1921 - 2016 | (h) KOVOLIT

"People are like bells cast from various metals; each of them contains precious metal."

Rembrandt van Rijn





When a person lives to be a great age, it is definitely a cause for celebration. The same is true in the case of companies.

KOVOLIT is 95 years old this year. By human standards, it is a decrepit old man, businesses, however, have a different scale. KOVOLIT is not a gray-haired grandfather though, nor is it a predatory young man. We are a stable and reputable working age company. We have a lot of experience under our belt, thanks to which we have survived critical moments in history and overcome crisis. And we still remain strong enough to face the challenges of the present.

Dear KOVOLIT,

I wish you and all your current and former employees a lot more strength in the future! I believe that thanks to the current activities and changes that you are carrying out, you won't be a be a feeble old man five years from now, but a prosperous business, a century old.

> Your CEO Ing. Eduard Mareček In Modřice, September 2016

author of the text: Emil Doležel | preparation: Petra Marečková Krejčí, Petr Holodňák | typesetting: Vojtěch Kosek

TABLE OF CONTENTS

	1
	7
1	13
2	21
2	27



Map of Modřice from 1825

Article from the national newspaper on the establishment of the company Koloferra in 1921 Jsme zučastnění na zřízení společnosti "Koloferra", akciová společnost v Modřicích u Brna, jež vstupuje v život s akciovým kapitálem Kč 2,000.000.—. Společnost tato pojme v sebe starou renomovanou firmu B. Fink, velkoobchod zelezem v Brně. Nově vybudovaný závod v Modřicích bude vyráběti zejména polní dráhý a veškeré příslušné nářadí.



1921 - 1945

On maps from the 19th century it can be seen that the municipality of Modřice was originally formed only by streets around the square still exisiting today. In the place of the current company there was just a field. This situation changed in the late 30s and 40s of the 19th century, when the private company Emperor Ferdinand Northern Railway (KFNB) behind which stood mainly the Viennese banker Salomon Mayer Rothschild and other Viennese bankers commenced construction of a steam railway. The Vienna-Breclav section was put into operation on June 6 and the Breclav–Brno section on July 7, 1839^[1]. This triggered the development of the area of Modřice, where Kovolit stands today.

On June 14, 1921 an article was published in the National Newspaper, in which Czech commercial bank announces that it will participate in the establishment of the company "Koloferra joint stock company in Modrice by Brno" with share capital of 2,000,000 CZK. The company will take over the company B.Fink - wholesale iron in Brno. It Also reports that the newly built plant will produce field tracks and associated tools. This day can thus be regarded as the moment of creation of the enterprise Kovolit^[2].

In the records on the narrow gauge track of the Židlochovice refinery, there is information that the fleet numbered 61 carriages with a four--axis wagon with a load capacity of 8000 kg, of which 48 were from the firm Rosenmann Praha, 6 from the firm Orenstein and Koppel Praha and 7 from the firm Koloffera Modřice. The figure refers to the 1920s and shows that the company Koloferra produced narrow gauge carriages^[3]



The current administration building of the forge (after 1933)

Information is preserved from 1928 that the firm Krauss and Comp from Munich produced a locomotive for the firm Koloferra, Modřice by Brno: The Czech variant of the type BUG under serial number 8400. In 1928 and 1929 it served visitors of the Brno exhibition grounds on the occasion of the Exhibition of Contemporary Culture in Czechoslovakia ^[4].

Not many photographs of the pre-war period have been preserved. There are just two postcards in which today's Kovolit after 1933 is captured. With the courtesy of the collectors, Mr. Hajek photocopied one of them and posted it on the internet. In the foreground you can see the current administrative building of the forge (popularly called Old Castle) and to the left the old wooden workshop ^[5, 6].

Other history of the company is tied to the company Křižík-Chaudoir, měďárna, kabelovna a elektrotechnické závody, akc. spol. It was founded by the Czech inventor Křižík (everybody knows his famous arc lamp). The next stage of the history of Kovolit is written about In a report about the Czechoslovak stock exchange in the years 1938 and 1939. In the year 1932 the firm Křižík-Chaudoir founded the company, Kovodělná společnost, s.r.o., whose production was transferred to the plant of the taken over company Koloferra, a.s in Modříce in 1933. In 1936, both of these companies were merged under the company Moravské elektrotechnické a kovodělné závody, akc. spol., (share capital. 0.6 mil. CZK)^[7].

