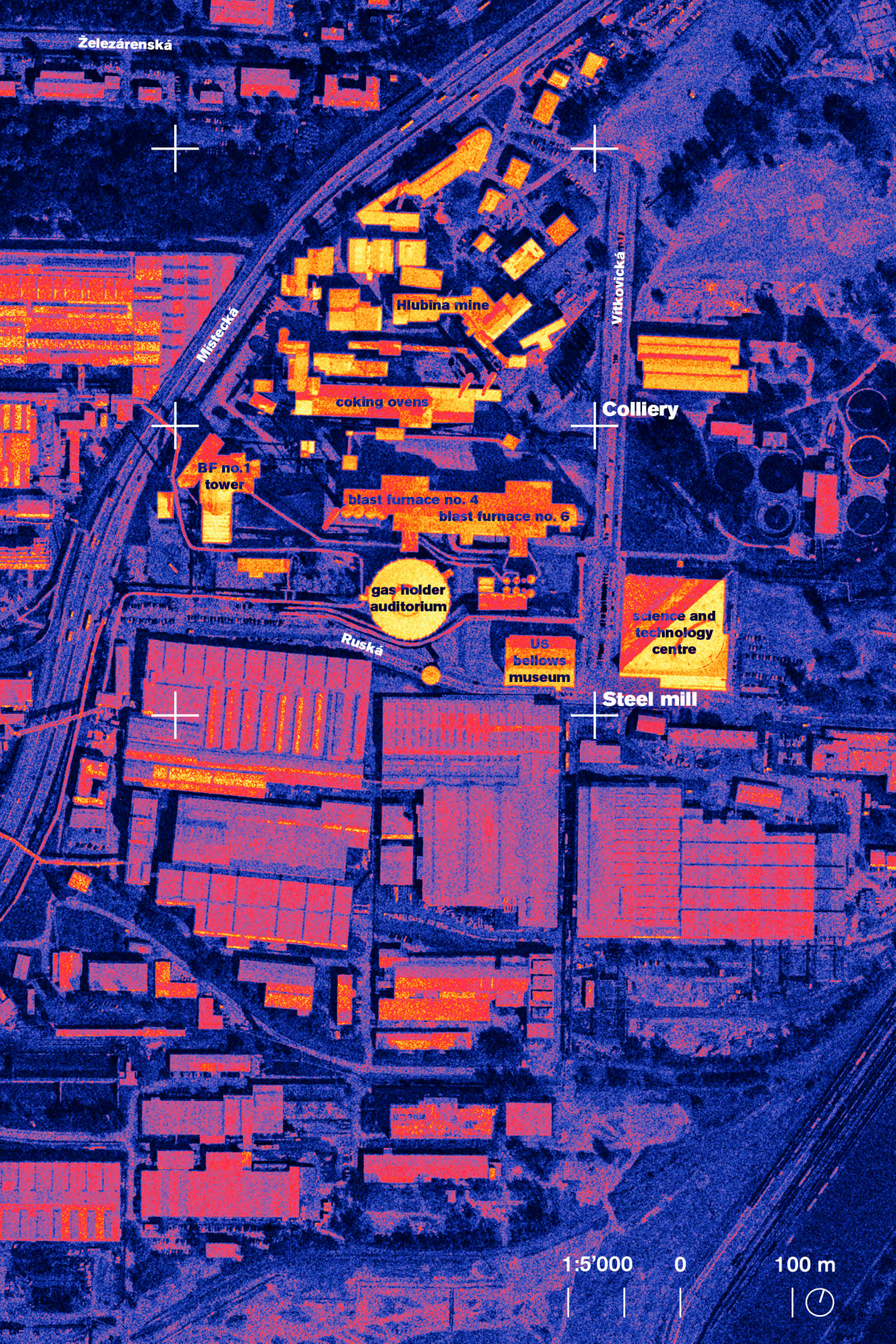
Výstavní

Míšecká

Halasova

Lidická

Vítkovice



Zelezárenská

Mistecká

Hlubina mine

coking ovens

Vřikovičská

Colliery

BF no. 1
tower

blast furnace no. 4
blast furnace no. 6

gas holder
auditorium

Ruská

US
bellows
museum

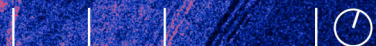
science and
technology
centre

Steel mill

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100 m



2 Ostrava's Iron Age

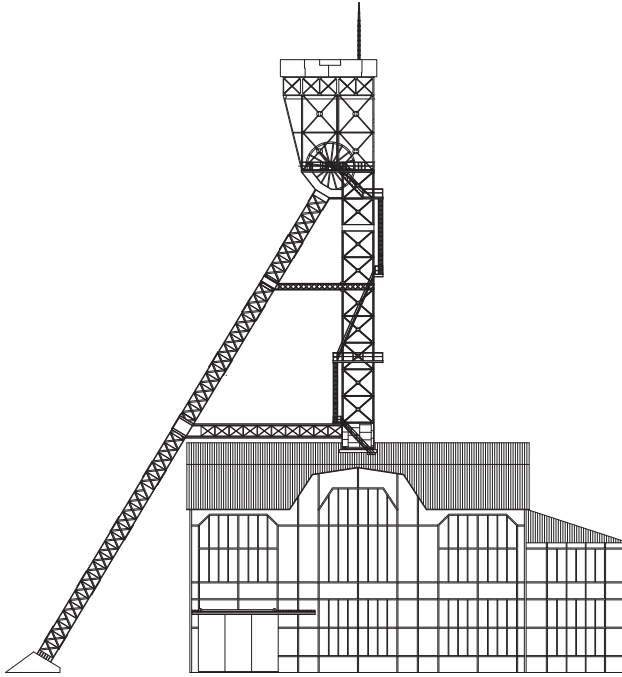


Figure 2.1.
The Hlubina mine winding
tower

Ostrava is the third largest city in the Czech Republic after Prague and Brno. It is the centre of the eponymous metropolitan area, across Moravia and Silesia, with a population of 982,000 in 2020. The current morphology of the city (see page 20) resulted from the fusion of multiple villages from the 19th century and the development of colonies for industrial labourers. Moravian Ostrava, the oldest district of the city, is located on the left bank of the river Ostravice which marks the border with the Silesian one. This is the administrative centre of the urban area but its heart is located southwards in the district of Vítkovice.



Figure 2.2.
Czech Republic. Location of
Ostrava

1 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*,
15

2 David Herbert Wakelin and John A. Ricketts, "The Nature of Ironmaking," chap. 1 in *The Making, Shaping and Treating of Steel*, tenth edition (Pittsburgh: AISE Steel Foundation, 1999), 9

2.1 A coal-hearted industry

The area of Ostrava was favourable to the emergence of an iron industry due to its abundance of forests and rivers, granting easy access to chemical and mechanical energy. Before the advent of engines, waterwheels were used to actuate bellows in order to blast air into the furnaces: hence the name blast furnaces. The land possessed a few deposits of iron ore but it is the discovery of large coal fields that sparked the interest of industrialists. The first inquiries were expressed in 1767 by the Viennese baron Locella and then in 1790 by the Scottish ironmaster John Baildon.¹

Before diving further in the history of the LAV, it may be useful to explain a few terms in order to understand the technical context and the significance of new production methods. Until the 19th century and the development of appropriate processes to use *coke* (the refined fossil fuel made from pyrolysed coal) in blast furnaces, iron oxides were reduced with *charcoal* (the pyrolysed wood). The easy access of wood coupled with an ever larger amount of ironworks had an extensive environmental impact in Europe; it almost completely deforested Great Britain during the 17th century and laws had to be enacted to protect the surviving woodlands.²

Iron, an element bonding easily with others, is made primarily in three forms: *wrought iron*, *cast iron*, and *steel*. Wrought iron, dating back 4,000 years, is the purest commercial form, with a fibrous structure due to inclusions of slag, known for its tensile strength and malleability. Cast iron, which emerged in the 14th century, has a crystalline structure, is brittle under tension, and is made into shapes by casting. Containing up to 5% of carbon, it is an alloy that retains the shape of moulds once cooled. Steel, the most prevalent and

versatile type of iron, ranges from simple compositions to complex alloys with various elements. The mass production of steel was enabled by the Bessemer process in 1856, although earlier forms existed centuries prior. Today, steel is predominant, while cast iron remains in commercial use, and wrought iron is largely relegated to decorative purposes.³

3 Wakelin and Ricketts, 2

The term pig iron means crude cast iron, the name comes from the process of pouring it from the blast furnace into a canal dug into the ground. The ingots are made in little moulds perpendicular to this canal and the whole resembles a sow surrounded by piglets.⁴ It is an intermediary product that has to be refined. The puddling method is a refining step: it made early types of coke-fired furnace viable by resolving the issue of contamination between the finished product and coke impurities like sulphur. It also allowed to burn the carbon contained in pig iron in order to make it workable and produce wrought iron.

4 Wakelin and Ricketts, 18

Riepl and Habsburg

The year is 1828, and in December, the archduke Rudolf of Austria, archbishop of Olomouc (Olmütz), also the youngest brother of the Emperor Franz I, founded the Rudolf's Ironworks or *Rudolfshütte*, a company that would later turn into Vítkovice Ironworks. This was instigated by the professor Franz Xaver Riepl from Vienna's technical university, who also happened to be a councillor in the archdiocese of Olomouc. He proposed to build a new plant with puddling furnaces and rolling mills to refine the pig iron already produced nearby in Čeladná and Frýdlant.

The location was decided on a village called Vítkovice (Witkowitz). It was well located to receive raw materials

from Frýdlant and had access to the Ostravice river, which had a sufficient flow to power the waterwheels, even during the driest months. The church did not agree to finance this huge undertaking and Rudolf engaged his own fortune. The construction began in 1829 and the plant quickly achieved an independent control of the complete production cycle by buying existing mines and establishing new ones. It was equipped with a coke oven and a production of refractory bricks.

This enterprise was however only a step in the plans of Riepl, he envisioned to produce rails and link Vienna to salt fields in Galicia (Poland). However Rudolf died in July 1831, shortly after having consented to build the first Belgian type coke-fired blast furnace in the monarchy.⁵

⁵ Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 15–16

Rothschild and the railways

After Rudolf's death, the property of the ironworks remained within the church. The Olomouc chapter did not want to take it over and leased it to the banker Heinrich Geymüller in 1834 and then to a consortium led by Salomon Mayer Rothschild. In 1835, encouraged by the successful investments in railways made by his British brother Nathan, S. M. Rothschild created a joint company, the Emperor Ferdinand Northern Railway company (Kaiser Ferdinands-Nordbahn, KFNB), to link Vienna to Moravian Ostrava and then to Krakow and Oderberg. He finally received this privilege in 1836.⁶

⁶ Milan Myška, "Das Wiener Bankhaus Rothschild und das wirtschaftliche Wachstum Mährens und Österreichisch-Schlesiens [The Viennese banking house Rothschild and the economic growth of Moravia and Austrian Silesia]," in *XIV International Economic History Congress* (University of Helsinki, 2006), 1–2

Figure 2.3 displays the LAV in 1833. The millrace going through the blast furnace (1), rolling mill (2) and metal workshop (3) group follows approximately the current Místecká street in the north–south axis and the current Ruská street in the west–east axis (see page 22). The four residential buildings

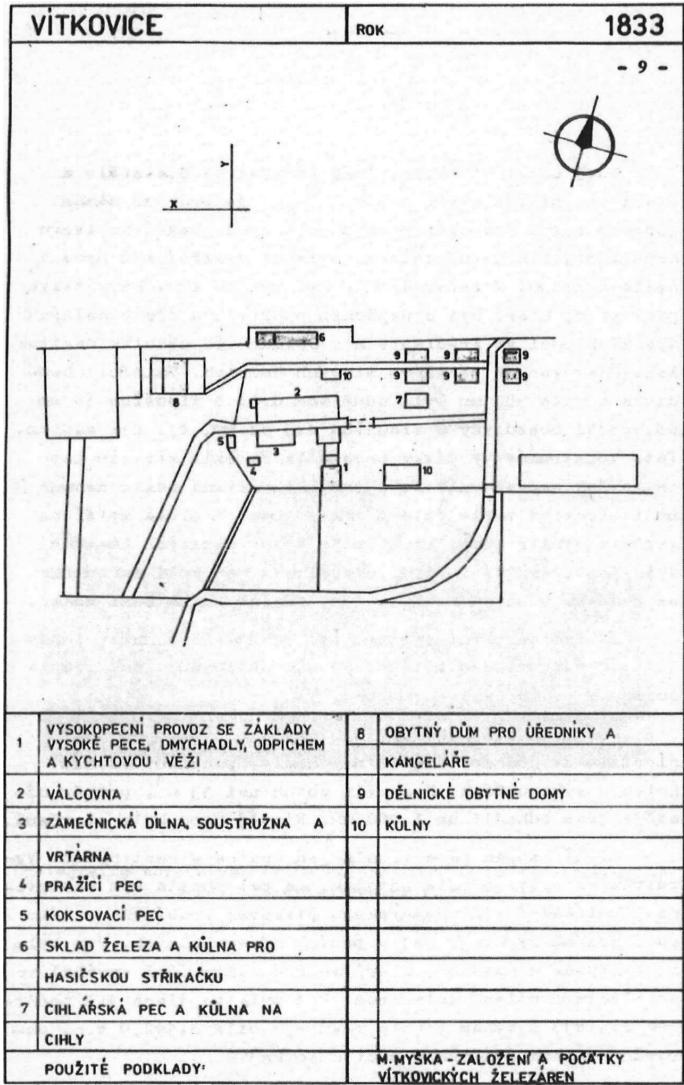


Figure 2.3.
LAV 1833. Map of the Rudolf's Ironworks (Myška, *Založení a počátky Vítkovických železáren, 1828–1880* [Founding and beginnings of Vítkovice Ironworks, 1828–1880])

