IRON ARCHITECTURE IN THE BOHEMIAN LANDS FROM THE MID-NINETEENTH CENTURY UNTIL ART NOUVEAU

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The Bohemian lands had already been to the forefront in iron production in central Europe for some centuries. Production in the modern period has a long tradition in the past. Already by the end of the first quarter of the nineteenth century, iron architecture was beginning to influence the appearance of our countryside. It was first represented by several chain suspension bridges. Their main planner, the engineer Friedrich Schönirch, built the first chain bridge over a side arm of the Morava close to the town of Strašnice in south-east Moravia in 1823-24. It was the earliest chain suspension bridge on the European continent, with a span of nearly 30 m.

Only one of these chain bridges has survived down to the present. It was built by Friedrich Schönirch to provide a bridge across the Vitava (Moldau) for the Štýr-Eisack road in 1867-68. The bridge was dismantled in 1960. The granite blocks and iron components were transported into the nearby valley of the Lužnice, where the bridge was reconstructed in 1975. It was classified as a historical monument and is used as the river crossing of a minor road in this picturesque landscape.

By the period shortly before the middle of the last century, iron architecture had developed within the framework of late, Gothicizing Historicism. Direct English influence played a decisive role here.

In the Liechtensteins' castle at Lednice (Singbrub) on the Moravian-Austrian border, the iron glasshouse or palmhouse was erected in 1843-45 to the design of the English architect P.H. Desvignes. The cast-iron construction was supplied by the Klein Brothers' Iron Works in Sobotin in northern Moravia.

In an exact parallel to this is the iron orangery erected by the engineer Damian Devorcek, following English designs, in the Schwarzenberg's south Bohemian castle of Hluboká.

By 1830, the technique of iron statue casting had been highly developed. The centre for this were the Salsische Eisenwerke foundry in Blansko to the north of Brno (Brünn), which was also called the "School of the Moravian Foundry Industry". Sculptures, monuments and reliefs were cast there with the greatest skill and to high artistic standards.

Already from the eighteen-twenties on, cast iron had made its breakthrough as a material for architectural details, mainly for staircases and railings in general. We could take as an example the stair handrail on the magnificent stairway in the town mansion No. 1023-II in the New Town in Prague, opposite the new railway station. The mansion was built by the architect J.O. Kramar in 1843-44 for Albert Klein, a member of the afore-mentioned iron-founding and railway-building family. The renowned Viennese architect, Ludwig von Förster, built a town mansion for the Klein brothers on the main square in Brno(Brünn). The building, which was erected in 1846, was intended to represent the products of the Klein's iron foundries in Sobotin.

Within the framework of the late-Classicistic façade composition, Förster employed very original and striking cast-iron architectural elements. On both sides of the frontage of the house, two two-storey high bay windows project out, each richly decorated with figures and ornaments. Cast-iron details were also particularly developed for the windows and on the main cornice. In the case of these components, the decorative function played a more important role than the structural one. The whole frontage of Förster's mansion was an interesting
combination of plasterwork façade with iron elements which were still not in general use at that time. The superb figured and ornamental cast-iron details were also used in the Schlicks' town mansion in the New Town in Prague, which was demolished in 1857. It was built by the architect J.O. Kramner in 1848. The preserved cast-iron elements are kept in the Prague industrial museum.

In the remaining forties, brick-built pillars were replaced by slender cast-iron ones. This building technique then came into general use in the second quarter of the nineteenth century. In connection with the completion of the new Prague railway station, the classical building was constructed directly opposite, in the first floor of house No.1029-II in 1845 by the architect A. Hellich. The new splendidly decorated rooms were divided by two rows of cast-iron pillars. The decorated capitals had prismatic top pieces, the surfaces of which were covered with Moorish paintings.

The golden age of chain suspension bridges was limited to the second quarter of the middle of the nineteenth century in our country. One good example which could be mentioned here is the former Elizabeth Bridge in Prague. It was built from 1865 to 1868 by the English engineer Lefevre system. Its average span was 150 m. The bridge was rebuilt as a cable suspension bridge in 1896 and survived until 1947.