There are other documents available for 1937. These include a proposal for a sewer line and a recreational facility. The building plan of the building at that time can be seen in both documents, which has not changed much since the foundation of the company^[8,9,10].





Proposal for waste sewer pipes in 1937

KOVOLIT 1921 - 1945 3

JNG C.V. SVEHLA



Drawing of the emergency pumping station and dug out well from 1941

From 1941 there is an interesting document on an emergency pumping station and a dug out well. This building has been preserved to this day, it is located next to the administration building of the forge ^[11].

A registration in the address book of the protectorate "Adressbuch der Hauptstadt Landes Brunn", in which the focus of Kovolit is published on page 72, relates to 1942^[12].



Minutes on KOVOLIT from the address book of the protectorate from 1942

133-1.

During World War II, employees of Kovolit were also not spared death for resistance activities. In the office building there is a memorial to František Pavliček (born July 29, 1910, executed June 1, 1943).

František Pavlíček was born in a working class family as the youngest of four children. After finishing primary school, he was trained as an electrician. He married Štěpánka Duchoňová on September 27, 1932 and moved to her native village of Ořechovičky (now part of Ořechov). The couple gave birth to two boys there. He began his work at the Modřice plant Kovolit.

At the time of arrival of the German occupiers, František Pavliček was 29 years. When a Brno resistance organization namd Nemo was formed in the fall of 1941, he became a member of the group, which was founded at Kovolit in Modřice. This resistance group focused on damaging telephone lines and burning grain supplies near the railway tracks and was preparing to take greater destructive actions, for which it prepared explosive charges. How Pavliček, contributed to these activities could not be determined. When the Gestapo discovered the Brno organization Nemo, and thus the activity of the Modřice group, its members were arrested.

František Pavlíček was arrested on September 14, 1942 at his workplace at Kovolit. He was imprisoned in the Kounicova dormitories and subjected to interrogations in the Gestapo office. Afterwards, he was sent to prison in Breslau, where he was sentenced to death. Following the trial, was taken to the prison in Brieg. The judgment was executed on June 1, 1943. Sources: Memories of son Jiri



František Pavlíček (executed by the Gestapo in 1943)

Pavlíček and information provided by the Municipal Authority Ořechov ^[13].

The names of the company in the years 1921-1945

- 1921 Koloferra, akciová společnost
- 1936 Moravské elektrotechnické a kovodělné závody, a. s., Modřice
 1945 Moravské elektrotechnické a kovodělné závody, a. s., Modřice, národní správa

The staff of the company in 1945, in the foreground Ing. Jestřábek



Kitchen and cloakroom. Besides the administrative building, all buildings were wooden



Unveiling a commemorative plaque to František Pavlíček, whose story is described in the previous chapter. The memorial plaque is present at the entrance to the administrative building



1945 - 1970

After the liberation of the Republic on 5 May 1945, it was decided that the company would be put under national administration, based on the presidential decree. This happened on 18 August 1945. The company was called the Moravian Electrical and metalworking plant, a. s. Modřice, national administration. National Administration was entrusted to the gentlemen Veleba, Hošek and Weigl.



Canteen in 1950. Again, a wooden building

The technical operation of the company was secured by Ing. Jestřábek. The company continued to produce metal hoses and simple castings and forgings.

In 1947, the Modřice company was incorporated under Kovolit Caslav, n.p., and Josef Danda became the director.



Central program of 1951: production of metal hoses





Appointment of the director of the company in 1951

In 1949 the company organizationally fell under Kovolis Hedvikov for a short time.

On 1 July 1949 another organizational change and incorporation under Zbrojovka, n.p., Brno occurred.

In 1951, the minister appoints director Bohumir Kovařík. The company in Modřice starts to be important for the future industrial development of Czechoslovakia.

On 1 July 1953 the company becomes independent and takes its present name - Kovolit Modřice, n.p. In 1954, plant 02 - Kovolit Česká was incorporated into it. In 1956, the Ministry of precision engineering decided that Kovolit will be rebuilt into a large-scale production plant.

These reasons were crucial:

- strategic location in the middle of the country
- longstanding industrial tradition in Brno
- Brno professional high schools and universities
- Easy transport accessibility



Design work started and construction began in 1958. First the foundry hall, tool works, the administrative building and a kitchen with a dining area were built. Furthermore, substations, transformers, the compressor room, cooling circuit pump and all the wiring had to be built. Simultaneously, the second high voltage line



Photographs from 1957: a trade union meeting in Kovolit. Trade unions have been operating in the company from 1945 until today Photographs from 1959: construction of the foundry, on the right the impregnation building (then a charging station for accumulator trucks)

to substation TS1 was built and the high voltage line to substation TS3 was replaced. That was conducted by a different route, along the current fence behind the machining shop.





