

The “Guido” historical coal mine in Zabrze as the example of geotourism in the Upper Silesian Coal Basin

MACIEJ DZIĘGIEL

*Górnośląska Wyższa Szkoła Handlowa, ul. Harcerzy Września 3, 40-659 Katowice, Poland
(E-mail: md248@wp.pl)*

ABSTRACT

The description of the underground route in the coal mine complex of museum “Guido” in Zabrze was made in the following paper. It is an essential example of geotourism in the Upper Silesia. There was given the history of the ex-coal mine “Guido” and its equipment which can be seen by visitors. Two levels open for public are at 170 and 320 m underground. The described monument is an important example of industrial heritage in the Upper Silesia. It is a unique one in the world scale in future.

Key words: geotourism, mine complex museum, industrial tourism

INTRODUCTION

The “Guido” former coal mine, which was transformed into mining museum complex is located in Zabrze, in the western part of Upper Silesian Coal Basin (Fig. 1). It started working in 1855 but it is not doing it now.

Mining and metallurgical industry was greatly developed in Silesia throughout the XIXth and early XXth century. There are hard coal deposits hosted in Upper Carboniferous sediments – sandstones, mudstones, and claystones. The coal was started to be exploited there in XVIIIth century when Prussian authority of Silesia were interested in mineral resources, especially silver and lead ore occurring there too. Some plants were build in Silesia in the same time. Lead was necessary for ammunition production, and silver was needed for the state treasury enrichment. Therefore, hard coal was also much needed in planting. It was used for flaming furnaces and moving steam pumps used for draining mines. The hard coal was also used in railway, sailing, industry, and household. The “Queen Luiza” coal mine in

Zabrze and the “King” coal mine in Chorzów were the first state mining companies in Silesia (www.gosilesia.pl).

The hard coal exploitation in the “Guido” mine was finished in the twenties of XXth century. Its objects were then entered in the register of Katowice province’s monuments, which obtained the rank-rock of historical importance in the country, and recently also in the world.

A coal mine museum complex in the “Guido” mine was created in the eighties of XIXth century. It was possible mainly because of the clear system of the mine’s gallery with its equipment dated to the XIXth century. (Górnośląskie Dni Dziedzictwa, 2007).

The “Guido” historical coal mine is known as an important example of the underground geoturistic attraction in the Upper Silesian Coal Basin (Słomka, Kicińska – Świdorska, 2004; Różycki, 2005). There are shown the way to provide the coal deposits, the mine’s equipment, and the way of the hard coal exploitation throughout history. Up today, the “Guido” historical coal mine is situated on the Monuments

Route of the Silesian Voivodeship. This route combines several historical premises which belonged to mining and planting in

Upper Silesia (Kaganek 2000; www.gosilesia.pl). The “Guido” historic coal mine also joined the network of the



