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Summaries

Dariusz ROZMUS

NQBNM – MINERS’ SUPERVISOR FROM THE 2ND MILLENNIUM BC

*Ancient Egypt, Proto-Sinaitic writing
turquoise mine, copper mine, Serabit el-Khadem, Timna,
the birth of the alphabet, rb nqbnm*

At the beginning of the 20th century, Egyptian inscriptions as well as other inscriptions – a simplified writing system, later called Proto-Sinaitic writing, were discovered on the Sinai Peninsula in mines situated near *Serabit el-Khadem* during an archaeological reconnaissance of the remains of the ancient turquoise mining. After several dozen years Proto-Sinaitic inscriptions were also discovered in the copper mine in Timna in Israel and in Wadi el-Hol near the Egyptian Thebes in 2009. It is currently believed that the Proto-Sinaitic writing used the oldest alphabet which was later adapted to writing the characters used in the Northwest Semitic languages. It was assumed that the writing had been created by Canaanite miners working for Egyptian rulers.

Several references to mining appear in numerous variants of readings of the inscriptions. In case of a few translations, the majority of the results achieved are recognised by scientists. Among the readings of the inscriptions that refer to the subject matter of this article, one refers to the beloved “patron” of the Sinai miners of the time, and reads *For the Lady – lb’t*. This respected Lady is the Egyptian goddess Hathor, who seems to be the patron of the contemporary Sinai miners, presumably irrespective of their ethnic origin. The next reading of another inscription is also intriguing. The inscription mentions “the miners’ boss” – *rb nqbnm*, an entirely lay person.

This hypothesis has now been undermined, as the social status of the workers working in the desert was not associated with the intellectual circles that were capable of creating such a ground-breaking invention in the development of the civilisation as is the alphabet.

The author opposes to such an approach, arguing that conducting mining (and smelting) required a complex organizational structure resembling that of an enterprise, in which poorly skilled workers and slaves were only able to carry out the easiest work. The development of the mines, searching for new deposits, selling the resources, provisioning and other tasks that were necessary to survive in the desert must have been arranged by educated personnel. It is therefore highly probable that indeed those were the people who came up with the idea of an alphabetic writing.

Andrzej J. WÓJCIK, Wojciech PREIDL

“ZYGMENT” – BLANOWICE COAL MINE IN PORĘBA NEAR ZAWIERCIE

*history of mining, lignite mine,
20th century, Poręba*

The history of so called “Blanowice coal” lignite mining in the area of Zawiercie and Siewierz is long and includes periods of development as well as decline. In the 19th and during the first half of the 20th century more than forty mines operated in this region. One of them – the “Zygmunt” mine – located in Poręba near Zawiercie was particularly interesting. Established and fully operational between

1919 and 1935 it was the most productive among of the mines. There had been plans – eventually unsuccessful – to reactivate it during the Second World War. It should be noted that nowadays only a few documents stating the history of the “Zygmunt” mine still remain. The materials are dispersed and located in archives of various institutions. They are, however, sufficient to review and summarise the information on the “Zygmunt” mine’s history.

Agnieszka GONTASZEWSKA

OUTLINE OF THE HISTORY OF LIGNITE MINING IN THE AREA OF OŚNO LUBUSKIE AND SULĘCIN (WEST POLAND)

The paper presents the history of lignite mining in the north west part of Ziemia Lubuska (Western Poland), in the region of Ośno Lubuskie and Sulęcín. It describes underground mining in complicated geological conditions (glaciotectonic deformations). The paper is based on remaining German archival materials (Main Mining Office) as well as Polish materials. The paper briefly describes the discovery of lignite deposits in the nineteenth century and provides a detailed history of the largest mines in the region, i.e. “Oscar” and “Borussia” in Smogóry, and “Eduard” in Długoszyn, and and briefly discusses the remainder of the mines. The paper is supplemented with historical maps showing the locations of the mines and presents the available technical and statistical data.

Marek J. BATTEK

CHRISTOPH TRAU GOTT DELIUS – CREATOR OF MODERN MINING IN MIDDLE EUROPA

*Christoph Traugott Delius
mining, Middle Europa*

The article presents the person of Christoph Traugott Delius, 18th century scientist, author of the first university mining handbook, eminent expert in modernizing the austrian-hungarian mining, honoured with a high government post. Delius’ books are discussed in the all-important *Anleitung zu der Bergbaukunst*. It is the first academic handbook of mining science covering a range of topics from geology, through exploitation technology, construction of mining machinery, economics and managing in mining, to the importance of mining for the State. The extensive report on opal noble mining in Hungary is especially worth mentioning here.