Construction of the administrative building and kitchen in 1960



Construction of the main substation. The buildings in front are in the place of today's forge 1, the buildings on the right on the site of today's forge 2

The complete fitting of the technology was completed in 1963. In the foundry 59 casting machines were then installed.

Altogether were built:

- foundry with a tool room today's building and connected administrative building with a kitchen and dining room,
- substations needed to operate the foundry and forge including the compressor station,
- forge 1.

An electric melting furnace was also placed in the foundry (abolished in 2015).



Photo from 1968: finishing department - the 5th hall of the foundry

After the construction of the new plant, Vladimír Valeš began in the post of director in 1965. During his tenure, a garage for transport and a warehouse for dies was built. Developments after 1969, however, did not support his further activity and in 1970 he finished at the head of the company.

Photograph from 1967: the foundry with casting machines





Ing. Vlastimil Riedl, director of the company in the years 1970-1984

Symbol of foundries from this period: electric motor frame

1970 - 1989

In 1970 Ing. Vlastimil Riedl occupied the position of director. In his first years in office he carried out the personnel stabilization of senior workers. Many of them left and had to be replaced by others. He succeeded in that, but had to face other problems, such as reducing the allocations of gas and electricity.



Celebrating the 50th anniversary of Kovolit in 1971

In 1972, the hall of today's forge 1 was built. New technologies were installed in it such as a Weingarten-Amy forging line, and ACA electric melting furnace and new forging and trimming presses.

Gradually requirements for production were increasing and the company had to recruit new workers. Because it had the strong support of government representatives, it invested extensively in the social sphere, eg. in the following areas:

- construction of residential buildings,
- nursery and kindergarten facilities,
- employment of factory doctor and dentist,
- construction and operation of recreational area in Blatiny, part of Sněžné
- operation of camps for children.







Working in the tool shop in 1975



Forge cutting shop in 1976

In 1976, Kovolit was incorporated under a Jihlava plant, focused on forging production. The original name from 1920 was "Zalábek a spol.," In 1945 it was transferred under Zbrojovka Vsetin. Kovolit then had along with their factories in Česká and Jihlava 2,000 employees.



1981 and the celebration of 60 years of Kovolit. In the photo on the left Ing. Kašparec, middle Ing. Valenta (Mayor of Modřice after 1990) and on the right JUDr. Horák (after 1990 he left to join the civil service)



Kovolit automobile park in 1978



Forge – ACA melting furnace





Construction of the main warehouse in 1981



New technology in the new hardening shop - IPSEN hardening furnace



View of the administrative building and forge 1 from 1982. The administration building is without a superstructure, there is no parking lot in front of the forge yet

Because of the need of a large number of workers, Kovolit ran its own apprentice training school. The training workshops were located in the premises of today's machine shop 1. Other activities included the Czechoslovak Scientific Society (ČSVTS) which organized sister city trips to surrounding countries for its members. At the end of the 80s, there were two branches of ČSVTS in the company.



In 1982, automation began in the foundry operation. For the newly purchased Snina CLH400 machines, robots were prepared for taking out castings. Their development was ensured directly in the company. In subsequent years, a system to monitor casting machines under the acronym ASŘTP (automated control system of technological operations) began to be prepared. A columned panel was built on each casting machine and the predecessors of today's smart cards were created for individual workers in binary code.



Robotized workplace in the foundry - photo 1986





Ing. František Střítecký, director of the company 1984-1990



Recreation center Blatiny-Sněžné, wooden cabins



Kovolit also built several residential buildings for its employees





18 | KOVOLIT 1970 - 1989

A breakthrough year was 1984, when Ing. František Skřítecký became the new director. In this year there were a lot of generational changes, which continued in subsequent years. As a result of the need for new office space, the construction of an additional storey of the administrative building began in 1985. This investment was carried out by temporary workers, while company employees worked on the construction site. In 1986, a new computing center was launched in the superstructure.

The end of an era of Kovolit neared. In 1988 the factory was separated from Jihlava and in 1989, November 17 arrived. A civic forum was formed in the company and different views on the continuation of the business were expressed.