- 1 Blast furnace
- 2 Rolling mill
- 3 Workshop (lathe and mill)
- 4 Calcination furnace
- 5 Coking oven
- 6 Iron warehouse
- 7 Brick kiln and warehouse
- 8 Directors offices and housing
- 9 Workers housing
- 10 Sheds

for the employees (9) along with the rolling mill (2) were the first documented buildings in a plan made in 1830 or 1831. The original road is the path making an arc on the southwest of the site.⁷

⁷ Ondřej Štarman, *Nástin vývoje Dolní oblasti v letech 1828–1914* [Outline of the Development of the Lower Area in the Years 1828–1914], technical report (Vítkovice Cylinders a.s., 2022), 1–2

The acquisition of the Rudolf's Ironworks led to a rapid development of the LAV. Between 1836–1838, the first two coke-fueled blast furnaces of the monarchy, BF no. 1 and no. 2, were built and started producing rails. BF no. 3 followed them in 1856. Notably, an hospital was built in 1843 and in 1847 the Rudolf's Ironworks were expanded eastwards as the Anselm Ironworks (*Anselmhütte*) after the name of S. M. Rothschild's son. Figure 2.4 depicts the Anselm Ironworks on the right and the first two blast furnaces on the left. We are looking over the millrace from the east towards the chateau. At the same time, the KFNB reached Ostrava and increased the reach of rails and related products to new consumers while decreasing the price of coal and iron ore.^{8,9}

⁸ Štarman, 3

⁹ Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 19–20

2.2 The age of steel

In 1852, the Hlubina mine — literally the deep one — was established in the LAV (see page 22). Located next to the blast furnaces, the first excavations started in 1857. The deepest shaft reached up to 1,300 meters underground later on.¹⁰ To make coke, coal is heated up in the absence of oxygen to boil off volatile compounds and produce a purer form of fuel. This distillation produces combustible gasses that can be fed back in the process. This source of gas was common for heating and lighting until the mid 20th century but the LAV was the first industrial site of the monarchy to use it in 1853. It lit the courtyards and factory halls after the construction of the first gas plant. Another important infrastructure was the

¹⁰ DOV museum

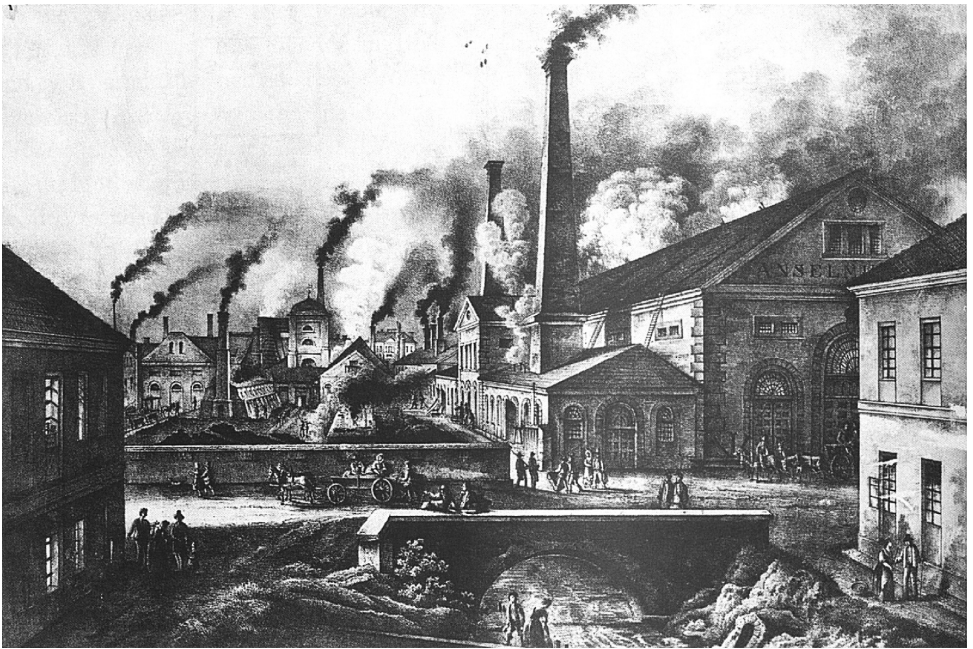


Figure 2.4.

LAV around 1850. The ironworks with the Anselmhütte (1847) and the existing Rudolfshütte by E. W. Knippel (Matěj et al.)

11 Štarman, *Nástin vývoje Dolní oblasti v letech 1828–1914* [Outline of the Development of the Lower Area in the Years 1828–1914], 3

brickyard for refractory material in 1855. Workers barracks, office buildings as well as railway lines were added to the LAV between 1857 and 1865.¹¹ These bricks were also instrumental in the construction of Vítkovice.

The purchase of a license for Bessemer converters in 1864 was a pivotal stage for the LAV. Until then, steel production was impractical and rails were made in wrought iron using the puddling process. The new converters replaced 11 obsolete puddling furnaces and allowed the production of the first steel rails. Although they were superior, they could not be made from Czech pig iron because it contained too much phosphorus. The high costs of the imported pig iron from Upper Hungary (Slovakia) allowed the last puddling furnaces to produce wrought iron until 1914.¹²

12 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*,

There are emblematic fragments of the first construction period, spanning from the early 19th century up to the 1870s, remaining in the colliery. The industrial processes were already well implanted in the LAV at this stage but the first structures made around the blast furnaces and rolling mills were still built according to traditional masonry techniques; they have been replaced early on at the end of 19th century. The colliery area, however, was built with half-timbering of iron and bricks in a industrial secession style.

The Hlubina mine winding tower is among these preserved fragments (see figure 2.1 on page 23). It was made in an extremely articulated lattice of riveted wrought iron elements, requiring simple production methods but extensive manual labour during the assembly. This material was weldable but the technology did not yet allow welds to be efficiently made on construction sites so numerous rivets were used instead. This structure was built from 1857 (and then rebuilt in 1924), three decades before the Eiffel tower — which had half of its rivets made in Vítkovice.¹³ Both towers play with the new tensile possibilities of wrought iron. Until then, cast-iron architecture relied mostly on compressive stress and was made from elements such as pillars, arches and domes. The better structural qualities of this material coupled with larger factories also made longer spans for structural elements possible and the railway lines allowed their use in a larger market.

3 The Western Method

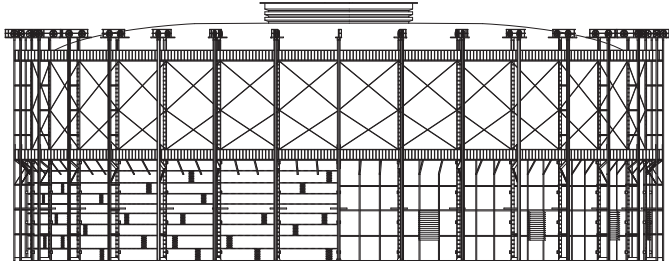


Figure 3.1.
The Gong auditorium

The year 1872 undoubtedly marked a profound change in production at Vítkovice ironworks. The arrival of Scottish-type furnaces was the first sign of a major technological advance at the plant. These furnaces produced more and faster, and successively the Belgium type furnace 1 in 1872 and then 2 in 1896 were replaced by the Scottish type, making it possible to meet the growing needs of pig iron. This sudden technical evolution is not fortuitous; it is obvious that many factors were decisive in this change of industrial air, but two of them seem to be the main actors. The first was obviously financial: for a number of years, the Rothschild banking house and the Gutmann family of mining investors had been associating by jointly owning several companies, and it was in 1873 that this alliance reached its apogee with the creation of the company: “Vítkovice Mining and Iron Corporation” (Witkowitz Bergbau und Eisenhütten-Gewerkschaft) whose purpose is to mine, process and trade raw materials. But the fertile ground, conducive to the development of the plant, had already been in preparation two years earlier. The two families founded “the united Vítkovice Coal mining company”, a lease holding

¹ Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 25

enterprise, and joined forces with Count Andrassy to create the first Austro-Hungarian blast furnace company.¹

However, although the organisations and companies behind it seemed untouchable, the market for the Vítkovice steelworks was hit hard by the crash of the Vienna stock exchange, and production dropped significantly.

3.1 Kupelwieser's vision

This is where our second actor comes into play. In 1876, Paul Kupelwieser, one of the most renowned experts in metallurgy at the time was hired as general manager. Despite his middle-class origins and artistic upbringing, Kupelwieser, like his older brother, opted for a technical education. He joined the mining academy in the Styrian town of Leoben. Soon after his training, he gained a wealth of experience, holding a number of positions of responsibility. After a few years as an employee at the Graz and Neuburg ironworks, at the age of just 25 he was promoted to manager of the Ternitz ironworks. Four years later, he co-founded a rolling mill and a refractory brick factory. Given his experience, it was only natural that Vítkovice Mining and Iron Corporation should offer him the position of Managing Director.²

² Matěj et al., 167–168

His primary objective was to quickly renovate the factory's ageing facilities and guarantee a stable and secure supply of iron ore. So, in 1878, local mining was stopped and the focus shifted to imports from what is now Slovakia, which then appeared to be a viable long-term alternative thanks to the recently completed rail network.³ By 1878 the reconstruction of the 3 old blast furnaces started, but not only that, the entire production system under Kupelwieser underwent technical change.

³ Matěj et al., 27

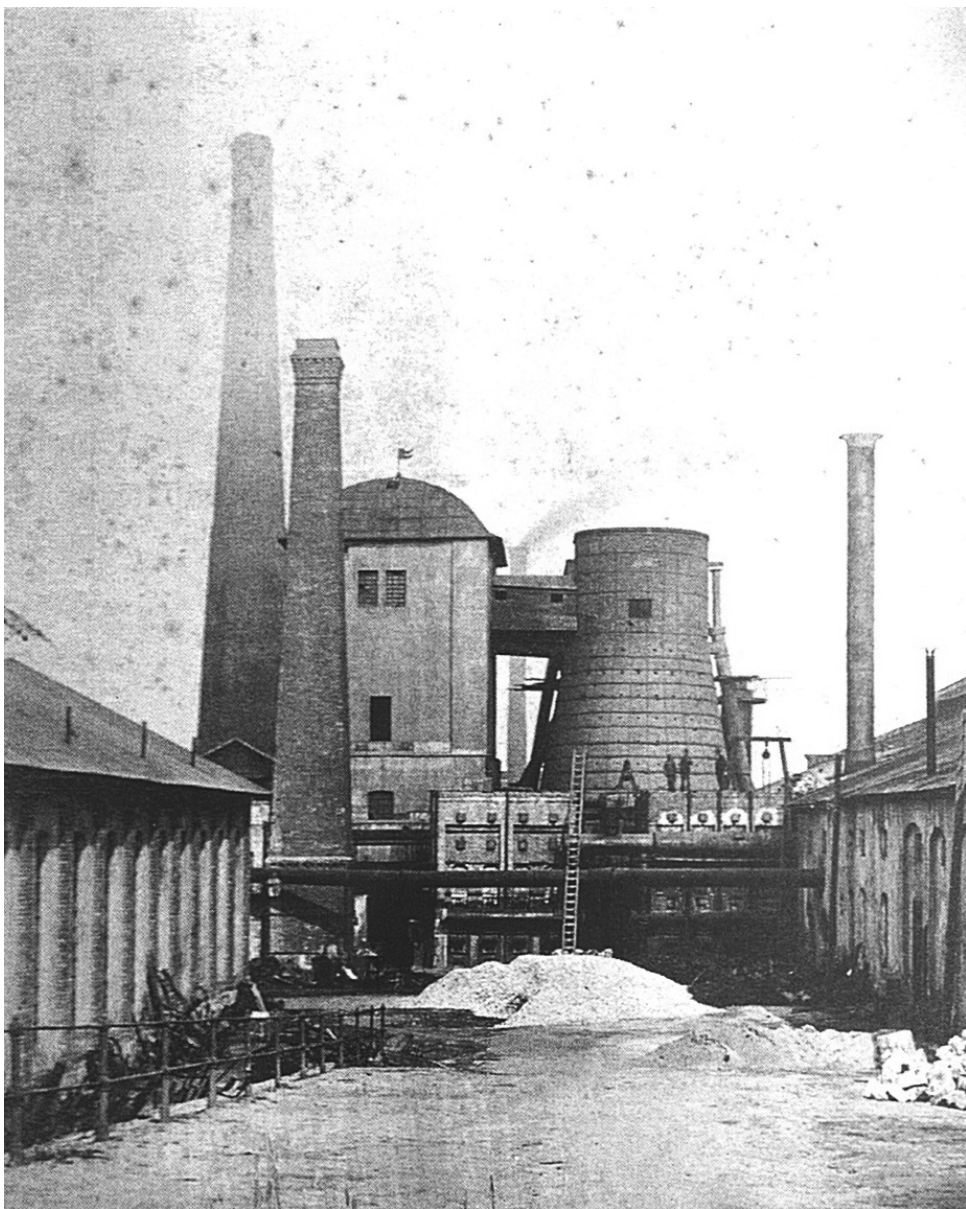
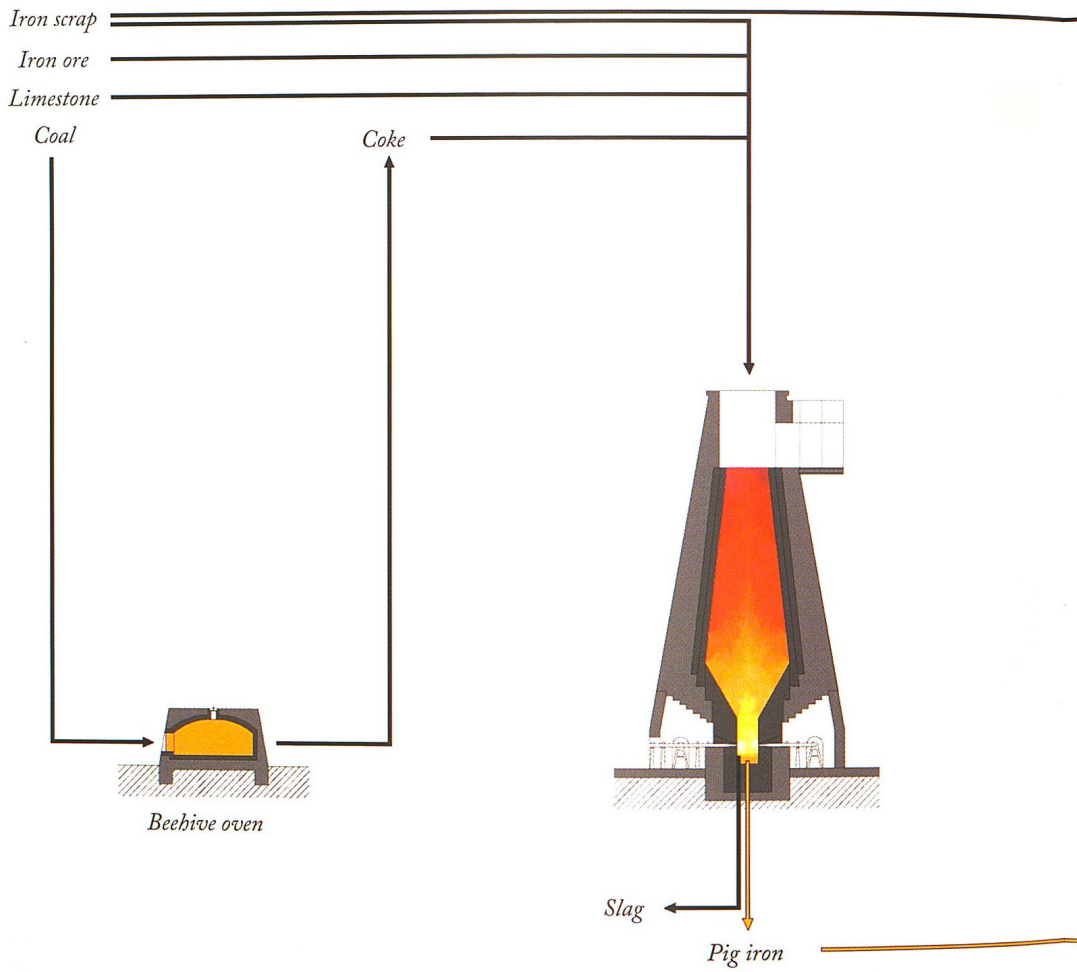


