National Exhibition of 1891, designed by the architect B. Mühlberger. The iron construction was supplied by the Böhmisch-Mährische Maschinenfabrik in Prague, the predecessor of the modern CRK 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 wide wings have a similar iron construction to that of the central main building. 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 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, successful examples have been preserved, for instance the lampposts 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 1895, and the lampposts on the Mayday Bridge by the architect A. Balážek, 1899-1901.

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 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.
until the First World War, they were the main source of the raw material, iron, which was exported from the Kingdom of Poland into the two other partitioned areas and also into the interior of Russia. The products of these works, which we know from the catalogues published and which were intended for building and architecture, were made on a massive scale. The small typical elements of the arch have been put to a higher degree of perfection in our country, but did, however, permit the decoration of the interiors and façades with modern details. Modern, not so much in the sense of the form as in the sense of the material which was new and the decoration of the new material. In this connection, we enter into the architecture of the Polish areas in the eighteenth-twenties. This architecture was not, it is true, new, but changed, nor was the architects' way of thinking influenced, but it was quite considerably complemented by small new details. It was the age of experimenting and becoming accustomed to the new material.

One example of one of the earliest applications of iron as a first class component of a façade is the Raczyński Library in Poznań (Posen), an object of great cultural importance for the Grand Duchy of Poznań. The founder — Count Edward Raczyński (brother of the art historian and collector, Atmazy, founder of the renowned Raczyński Gallery in Berlin, and author of a three-volume "History of Modern German Art") — commissioned the design from an architect, whose name is no longer known to us, in Rome. The pillars of this façade draws its inspiration from the well-known Louvre facade by Charles Percier. Raczyński's library was built between 1821 and 1828, after, however, important changes had been made in the design. The stone pillars were replaced by iron pillars cast in Silesia. The change of material did not change the pillar proportions of the new material thus did not influence the form of the structure, it just remained a technical novelty.

About the nineteenth century, we can observe the shaping of architecture under the influence of the new material. The precursors of this new way of thinking were in the Warsaw group (unfortunately, only in individual cases), by architects Jan Jakub Gay (1802-1849) and Franciszka Lanci (1799-1875). Of the works designed by Gay, an active pioneer in the use of iron detail in architecture, we would mention the (now no longer extant) bazaar, erected in 1841. This was probably the first iron construction in Poland. The whole architectural expression was obtained by the introduction of light open-work arches, supported on arcades and iron pillars along the front of the building. These small iron columns on the ground floor, among the other architects, led to an end of the experiments with iron architecture.

Lanci, who succeeded under the influence of Schinkel's architecture from the end of the first half of the century on, with whom he had successfully competed in the design of the Golden Chapel in Poznań, chose another path in this search. In his work, and also in the history of nineteenth-century architecture in Poland, the tenement house erected by him in Warsaw in 1847 (ul. Krakowskie Przedmieście 17) occupied a special position. The façade of this tenement house rests on small pillars set between slim iron columns on the ground floor, the proportions of which correspond to the characteristics of the material. Arcade segments were included between the pillars (something which had been introduced into our architecture about 1843 by Friedrich Hübsch in the pump room in Baden-Baden). On the other hand, the linear division of the façade of the first and second floors is a continuous rhythm started by the iron pillars on the ground floor. There they are continued in grooves and pilasters, repeating their diameter. Both the iron pillars and pilasters have bases of iron capitals, the forms of which were taken from classical architecture and which are divergent from the latter and peculiar to the iron skeleton. The whole evidence for the search for an ingenious compromise between the new material and the old one, a search for a new idiom with a certain distance from the materials used at the turn of the nineteenth century from the tragic division into an architecture erected by professionals with aesthetic aspirations and a building industry aiming at utilitarian purposes, which became the domain of engineers.

