THE EMERGENCE OF THE JIU VALLEY COAL BASIN (ROMANIA) - A CONSEQUENCE OF THE INDUSTRIAL REVOLUTION

MIRCEA BARON, OANA DOBRE-BARON *

ABSTRACT: *The Jiu Valley, or Petrosani coal basin, is an important economic region of Romania, situated at the springs of the Jiu River, between the Eastern Carpathians. It is a geographical area that emerges and develops from a social, economic and cultural point of view after mid-nineteenth century, as a result of the industrial revolution. The influence of the industrial revolution on this mountain area will occur on two coordinates: the extraction of the most important natural assets in the underground - coal - the energy resource that underlies the development of the first stage of the industrial revolution; the implementation of technical methods and technologies without which the coal deposits in the Jiu Valley could not be turned to account by primary extraction and processing. As a Transylvanian region, it will be part of the Habsburg Empire by the end of 1918 - the Austrian - Hungarian Empire since 1867 - and the industrial revolution, the political and economic interests of the state and of private capital will boost development. The state will be involved by developing a stimulating legislation - primarily the General Mine Law of 23 May 1854 - and through direct investment, and private capital by mining companies: Mine şi Cuptoare Company in Braşov; "Salgótarján"; "Uricani-Valea Jiului", "Valea Jiului de Sus". Work force will come from different parts of the Empire - which will trigger a population increase from 6670 inhabitants in 1854 to 50,015 inhabitants in 1910. This population will live in workers neighborhoods from which the present day cities will develop. Being highly professionalized, it will change the social, economic and cultural characteristics of the Jiu Valley by developing a modern industrial complex, production coal increasing from 853 tons in 1868 to 2,229,850 tons in 1913. The Jiu Valley coal will be used mainly for railway propulsion, in steel works, for household heating, etc., contributing to the development of other industries and to the comfort population.*

KEY WORDS: *Romania, Transylvania, Jiu Valley, industrial revolution, coal*

1. JIU VALLEY – GEOGRAFIC REFERENCE POINTS

The Jiu Valley or Petroşani coalfield represents an important region in the Romanian economy located at the source of the Jiu River. Geographically, the latitude

* *Prof., Ph.D., University of Petroşani, Romania, baron@upet.ro*
Lecture, Ph.D., University of Petroşani, Romania, oanabaron@yahoo.com

of the Jiu Valley $45^0$25'N and the longitude is $23^0$22'E; morphologically, it is a narrow and deep depression and it is among the few depressions that can be found in the Southern Carpathians. It has the shape of an asymmetrical triangular - shaped synclinal, orientated ESE – WSW, with the peak orientated towards the Western part and the base orientated towards the Eastern part; its length reaches 46 km and width varies between 2 and 9 km and it covers an area of 137.6 km^2.

The base of this depression is relatively thick - 556 m - within the area where the Eastern Jiu joins the Western Jiu and 800 m towards the Eastern and Western borders. This depression is surrounded by three mountains: Retezat Mountains to the NW and W part and Vâlcan and Parâng Mountains to the South[1]. Nature first and then people have produced magnificent gorges and passes that cross all these mountains covered by widely spread leaf – bearing and coniferous forests; these gorges and passes have facilitated the connections inside the depression and towards the North so as to get easier to Transylvania and towards the South to another Romanian province: Oltenia.

The area of the Jiu Valley took shape and developed both from a social and economic point of view and from cultural point of view during the second half of the 19th century as a consequence of the industrial revolution. The influence of the industrial revolution over the destiny of this mountain area focused on two trends: mining the most important wealth hidden in the underground of this area – coal – a power – generating source that represented the basic raw material during the first stage of the industrial revolution; implementing modern engineering methods that supported an efficient coal mining, without which it would have been less possible to capitalize it (during primary mining and processing) in the Jiu Valley.

The Jiu Valley, as component area of Transylvania, remained part of the Hapsburg Empire until the end of 1918 – starting from 1867, called the Austrian-Hungarian Empire; the industrial revolution, together with the political and economic interests of the state and of the private owners boosted this development.