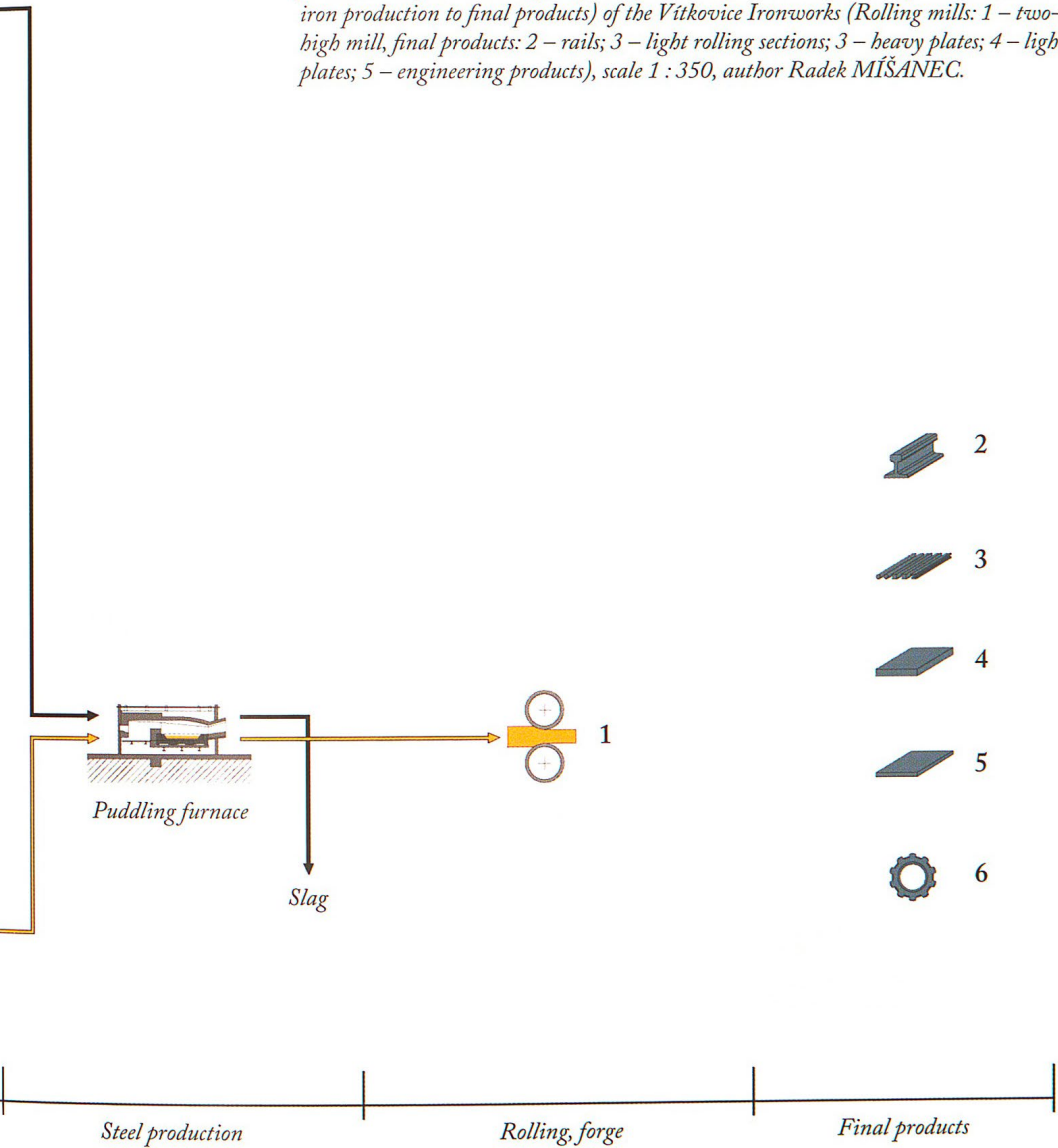
Figure 3.2.
Belgian-type blastfurnace no. 3,
historical photograph, probably
1870s (Vítkovice, a.s. Archives)



Coke production | *Blast furnace 1836 – Belgian type* | *Production of pig iron*



Vítkovice, Vítkovice Ironworks, technological flow from 1836, maps the foundation of the blast furnace operation by building of the blast furnaces – Belgium type and finalisation of the technological flow (from coke production, pig iron production, carbon iron production to final products) of the Vítkovice Ironworks (Rolling mills: 1 – two-high mill, final products: 2 – rails; 3 – light rolling sections; 3 – heavy plates; 4 – light plates; 5 – engineering products), scale 1 : 350, author Radek MÍŠÁNEC.



To understand these changes, we first need to have a general idea of the stages in steel production. The steel production process before Kupelwieser was involved was quite simple: bituminous coal was first transformed into coke, a solid fuel obtained by carbonising coal. The latter is then heated to a high temperature without air, thus separating the substances present in it. This stage therefore took place in ovens, generally gathered in groups, called batteries.⁴

⁴ Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 98–99

This process has undergone many changes over the years in order to produce better quality coke each time. Before kuppelwieser, the ovens used were beehive ovens. In short, the coking process took place in a vaulted, closed chamber that was simply supplied with coal through a hole in the top of the vault and the coke resulting from the carbonisation was recovered through a side trapdoor. This relatively archaic, low-efficiency system nevertheless had the advantage of using the excess heat produced to heat the mine's steam boilers.⁵

⁵ Matěj et al., 100

Once this coke has been produced, it can be used as fuel in blast furnaces to produce pig iron, a molten metal that is the raw form of steel that will later need to be refined. It is obtained by the reduction (removal of oxygen) of iron oxides, using carbon monoxide and coke. Additives known as fluxes are also added to purify the iron and create slag (an unreduced oxide that desulphurises the iron and makes it more malleable).⁶

⁶ Matěj et al., 113

This process took place in the so-called Scottish blast furnaces, which, as mentioned above, appeared on the Vítkovice site in 1872, the very first and largest blast furnace (307 m³) at that time in the entire Habsburg monarchy. In the years that followed, under Kupelwieser, and thanks to the replace-

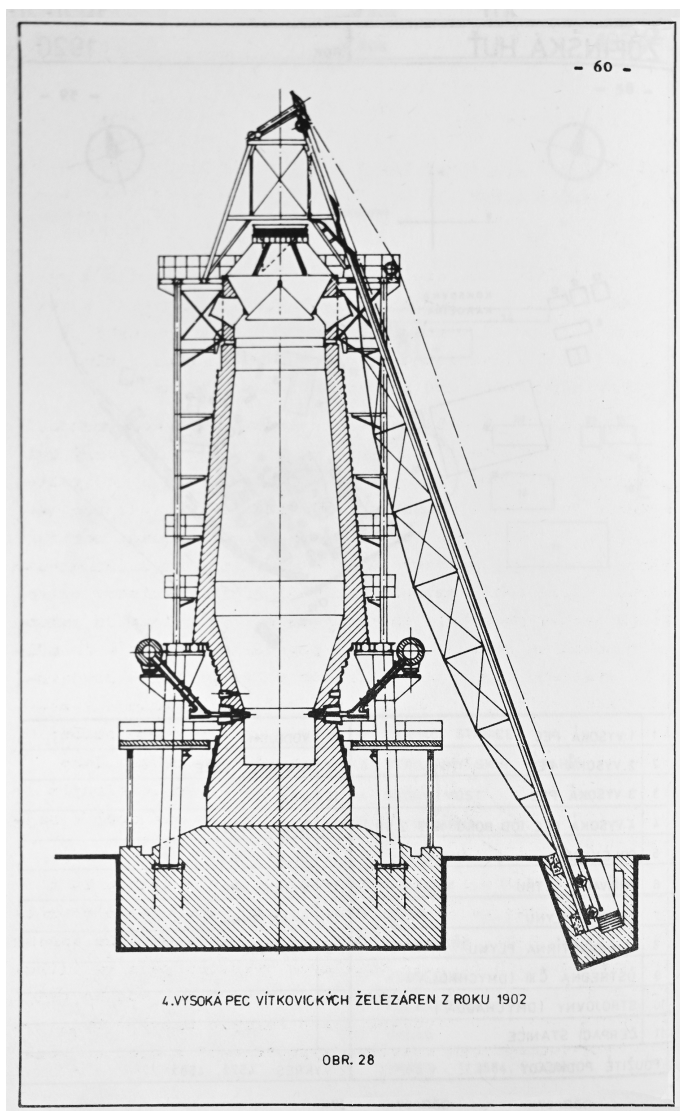
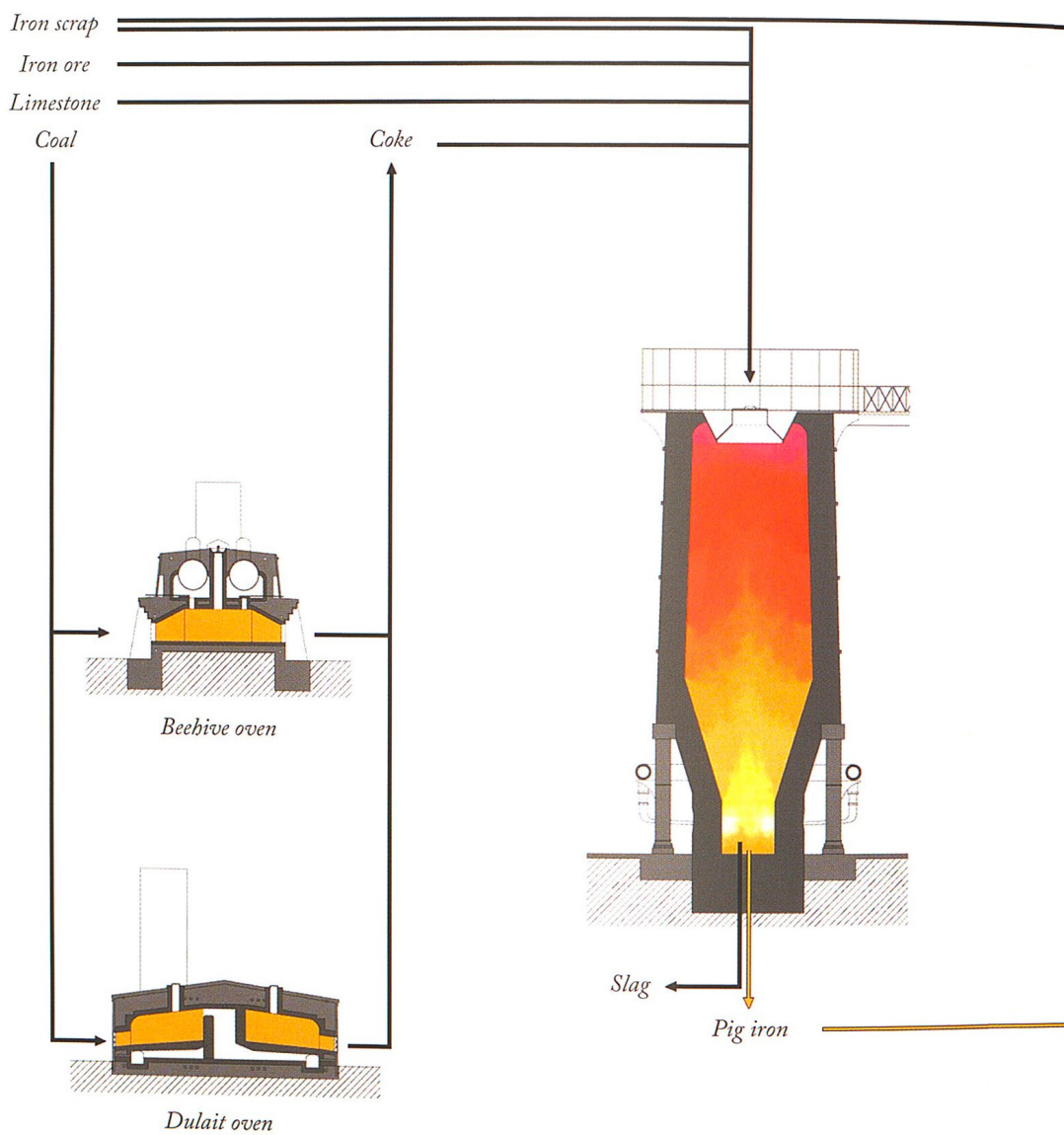