Krzysztof MACIEJAK, Marcin MACIEJAK

SCHWARZE MINNA

*mining history, lignite, tuff,
Sichów, Lower Silesia*

The Schwarze Minna coal mine was opened between 1854 and 1855 and functioned for a period of at least 10 years. Initially lignite was mined; its deposit was, however, disturbed by tertiary basaltic volcanism. Once the lack of profitability of mining coal has been determined, as the deposit was established to be irregular and highly nodular, the mining company initiated an attempt to extract and market ground trass-like volcanic tuff as affordable building material of good quality and a substitute

for mortar. The discovery of coal and fossil remains in volcanic tuffs between Chroślice and Sichów was of certain significance in the XIX century's geology, and was researched as such by established scholars of that age who contributed to furthering the geological knowledge about that particular part of Lower Silesia.

Wiesław KOTARBA

IRON ORE MINE "PRZEMSA" OF A MINING CHARTER "PRZEMSA 2" IN KRZYKAWA

*history of mining, iron ore mine,
Dabrowa Coal Basin, XX century*

The small iron ore mine "Przemsza" in the village of Krzykawa was situated in the location of a mining charter "Przemsza 2", directly adjacent to the charters "Triumwirat" and "Aleksander 20". Although insignificant in size, the "Przemsza" mine employed a significant proportion of the local population.

Mining in this location had been undertaken well before the first recorded date in 1925 which is documented not only in the intangible memory of local landowners but also preserved in the old names of locations derived from mining nomenclature. The research into the history of the "Przemsza" mine is crucial for better understanding of its role in creation and development of new identity of "industrial society" within the local landowners. The collected information has allowed not only for the recreation of the history of exploitation of iron ore in the region of Zagłębie Dąbrowskie (Dabrowa Coal Basin), but also for a better insight into the administrative processes in the first years after Poland regained its independence after 123 years under partitions. Based on this example of a relatively small mine we are able to trace the influences such small enterprises had on the local community and, as a result, on the living conditions of its workers.

Paweł P. ZAGOŹDŹON

GALERIAS DEL AGUA (WATER ADITS) IN CANARY ISLANDS

*exploitation of groundwaters, water adits, water mines,
Canary Islands, Lanzarote, Famara*

In the area of the Canary Islands, there are several thousands of underground objects created by mining activity. There are the adits hollowed since the mid-nineteenth century to the last years of the twentieth century in order to obtain groundwater. Their concentration and location are the consequence of a unique hydrogeological situation, resulting from the specific structure of the rock mass on the islands.

The Communication outlines the geological structure of the archipelago, with a particular emphasis on Lanzarote, as well as information on the history and nature of mining works carried out there. Synthetic study of literature is supplemented by the results of reconnaissance conducted on the island of Lanzarote in two water adits located near the Famara settlement and in the valley Barranco del Chafariz.

Water adits in the Canary Islands are not widely known. They can, however, be of interest to geotourists as they constitute an interesting example of intense mining activity.

Paweł P. ZAGOŹDŹON

**SMALL ADITS IN MINING FIELDS OF LONGYEARBYEN (SPITSBERGEN)
– A REPORT FROM RECONNAISSANCE IN THE YEARS 2012 AND 2015**

*history of mining, coal mining,
Svalbard, Spitsbergen, Longyearbyen*

The report shows selected results of penetration of coal mines' relics in the fields of Gruve 1b and Gruve 2b mines in Longyearbyen (Spitsbergen, Svalbard) where the remains of the little adits are described. These objects are characterised by small size of drift mouths and are located at a considerable distance from the main mine units. Nine objects have been characterized, some of them well preserved and within several meters from each other, others are collapsed, and their entrances are covered by screens. The width of these adits varies from 60 to 160 cm, with their height in the range of 80–160 cm. In front of the inlets of some of them miniature waste heaps are located. The volume of these dumps is usually worth of tens of cubic meters. These adits may be a relic of mining activities from the twenties and the thirties of the twentieth century.

Cyclical penetration of the available adits allows for the observation of the rate of destruction of support elements, the rate of retreat of the ice filling the deeper parts of the drift, and the speed of the development of fungal colonies.