ZABRZE'S QUARTERS

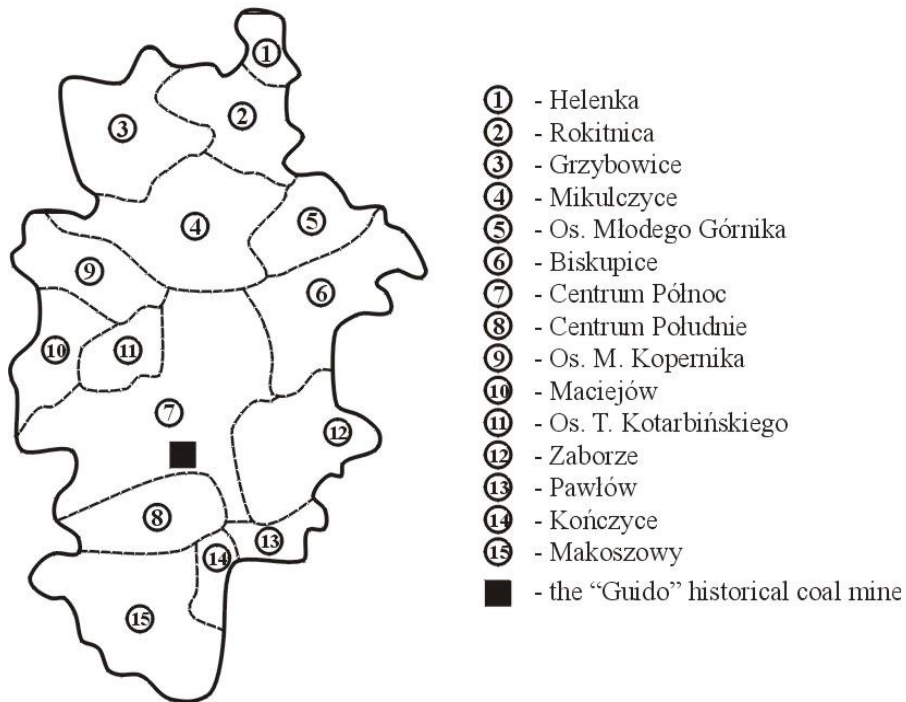


Fig. 1 Localization of the “Guido” historical coal mine in Zabrze

European Route of Industrial Heritage (ERIH) in January 2010 (www.zabrzanie.pl).

GEOLOGICAL STRUCTURE AROUND ZABRZE

Zabrze is situated in the western part of the Upper Silesian Coal Basin (fig. 1). This part of the Upper Silesian District area is composed of Upper Carboniferous, Triassic, and Quaternary sediments. Upper Carboniferous rocks, hosting hard coal deposits occur all over the area. They are mostly representative in the vicinity of Zabrze and Katowice, because they are outcropped in several places or covered only by thin Quaternary sediments (Fig. 2). That's why the hard coal has been exploited just in Zabrze.

Carboniferous formation (Silesian) around Zabrze is composed of the Upper Carboniferous rocks (Namurian, Westphalian). They occur in the form of four lithostratigraphic series: paralic (Namurian A), Upper Silesian Sandstone (Namurian B and C), Mudstone (Westphalian A and B) and Kraków Sandstone (Westphalian C i D) (Osika, 1970; Pawlak, Dziekońska, 1974; Gabzdyl, 1997). The paralic series is composed of sandstones, mudstones, claystones and locally conglomerates with a great number of the hard coal seams. The total thickness of this series is 3,500 m and that of the hard coal seam varies between 10-20 m (Fig. 2).

The Upper Silesian sandstone series comprises two stratigraphic units: the Anticlinal Beds (Namurian B) and the Rudy beds (Namurian C). These units host the largest hard coal reserves in the Upper Silesian Coal Basin. The Anticlinal Beds include gravelstones, sandstones, mudstones and claystones. Their thickness varies from 80 till 320 m and that of hard-coal seams is 28 m, in average. The Rudy Beds, 530 m thick comprise mudstones and claystones. The total thickness of their hard coal seams is between 15 and 20 m (Fig. 2).

The Mudstone Series is divided into the

two stratigraphic units: the Załęże Beds (Westphalian A) and the Orzesze beds (Westphalian B). The Załęże Beds are composed of limnic sediments – mudstones and claystones. These units host quite a number of hard-coal seams, a few meters thick in average. The Orzesze Beds include mudstones and claystones of total thickness 750 m and the average thickness of their hard coal seams is 38 m (Fig. 2).

The Kraków Sandstone Series is composed of the Łaziska Beds (Westphalian C) and the Libiąż Beds (Westphalian D). The Łaziska Beds include mudstones and claystones with seventeen hard coal seams. Total thickness of the Łaziska Beds is between 500 and 900 m. The Libiąż Beds are represented by sandstone with mudstone and claystone of total thickness about 525 m. These unit hosts nine hard-coal seams of thickness between 5 and 6 m (Stopa, 1957, 1967; Słowańska, Ruehle, 1968; Osika, 1970; Unrug, Dembowski, 1971; Pawlak, Dziekońska, 1974; Kotas, 1977; 1982; Gabzdyl, 1997; Stupnicka, 2007).