Figure 3.4.
Scottish-type furnace section (Tejzr and Jonszta, *Atlas vysokých pecí Vítkovických železáren: 1836 - 1974* [Atlas of blast furnaces of Vitkovice Iron-works: 1836 - 1974], 60)

ment of old furnaces with Scottish blast furnaces, the site's production increased from 40 to 200 tonnes per day.⁷

⁷ Matěj et al., 119



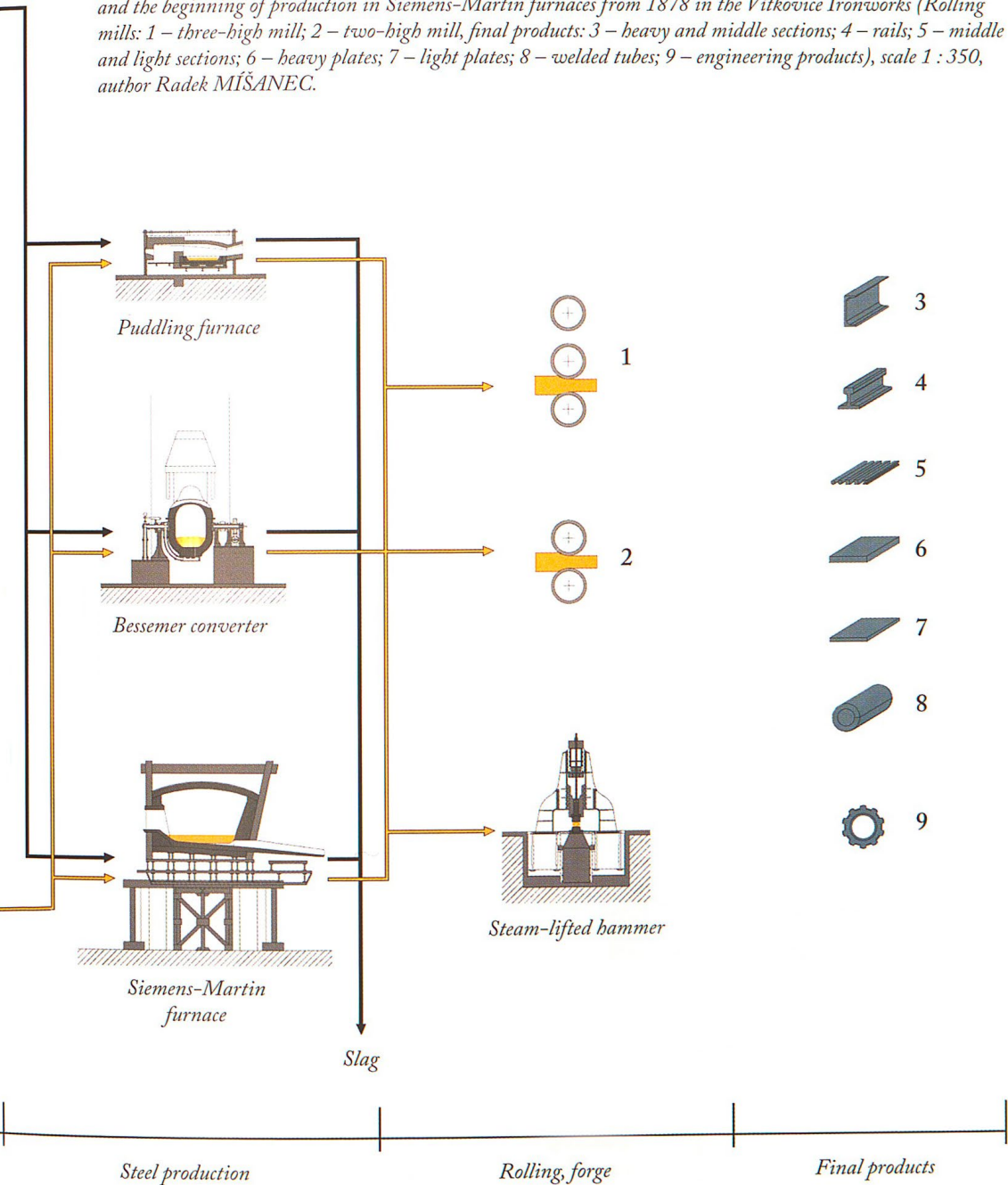
Coke production

Blast furnace No. 1 – Scottisch type

Production of pig iron



Vitkovice, Vitkovice Ironworks, technological flow from 1880, the scheme maps opening of the modern blast furnace – Scottish type in 1872, beginning of wrought iron production in the Bessemer converter from 1865 and the beginning of production in Siemens–Martin furnaces from 1878 in the Vitkovice Ironworks (Rolling mills: 1 – three-high mill; 2 – two-high mill, final products: 3 – heavy and middle sections; 4 – rails; 5 – middle and light sections; 6 – heavy plates; 7 – light plates; 8 – welded tubes; 9 – engineering products), scale 1 : 350, author Radek MIŠANEC.



The pig iron was then sent for refining. After treatment in the blast furnaces, the pig iron contains a high carbon content, up to 4.5%. This is where the refining process comes in, because this alloy is so brittle. The aim is to reduce the carbon content of the cast iron to around 2.15% in order to transform it into steel. The molten metal is decarbonised by oxidising the carbon with the oxygen introduced into the pig iron in the form of iron oxide, air and oxygen gas. This reaction releases high levels of thermal energy.⁸

⁸ Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 125

Back then, this operation was carried out in puddling furnaces. The process simply involved mixing pig iron with low-carbon castings. The end result could not yet really be considered as steel. It was not until shortly before the arrival of Kupelwieser that Bessemer converters were introduced, instruments that finally made it possible to produce steel as we know it today.⁹

⁹ Matěj et al., 128

Kupelwieser made a number of technical improvements to the existing system, improving both quality and production output. The blast furnaces underwent frequent renovations, and the beehive ovens were replaced by Dulait-type ovens, which guaranteed a better quality of coke, and then by Coppée-type ovens, which used the gaseous discharges from the blast furnaces or coking gas as a heating fuel.¹⁰ Perhaps the greatest technical innovation under Kupelwieser was the introduction of the duplex process. A coupling between existing Bessemer converter technology and Siemens-Martin furnaces. The main drawback of the Bessemer converters is that they cannot work properly with phosphorus-rich European ores.¹¹ The duplex process allows iron to be refined in two successive stages. The converters supplied pre-refined metal to the Siemens-Martin furnaces that produced the final alloy.¹²

¹⁰ Matěj et al., 103

¹¹ Matěj et al., 131

¹² Matěj et al., 127

A new market

These successive technical transformations may seem insignificant, but they are undoubtedly what have enabled Vítkovice Ironworks to survive and compete in new markets. The superior quality of the steel, thanks to the duplex process, enabled Vítkovice ironworks to enter the military market in 1890 by offering reinforced steel plates. In less than three years, the factory became almost the sole supplier to the Austro-Hungarian naval fleet. The factory soon began to expand its range of products for the military market, offering its own design of tubes for rifle barrels, torpedoes, and shells.¹³ 13 Matěj et al., 32

As a matter of fact, this new market supported the Vítkovice steelworks economically until the Great Depression of 1930 which forced the Gutmann family to sell their stake in the company to the London based Rothschild banking house.¹⁴ 14 Matěj et al., 37

3.2 New Vítkovice

Coming back to Paul Kupelwieser, in the history of the Vítkovice Ironworks, his role was not only economic and technical in the operation of the factory, but went far beyond that. He was behind a large-scale urban plan that came to be known as “New Vítkovice”.¹⁵ 15 Matěj et al., 12

At the time, the region was fairly remote and far from the major agglomerations, but it was still fairly well populated by factory workers. Although the climate and working conditions were difficult, those who worked there, agreed to do so, because the jobs paid well.¹⁶ 16 Petra Hudeckova, city history guide

In the 1860s, the town began to grow proportionally to the factory but, without following any development logic, leaving the town with a chaotic landscape where industrial sites and

17 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 59

18 Petra Hudeckova, city history guide

19 Matěj et al., 59

20 Matěj et al., 59

urban spaces mix randomly.¹⁷ The town is also sorely lacking in commerce and entertainment, to the extent that workers spend most of their wages on alcohol and prostitution, which clogs up the small local hospital and undermines both the overall efficiency of the business and the quality of life of its employees.¹⁸ In light of this situation, Kupelwieser, with a view to succeeding in his mission to turn the company around, intends to extend his role as plant manager to a community programme for Vítkovice.¹⁹ With this in mind, he wanted to create a production system based on efficient, well-trained employees who would above all also be loyal to the company. So he undertook a number of reforms that would significantly improve the lives of the people of Vítkovice, making the town suitable for the family development of employees. These reforms included a vocational training system, the introduction of an occupational health and safety service, health insurance and a pension scheme for employees, as well as the establishment of an efficient education system. Each worker and his family had access to quality housing and cultural activities, all integrated into the large-scale urban plan, “New Vítkovice”.²⁰

Always with a desire to create a sense of belonging to the company, Kupelwieser imposed an architecture with a unified corporate identity. To achieve this, red hollow heat-insulating brick was chosen, a material that can be found in school buildings, religious buildings, housing or in the city hall. This choice of material is obviously borrowed from the factory’s buildings, most of which have a steel structure filled with red brick that are crafted in the factory itself. The sense of belonging that is intended to be conveyed in this district is also reflected in the non-segregation of the different social groups. Manual, religious and intellectual workers are all



Figure 3.6.
Vítkovice city engraving by R.
Kratochvíl, 1928 (Vítkovice a.s.
Archives)

integrated into a coherent urban plan designed to unite all the stakeholders in the life of Vítkovice.²¹

21 Matěj et al., 59

From 1882 to 1885, New Vítkovice, under the management of Paul Kupelwieser, broke even, finally operating at a profit, thus marking a decisive phase. Thanks to these benefits, the company stepped up its investment in civic amenities and housing.²² The innovative layout of New Vítkovice is unique in the Czech landscape, it features a meticulous arrangement of buildings, transforming the urban area into a harmony of distinct functional zones. The foundries themselves were cleverly moved away from the residential area by the preconceived layout of a railway line. The residential quarters, later named the Gable Colony (Giebelkolonie) and the I shaped blocks, were located away from the furnaces, reflecting a thorough spatial design. The importance of this new urban core is apparent in the expanse of a vast square, framed to the south by an imposing church and to the north by the railway station. On one end, 2 U-shaped multi-purpose buildings (U-blocks) were built on either side of the church. Following on from

22 Matěj et al., 65



Figure 3.7.
Vítkovice, Gable colony, photograph from the 1970s, NPU, Ostrava branch, collection of negatives.

Figure 3.9.
Vítkovice, New Vítkovice, map
of the layout, 1882, Vítkovice, a.
s. Archives.

- A U-blocks
- B Church
- C English Colony
- D I-blocks
- E Gable Colony
- F Square

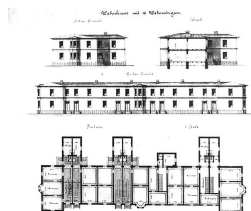
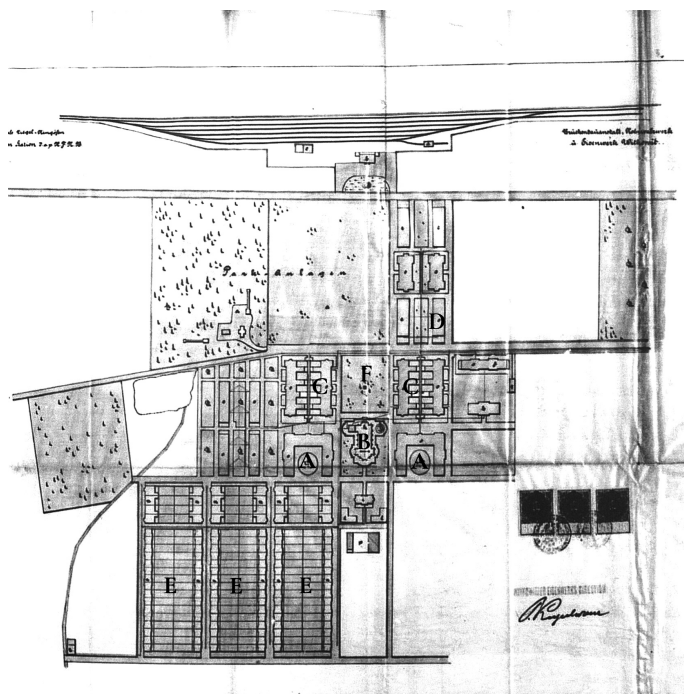


Figure 3.8.
Vítkovice, English colony built
1878–1879, elevations and
ground plan Vítkovice, a.s.
Archives.

these buildings, and still framing the square, are the first housing developments, known as the English Colony, which were built between 1878 and 1879.

The whole area boasted a multitude of trees and green spaces, while displaying the company's distinctive style which is laid out on a grid, enabling logical spatial planning. This organisation is built around a central point, the water tower. The majority of homes were supplied with water and had modern flush toilets, which were by no means common in such buildings at the time.²³

This particular building still bears witness to the scale of the social and certainly political impact of the Vítkovice Ironworks. Indeed, it was next to this tower, built in 1882, that

²³ Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 67



Figure 3.10.
Vítkovice, Church of St Paul,
built in 1882–1886, historical-
postcard, collection of Milos
MATĚJ.