Stefan GIERLOTKA

PNEUMATIC LOCOMOTIVES IN MINING

*mining transport,
pneumatic locomotives*

First steam locomotives were created at the beginning of 19th century. In the underground excavation zones of coal mines, however, steam locomotives did not become common due to the amount of steam and smoke they produced. First underground attempts with the use of locomotives powered by compressed air were undertaken whilst drilling tunnels in the Alps. Serial production of pneumatic locomotives was initiated in 1905. Among Silesian coal mines first pneumatic locomotives were bought by Godula concern for Morgenroth coal mine in Chebzie. Building of coal mines in Rybnik Coal Area and excavation of methane layers forced the use of pneumatic locomotives for underground haulage. The BVD type locomotives of Czechoslovak production as well as Toll type locomotives produced by Jung Company were used in the Polish coal beds with high methane risk. Pneumatic locomotives found largest use in coal mines endangered with methane.

Andrea HUCZMANOVÁ

**THE ICONOGRAPHY AND HISTORY OF BERGKNAPPSCHAFTSALTAR
ARISING FROM THE HANS HESSE'S WORKSHOP**

*Annaberg, Hans Hesse, Miners' Altar,
The prophet Daniel*

Afterwards rich silver veins were discovered under the Schreckenber Mountains (1491-1492) as well as settlement related to the other activities. The silver and tin mining industry in the Ore Mountains range began in the early 12th century. With the further settlement of the Ore Mountains in the

15th century new rich ore deposits were eventually discovered around Schneeberg (1470-1477) and Annaberg (1491-1492). In 1496, a settlement was found on the site of the "Schreckenbergr" silver mine called the New Town. Master Ulrich Rülein von Calv helped during its location. This settlement was promoted to the status of a city by the decision of Duke Georg der Bärtige and the new town was named Annaberg. The city centre was going to be St. Anne's Church founded by the Duke which was meant to become the heart of the Saint's cult in the Ore Mountains. Conrad Pflüger, who started the building in 1499, participated in the construction, and Jacob Heylmann von Schweinfurt completed the project in 1525. This church, ranking itself among the most important late gothic buildings, was a clear manifesto of Duke's wealth and power ever since it was erected.

The interior is decorated with three gorgeous altars including the Bergknappschaftsaltar with the reverse side adorned with paintings originating from the Hans Hesse's workshop (past 1521). The central idea of these paintings, dedicated to mining industry at first glance, is the legend of the prophet Daniel that was very popular in the German milieu (its literary adaptation written by Ulrich Rülein von Calv was reprinted several times – one of them not long before the discussed paintings came into existence).

The legend itself talks about the angel giving Daniel advice on where the underground concealed treasure (precious metals) could be found. Master Rülein added the character of Daniel's apprentice Knapius to whom, in this adapted version, Daniel handed over all his knowledge on mining industry. Apart from the figures of an angel, the prophet Daniel and his apprentice Knapius we can see St. Wolfgang, saint patron of mineworkers, walking among miners with his attribute, an axe.

The remainder of the altar-boards are dedicated to particular mining operating procedures. The "predella" depicts the process of cleaning silver which is an important evidence of women's role in the mining industry. The left altar wing bears the image of people at a melting furnace and the left wing is a mint with the scene of mintage. In the background of the middle panel there are the gallows reminding the viewer to follow laws and warning that any law breaking shall be deservedly punished.

The message of the Bergknappschaftaltar was closely connected to important events in history. The city, as well as its ruler, refused to accept Martin Luther's ideas and held on the 'old' faith while at the same time, the local society had to face up the huge expansion of the recently founded city of Jáchymov which, following in the footsteps of the family of Earl Šlik, adopted the Luther's doctrine from it onset. Today the Bergknappschaftaltar can be understood as an expression of the Annaberg mining workers' respect to traditions on two levels, the sacred and the profane.

Marek J. BATTEK

IMAGE OF A 17TH CENTURY MINE IN THE CHURCH OF PEACE IN ŚWIDNICA (POLAND)

*mining iconography,
The Church of Peace in Świdnica*

In the Church of Peace in Świdnica, amongst many religious pictures and texts, there is an image of a mine and its miners at work. An attempt to interpret this finding has been made both in terms of the history of mining technology, as well as, possibly related, biblical texts. A realistic cross-section of a mine is shown in the picture. Two miners are working in the underground section of the mine with two others operating a windlass on the surface; one other miner is washing the excavated ore in the water from a spring. Evidently the picture has biblical roots – it is an illustration for the excerpt from the Book of Job, 28, 1–11. Chapter 28 bears the title of *A Poem to Wisdom* where, following the description of a mine and ore findings a question is posed: *But where shall wisdom be found?* The end of the chapter reveals the answer: *Behold, the fear of the Lord, that is wisdom, and to turn away from evil is understanding.*