Most of the vicinity of Zabrze area is covered by Quaternary alluvial and glacial sands of thickness about 10-20 m (Guzik, Piechulska, 1960; Malinowski, 1991). The beds of Productive Carboniferous around Zabrze are locally overburden by red and mottled clays of Lower Triassic (Bunter) (Guzik, Piechulska 1960; Stupnicka 2007).

In the underground of the area around Zabrze, the Upper Silesian sandstone series, the Anticlinal Beds (Namurian B) and the Rudy beds (Namurian C) are the most representative there (Fig. 2). The hard coal was just exploited from those layers there.

THE HISTORY OF THE “GUIDO” HARD COAL MINE

The “Guido” historical hard coal mine is situated in the central part of Zabrze (Fig. 1). It was built in 1855, during the industrial revolution in Silesia in XIXth century. A prince, Guido Henckel von Donnersmarck, an earth and great industrial mag-

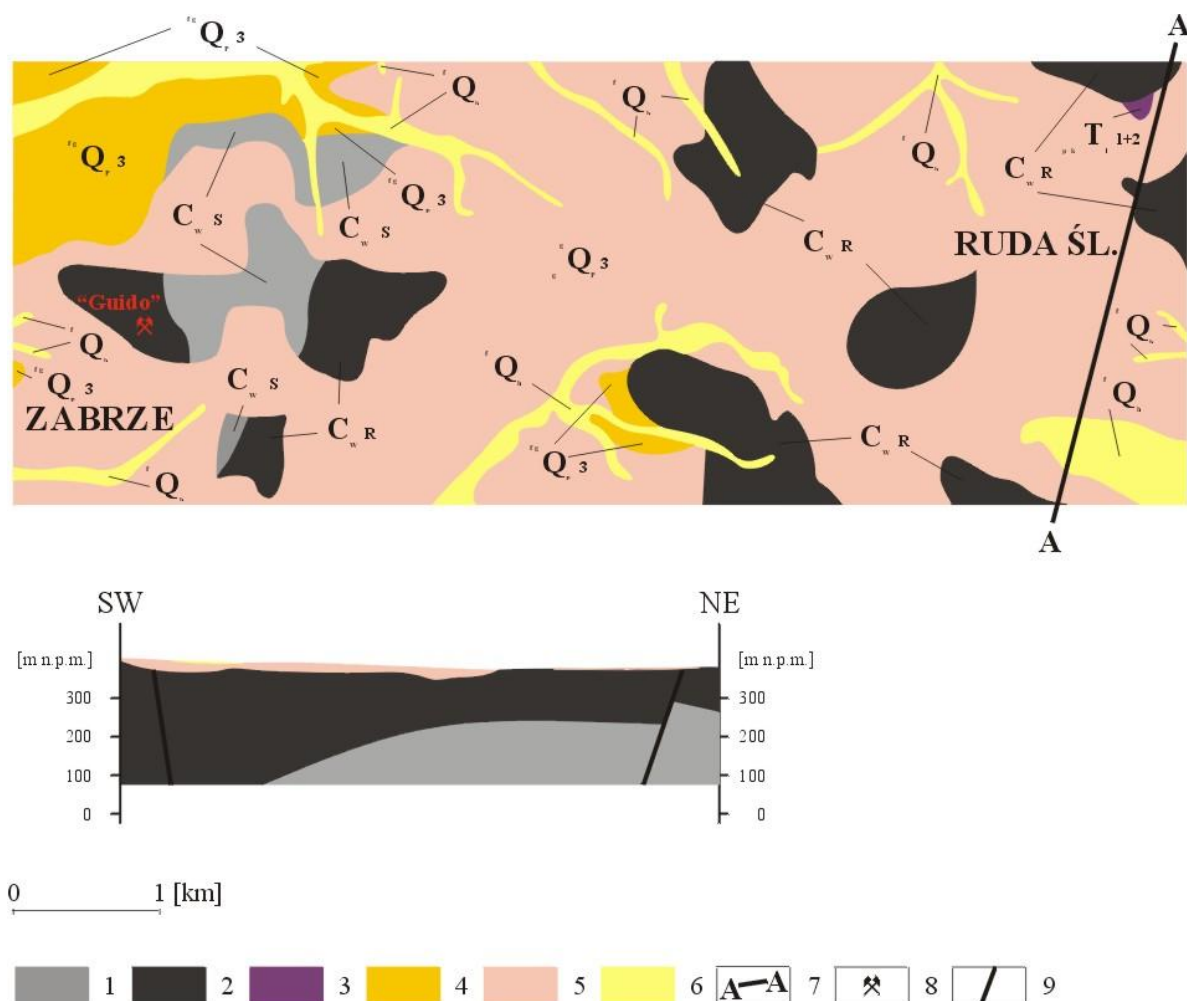


Fig. 2 Geological map of the area of the vicinity of Zabrze (Guzik, Piechulska, 1960)
 1 - The Anticlinal Beds (sandstone and coal) (Upper Carboniferous (C S)) 2 - The Rudy Beds (sandstone and coal) (Upper Carboniferous (C R)) 3 - sand, red clay (Lower Triassic Bunter (T 1+2)) 4 - alluvial and glacial sand (Quaternary - Pleistocene (1 Q 3)) 5 - loam or weathered loam (Quaternary - Pleistocene (1 Q 3)) 6 - alluvial sediments, undivided (Quaternary - Holocene (Q)) 7 - cross-section line A-A 8 - localization of the coal mine museum complexes 9 - faults

nate, built that mine and became its manager. The mine's name was taken from his forename. Von Donnersmarck was also the manager of Zabrze's plant for which he exploited hard coal. In 1855 the first shaft named "Barbara" was dug. In 1856 the exploitation of the coal was started at 97 m depth of the shaft named „Concordia” („Guido”). In the seventies of XIXth century the shaft named "Kolejowy" was dug, which let start with regular coal exploitation there (fig. 3). Shaft top and shaft tower were built in the eighties of XIXth century. In 1882 coal scrubber was constructed in