To keep the subject of bridges seen from the purely architectural aspect, they are sometimes not very interesting, but from the point of view of town planning and landscape bridges are always extremely important. An impressive example is the viaduct over the Jihlava valley near Brno in Moravia on the railway line from Brno (Brno) to Znojmo (Znojmo), a really impressive piece of iron architecture in the landscape. The viaduct was built by the French architect Alexandre Gustave Eiffel in 1870. The bridge has six spans of 62.7 m each. The original supports of concrete-filled cast-iron tubes were later replaced by wrought-iron supports. With a length of 975 m, the bridge is one of the still extant examples of the latter half of the nineteenth century. It was in use for 108 years until replaced by a new steel bridge in 1976. Nowadays, the viaduct is retained and is still extant, it is used as a pedestrian crossing and is under the care of the technical museum in Brno (Brno).

In the third quarter of the nineteenth century, the late Neo-Gothic style of the age of Romanticism gave way to a Neo-Renaissance style. During the last third of the nineteenth century, iron architecture became particularly well established in the world-famous spa of western Bohemia. The first example is the spa of Marianské Lázně, which was erected in 1871. The spa was built in 1871 and 1872 by the architects P. Flachcr and H. Helmer, who designed a building of the late Neogothic style. The building consisted of several blocks separated by arcades, which were decorated with iron elements. The ironwork was particularly characteristic of the period, and the ironwork was used to decorate the building. The ironwork was used to decorate the building.

Unfortunately, this important Karlsbad building was a victim of the Second World War. It was dismantled as early as 1945, and together with all its cast-iron statues was used for war purposes. The colonnade at the Krugbrunnen in Mariánské Lázně (Marienbad), built in 1856 by the architects Niedalski and Heim in Vienna in 1888-89, had a happier fate. In contrast to the Karlsbad colonnade, the new colonnade in Marienbad had a steel skeleton. The iron works in Blansko were again responsible for the production of all cast-iron parts and decorative details. The structural measurements of the space composition are closely related to the example in Karlsbad. The structural composition in Marienbad is a mixture of Neo-Renaissance and Neo-Baroque.

Corrosion did not only seriously damage the cast-iron elements, but also the steel construction. The technical state of the structure was so poor that the colonnade had to be closed to the public in 1974. Thanks to the culturally receptive attitude of the city authorities and the state spa administration in Marienbad, the devotion and great technical and architectural skill of the staff in the state design department in Marienbad, and, of course, thanks to the willingness and high degree of craftsmanship of the building organisations, it was already possible to begin with construction work in 1975. In the first phase of construction, a new steel skeleton structure was erected and the badly damaged cast-iron elements were restored. As tradition required, the ironworks in Blansko took over the role of the principal supplier. The reconstruction and restoration works were extremely difficult. Here many technology modern methods and procedures were used alongside traditional ones also (sand blasting, surface priming, welding, the use of synthetic adhesives, paints, etc.).

The reconstruction of the colonnades, which had been classified as a monument, lasted until 1981. The operation is in keeping with the present time and technology. This important monument, with all its details, was saved, and it is once again in the century-old atmosphere of the spa in Marienbad in its halls again. In the last quarter of the nineteenth century, cast-iron gradually lost its predominance as a building material. The Neo-Baroque pavilion at the end of the development in monumental structures. The architect was the famous ironworker Emanuel Fiala, the designer and sculptor of the Kroměříž iron works, designed the richly ornamented cast-iron elements. The building was erected in 1896 at the dominant western extremity of the castle plateau in Prague, overlooking the city centre. The heart of the Pavilions is a centrally designed pavilion is constructed in brickwork, combined with superb cast-iron elements and decoration, a magnificent stairway, window details, a richly decorated side bay or recess. In the interior, the cast-iron pillars are concealed. The cupola, however, was used in wood. Cast-iron was particularly important as a decorative element. According to Dr. Poche, the pavilion of the cast-iron works was the maximum contribution which cast-iron was able to make in this architectural work.

After the Second World War, the pavilion was completely derelict and close to demolition. In 1967, steps were taken towards a complete restoration which was completed in 1969. Numerous cast-iron decorative elements had to be replaced by newly made copies. At the end of the development of iron architecture in the Bohemian lands during the second half of the nineteenth century we have the monumental building of the former Palace of Industry at the Jubilee
National Exhibition of 1891, designed by the architect B. Münzenberger. The iron construction was supplied by the Böhmisch-Mährische Maschinenfabrik in Prague, the predecessor of the modern CRKD organisation. The Palace of Industry was expressly erected as the first iron architecture not to use cast iron. The building is in three parts. The construction of the high central section, with its rectangular ground plan 40 m wide and 65 m long with four brick-built corner pylons, is formed by iron lattice arches with a span of 30 m. The front and rear façades are designed as vast glass walls, originally with a brick-built entrance portal. The central part is dominated by the iron tower, 51 m high, with spiral staircases and gallery.