Dawid LESZCZAWSKI

THE HISTORY OF MINING – THE REVIEW OF SELECTED ORGANISATIONS AND INSTITUTIONS

*history of mining, mining heritage,
museum of mining*

For many centuries miners have developed various techniques of deposit exploitation. They often risked their health or even lives over it. This article presents different ways of commemoration of their hard work and sacrifice, e.g. museums, tours in underground mines and open pits, organisations and Internet forums. Some of them are known only locally but there are also many institutions of international fame. The total number of such establishments is unknown; however, it is expected to be unusually high as many closed mines open their own museums and other tourist attractions. Those places enable new generations to acquaint themselves with knowledge of the history and mining traditions.

Karolina OLEJNIK

GEOPORTAL AS THE SOURCE OF GEOGRAPHICAL INFORMATION ABOUT POST-MINING AREA BASED ON THE EXAMPLE OF THE WAŁBRZYCH COAL BASIN

*Wałbrzych Coal Basin, post-mining area,
GIS, Web Mapping, open source*

The post-mining area of Wałbrzych Coal Basin is still undergoing revitalization and contains traces of many mining activities. Web mapping process presented in this paper is a fine way of visualization of all surface objects of the mining industry. Data used in the project has been collected from various sources like topographic maps and mining documentations. Implementation of the geoportal was based on three-tier architecture. The whole process started from preparing spatial data which occurs in vector layer form. The key step was the construction of three connected layers which are: database, server application and presentation trier designed for clients. All of the software used is distributed on open source licenses.

Wojciech PUSZ, Włodzimierz KITA, Jakub GRZESZCZUK

INITIAL SPELEOMYCOLOGICAL ANALYSIS OF A NEWLY DISCOVERED MINE IN SREBRNA GÓRA (LOWER SILESIA, POLAND)

*speleomycology, entomopathogenic fungi,
historical mine, Srebrna Góra*

Speleomycology is a new scientific branch of mycology concentrating on research of fungi present in caves and other underground objects such as adits, mines, bunkers, tunnels, etc. The aim of this preliminary study was to examine a newly discovered mine in Srebrna Góra. Initial aeromycologi-

cal analysis has been conducted. Also, presence of entomopathogenic fungi was surveyed in terms of colonies count and their biodiversity. Both aeromycological analysis and survey concerning entomopathogenic fungi showed that cosmopolitan and non-specific fungi species were present in the underground object. It is worth noting that many of the found fungi might be present in the hypogean environment due to being brought there by the explorators.

COLLECTIVE

DISCOVERY, OPENING AND PRELIMINARY RESULTS OF INVESTIGATIONS OF SILVER MINE IN SREBRNA GÓRA (FORMER SILBERBERG; LOWER SILESIA, POLAND)

On 13.11.2015 an independent research team under the leadership of Jan Duerschlag (underground works were carried out by, among others: Kacper Turko, Brandon, Jarosław and Krzysztof Nietrzpiel) opened the entrance to the historical post-mining facility in Srebrna Góra (former Silberberg in Sowie Mts., SW Poland). This text is a preliminary (editorial) elaboration of materials submitted by a number of researchers involved in the re-opening and initial scientific recognition of this mine. They are: Jan Duerschlag – the location of the mine and description of actions leading to reach it, Nike Nietrzpiel – current progress of a reconnaissance works, Izabela and Jarosław Nietrzpiel – photographic documentation, Tomasz Stolarczyk (Copper Museum in Legnica) and Tomasz Przerwa (Institute of History of the University of Wrocław) – historical data and archives, Szymon Kostka and Michał Józków – plan of a mine, Michał Stysz – historical data and dendrochronological sampling, Katarzyna Grudzińska – methodology of mine air analysis, Katarzyna Zagożdżon and Paweł Zagożdżon – geological survey, analysis of mine water in situ, air sampling (the last three persons – Faculty of Geoen지니어ing, Mining and Geology of Wrocław University of Technology). The preliminary results of micromycological investigations, carried out by Wojciech Pusz, Włodzimierz Kita and Jakub Grzeszczuk were shown in another communication (Pusz et al., 2015).