Factory doctor MUDr. Ivo Pískovský. He wrote a book about his life, White hopelessness





Bühler H400B casting machine





1989 - 1997

In the 1990s social changes occurred in Kovolit as in the whole republic. The firm was made independent and became a joint stock company. A competition was announced for the position of director and in July 1990 Ing. Jindřich Šustr, who previously worked as Technical Director, assumed the function. Changes also occured in some other positions. At the same time, a Supervisory Board was established and as of 1 January 1991, also a board of directors.

Ing. Jindřich Šustr





In connection with the changes of the social order, Kovolit faced new problems for the first time. Within a few years, at least 100 workers left to go into the business and public sector. Other problems included the loss of customers from eastern markets, rapid exchange rate changes with some western currencies and the associated high inflation, wages and prices. Some customers also acquired the bad habit of not paying, and Kovolit had to learn to deal with that as well.

In the area of investment, Western technologies began gaining ground. In the forge this included the Wagner aluminum saw, the Churchill CNC lathe in the foundry and the Tauss grinding line. In the tool shop this involved the Zimmer-Kreim and MAHO-HANSEN sparklets.

In 1992, the voucher privatization of Kovolit was approved. Most of the shares were acquired by privatization funds.

Two new top-of-the-line Bühler H400B casting machines were bought for the factory from the Swiss firm Bühler. Another investment worth mentioning is, for example, the KOMEG machine. The next year Kovolit began working more for customers from the west eg.for the firm TRUMA. Along with the orders, a part of the technology was also delivered for this production. In 1993, a new LVE250 forging press was bought from the Czech firm Žďas for the forge.

The year 1994 was not so good. There was a decline in orders, a higher level of demands required by customers, increasing raw material prices, a reduction in the number of qualified workers (older ones retired and there was no replacement for them, the beginning of a shortage of workers for any technical professions, which still exists) as well as the insolvency of customers. A quality management system became more involved with operations.

In 1995 another big change occurred. Ing. Karel Novák, formerly the deputy financial director, became the director and the company went through a number of organizational and personnel changes.

The company Remet, spol. s.r.o. bought a majority stake in the company Kovolit, Inc. and this change was reflected in the composition of the board of directors.



The entire technical department was hived off into a limited liability company under the name KTS – Kovolit, technické služby, s. r. o. Kovolit, a.s., had a 25% share in this company and mutual relationships were regulated by contract. A former technical manager Ing. Trávníček became the director of KTS. Kovolit ensured all maintenance and production as well as acquisition of all investments for KTS. The products included, for example, edging pressses from 15 to 40 tons,



WOLLIN



0000

holding furnaces for aluminum, metal dispensers and low-pressure machines for the management of metal levels.

The recovery of the company meant new orders in 1996. This concerned OPEL pumps, Al-discs and other products for the firm TRUMA etc. For the fulfillment of production, technology was modernized throughout the entire company.



Original post-war gatehouse building



New Gatehouse 1996

Two additional Bühler SC53D pressure casting machines were bought from the company Bühler. A holding furnace for a casting workplace and a Wollin treatment device were purchased. From the company REMET the first imports of liquid metal were realized in July.



Ing.Pavel Mokrý

In 1996, the entrance building of Kovolit - gatehouse was completely renovated. It replaced the old, original building.

In 1997 additional organizational changes were carried out. Ing. Pavel Mokry, who previously worked as a sales manager became director. Another big change was the transfer of a larger number of KTS workers (Kovolit, technical services) back to Kovolit, as a technical form under the leadership of Ing. Dolezel.

At the end of the year, Ing. Pavel Mokrý finished his function as director. He first went into the government sector and later was a longtime chairman of Czech football.



1997 - 2016

In 1998, Ing. Eduard Mareček, one of the co-owners of the company REMET, became director of the company. The company found itself in a difficult situation. It was loss-making, workers from the Sales Department had left, some workers from the Technical Department, incorporated in the years 1995 to 1997 as a branch of the enterprise under the name KTS, did not return to Kovolit . This was reflected by the fact that part of the work of theTechnical Department had to start being handled by outside firms. The gradual retirement of workers was also occuring, most apprentice training centers were closed and there weren't any new workers with technical training on the labor market. For Kovolit, which is strictly a technical enterprise, it meant one of the limitations of development.

Through regular investments into production technologies and supplementing the workers, the director managed to stabilize the company. The process of the modernization of the pressure foundry was launched and the first deliveries of castings for the automotive industry were implemented. In the auxiliary smelting plant the parent firm REMET installed a melting and holding furnace with a casting belt for efficient utilization of manufacturing space and improving the performance of the company. For the maintenance of forms, an electric resistance furnace with forced circulation of the atmosphere was purchased in 1999 and a modern CNC lathe MC100 was acquired for the tool shop.