The long, low-side wings have a similar iron construction to that of the central building industry. The Palace of Industry was rebuilt in 1952-53 for congresses and other social purposes, but the main features of the construction were retained.

In the year of the Jubilee National Exhibition in 1891, an even more original building was erected in Prague, the 60 m high look-out tower on the Petrin hill, a miniature copy of the Eiffel Tower in Paris which was erected in a mere six weeks. The designer was J. Prášil, the iron construction being again supplied by the Böhmisch-Mährische Maschinenbaufabrik.

In the second half of the nineteenth century, cast iron played an important role as the material for monuments and street lamps, often in closest connection with monumental architecture. Particularly in Prague, some very interesting and, from the town-planning aspect, superb examples have been preserved, for instance the lamp-posts for the gas street lighting of 1867, the lamp-posts in front of the main façade of the House of Artists (the former Rudolfinum), designed by J. Schulz between 1875 and 1894, and the lamp-posts on the Mayday Bridge by the architect A. Balážek, 1889-1901.

In conclusion, it must be remarked that from the point of view of quantity, Bohemian and Moravian iron architecture did not play a great role, something which is a little surprising in view of our large and well-established iron industry. Certainly, the somewhat backward provincial atmosphere of the towns of the time is the reason for this. There were not all that many great building technological and architectural tasks. This only changed radically at the turn of the century. Despite the restricted quantity of tasks, our iron architecture has produced some very remarkable works. They fit in harmonically and naturally into the wonderful thousand years' development of Bohemian, Moravian and Silesian architecture and, indeed, art as much.

250

IRON IN THE HISTORICAL ARCHITECTURE OF THE NINETEENTH CENTURY IN POLAND

Andrzej Tomaszewski

The nineteenth century, the century of steam power and electricity, but above all the century of iron, was a period of history in which Poland did not exist on the map of Europe. The three great powers, Russia, Austria and Prussia, towards the end of the eighteenth century, it ceased to exist as an independent state for over a hundred years, until the First World War. In the century of lost independence, there were periods of relative political independence within the restricted territorial limits of the Grand Duchy of Warsaw at the time of the Napoleonic Wars, or in the Kingdom of Poland created at the Congress of Vienna. Despite the fact that they belonged to three different powers, the ethnic-Polish areas of the erstwhile aristocratic republic did retain a unified architectural scene for the most part during the whole nineteenth century. The architecture erected on the initiative of Polish clients, the aristocracy, the gentry, the bourgeoisie and Polish organisations and associations, played the decisive role here. Polish and foreign architects carrying out these works often worked in areas of all three annexed parts of the country. Lying on top of this fundamental layer of buildings erected for Polish investors there was a thin layer of architecture built by the governments of all three partitioning powers. Only in the Prussian part did this also include public and publicistic buildings, in the other parts it was generally restricted to fortification works, especially the fortifications constructed in the frontier areas. As a result, present-day Poland, through whose territory the frontiers between three great powers ran, is nowadays, apart from Austria and Russia, only country in Europe to possess high-quality monuments of the defensive architecture of the nineteenth century: Napoleonic, Prussian, Austrian and Russian.

The bases for the application of iron in building and architecture in the Polish regions were created shortly after the Congress of Vienna. At that time, the shrewd authorities in the Kingdom of Poland set about building up the iron and steel industry. For this purpose two regions were selected: the so-called 'old Polish mining district' (around Kielce) and the Babrows area, which both had two thousand years of iron ore extraction. It was an investment on the Polish Bank, a metallurgical combine which arose along a 40 km section of the river Kamienna. The river, which was transformed into a canal and had dams constructed along it every few kilometres, became a gigantic production line with the raw material, iron, going through all the stages of its processing in succession. Although these industrial works from the first half of the nineteenth century in general have Neo-Gothic architectural forms, their importance for the development of architecture and of the building industry in Poland was considerable. From the beginning of the eighteen-twenties