Figure 3.11.
Vítkovice map, 1833 (Vítkovice
a.s. Archives)

RED buildings owned by the
company

a church was erected a few years later, with a view to creating a symbol that would bear witness to the town's full blossoming. So the water tower was raised one storey and given the same aesthetic as the church, resembling a bell tower.²⁴

24 Matěj et al., 68

Yet even today, its function has not changed, and historically, the two buildings do not have the same owner, leading to conflict over the decisions that need to be taken in their regard.²⁵ So, even more than a century after the building was erected, the Vítkovice ironworks still have a say in certain modern urban decisions.

25 Petra Hudeckova, city
history guide



Figure 3.12.
 Vítkovice map, 1928 (Vítkovice
 a.s. Archives)

RED buildings owned by the
 company

26 Petr Volf, Rostislav Švácha,
 and Tomáš Souček, 1492: *The
 Story of Dolní Vítkovice* (Prague:
 Prostor — architektura, interiér,
 design, 2013), 22

27 Volf, Švácha, and Souček, 119

3.3 The gas holder

On the production sites, after the departure of Kupelwieser in 1893,²⁶ the plants continue to develop and modernise technologically. The construction of new blast furnaces made it possible to recover and purify the gas, which until then had been generally regarded as a waste product. In 1924, a gas holder was built to contain the purified gas and to keep the network of pipes running across the site under pressure (see figure 3.1 on page 31).²⁷

This unique piece of engineering stands at 32 metres high and covers an area of just over 4,000 square metres. It consists

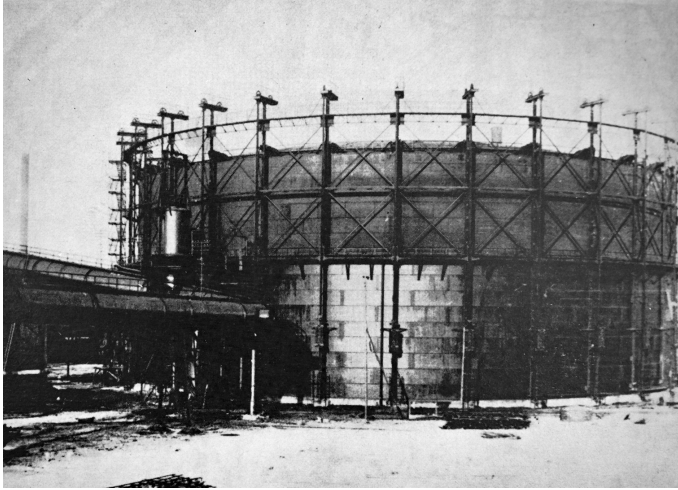


Figure 3.13.
Gas holder image 1925, (150
years of blast furnaces in
Vítkovice 1836–1986)

of two containers, one of which is filled with water to insulate it from the inside, to prevent the gas stored above it from escaping. The upper tank, which contains the gas, is moved vertically, along rails visible from the facade. To indicate the quantity of gas remaining in the tank, the whole thing acts like a hydrolic piston, meaning that the lower the bell, the lower the level of remaining gas.²⁸

²⁸ Volf, Švácha, and Souček,
119

This construction can be seen both as a unique piece of engineering and as a still visible trace of the self-built aspect of the Vítkovice Ironworks. The entire gas holder is made up of an assembly of steel plates joined together by a total of 554,000 rivets. This technology was originally used to cover the ships and submarines of the Austro-Hungarian fleet, which as we saw earlier was the factory's main market at the time. The gas holder is therefore proof that the technologies developed by the factory were ultimately also used for its own construction, a factory that produces steel from its steel.

3.4 Changes in ownership

The 1920s were globally a period of economic prosperity, which benefited the town of Vítkovice to such an extent that, in 1924, it was incorporated into the city of Ostrava. Although this decade was a flourishing one for the town and the company, the Great Depression of the 1930s hit them hard, and combined with some bad investments, the London bankhouse Rothschild eventually had to buy out the Gutmann family.

Soon after the takeover, with the Nazi party and the possibility of war growing, the Rothschilds transferred the company's shares in 1937 to Alliance Assurance Co. Ltd in London. But in the early 40s the company was requisitioned by the German government to produce war material.²⁹ Under German occupation, the factory continued to expand and by 1943, it was producing munitions, grenades and mines in large quantities.³⁰

The site, considered a strategic point in the German military system, was liberated by the Allies in 1944. In a planned operation designed to liberate Ostrava, but aware of the immense importance of the industrial site to the region, they were keen to save it from destruction. This is why the furnaces were deliberately taken out of service shortly before the bombing by American aircraft on 29 August 1944.³¹

The gas holder mentioned earlier was a survivor of the 1944 liberation. A unexploded bomb had pierced the bell of the tank and lodged itself below it. It was only 25 years later, after a gas leak had been detected, that an operation was undertaken to repair the gas holder and the 120-kilogram bomb was discovered. Years later, the building was rebuilt as a multi-purpose auditorium by the architect Josef Pleskot,³² who undoubtedly saw in it all the history he had to tell.³³

29 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 37

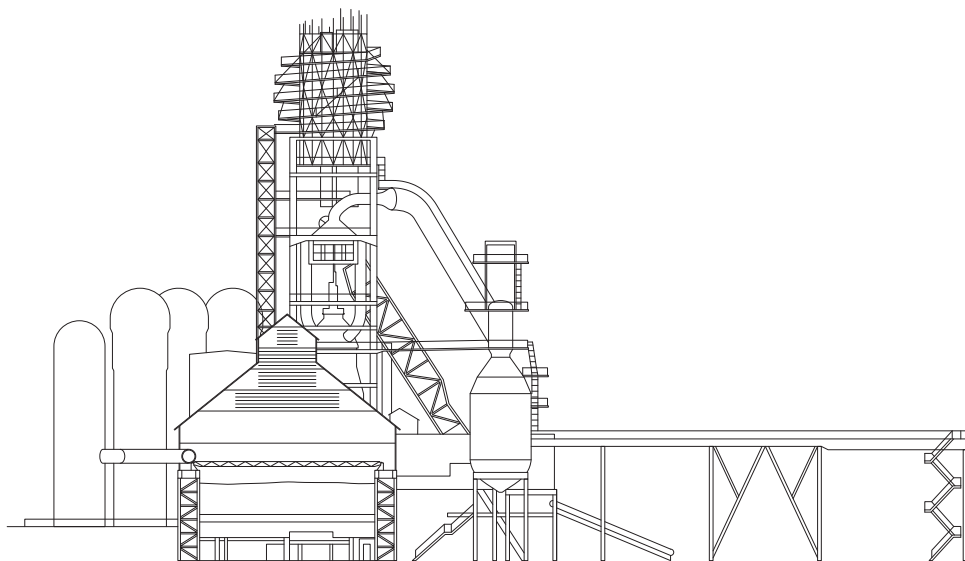
30 Matěj et al., 38

31 Matěj et al., 39

32 See photographic report pages 174–219

33 Volf, Švácha, and Souček, 1492: *The Story of Dolní Vítkovice*, 119

4 The Communist Era



As the Rothschild family had been trying to safeguard their shares in London, by 1940 the situation had escalated. The company fell under the jurisdiction of a German supervisory committee. In 1943, there was another significant change; the *Reichswerke Hermann Göring*, an organization led by the Nazi regime, assumed effective management of the Vítkovice Ironworks.

Already during the conflict, it was decided to expand the industrial operations out of the urban fabric. A new plant — called *Südbau* (southern site) after, in all likelihood, a considerable poetic effort — was planned on the grounds of Kunčice to help with the more mundane war effort. The village would receive an other complete set of infrastructures spanning “the entire production cycle”. By the end of the war, only two halls were built.¹

Figure 4.1.
Blast furnace no. 1 and the Bolt Tower

¹ Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*,

4.1 Towards Heavy Industry

After Czechoslovakia's liberation in 1945, the Ironworks were nationalized in October. The company was organized into a holding corporation comprising four separate state-owned entities. Some assets, such as the Hlubina colliery, were also transferred to the newly formed Ostrava-Karviná Coal Mining Corporation (*Ostravsko-karvinské kamenouhelné doly*, OKD).²

Although the factory was the first ironworks to resume its operations after the war, supply issues with the quality of iron ore limited the output.³ Nevertheless, during the first five year plan, the Südbau site (*Jižní závod*) was greatly expanded. This new plant was named after Klement Gottwald, the first communist president of Czechoslovakia, as *Nová huť Klementa Gottwalda* (NHKG). This restructuring concluded in 1952 with the creation of a separate state-owned company: *Vítkovické železářny Klementa Gottwalda* (Klement Gottwald Vítkovice Ironworks). The main elements of the plant were finished in 1958. Today, it is the last ironworks with active blast furnaces in Ostrava and, since 1989, it remains known as *Nová huť* (new ironworks).⁴ For a comprehensive summary of the multiple names and locations of these sites, see table 4.1 and figure 4.4 on pages 53–55.

Pig iron manufacturing was viewed as a vital component of the national economy from the 1960s onwards and it was aided, from the 1950s, by Soviet attempts to exert economic influence over its satellite states via the COMECON (Council for Mutual Economic Assistance). There was thus a rise in blast furnaces production and a considerable development of heavy industry.⁵ Technical infrastructures and research institutions were concentrated in Ostrava, culminating in “the atomic programme” around nuclear reactors components.⁶

2 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 39

3 Ondřej Štarman, *Nástin stavebního vývoje prostoru vysokých pecí č. 4 a 6 v Do oblasti v letech 1828–1972* [Construction Development Outline of the Area of Blast Furnaces Nos. 4 and 6 in the Lower Area in the Years 1828–1972], technical report (Vítkovice Cylanders a.s., 2022), 16

4 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 39

5 Matěj et al., 39, 41

6 Matěj et al., 44

City expansion

In tandem with increased industrialization, Ostrava had a major population growth and urban expansion in the post-war period. To house the influx of labourers, the communist authorities constructed large residential complexes beginning in the early 1950s. Among them, the project of *Nová Ostrava* was the largest development of the city. It was realised in the vicinity of the existing Poruba village, in the western sector of Ostrava, because of the amount of confiscated lands in this area. It was also relatively protected from industrial fumes, as the wind tends to blow over the east. Poruba was home to about 100,000 people at its height in the 1980s; it is still one of Ostrava's most densely populated neighbourhoods with 62,000 residents.⁷

This district was erected as a textbook example of socialism-realism style. Even though it is located mere kilometres away from massive technical infrastructures, it does not appear to have been influenced by any constructivist ideas. This fact could be seen as evidence of the dominant stylistic influence exerted by the USSR following its suppression of avant-garde movements in the prior decades. The reality, however, may simply be that, as much as it emulated intellectual elites, this industrial aesthetic would have seemed *banal* to the average factory worker. Conversely, considering the current process of deindustrialisation, the opposite phenomenon could be at play. According to the essayist and critic Roland Barthes, urban elements remain but their meaning are fluid and not definitive. In a lecture he gave in 1967,⁸ he argues that modern urban planning has tended to ignore symbolic meaning in favour of scientific, objective approaches. He also suggests studying cities through multiple subjective readings. In this



Figure 4.2.

Poruba 1:100,000. District of Ostrava-Poruba in 2023 (see page 20)

⁷ <https://poruba.ostrava.cz/cs/o-porube/zakladni-udaje>

⁸ Roland Barthes, "Semiology and the Urban," in *The city and the sign: An introduction to urban semiotics* (New York: Columbia University Press, 1986), 87–98

light, it is conceivable to create relationships between the loss of industrial infrastructures and the desire to preserve them as heritage. The further away the living conditions of actual labourers, the more mystified they become. In a city that was defined primarily by its industry, this is a fine line to tread between acknowledging history and rewriting it. Ostrava did not have any prominent constructivist building during the soviet architectural avant-gardes of the 1920s, it was not even communist for that matter. The prominent symbol, in the sense that it is now visible from the whole city, is perched on top of blast furnace no. 1 since 2015 when the *Bolt Tower* by AP Atelier was constructed in the LAV (see fig. 4.1, p. 49).

An integrated system

In keeping with the push for increased industrial output, Vítkovice Ironworks focused on consolidating and connecting its production operations. In 1924, the blowing engines of the Vítkovice and Žofinská (Karolina) plants were linked via a common pipe network. The blast furnaces were also interconnected, enabling optimization of air supply.⁹

The commissioning of Blast Furnace no. 6 in 1962, with a volume of 1,085 m³, marked another milestone. It adopted Soviet furnace designs and implemented automated raw material delivery and loading processes, increasing productivity.¹⁰ BF no. 4, put into operation in 1971, utilized the same automated technologies. For the first time in the country, it also featured computerized controls to enhance efficiency and iron quality.¹¹

These upgrades supported record annual pig iron production exceeding 1.5 million tons by the early 1970s. With BF nos. 5 and 4 phased out in the 1960s, all Vítkovice pig iron produc-

9 Štarman, *Nástin stavebního vývoje prostoru vysokých pecí č. 4 a 6 v Do oblasti v letech 1828–1972* [Construction Development Outline of the Area of Blast Furnaces Nos. 4 and 6 in the Lower Area in the Years 1828–1972], 16

10 Štarman, 16

11 Štarman, 17

	Past names	Current name	Location
A	Rudolf and Anselm Ironworks, Hlubina mine	Vítkovice Ironworks	LAV
B	Žofínská huť (Sophienhütte)	Karolina [huť]	Moravská Ostrava
C	Old [Cast] Steelworks	Steelworks II	Vítkovice
D	New Steelworks	Steelworks I	Zábřeh
E	Jižní závod (Südbau)	Nová huť [Klementa Gottwalda]	Kunčice

tion was now concentrated in the LAV around BF nos. 1, 4, and 6. The 1970s were also a period of emerging environmental concerns; the Club of Rome was founded in 1968, even if the iron curtain may have impeded its reach, the consequences of the oil crisis were apparent worldwide. Already in 1958, the city authorities vetoed plans to expand the New Steelworks in Zábřeh. These investments were instead redirected to a Slovak plant, along with detached pieces from Vítkovice, due to air pollution concerns.¹² This paved the way for closing Žofínská Huť in Moravská Ostrava between 1971–72, marking the completion of Vítkovice’s consolidation as the sole ironmaking site.¹³

Table 4.1.
The multiple names and locations of industrial sites of the Vítkovice Ironworks in Ostrava.