Unfortunately, Lanci did not continue his search, and it was not taken up by other Polish architects. In the architecture of the second half of the nineteenth century, iron elements were employed to an over increasing extent; numerous iron structures were also built, e.g. railway stations, market halls, garden structures etc. On the other hand, in the field of the application of iron in architecture, no values were set which could bear European comparison. Meanwhile, iron soon gained its raison d'être in the field of engineering, especially in bridge and railway construction (the opening of the Vienna-Warsaw railway in 1848). Polish engineers were also often active abroad, particularly in Russia (the first fixed bridge across the Neva in Petersburg was erected by the Polish engineer Stanisław Kierbedź). The main technical problems in the field of bridge construction in Poland itself were centred on linking the two banks of the Vistula in Warsaw. The design of the first bridge was the engineer Ludwik Mentzel (1764-1846) who was in charge of works connected with transportation in the Kingdom of Poland from 1816-1837. In 1820 he prepared and published in the press (Gazeta Warszawska, 7, III.1820) the design for a chain-supported iron bridge. The architect wanted to span the roughly 650 m breadth of the river with five spans of 130 m length each; the bridge was intended to be 11.8 m in width. These erected into the preliminary design, without comparison in the bridge construction of the time. The special feature is the first use of iron in bridge construction. Of the mounting of the chains beneath the carriageway. The project was given positive technical evaluation, but was, nevertheless, not approved by the council of building, which was the case for several years. The bridge was never erected in Warsaw, but was the model for the Deputační most in Prague in 1847. The councillors shrank back from the idea of a construction which had never before been tried in the world, namely one over the chain beneath the carriageway. The official arguments against this design were the building costs and the economic difficulties of the Kingdom of Poland. The project was thus dropped. It should be noted that a modern check on the calculations of this design has confirmed its correctness in its correctness, and the economic difficulties of the Kingdom of Poland. The project was thus dropped. It should be noted that a modern check on the calculations of this design has confirmed its correctness in its correctness, and the economic difficulties of the Kingdom of Poland. The project was thus dropped. It should be noted that a modern check on the calculations of this design has confirmed its correctness in its correctness, and the economic difficulties of the Kingdom of Poland. The project was thus dropped. It should be noted that a modern check on the calculations of this design has confirmed its correctness in its correctness, and the economic difficulties of the Kingdom of Poland. The project was thus dropped. It should be noted that a modern check on the calculations of this design has confirmed its correctness in its correctness, and the economic difficulties of the Kingdom of Poland.
It is noticeable that at the beginning of the second half of the nineteenth century, the engineers were still more or less showing a tendency, when designing structures, to form these, on the basis of traditional understanding, as "architectural works". Architecture, namely, occupied a position based on thousands of years of tradition, whereas the rest of those engineers working with the new material, iron, was still trying to find its appropriate place. The engineers were thus also searching, even if for different reasons, for that same compromise between the regularity of the new material and the aesthetic criteria prevailing at the time, just as the architects, including Lanci, were doing.

In the second half of the century, it became clear to both sides that such a compromise did not exist. The paths of architecture and the art of engineering had separated. But, as the architects, still keeping to their standpoints, only furnished and decorated the interior of their structures or the façade with the help of iron detail work, with predominantly historicising forms, showing in this way their attitude towards the new material, the constructors logically followed the voice of this material and extracted all the technical possibilities they could from it. However, both sides must have felt dissatisfied, because at the beginning of the twentieth century (1904-1914), when it was proposed to erect a further bridge across the Vistula, there was also an architect among those submitting projects. However, what was achieved by this cooperation in the final effect?

A clear construction of the iron arched bridge, and an architectural pendant, flanking the bridgeheads, in the form of galleries and turrets in so-called Polish Neo-Renaissance style. Instead of a unified whole, all that was achieved was co-existence.

The problem of the role of iron in the architecture of the nineteenth century on Polish territory still requires more thorough investigation. Only on the basis of this is it possible to produce a more profound, synthetic version. Nevertheless, this will certainly not change the general opinion which tends towards a historical paradox. In world architecture, the first half of the nineteenth century was a period of steel which became commonplace in the second half of the century. The great achievements only came in that latter half. In the Polish territories, the period of trial and error was much more interesting; the building up of the modern iron and steel industry, the early introduction of iron details in architecture, Lanci's guest, the bridges by Mentzel, Pancer and Kierbedź are facts worth mentioning on the side-lines of the history of the application of iron in Europe in the nineteenth century. In the second half of the century there is a lack of such features. This situation is easily explained by the political-economic situation. In the first half of the century, the Polish areas were able to keep in step with western Europe in the process of the "Industrial Revolution", and the relative freedom within the annexed parts of the country provided the possibility of development for culture and technology. The increasing repression of the second half of the century on the part of the partitioning powers (the efforts towards Russification in the Russian annexed area and towards Germanisation in the Prussian one), the impoverishment caused by the successive revolts, brought about an economic backwardness in the country which lasted until the outbreak of the First World War. There were no conditions for undertaking large investments in the form of iron and steel construction. There was also a complete absence of any ideological motivation. The threat to national survival concentrated the architects' attention particularly on the forms of historical architecture which were considered, working with historical detail, to have a political implication because it stirred the feeling for national identity. Iron also fulfilled its task in this field as a detail with historic forms.

On the other hand, it did not fulfil this task in the form of modern foreign architecture. Therefore, the bridgeheads of the new bridge in Warsaw had to have Renaissance roofs borrowed from the architecture of Cracow. The bridge thus became a symbol of the link between the modern world and national tradition.

Only the independence attained as a result of the First World War brought about a change in the emotional attitude and the development of an architecture with modern forms. In the first post-war years, particularly at the faculty of architecture at the Technical University, use of iron in building. They resulted, among other things, in the construction of the first welded bridge in Europe. It was erected in 1924, not far from Warsaw as the work of Prof. Stanisław Bryka.