The mine is located in the uppermost part of Srebrna Góra, about 150 m NE of the Srebrna Pass (geographical location according to geoportal.gov.pl: 50° 34' 23.5" N, 16° 38' 56"). Mining workings are situated on two levels. Most of them form the upper level of the mine, this is an adit and sidewalks running to the east and west (fig. 1). Lower level is limited to one short excavation. In the mine there are also two small shafts (fig. 2). The total length of explored mining workings can currently be estimated at 230 m.

Search of a mine have been conducted since 2009. Archival maps from the mid-nineteenth century, obtained by Dariusz Wójcik and Krzysztof Krzyżanowski in the State Archives in Katowice (signatures: OBB III 4730, OBB III 4658), were analyzed. Excavation works lasted from the turn of the years 2013/14. (J.D.)

Oxygen content in the mine air, measured after the opening of mine was 19.8%, however in deeper workings it decreased to 16%. The smell of hydrogen sulfide was slightly perceptible. Therefore the induced ventilation of mine was carried out with use of system of improvised air pipes. (J.D.)

The next stages of intensive research took place on 21–22.11.2015 (i.e. drawing of preliminary plan of mine) and 28.11.2015 (penetration of lower level) (fig. 1). Workings of the upper and lower levels differ in their appearance (size, height of sidewalks), suggesting that they may have originated in another time periods (fig. 3, 4). (N.N.)

Form of significant parts of the excavation is typical for old mining, drifts are relatively narrow and high, they present a characteristic trapezoidal cross-section (fig. 3). On some fragments of workings the traces after use of hand tools to smooth the roofs and walls are clearly visible. There are also the remains of manual drilling of blasting holes.

According to archival data in 1911 in Srebrna Góra, there were conducted works aimed to adapt the “old silver adit” for tourism. By another information this adit was still available in the year 1928. This so-called Amali adit was to be driven in the years 1350, 1710 and 1858–1861. (T.P.)

In historic and archaeological community this facility is known as site Srebrna Góra 3 (AZP 91-25, site 9 in documentation of the Regional Office for the Protection of Monuments). Although until recently was not available, since 15.02.1971 it is listed in the register of monuments (pursuant to decision No. 537/Arch/71). In the literature the object is considered to be remnants of the mine Amalie or Xaver, and the time of its creation/functioning is determined on the Middle Ages or the sixteenth or eighteenth centuries. (T.S.)

According to a separate opinion this object is located on the mining field of nineteenth-century Amalie mine, but is a result of much earlier mining activities. During the inventory of the workings numerous traces of hand mining and traces of blasting using black powder have been found. This kind of mixed technique of mining, also confirmed by the shape and size of drifts, corresponds to the technique of mining operations at the beginning of the eighteenth century. (M.S.)

Preserved elements of wooden roof protection were sampled for dendrochronological testing (larger fragments of wood and cores from Pressler drill were taken). The laboratory research will be carried out in the Faculty of Geology, Geophysics and Environmental Protection of AGH University of Science and Technology. Results of investigation will allow to specify the types of wood used in a mine and their absolute dating. (M.S.)

Based on detailed geological map (Oberc et. al., 1994) it can be stated that the mine is located in the area of "cataclasites, brecciac and gneiss mylonites". About 100 meters south there is a boundary of large tectonic unit called Sowie Mts. metamorphic block. In the mine dominate gneisses differing with regard to their petrographic characteristics. These are thin-blastic or medium-blastic rocks, their structure is streaky, lamellar in some cases you can observe the faint visible augen-structure. One of the samples has the characteristics of granite gneiss. (fig. 5) In some places, within gneiss, the occurrence of quartz nests sized several dozen centimeters in diameter can be observed. (K.Z., P.Z.)

In this gneiss complex there is a group of shear zones, which were targets of exploitation. The zones are filled with highly crumbly rock (gneiss) or rock meal. The width of the zones is in the range of 0.2–2.0 m, the direction of their strike varies between 106° and 120°, the dip is typically steep 85–90° (in one case – 65°) to the south. During the field work we identified six such zones. Locally there are signs of ore mineralization. In one of the samples taken near the fault zone, within the calcite vein, chalcopyrite and galena have been macroscopically identified (sprinklings sized 2–10 mm). A sample taken from one of tectonic zones includes considerable amounts of secondary mineral with an intense green color in form of insets and incrustations. Macroscopically visible physical characteristics correspond to malachite or chrysocolla. (K.Z., P.Z.)