12 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 39–41

13 Matěj et al., 46

4.2 Symbolism of the Ironworks

Toponymy of the site

The penultimate blast furnace constructed in the LAV was purposefully named BF no. 4 instead of BF no. 5. Apart from confusing future researchers, this was done because “[...] the company did not have permission to invest in a new furnace, the project was instead designated as a ‘reconstruction’ of the old blast furnace no. 4.”¹⁴ If this trick fooled the central authorities, we should consider that names assigned to these facilities hold power, even if merely at a symbolic level.

14 Matěj et al., 43

Table 4.1 lists the names given to the sites scattered around Ostrava. The firsts ironworks, established in the LAV, were named after their owner and their family. The archduke Rudolf of Austria or the financier S. M. Rothschild and his son Anselm projected their industrial titles through them. These were already political statements as they made their social position explicit. Then, as the industry was taken over by the Czechoslovak government, semiotic values shifted to an other dimension. Instead of justifying the position of an actor in a given system, names were assigned to justify the system itself. New meanings were applied on these infrastructures as they became symbols of a new social order: the New Ironworks in Kunčice were entwined with the image image of Klement Gottwald and became relevant outside of industrial spheres as a projection of power from the government.

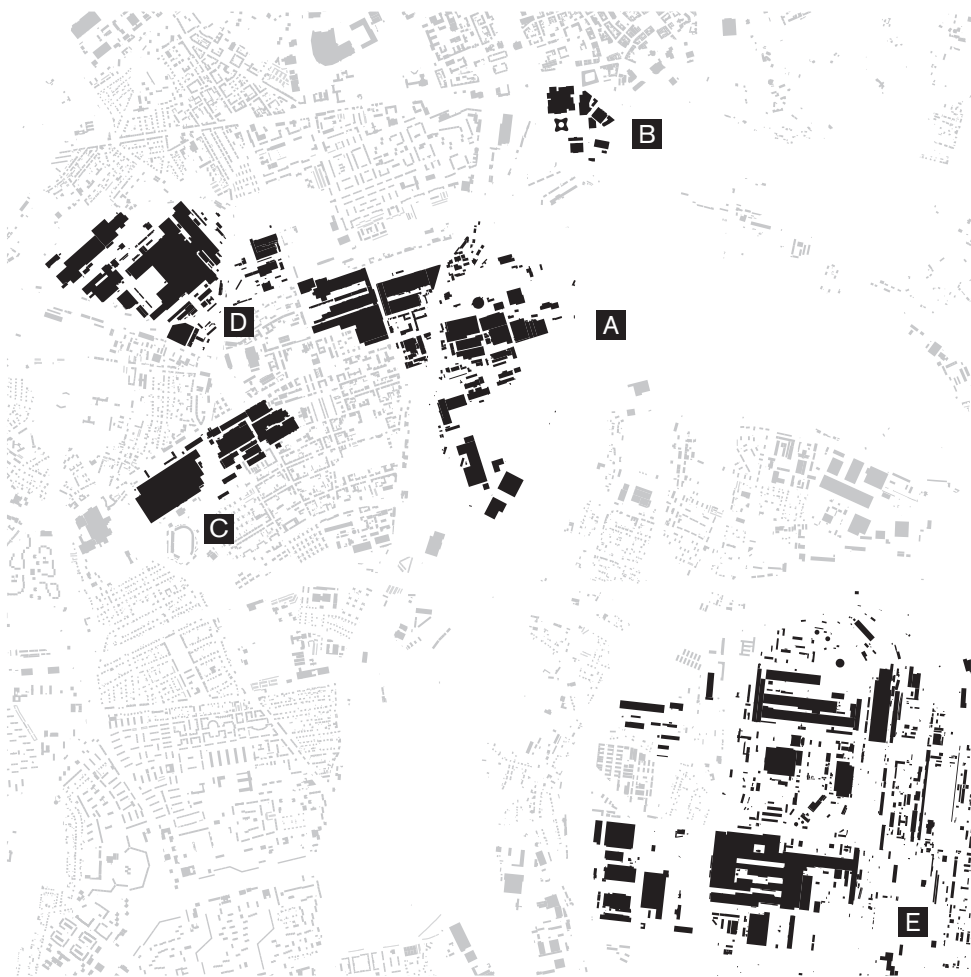
Role of images

The site's visual imagery was also co-opted to promote state ideologies. Pictures of the renamed Klement Gottwald Steelworks even penetrated the domestic space as they appeared on household propaganda such as postage stamps and matchbox cases. Figures 4.3.1 and 4.3.2 are illustrations made by the match manufacturer Solo Lipník in 1959. There is the nickname of Ostrava *ocelové srdce republiky* meaning “the steel heart of the republic” associated with the New Ironworks. Machinist images conveyed Soviet ideals: the monumental blast furnaces are here to support the star. In the first case, molten iron is explicitly depicted like the blood of the country as the socialist red also makes the background of the second.

By projecting state power through the Ironworks' imagery and architecture, the communist authorities sought to cement



Figure 4.3.
Matchboxes, 1959 (@Oliver
Tomas, Flickr)



Vítkovice's role as the "steel heart of the republic" fueling the centrally-planned economy. Just like Moisei Ginzburg's *social condenser* was effective to build a shared imaginary among the OSA group, these efforts produced a fantasméd architecture. However, visually embedding these political ideologies into the site also made it vulnerable to change following the Velvet Revolution.

Figure 4.4.
Ostrava 1:50,000. Location of
industrial sites of the Vítkovice
ironworks in 2023

5 A Stumbling Industry



On 27 September 1998, the steel production site closed its doors for good, and with it the last drop of steel came out of the last blast furnace still in operation.¹ And yet this event seems logical, as it follows the general trend of deindustrialisation in the Western world. However, there's something different about Vítkovice: it's already been several decades since the major Western industries closed down,² and it was not until the dawn of the 21st century that such a change took place in the Czech Republic.³

To understand this, we first need to look at the process of deindustrialisation that has taken place in the West.

Figure 5.1.
Former coal sorting plant of the Hlubina colliery, photography

1 Volf, Švácha, and Souček, 1492: *The Story of Dolní Vítkovice*, 52

2 Marion Fontaine and Xavier Vigna, "La désindustrialisation, une histoire en cours [Deindustrialisation, an ongoing story]," *Vingtième siècle*, no. 4 (2019): 5

3 Fontaine and Vigna, 5

5.1 A reorganizing system

The deindustrialisation of Western world

With the arrival of the capitalist policies that shaped the 20th century came the well-known phenomenon of globalisation. From the end of the Second World War onwards, there was a gradual restructuring of production systems rather than a disappearance of industries. The deindustrialisation of industrialised countries coexisted with the industrialisation or reorganisation of production in other parts of the world, often concentrated in East Asia or Africa.⁴ The real turning point, marking this transition towards the deindustrialisation of the Western world, came at the end of the glorious 30s, but it was also during this period that the cultural, political and social effects of this phenomenon became increasingly tangible. The 70s and 80s saw the decline of major industries such as the American steel industry, which lost 40% of its jobs in less than 5 years, and the automotive sector, which lost 300,000 jobs.⁵ In the early 1980s, the term “rust belt” (formerly “manufacturing belt”) was introduced to describe the rapid deindustrialisation of manufacturing regions in North America.⁶ In England mining jobs were collapsing and in Germany the number of thatchers has increased 10 times in 20 years.⁷

4 Fontaine and Vigna, “La désindustrialisation, une histoire en cours [Deindustrialisation, an ongoing story],” 5

5 Fontaine and Vigna, 5



Figure 5.2.
Rust belt, picture of abandoned Bethlehem Steel Works. (Christine Cuthbertson, ©Encyclopædia Britannica)

6 Fontaine and Vigna, 7

7 Fontaine and Vigna, 11

The deindustrialization of Ostrava

Although these changes were drastic, they were even more sudden in Ostrava. The current Communist regime has inevitably delayed the onset of globalisation and, by the same token, the relocation of large-scale manufacturing. But it was also this regime that drastically accelerated the process after

the Velvet Revolution of 1989. In a few words, everything that worked under the Communist regime was now considered wrong.⁸

Whilst in the 1970s, 68% of employees worked in industry,⁹ the profession is suddenly considered ungrateful, and the workers who were once portrayed as the heroes of a region are now its shame.¹⁰

The general rejection of this industry can certainly also be explained by the image and ideas it conveyed. It is important to understand that the factories from Ostrava alone produced 33% of the coke, 43% of the crude iron and 36% of the steel in the whole of Czechoslovakia. The metal structures of the country's most emblematic buildings came from the city. These buildings and the factories themselves were even used as propaganda objects to showcase the know-how of the Czechoslovak industry. In fact, in Ostrava there was a concentration of knowledge that was almost unique in Europe when it came to the production of very large-scale machines, such as a certain excavator used in the mining industry. It's hardly surprising, then, that political decisions following a change of regime such as this one were primarily focused on evicting such a Communist symbol from the landscape.¹¹

But the speed with which these changes were made cannot be due solely to the desire to eradicate the traces of a fallen political system. It was a combination of factors which, taken together, favoured the political decisions that were adopted. In addition to this collective ideological rejection, we can add to the equation the obsolescence of the technologies employed and the severe global competition that was emerging with the new capitalist system being put in place.¹²

⁸ Hurníková, "Iconic Industry: The Making of Meaning in the Lower Area of Vítkovice," 42

⁹ Ondřej Slach et al., "Stodolní ulice à Ostrava: un exemple de régénération du centre d'une ville post-socialiste en République tchèque. [Stodolní ulice in Ostrava: an example of regenerating the centre of a post-socialist town in the Czech Republic.]," *Territoire en mouvement Revue de géographie et aménagement*, nos. 17-18 (2013): 8

¹⁰ Hurníková, "Iconic Industry: The Making of Meaning in the Lower Area of Vítkovice," 42

¹¹ Slach et al., "Stodolní ulice à Ostrava: un exemple de régénération du centre d'une ville post-socialiste en République tchèque. [Stodolní ulice in Ostrava: an example of regenerating the centre of a post-socialist town in the Czech Republic.]," 9

¹² Slach et al., 9

Figure 5.3.
Škoda 1859–1959.
1959, matchbox series: pro-
paganda prints distributed
throughout Czechoslovakia
(@Oliver Tomas, Flickr)



Figure 5.4



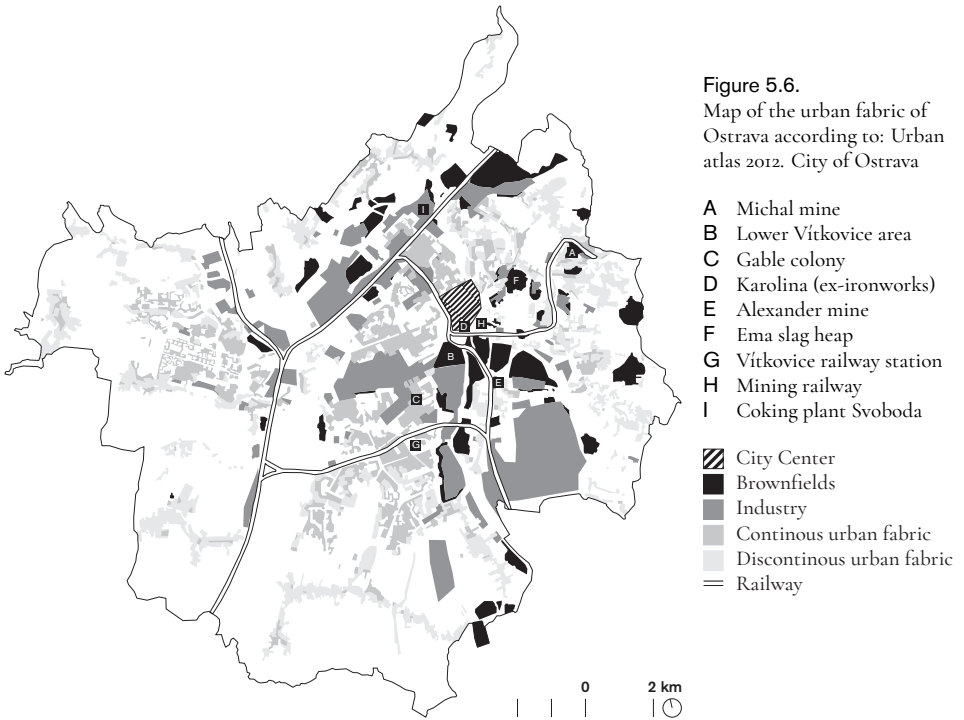
Figure 5.5.
15 let úspěchu CSR (15 years of
czechoslovak success 1945–1960).
1960, matchbox prints used
as a propaganda to show
the industrial greatness of
Czechoslovakia (@Oliver Tomas,
Flickr)

13 Hurníková, “Iconic Industry:
The Making of Meaning in the
Lower Area of Vítkovice,” 40

14 Hurníková, 41

The lack of coal in the region led to the decree that mining was no longer profitable. As a result, all the industries closely linked to coal were also affected by this decision, not to mention the fact that the world demand for steel has only decreased and that the Czech Republic was now in competition with Germany and Poland, which did not have to deal with a political system that is so destructive of this industrial sector.¹³ Finally, the 90s also witnessed the awakening of an ecological awareness, and a global understanding of the impact that such infrastructures had on the environment and health of the city. At the time, Vítkovice was seen as an extremely dirty town with a high level of air pollution, so the town council’s main aim was to resolve the situation.¹⁴