the "Guido" coal mine. It was the first device of this type used in the Upper Silesian Coal Basin. In 1887 the prince von Donnersmarck sold the "Guido" coal mine to Prussian Treasury. In 1890 the "Kolejowy" shaft was deepened to the level of 320 m underground. It created some possibility of connecting it with the "Delbrueck" shaft in 1904. The shaft "Delbrueck" belonged to the "Makoszowy" coal mine located in Zabrze too. In 1906 the electric ventilator with its performance of 1855 m³/minute was given to the "Guido" shaft.

In the twenties of the XXth century coal

resources were exhausted. So the “Guido” coal mine was transformed into central node drainage of the adjacent mines. Since then the coal exploitation in the “Guido” mine was finished. It could be continued only in the “Makoszowy” mine, neighbouring the “Guido” one.

In 1967 the “Guido” coal mine was transformed into the Experimental Coal Mine “M-300”. Since then there were made only exploiting experiments with machines being produced in the “KOMAG” institute of mining located in Gliwice.

In 1982 old workings of the Experimental Coal Mine “M-300” were adapted into museum mine complex which became the branch of the Coal Mining Museum in Zabrze. In 1987 the old mine workings and buildings of the lifting machine and shaft top were entered in the register of Katowice province’s monuments. Some repairs and conservation in the museum mine complex were made in 1990 and after that it was open for the public.

In 1996, local authorities decided to close the “Guido” coal mine because of the bad economical situation in Zabrze (Borkiewicz 1998; Lamparska-Wieland et al. 2002). They did so only in 2002, but in result of the great reorganisation in Silesian mining a little bit later, there appeared some opportunity to save that historical coal mine. In 2004 the “Guido” coal mine was given to the “Sośnica - Makoszowy” coal mine company in Zabrze as its property. It let the owners of the company come to an agreement with the authorities of Zabrze and Silesian Voivodship about to make up the decision on putting the old exploiting tools and machines into exhibition as the example of industrial heritage in Upper Silesian Coal Basin. It took place in between 2004 – 2006.