In the mine was taken a basic analysis of water, which temperature was determined on about 8°C, pH – 8 and conductivity – 440–575 µS/cm. In three points the mine air was sampled. By means of a stationary gas chromatograph (Arnel Clarus 500) will be determined a content of all natural atmospheric gases, primarily O₂, N₂, CO₂, CO, H₂, CH₄, NH₄, H₂S, He. Measurements taken by Gamma-Scout device have shown a very low γ radiation level. (K.Z., P.Z., K.G.)

Preliminary speleomycological studies carried out by staff of the Wrocław University of Environmental and Life Sciences, concerned the evaluation of microbiological pollution, i.e. the content of fungal spores in the air. Laboratory tests have shown that the dominant component are fungi of the genus *Penicillium*. In addition, insecticidal fungi, growing on the dead bodies of insects were sought in a mine. It revealed the presence of a few live colonies of fungi of this kind, but also a significant amount of dead colonies, what may indicate a sudden change of environmental conditions in the mine that took place recently (Pusz i in., 2015).

Krzysztof DOMAGAŁA

REVIEW

SIMON JONES “UNDERGROUND WARFARE 1914–1918” (POLISH EDITION)

Underground military acts accompanied many conflicts since ancient times. Evolving throughout history, they took the most advanced form during the Great War 1914–1918.

Simons Jones' book describes the underground warfare carried out on the western front between Entente and Central Powers. It is one of very few publications about underground war methods conducted by both sides of the conflict, including a detailed analysis. It contains many memories of soldiers taking part in war actions who introduce the reader to the world of underground tunnels, galleries, shelters and dugouts. Apart from describing the living and fighting conditions, the book discusses the daily life of the soldiers, their memories and experiences.

From the mining and geological points of view this publication is a real mine of information about the various aspects of underground warfare. It includes an exhaustive description of drilling techniques that were used underground, from clay-kicking to the most modern machines. On top of that the book discusses the tools applied, dimensioning and shoring up excavations, mining, ventilation, drainage, and listening techniques in a detailed and exhaustive way. The geological issues of the front and the ways to deal with them are also very carefully presented. To help understand the idea better those descriptions are well furnished with many illustrations, diagrams and photographs.

Published in 2010 in Great Britain by Pan & Sword Books Ltd., translated into Polish by Juliusz Tomaczak and published by Wydawnictwo Replika in 2011 the book has 353 pages and over 100 illustrations. The thematic scope is divided into 3 parts. The first one is an introduction to the topic of underground warfare and is a summary description of underground war techniques throughout the ages – to the outbreak of the Great War. The second part is a description of hostilities on the western front, describing battles, strategies and their analysis. The 185 pages present an exhaustive description of the underground war including many maps, plans and schemes. The third part seems to be the most attractive from the mining point of view. Comprehensive description of the technical issues provides an insight to the underground warfare and the tools and machines used. The book constitutes a very interesting reading aimed at acquainting us with this often overlooked method of war games.

Katarzyna D. ZAGOŹDŹON

REVIEW

KAROLINA BACA-POGORZELSKA, TOMASZ JODŁOWSKI, “LADIES ON SHIFTS”

I recently bought a book under the title of “Ladies on shifts”. The author of this unusual reportage, Karolina Baca-Pogorzelska, originally not interested in mining, gradually become fascinated by it, captivated by the atmosphere surrounding miners, atmosphere created by unusual people, between whom there is some kind of unique brotherhood. While reading this report we feel the passion with which the book heroes – women working in the mining industry – approach their work. The author, in collaboration with photographer Tomasz Jodłowski, presents the Silesian women miners working in the coal mines. It is a book about women, but addressed not to women only.

In a dynamic, though a little chaotic way, the book describes the problems of women who work in a profession and a place that for years had been reserved exclusively for men. The stereotypes they have to break each day help the female-miners become a little less exotic phenomenon than before. The determination of some of the book heroes leads them to hold high positions, such as the deputy minister of economy, responsible for mining, the vice-chairman of a big mine or a founder of Europe's first trade union for women working in mining.

Among the many questions the book poses the most important one seems to be whether every woman is suited for this profession? The answer seems to be obvious, although many young ladies, educated adepts of this profession, may not be aware of it.

The book also shows beautiful and rich traditions of the mining profession. Cherishing those traditions is not unique to the Silesians, they however give these traditions a new family and generational character.

The book was published by the publishing house Tartak Wyrzów. This is the second book of Karolina Baca-Pogorzelska (after "Drugie życie kopalń" – "Second life of mines"), journalist associated with the "Rzeczpospolita" journal. Beautiful, expressive photographs of Tomasz Jodłowski show another, a more subtle face of mining.