Ironically enough, the self-built nature of the factory that we have seen over the years is now reversed and we could argue that, in a way, its somewhat chaotic and random evolution has led to its destruction; its self-destruction. In fact, as early as 1948, the government offered political and financial



support that resulted in the development of the conurbation as a centre of heavy industry. The result of this industrialisation process was spontaneous urbanisation, giving rise to numerous districts in Ostrava with a high degree of spatial interpenetration between housing, industrial complexes and social infrastructure, developing in most cases concentrically around the various mines or factories.¹⁵

The deindustrialization of the LAV

In view of these multiple factors, it becomes easier to understand why the various decisions that led to the total closure of the LAV were taken so suddenly. The LAV was obviously not

¹⁵ Slach et al., “Stodolní ulice à Ostrava: un exemple de régénération du centre d’une ville post-socialiste en République tchèque. [Stodolní ulice in Ostrava: an example of regenerating the centre of a post-socialist town in the Czech Republic.]” 9

the only site to have to close its doors, but it was undoubtedly the one most exposed to criticism, as it was here that “the burdens of the past and the expectations from the present collapsed into a the problematic image of the LAV”, and its closure was a symbol of change for the entire region.¹⁶

16 Hurníková, “Iconic Industry: The Making of Meaning in the Lower Area of Vítkovice,” 42

In 1989, immediately after the Velvet Revolution, demand for metallurgical products suddenly fell, and in 1991 blast furnace number 4 was mothballed because its production was excessively high. In the same years, iron production was transferred to the city’s outlying site (Nová hut) in order to keep pollution away from the centre. In 1993, Ostrava City Council approved resolution no. 359/13, putting an end to pig iron production in the city centre with the aim of improving environmental conditions. This decision was ratified by the Czech government in 1996, thus staggering the closure of the Vítkovice blast furnaces.¹⁷ In 1994, it was time for the last mine in Ostrava to close,¹⁸ followed in 1995 by blast furnace n°6. In the meantime, furnace no. 4 was put back into service for a short time, because it was in 1998 that blast furnaces no. 4 and no.1 successively produced their last drops of pig iron, bringing 162 years of production at the Vítkovice ironworks to an end with a ceremony.¹⁹

17 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 47–48

18 Slach et al., “Stodolní ulice à Ostrava: un exemple de régénération du centre d’une ville post-socialiste en République tchèque. [Stodolní ulice in Ostrava: an example of regenerating the centre of a post-socialist town in the Czech Republic.]” 9

19 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 47–48

5.2 A matter of heritage

This deindustrialisation, which at first sight seems to have laudable values and only benefits for the population of Ostrava, also comes with its share of problems. In 2003, Ostrava reached a record high, with an unemployment rate of nearly 18.5%. In just twenty years, the number of employees has fallen from 65,000 to 15,000 and coal production has dropped by more than half. From a heritage point of view, it is also clear

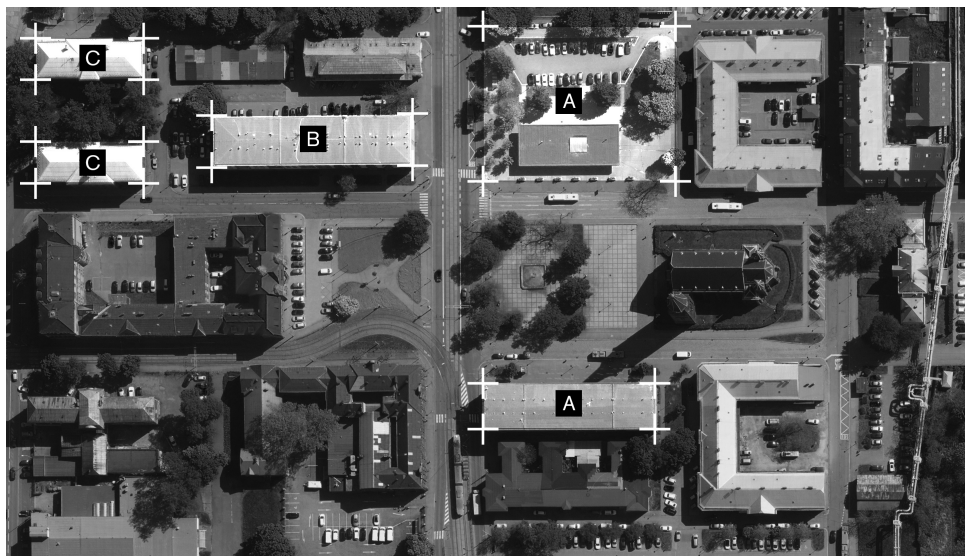


Figure 5.7.

Map of Vítkovice and of the colony buildings that have been destroyed or rebuilt.

- A English colony
- B I-blocks
- C Bunkhouse

that many architecturally and historically significant buildings were destroyed during this process, as in the case of the renovation of the workers' colonies near the mines, where many historical constructions were replaced by Czechoslovak low-rent housing.²⁰

This phenomenon continues into the 21st century. In the 2000s, Ostrava still had a few lighter industries, such as Vítkovice Power Engineering, which in 2010 was awarded a contract to build a coal-fired power plant worth 600 million dollars in Turkey from *Adulyarya Enerji Elektrik Üretimi ve Madencilik A.Ş.* company, to be financed by the Czech Export Bank. In 2017, archive images from Google Earth show that construction of the site was largely completed. But the Turkish conglomerate *Naksan Holding*, which owned the power station, was forcibly taken over by the Turkish government in 2016 as part of President Erdogan's power struggle. This

20 Slach et al., "Stodolní ulice à Ostrava: un exemple de régénération du centre d'une ville post-socialiste en République tchèque. [Stodolní ulice in Ostrava: an example of regenerating the centre of a post-socialist town in the Czech Republic.]," 10–11

illegal seizure was part of a ploy to enrich Erdogan and his supporters by leaving the debt contracted in the Czech Republic unpaid.²¹

21 Abdullah Bozkurt, "Turkish President Erdoğan's cronies defrauded Czech bank of over 400 million euros," 2022, accessed November 15, 2023, <https://nordicmonitor.com/2022/06/turkish-president-erdogans-cronies-frauded-czech-bank-for-over-400-million-euros/>

22 Mgr. Ondřej Štarman, historian at the archives of Cylinders Holding a.s.

The Vítkovice company then found itself in a complicated financial situation that left it no choice but to sell off a large part of its production sites to a handful of investors. This resulted in the destruction of the Old Steelworks (Steelworks II), even though they were renovated a few years prior, leaving the area as a brownfield.²²

But these examples are just two of many, and awareness of the need to preserve the Czech heritage is emerging in the 21st century, bringing with it a new form of policy and its share of associated projects.

6 Still Standing

During our visit to the archives of Cylinders Holding a.s. Mgr. Ondřej Štarman revealed a sentiment that, in our opinion, sums up the region's thinking relatively well, and which is in tune with the various discussions we were able to have with the local population during our stay. Almost 25 years after the closure of the LAV, and after the town has undergone a number of changes in its organisation and architecture, there is something of a bitter, nostalgic feeling emanating from Mgr. Štarman's words. It's as if time has wiped out all the damage caused by mass industry, and all that remains today are memories of what was once the pride of a nation. Nor should we overlook the economic aspect. From the late 90s to the early 2010s, the people of Ostrava saw the destruction of an industry and with it a massive loss of jobs, which benefited a handful of investors who have been able to get their hands on cheap industrial land and, in the vast majority of cases, create affordable housing, which became a necessity in the recession context. This phenomenon appears to be a vicious circle, destroying a cultural and industrial heritage to the detriment of large, uniform buildings that do nothing more than rehouse impoverished families while enriching investors who are often foreign to the country.

During our discussion, we also realised that he deplored the fact that the efforts that had been made to rehabilitate several factories in 2010 had ultimately come to nothing.¹ In the end, the economic situation got the better of the renovations, as it was obvious that destroying and selling off the plots was more profitable than reviving the operations. As Štarman explains, he sees it as a hope to see the rebirth of a sort of past

¹ see page 64

Vítkovice disappearing. It is not surprising, therefore, to see Mgr. Štarman regretting an image still intact in his mind of an economically flourishing region, the jewel in the crown of Czech industry, which is on the verge of disappearing.

6.1 A Fertile ground

A new owner

This sentiment is undoubtedly shared by Jan Světlíček, a wealthy local industrialist who has done and continues to do much to preserve Ostrava's industrial heritage. He began his career modestly as a manual labourer in the factories of Vítkovice and regularly changed production plants within the city. "After ten years working for the company, at the age of 33, he became the youngest manager in the company's history", and was finally able to take advantage of the knowledge he had acquired during his engineering degree at Ostrava University. This is how he came to be in charge of the manufacture of seamless gas cylinders.²

² Volf, Švácha, and Souček, 1492: *The Story of Dolní Vítkovice*, 77

At that time, Vítkovice was structured as a Holding which owned 25 companies, one of which produced the famous gas cylinders. With the region declining in economic activity, Světlíček could see the threat of closure hanging over the company, which was like a second home to him. Fearing that the fruits of the company's efforts over the last few years would disappear, he eventually found the necessary financing from a local bank to buy out the holding company and privatise parts that were deemed "less promising" in the restructuring plan of 1992.³

³ Volf, Švácha, and Souček, 77

These cylinders, which at the time accounted for no more than one percent of production at the Vítkovice factories, are

now by far the most widely marketed product. Once acquired, “Světlic’s hands were no longer tied” when it came to the company’s management, and after several years of development, it became the world leader in this field.⁴

By becoming the owner of the holding company, Světlic also acquired the LAV. In 2003, on the basis of a Czech government resolution concerning the privatisation of the Vítkovice company, he was entrusted with the task, and expenses, of managing a national monument. Jan Světlic, aware of the cultural heritage represented by this site and obviously given his attachment to it, took the responsibility assigned to him very much to heart. He quickly commissioned experts to assess the best options for the future of the site, and the results revealed that it had great potential for developing a new project. This is where architect Josef Pleskot comes in.⁵

⁴ Historian at the archives of Cylinders Holding a.s. Mgr. Ondřej Štarman

⁵ Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 91

6.2 A conducive policy for change

Although Ostrava did not see any large-scale heritage conservation projects until the beginning of the 21st century, this does not mean that the subject had not been tackled before. The first research on this subject may well have been the one conducted between 1971 and 1972 by Prof. Miroslav Baše. With the help of experts in several technical fields, this study presents a systematic approach, including an assessment of the value of various sites, as well as detailed descriptions of technological processes. However, this study had not been taken into account by the heritage authority at that time.⁶

⁶ Matěj et al., 84–85

This first study did, however, arouse interest in the academic world, which led to a series of research projects in the 70s and 80s into new uses for sites with a strong heritage character. In the 90s, the Heritage Institute in Ostrava continued

the work carried out by Prof. Miroslav Baše with the aim of systematically documenting the various industrial sectors in the region, such as mining, metallurgy, transport, chemicals and energy production, as well as its social institutions, with the aim of arriving at a careful selection of sites and machines of great historical and typological value. The outcomes of this study showed that the ensemble of architecture and industrial machinery at the Vítkovice ironworks was relatively unique in Europe. As a result, it was deemed that these elements “deserved extensive legal protection.”⁷

7 Matěj et al., *The Cultural Heritage of the Vítkovice Ironworks*, 86–89

The 1990s also marked a change in the way the Ostrava authorities perceived the city. Certainly inspired by the aforementioned studies, they began to wonder about the fate of the city’s industrial heritage, and although popular opinion was not yet at all in favour of preserving it, the city began to investigate in this direction.⁸

8 Matěj et al., 89

It was at the dawn of the 21st century that opinions began to change, and it was against this backdrop that, in 1997, the mayor of Ostrava, Evien Tosenovsky, submitted a request to the Czech Ministry of Culture for the LAV, among other industrial sites in the city, to be granted UNESCO heritage status.⁹ In 2002, the entire complex was declared a national cultural monument,¹⁰ and in 2008 the entire area has been listed as European cultural heritage.¹¹

9 Matěj et al., 90

10 Matěj et al., 92

11 DOV Museum

6.3 An architectural rebirth

This was the context in which the architect Josef Pleskot, whom we mentioned earlier, was going to work. Initially, he was commissioned by Jan Světlík to carry out a feasibility study, and subsequently to undertake a series of projects. This development has obviously been made possible thanks to Mr



Figure 6.1.
Dolní Vítkovice site drone
photography

Světlic, but also thanks to the various stages of protection of the site which have enabled the release of funds from the Ministry of Culture to support a real development.¹²

12 Matěj et al., 92

The first contact between Josef Pleskot and Jan Světlic dates back to 2007. During a day of intensive visits to Vítkovice, Pleskot initially found it difficult to grasp the real desire behind this monumental project to transform such a behemoth that had been growing autonomously for almost two centuries. Finally, the two men left. At the end of the day, when Pleskot was asked to contact Mr Světlic again if any ideas emerged from the visit. Busy with other major projects, it was not until two years later that they got back in touch, but this time to tackle the gas holder. This renovation certainly took on a more tangible dimension, as it's obvious that it's easier to project yourself into a renovation of a specific element than into such an industrial forest with unknown characteristics.¹³

13 Volf, Švácha, and Souček,
1492: *The Story of Dolní Vítkovice*,
100



Figure 6.2.
U6 museum facade image
(@Zdeněk Fránek, franekarchi-
tects.)