2. SPECIFIC FEATURES RELATED TO THE GEOLOGY OF THIS AREA AND TO THE LOCAL DEPOSITS

The occurrence of coal in outcrops stirred up the interests of certain entrepreneurs and almost the whole literature issued up to now reckons that, around the year 1840, Hoffmann brothers and later on, Carol Maderspach, mine operators at Rusca Montană (Banat) performed the first explorations in order to get the coal necessary used by metallurgic working shops. All these activities had had a strictly economic character (coal mining), but gradually, it became obvious the need of certain geological researches that would include the whole basin of the Jiu Valley. Hungarian and Austrian geologists drew up numerous geological and paleontological study reports until I World War; also, the Romanian geologists drew up studies on these aspects starting with 1897 and until the '80s of the 20th century. All these studies have allowed an accurate shaping of coal deposits, both their volume and quality and at last but not in the last, the economic

[1] V. Tufescu, C. Mocanu, *Depresiunea Petroşanilor*, Editura Ştiinţifică, Bucureşti, 1964, p. 11; Societatea „Petroşani", *Monografie* (hereinafter, *Monografia Societăţii „Petroşani", 1925*), Editura „Cartea Romneasca", Bucureşti, 1925, p. 5.

importance of the Jiu Valley.

As we have said above, the geologist Karol Hoffmann, Ph.D.[2] carried out the first geological research studies that relied on scientific grounds. These researches dated back in the years 1867-1870: they settled the first stratigraphic benchmarks and provided the first geological overview of the Jiu Valley coalfield. We may say that, basically, these data are still valid: the upper level, the production level and the base level[3]. After through studies on fossil flora and fauna, Karol Hoffmann, PhD. concluded that the coal seam in the Jiu Valley coalfield derived from the coalification of the marsh flora, which situates the productive level in Oligocene[4].

Beside geological and laboratory analyses, the Jiu Valley saw also exploratory operations, mostly drillings. The first drillings were performed during the last quarter of the 19th century, especially by the Hungarian state. The most part of the drillings were performed at Lonea and the rest were made al Livezeni and Petroşani[5]. Between 1870 and 1877, a 729 m drill hole was made at Livezeni and the following levels were reached: between 0 m and 325 m – the upper level with rare and insignificant coal intercalations; between 325 m and 669 m – the production level with 15 coal seams; between 672 m and 729 m – the base level[6]. All these researches were continued by mine companies and by the state until the 80s of the 20th century; at the same time, there were drawn study and analysis reports[7]. The conclusions on the geology of the Jiu Valley and on the possible related economic development of this area relied on the results of the researches.

- Within the proper sedimentation package of the Jiu Valley basin, the most important seams levels from an economic point of view are the following ones: first of all, there is the lower marly - clayish production level and secondly, there is Sălătruc marly - clayish level. These two levels cover almost all coal seams, having a thickness that can be suitably mined all through the Jiu Valley field[8].
- As a result of numerous modifications occurred during the sedimentary and the tectonic processes suffered by the coal-bearing sedimentation layer, the coal deposits in the Jiu Valley displays specific geological and deposit conditions. Some of these conditions are listed below:
  a. There is a large number of coal seams;
  b. Strong tectonics characterized by a system of faults that divide the whole field

---

[2] K. Hoffmann, *Bericht über die im Auftrage der durchgführten geol. Untersuchungen des Sieben tertiaren Kohlenbeckens im Zsiltal*, Magyar Föltari Társulat Munkálatai, vol. IV, 1868; Idem, *Das Kohlenbecken im Zsiltal*, loc. cit, vol. V, 1870.

[3] T. Borş, *Raport de sinteză asupra geologiei şi persectivelor economice ale bazinului cu cărbuni Valea Jiului*, Trustul de Prospecţiuni şi Explorări Miniere, Bucureşti, 1964, p. 23.

[4] Andreics Janos, Blascheck Aladár, *A Salgótarjáni köszénbánya reszv. -tars. Zsilvölgyi bányáinak*, Budapest, 1903, p. 12; vezi şi Winkler Bela, *A Zsilvölgyi köszenmedenczeröl*, Bányaszati es Kohászati Lapok (B. K. L.) , III, 1870, nr. 7-8, p. 54.

[5] *Ibidem*, p. 25.

[6] Andreics János, Blascheck Aladár, *op. cit.*, p. 7-12; at Hunedoara County Department of the National Archives (hereinafter called DJANH), *Fond Societatea Petroşani, D. M. Confidenţiale*, file. 1/1919, f. 67-68, one considered that, following the researches carried out until I World War, the main seam = 3 could extend to 20 km in length.