In October 2006 the Industrial Monuments Route of the Silesian Voivodship was designed. The “Guido” coal mine was put on this route then (www.gosilesia.pl) and since June 2007 it has been open for the public again (Gorzelik 2007). This object has been given the cultural institute status

named “the “Guido” Historic Coal Mine” (Rozporządzenie Rady Ministrów, 2007). It includes a system of galleries and shafts sunk to 300 m depth.

THE “GUIDO” HISTORICAL COAL MINE

The old workings open for visiting are located at the level of 170 and 320 m. Their total length is about 2 km. There is also art level located at the level of 320 m. Tourists go down there by the lift of the “Kolejowy” shaft.

The ground part of the “Guido” historical coal mine is consisted of the top shaft and tower of the “Kolejowy” shaft (Fig. 3). Large exhibits are collected there. The most valuable of them are engine exhaust from 1927 and its wheel cars from 1934.

At the level of 170 m tourists walk along the gallery named “ventilating crosscut”. The old stable is situated just there. Horses were used for pulling the haulage carriages. The “ventilating crosscut” is lined with wooden bars and wooden arches (Fig. 3). At the end of this crosscut, there are some rooms the exhibition of the old mining tools, lamps and saving equipment. It shows the traditional mining culture. There is also a small geological museum at the level of 170 m.

At the level of 320 m tourists walk through the network of the galleries with a large number of some old machines left there. They were used for exploitation in that mine throughout the XIXth and XXth century. The old workings are partly covered by wall or steel and anchors. They are in the form of shafts, ditches, sidewalks, inclines and chambers. Total length of the tourist route at this level is about 1,2 km. Visitors can see the methods of the hard coal exploitation used in the XIXth century.

The 18 degree incline is very interesting for tourists. They go down along and see the wooden gate there. This machine worked as a counterweight. This is the simplest and the oldest transporting