14 DOV Museum



Figure 6.3.
Interior of the U6 museum

Soon enough, in 2009, Pleskot developed a concept to establish a connection between the LAV and the city. As a result, funding was approved for the blast furnace no. 1, the gas holder and Power Station U6 projects.¹⁴

The first project to be completed was power station U6. The building dates from 1930 and is a hall of impressive dimensions. With a footprint of 2,500 square metres and a height of 30.5 metres, it was an ideal space for a public programme. The hall was originally built to house two gas-powered piston superchargers, which burned stack gas stored in the gas holder to produce compressed air. The compressed air was then transported into wind heaters, which heated it to 1,200 degrees to facilitate combustion in blast furnace no. 1. The reconstruction of the hall was the only one of the three projects

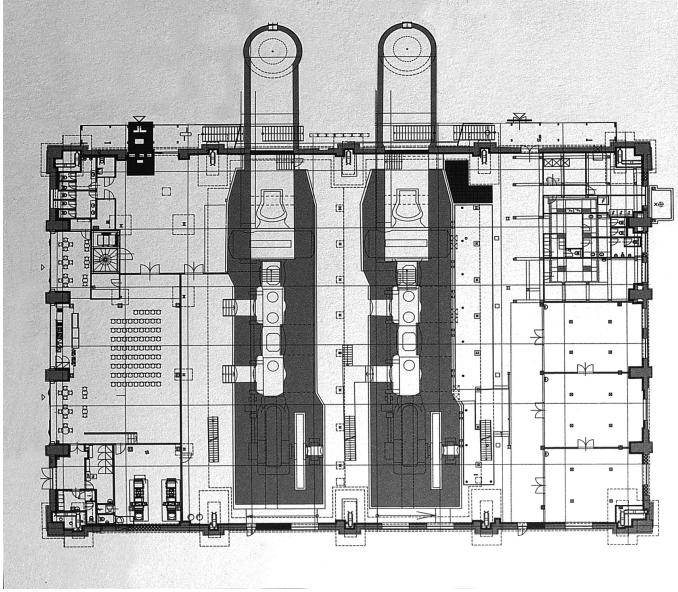


Figure 6.4.
Powerstation no.6, 2009 plan,
The Story of Dolní Vítkovice,
1492, p.30

not undertaken by Pleskot, and it was the architect Zdeněk Fránek who came up with the idea of exhibiting the two compressors in this hall, as a reminder of the heavy industry that came to life in Vítkovice. As a result, an educational museum was constructed around these two centrepieces.¹⁵

That same year, the gas holder (see figure 3.1, page 31) and the first renovation of blast furnace no. 1 were completed. The specifications for the gas holder were quite clear: it needed to be capable of holding 1,500 spectators in a multifunctional auditorium. The project will be named “the gong”, in reference to the building’s acoustic resonance characteristic, not to mention the fact that one of the primary purposes of the hall to be built there was to host music concerts.

Pleskot came up with a clever solution. Given the condition of the structure in which the project was to take place, it

¹⁵ Volf, Švácha, and Souček,
1492: *The Story of Dolní Vítkovice*,
171

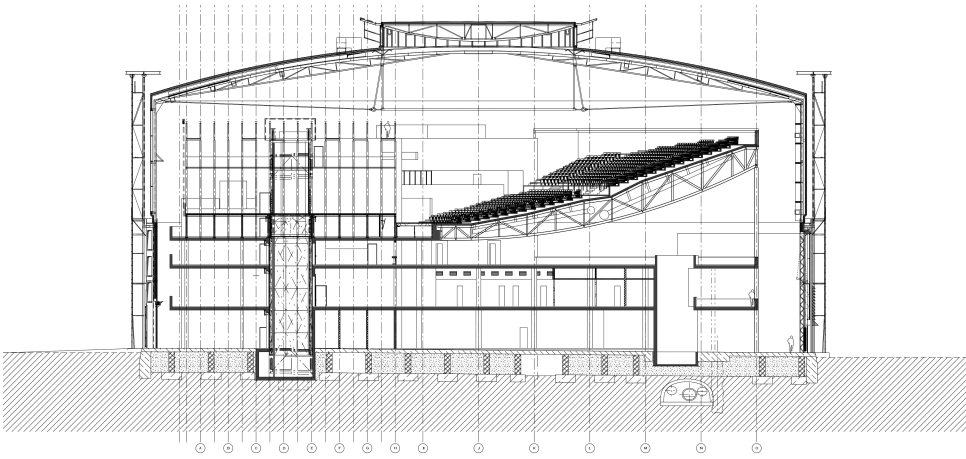


Figure 6.6.
Section of the gong project
(©Josef Pleskot, atelierier)



Figure 6.5.
Auditorium window photograph
(©Josef Pleskot, atelierier)

was important to keep it as lean as possible. This is why it was decided to pierce the shell at 3 strategic points and build a new, independent structure from the inside to house the programme. The first hole was drilled at the top of the gas holder bell, to accommodate a cylindrical drum that provides ventilation and lighting for the auditorium. The second opening is behind the stage, creating a large glazed opening overlooking the industrial panorama of the site. Finally, the last opening was made in the façade on two levels from the ground, facing the U6 power station. This opening was initially used to bring materials and site machinery into the gas holder, then served as the main glazed entrance.

The new Y-shaped structure is made of reinforced concrete, and is built around two vertical distributions that play a major structural role. The building rises over 4 levels and is set far enough back from the walls of the shell to allow the structure of the original building, to be contemplated. The top floor houses the auditorium, and it is here that we can



Figure 6.8.
Blast furnace no. 1 (bolt tower)
drone image

admire the work that has been done to recover the original roof, which is visible here, all in a strong generational contrast between the two structures.¹⁶

According to Pleskot, blast furnace no. 1 (The Bolt Tower) occupies a unique position among the other blast furnaces preserved in Ostrava. While its construction may play an educational role, its location close to the main Místecká street is just as important. In his opinion, the building could therefore be the dominant feature of the city, like a timeless icon. These two qualities were at the heart of the decisions taken for this project. To fulfil its educational function, it was decided to redesign the building as a walk through the past. To get to its summit, perched 60 metres above the ground, you must follow the same path that the materials used to take to feed the furnace. It's from here that you can fully appreciate the scale of the site and its relationship to the city.

The lifting platform that once carried the materials has been transformed into a glass lift that takes visitors up to the point where the coke and iron ore were loaded into the furnace. The tour continues by staircase or lift to the platform overlooking the town. There is one last stop on the way down.

16 Volf, Švácha, and Souček,
1492: *The Story of Dolní Vítkovice*,
119

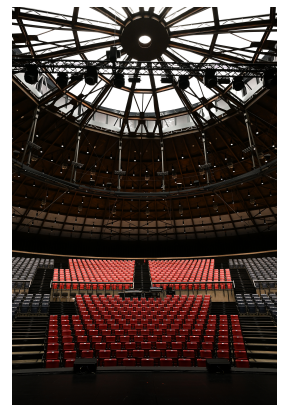


Figure 6.7.
auditorium photography
(©Josef Pleskot, apatelier)



Figure 6.9.
lifting platform of the BFi
transformed into a visit eleva-
tor(@Josef Pleskot, apatelier)

17 Volf, Švácha, and Souček,
1492: The Story of Dolní Vítkovice,
145

18 Volf, Švácha, and Souček,
145

19 DOV Museum

At the point where the hot air was introduced into the furnace, in order to maintain its heat level, its shell has been pierced. It is now possible to enter the bowels of the furnace, where temperatures of well over a thousand degrees once prevailed, and it is here that projectors have been installed to enable visitors to see the temperature zones etched forever into the interior walls.¹⁷

Its role as a symbol, mentioned earlier, did take on its full meaning during a subsequent renovation in 2015. Like Tatlin's Monument for the Third International, which he puts like this: "a timeless icon boasting a peculiar, restless energy, its importance comparable to that of Picasso's *Guernica* or Joseph Beuys's objects. Its truth, power and faith speak out to me,"¹⁸ he imagined a superstructure overlooking the furnace. This constructivist extension, which will fulfil the function of the old platform, will only add a restaurant to its programme, but its silhouette will act as a landmark in the distance and will be for many the new contemporary emblem of the LAV.¹⁹

The only new building on the site was erected in 2014. It is a science and education centre (The Great Science and Technology Center) to the south-east of the complex. In keeping with the idea of giving an educational purpose to the preservation of this site, Pleskot has incorporated exhibition spaces, an auditorium and dedicated educational areas into the building's programme, all under the theme of science and technology. The building blends into the surrounding industrial landscape thanks to its brick rear façade, but above all thanks to the presence of its large mirrored front façade, which reflects the great silhouettes of the site as if it were an extension of it.²⁰

20 Hurníková, "Iconic Industry: The Making of Meaning in the Lower Area of Vítkovice," 33



Figure 6.10.
Science and Technology Center
facade photography.

Finally, to the north of the LAV, mining buildings have been replaced by more modest reinvestment. Small businesses such as art galleries, restaurants, temporary museums and sports facilities have sprung up here. It's all working together like a small, self-contained village, taking advantage of the industrial character of the area to create a very special atmosphere.

During our visit to the site, we were forced to observe that these projects are making sense, and that despite the inclement weather and the omnipresent cold, the site is coming alive. An ecosystem has been created here, and it seems to us that it has strong potential for future development, because it is clear that its full potential has not yet been realised.

6.4 Positions

The Vítkovice Ironworks site in the LAV has gone through many transformations, reflecting the economic, political, and

social changes in Czechia over the past two centuries. It evolved from a small ironworks to a major industrial complex under different ownerships. The site, through architecture and instrumentalisation of it, embodied the ideologies of its various owners. From aristocratic and bourgeois families to communist authorities and neoliberal individuals, all have been actors in the making of Ostrava along the cohorts of labourers succeeding each other. The LAV was aggregated like an industrial cathedral, not as a sacred temple but as a locus of labour and investments. It became an *unintentional monument* reflecting this history of industrial development and regional significance.

We would be glad to consider built objects in the LAV from above. In reality, we cannot pretend to reach inherent truths about them, as we are not complete outside observers. Rather, we considered them with our own values and we embedded our thoughts in an evolving frame of reference. This is why we did adopt a structuralist point of view to understand the relationships between these objects over time. This made us understand that the meaning of the LAV is fluid — it could gain *age-value* as the memories of actual iron making fade over time. When these buildings become age-value monuments — when they will express more of what *is now* in the cultural cycle by contrasting with what *was then* — we will be able to use the same rhetoric that led to the emergence of the notion of heritage. Conservationists were invented, they decided to preserve some buildings because they were threatened by industrialisation; we will preserve some industrial buildings because they are threatened by deindustrialisation.

This phenomenon occurred after the Velvet Revolution in 1989, driven by economic pressures, governance instabilities

and environmental concerns. This led to closures of mines and blast furnaces along rejection of communist symbols embedded in them. There is nostalgia for the past industrial glory among some locals and also a disdain of it, due to the pain of economic upheaval, for some. Yet, amid loss and change, an awareness regarding the site's heritage and cultural significance emerged, reflecting a broader reevaluation of industrial history in the post-communist Czech Republic.

Architects Zdeněk Fránek and Josef Pleskot, along with their collaborators, have been instrumental in reimagining structures in the LAV. They have redesigned some buildings, like the U6 bellows, the colliery changing rooms and technical infrastructures such as the gas holder or the blast furnace no. 1, giving them new purposes. But tensions persist between preservation and pressures of development. As the evolution of the LAV mirrors the larger identity shifts in Czechia, the way forward is unclear: the site has potential for reimagining, but faces economic constraints.

Strategies

We can, however, clearly list attitudes that were adopted until now. Let's start with the null hypothesis or, in other words, with no heritage strategy at all. Luckily we do not have to look very far away, the former Karolina site on the north of Vítkovice (see label "B" of figure 4.4, page 55) was promptly converted to a suburban mall in the 2000s. Of the industrial complex, only three empty halls remain because they were listed before the redevelopment.

The LAV proper offers a dialogue between two strategies. Transformation of the blast furnace no. 1 was realised as a flamboyant effort. No materials or techniques were spared

21 Roland Barthes, *The Eiffel Tower, and other mythologies* (Berkeley: University of California Press, 1997), 3

to coalesce a program up there. The tower is omnipresent over the site and like Maupassant, who often lunched at the Eiffel tower restaurant because “*It’s the only place in Paris*, he used to say, *where I don’t have to see it*”,²¹ we were eager to visit it. Gushes of wind and plenty of snow stopped us in our ambitions. The tower was closed until further notice, which may have spared us a disappointment: apart from a nice view, we would have found only a cafe. This building was conceived as an emblem, near a major road and visible from afar. This is a great success as a symbol — it even kept with the old tradition of borrowing relevance from remote authorities: despite all odds for a steel building, the *Bolt* Tower was named after Usain Bolt — but it falls short in usability.

A few hundred meters to the east, the Gong auditorium may go unnoticed in comparison. Tucked in the shell of an old gas holder, this building was conceived according to the opposite strategy. It does not pretend to become an iconic feature of the site. Rather than adding, it subtracted from the structure: a large opening was made behind the scene, extending the stage over the LAV. By shifting the focus from a building that is seen to a building that *sees*, we believe that Josef Pleskot adopted a more critical standpoint. This is a site where spectacular constructs already rival with each other. These “monsters”, as sociologist and cultural theorist Jean Baudrillard would call them,²² are singularities that do not need competition. In this debate with Jean Nouvel, he was referring to the aestheticisation of the built environment and the race towards ever more “exceptional” buildings. Leading us to the logical conclusion: among a multitude of monsters, no one prevail.

22 Jean Baudrillard and Jean Nouvel, *The Singular Objects of Architecture* (Minneapolis: University of Minnesota Press, 2002), 21

This opposition between a critical stance and a projective one may be somewhat simplistic, it is nonetheless where we currently stand. This work was done as a research step in our master's project and we could choose to make "architecture without content" to borrow Kersten Geers' motto. This would allow us to forget political action or critical resistance to focus on expressing what is there. We are however motivated by an architecture *with* content. Rather than extending the current limbo of the site, between a dying past and an undecided present, we want to focus on possible outcomes, letting the LAV evolve as it has always done.

Appendix

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