[7] Bujor Almăşan, *Zăcăminte minerale. Exploatare, Valorificare*, Editura Tehnică, Bucureşti, 1989, p. 157.

[8] T. Borş, *op. cit.*, p. 106.

into around 240 tectonic blocks of different shapes, sized and orientations[9].

- Of the total of almost 21 coal seams, only the seams nos. 3, 4, 5, 7, 8/9, 12, 13, 14, 15 and 17/18, at the production level, display at the best, thicknesses that can be suitably mined and are being considered for mining operations.
- The thickness of coal seams ranges from several tens of centimetres and can reach even tens of meters, in the seam no. 3m; they display an average inclination angle of 32^0 to the Northern side of the Western area, 68^0 to the Eastern area and $10\text{-}15^0$ within the central area, and the average distance among them is of 40 m[10].

Long debates were on the volume of coal deposits in the Jiu Valley. Carol Papp, PhD. in geology, states in a study presented during the 12th International Congress on Geology that the Jiu Valley possesses, a coal reserve reaching 493,850,000 to[11] than can be appropriately mined.

After I World War, the Commission on electrification in Romania and on coordinating the use power-generating natural deposits plotted up a map with the natural deposits of fossil fuels. They reached an amount of 2,241,500,000 to of hard coal, brown coal and lignite; the coal deposits in the Jiu Valley registered 1.6 billion to[12]. A close value, i.e. 1.5 billion to of coal for the Jiu Valley of a total of 2,792,000,000 to which represent the Romanian coal reserves, was submitted by Prof. Ludovic Mrazec[13], on of the most important geologist, in a study report drawn up in 1931.

At present, one considers that the Jiu Valley sees reserves of 2.1 billion to of coal: hard coal and brown coal of which half constitutes industrial reserves; the main seam (seam no. 3) holds 48%; the seam no. 5 holds 16%; the seam no. 13 holds 10%; the seams nos. 4, 6, 7, 8, 12, 14, 15, 17 and 18 holds 1-3% each; the seams nos. 1, 2, 10, 11, 19 and 20 are not taken into consideration in the balance deposits[14].

By taking into consideration the petrographic analysis and the physical, chemical and industrial specific features of the Jiu Valley coal, the experts have concluded that we speak here about brown coal and hard coal. The classification criterion is the caloric efficiency at the limit of 5,700 kcal/kg.

By taking into consideration the specific features and their intended use, hard coals are classified into coking hard coal and power generating hard coal. Coking hard coal is located in Central - Western part of the Jiu Valley: Câmpu lui Neag, Uricani, Bărbăteni, Lupeni, Paroşeni and Vulcan and displays coking features ranging from very low to excessive. The power-generating coal and brown coal, can be found in the Eastern part of the Jiu Valley: Aninoasa, Livezeni, Dâlja, Petrila and Lonea[15].

Due to these specific features, the Jiu Valley coal has been used in different domains: it has been used under its raw form or it has been processed into prism-shaped or

---

[9] Bujor Almăşan, *op. cit.*, p. 158

[10] Bujor Almăşan, *Exploatarea zăcămintelor minerale din România*, vol. I, Editura Tehnică, Bucureşti, 1984, p. 84.

[11] DJANH, *Fond Societatea „Petroşani". D. M. Confidenţiale*, file 1/1919, f. 71.

[12] Ion E. Bujoiu, *Cărbunii*, Buletinul Societăţii Politehnice, XLV, 1931, nr. 12, p. 2119-2121.

[13] *Ibidem*, p. 2120.

[14] Bujor Almăşan, *Exploatarea zăcămintelor minerale din România*, vol. I, p. 87-88; in, Gh. Giuglea, Gh. Mihuţ, Paki Ernest, Roman Petru, *Centenarul exploatării industriale a cărbunelui în bazinul carbonifer Valea Jiului*, 1968, p. 8, specifies a geological coal reserve of amounting 1.8 billion to.

[15] Bujor Almăşan, *op. cit.*, p. 80-83

ovoid briquettes for house heating; it was also used as driving agent on steam locomotives, locomobiles, in order to put to work different types of equipment during the first stage of the industrial revolution. Coal has also been used to power up the electric-generating turbo-generators. By means of incarbonization, at high temperature, coal turns into coke which is later used in metallurgy and iron and steel industry, etc.