Ing. Eduard Mareček




New gas regulation station 2001

In 1999, cooperation with SOU Trnkova was finally terminated. The facilities for practical training had not been used at Kovolit for many years, and so SOU Trnkova took all their machines and equipment upon agreement. In the former premises of the practical workshops today's machine shop 1 first began to emerge. Customer demands for larger casts and molds meant that the tool room had to increase the capacity of the crane. In 2000, the firm PEEM carried out the strengthening of the grooves in the tool shop from 3.2 tons to 5 tons. Simultaneously the pulley block was supplemented with lifting capacity of 5 tons.

The year 2001 brought two major investments. The old gas control station had to be replaced. That was not built on the original site, but closer to the fence.

In 2001, due to the production of electric motor frames for the company ABB, it acquired a completely robotized workshop with the Bühler H1100B casting machine from Sweden. For the operation of the workplace, the PEEM carried out the strengthening of the reinforced concrete columns for a crane runway in the 4th hall of the foundry. This enabled the purchase of a crane with a load capacity of 15 tons, which is required when using larger size casting workstations.

The year 2002 again brought new technical changes. In the foundry, monitoring the operation of casting machines was introduced from the company LTC Brno. Every casting workplace is connected to a monitoring system that records the exact time of the creation of the casting and processes everything into clear outputs. At the time of creation, this system was unique and this monitoring is used in a modernized form until today.

In the Technical Department, all compensation switchboards, which replaced the original ones from 1960, were replaced on the substations, resulting in energy savings.

CCTV was installed in the company, watching selected company places. It also enables checking less used parts of the business, such as areas by fences etc.

Following government decree No. 378/2001 Coll., which determines the requirements for the safe operation and use of machines, a commission for the local operation and safety rules was crea-

ted, which issued 368 regulations for the operation of machinery or workplaces by the end of 2015.

In the pressure foundry, a layout pattern of the casting workplace including colors was designed. This model is still used today and the last casting workplace from 2016 is also arranged similarly. Each workstation consists of a casting machine, batching furnace, treating, a retrieving robot, a KMA vacuum and other peripherals. Energy distribution is transmitted via energy bridges alongside the casting workstation.

In the operation of the forge, the reconstruction of all eccentrics according to new security regulations took place in 2003. Most of the reconstruction was performed by the company TOMA Trnava. The operation of the forge underwent a major modernization. In 2004, it bought new forging presses from Müller Weingarten, a PA180 and a PA200, an Adige saw and a hardening furnace from the company Realistic Karlovy Vary.



Forging presses MW – PA180 a PA200

MÜLLER WEINGARTEN

-

0

Tel an

3

de la characteria





Machine control panel MW550 Opticast

In 2005, Hall 2 of the forge was completely renovated and a new workplace for Valeo forgings was purchased for it. It consists of saws, a Maestri, Italian heating furnace an Italian Hydromec forging press, Šmeral presses, Realistic hardening furnaces and other peripherals.

In 2005 another new casting department was purchased for the foundry. It was a casting workplace of Czech production with a TL6-500 casting machine from the company ELAP and from Müller Weingarten a casting workplace with a MW550 Opticast casting machine. In cooperation with



Switchgear and control for the machine Bühler H1100B from DCS

CTU in Prague and VUT in Brno tests were conducted on casting magnesium. The reconstruction of the electrical part of the older Bühler H400B and H1100B casting machines was begun. It was ordered from the company Fimro, while the actual technical implementation was carried out by the German company DCS. All three machines for which this renovation was performed are still working.



Casting workplace with the Bühler B105D casting machine



In later years the firm continuously invested in production and non-production facilities. In 2006, it bought a new casting workplace for the foundry with a Bühler B66D casting machine and in 2007 a new large workplace with a Bühler B105D casting machine, a Robopres TK40 and other peripherals. For the machine shop a new Chiron machine tool was bought that year. From TC Mach a unique heat pump with a cooling



capacity of 420 kW was bought. This allowed operating the central boiler plant only three months a year and to use the heat pump as a heat source the remaining months. In the tool room operation, the reconstruction of the SIP 44 machine drives was performed and three new Chiron machines were bought for the operation of the machine shop.

> In 2009, Kovolit like all businesses was affected by the worldwide crisis. The biggest consequence was the departure of a third of its employees. In subsequent years, it managed to regain orders, but only some of the departed workers.