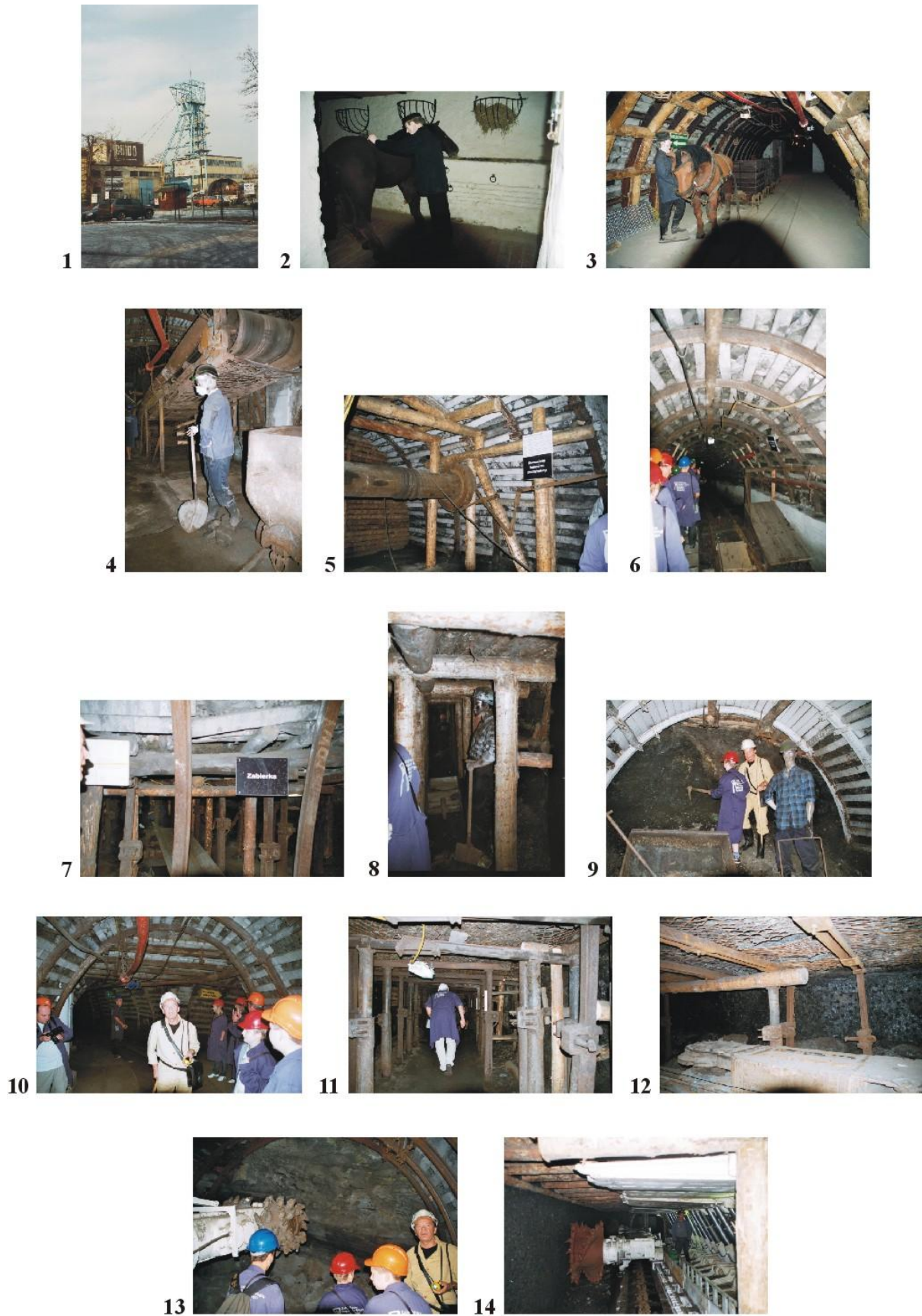


Fig.3 The photos of the “Guido” historical coal mine (Phot. M. Dziegiel):
 1 - The „Kolejowy” („Railway”) shaft; Level no. 170; 2 - stable; 3 - the ventilating excavation;
 Level no. 320; 4 - conveyer or belt for the transport of mining; 5 - the wooden whirl of the incline; 6 - the transport
 incline; 7 - the shortwall excavation; 8 - the spade wall; 9 - the hard coal outcrop; 10 - wall drift; 11, 12 -
 the shortwall gallery; 13 - sidewalk mining combine 14 - wall mining combine

device.

Tourists enjoy also walking down the short wall excavations not more than one meter in height there. They go under dust and water barriers hung in the excavation. In that way they can see some simple methods of the galleries' protection against coal dust explosion (Fig. 3).

At this level the guide shows tourists quite a lot of the hard coal outcrops there. They can try to cut the rock with a pickaxe. At the end of the walk through the gallery the work of the mining drum combines and the comb conveyor belts are shown there (Fig. 3).

There are also much of cultural activities in the "Guido" historical coal mine. Quite a number occasional concerts and theatrical performances are held in the old rebuilt chambers. Some of them are cyclic. The most interesting are: „Silesian Fajer on Gruba Guido” and „St. Barbra's feast” (Żurek et al., 2009). Some chambers of that historical coal mine are also adapted for gastronomical and commercial activities.

CONCLUSIONS

The "Guido" historical coal mine with its equipment, known for two centuries is a typical example of heavy industry inherited in Zabrze. Up to now, this city is one of the biggest industrial centres in Europe (Burzyński, 2007). Zabrze is the main industrial tourism centre in Upper Silesia at present.

In my opinion the "Guido" historical coal mine is very well prepared for visiting. At the level of 170 m, in the small geological museum the tourists can learn about the geological structure of Upper Silesian Coal Basin. On the depth of 320 m they can see the real spirit atmosphere in the mine, just when the tools and machines for rock's cutting are on. Those can be the essential arguments for joining the "Guido" historical coal mine into the European Route of Industrial Heritage (ERIH) in January 2010. Thanks of that, this industrial monument

has a great opportunity to be also known as a geotouristic attraction not only in Upper Silesia but also in Europe and in the world. The salt mines in Wieliczka and Bochnia in Małopolska have already been widely known around the world, mainly just from the geotouristic point of view.

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