> In 2011, another casting workplace with a casting machine was launched in the foundry. After the crisis began, customers began to demand the production of larger castings. From 2011, therefore, the investment

Heat pump of the company TC Mach with a cooling capacity of 420 kW



Casting site Bühler B84D ULTRAVENT

6

1

100.1.1

00

10:

L.C.A.

...

ULTRA

of Kovolit into the foundry focused only on large machines. In that year, it bought a casting workstation with a Bühler B84D casting machine. In the workstation, the KROWN batching furnace was tried for the first time. For the inspection of castings, it bought a new PAPCO X-ray machine. The former auxiliary smelter was reconstructed and the first Strikomelter blast furnace was installed there. For the tool room, a new DMG 835V was purchased.

2013 was a breakthrough year. A wastewater treatment plant was

purchased for the foundry, working on the principle of vacuum distillation. Another important investment that year was a workstation with a new generation of casting machinery, the Bühler Carat 105.

In 2014 it was decided that the current fork-lift trucks will be gradually replaced by electric carts. The two major brands chosen were the firms STILL and Linde.



Wastewater treatment plant





當前

In this year, the original main smelter with a low frequency furnace from 1960 ceased to be used. The original auxiliary melting plant became the main one, it was renovated and a second Strikomelter melting furnace and a smaller Czech melting furnace was bought for it (Institute of gas utilization Brno).



Smelter after reconstruction



Smaller smelters Czech production (Institute of gas utilization Brno)



Foseco degassing device in the smelter



Chiron machining workstation in the machine shop operation

In 2014, machine shop warehouse construction was begun. The hall was completed and handed over to the operation of the machine shop in 2015.

New machine shop warehouse



The year 2015 was marked by further investments and the liquidation of old, shut down melting furnaces in the foundry. The largest Elin holding furnace was extended to a depth of six meters below the surface. A contract was concluded for another Bühler Carat 105 casting workstation. Due to its installation, the adjustment of the entrances to the foundry and the spaces in it had to be performed. A new electric forklift was obtained from the company STILL for transporting liquid metal.

İ



New casting workstation with a Bühler Carat 105 casting machine

New skylights above the 3rd hall of the foundry



In 2016, another Bühler Carat 105 casting workstation and a new Rösler blasting machine were put into operation. At the same time, construction of a third hall of the foundry to enable future development and increase production capacity was begun.

An important milestone of 2016 was that the company Remet, spol.s.r.o. became the sole and therefore the one hundred percent owner of the joint stock company Kovolit.

Expected development of Kovolit in the coming years:

- Construction of a new machining shop,
- Construction of new maintenance forms,
- Modernization of the tool shop,
- Modernization of the forge,
- Equipping the foundry with a larger casting workstation,
- Decentralization of heating the premises,
- Revitalization of buildings and roads,
- Increased computerization and digitization of company operations,
- Development of "KOVOLIT 3.0" employee motivation program.

Blasting machine from Rösler

RÖSLER

SOURCES

- SCHREIER, Pavel. Stories from the history of the railways. Praha: Mladá fronta, 2009. Chapter S Across Moravia by locomotive, s. 50 (Czech).
- 2 National newspaper, 14 June 1921, page 5.
- 3 Town of Židlochovice Newsletter, 2009, no. 11, pg. 7.
- 4 Available online at: http://s9.zetaboards.com/ MRW_ Forums/topic/7244439/2
- 5 Brno: Old postcards XIII, Valley, Ravines, Marešova, Vídeňská, Modřice, Podolí, Slatina, Troubsko, pp. 59, 63.
- 6 Available online at: http://mim.cemotel.cz/05-3/mh--foto/_12.htm.

- 7 Available online at: http://www.securityprinting.org/texty/1938_1939/csbp_1938_1939.pdf.
- 8 Proposal for waste sewer pipes, 1937.
- 9 Contract on establishing the sewer easement, 1937, a copy from 1943
- 10 Outlet hole facility, 1937.
- 11 Emergency pumping station, 21 April 1941.
- 12 Adressbuch der Landeshauptstadt Brünn, 1942.
- 13 HORČICA, Ludvík. They died for the fatherland. Citizens of Brnovenkov died, were executed and tortured to death from 1939 to 1945.







800 copies self-published by the company KOVOLIT, a.s. Nádražní 344, 664 42 Modřice August 2016 Typesetting and Printing: Vojtěch Kosek, Quijote studio, www.quijote.