3. INDUSTRIAL REVOLUTION AND MINING ACTIVITIES IN TRANSYLVANIA

The coal mining at industrial scale started in the Jiu Valley at the midst of the 19th century. This process marks the entrance of the Jiu Valley into the stage of its modern development. Why did the coal mining in the Jiu Valley start only during the second half of the 19th century? Nobody knew about it one is it at the moment when it became important for certain industries? Coal has been used since ancient times[16]. The first hard coal mining in Europe started in 1113 year; it was recorded officially at Kerkrade, at the border line between Holland and Germany where the monks at Klosterrede monastery started the mining at coal surface, in Wurmtal Valley[17]. In Romania, there was discovered mineral coal in Banat between the '70 and the '80 of 18th century and the first coal mining started at Steierdorf - Anina[18] at the beginning of 1792.

The progress in mining and especially, in coal mining are due to the boosting process occurred at the end of the 18th century and during the 19th century; this process covered all the aspects of social and economic life when mankind reached an acme and the large doors for progress opened. The triggering factors of the capitalist-type economic revolution were: a liberal legislative framework that stimulated the free spirit; technical and scientific discoveries; there was a large amount of money on the market together with a cheap loans; demographic expansion.

These factors tailored the framework of the industrial revolution during the last quarter of the 18th century; this revolution succeeded to change the whole face of the world in such a manner that no other event has made. It was a real leap that broke the slow run of economic and social life and boosted all the industries. First of all, it was a revolution in the technical domain that led to an increased efficiency and output.

The industrial revolution divides into two distinct stages:

- the first stage is characterized by the exclusive use of coal, as power-generating source, the development of textile industry, the use of cast iron in the construction of metal elements, less developed transportation means, etc;
- the second stage definitely belongs to steel, textile industry suffers an involution in favour of metallurgy, the use of other power sources: electricity and oil, the development of chemical industry, mechanical driving in transportation.

This process had specific features from one country to another, depending on a

[16] A. Semaka, *Istoricul cercetărilor despre cărbuni. Din cele mai vechi timpuri până în 1900*, Revista Minelor, XIII, 1962, nr. 2, p. 83-86; Nicolae Maghiar, *Din Istoricul exploatării şi utilizării cărbunilor minerali*, Revista Minelor, XXII, 1971, nr. 2, p. 88-89.
[17] A. Semaka, *op. cit.,* p. 84.
[18] C. Feneşan, R. Gräf, V.M. Zaberca, I. Popa, *Din istoria cărbunelui. Anina 200,* Reşiţa, 1991, p. 12-15.

series of issues related to social, economic, political and cultural life[19]. First of all, the industrial revolution occurred due to the existence of important resources: money, manpower, an inventive spirit and a strong spirit of entrepreneurship, exploitation of mineral resources (especially coal and iron ore); there was also a revolution in agriculture that allowed a demographic expansion and a good food supply to industrialized areas; at least but not a least, there was implemented one new power-generating source: water vapours. All these important elements triggered subsequent progress that fulfilled this whole process.

Water vapours supplemented the other power-generating sources used up to that moment: power generated by man and by the force of animals or the power provided by natural resources. It was discovered that heat can be turned into a driving force; later on, this driving force turned into electricity. This discovery introduced certain flexibility in demands vs. offers on the market. In order to obtain this secondary energy, it was necessary to generate the primary energy; at that moment coal became more and more important due to its multiple uses, the result of researches carried out during a long period of time[20]. Coal was the element that boosted the industrial revolution and continued to be used at a large scale for a long period of time until the introduction of liquid and gaseous fuels of electricity and of the atomic power[21].

Gradually, the industrial revolution penetrated the Hapsburg Empire, first of all in the Czech part and in Austria and reached later in Hungary, Transylvania and Banat.

Due to strong economic, social, etc interests and due to the official policy that was under the influence of these interests, the Hapsburg Empire divided into several areas: Transylvania and Banat were considered mainly as important sources of raw material and markets for the products manufactured in the Austrian and Czech part. In 1850, the Austrian government removed the customs barrier and introduced Transylvania into the unique customs system of the Empire. This unilateral development gave birth to a mono - industrial system that relied mainly upon the interests of groups of persons involved in the industrial and financial domains; they intended both to try and preserve their status and to gain new leading positions and places. The mining represented an important asset during the industrial revolution: it represented a domain for the implementation of the technical and scientific accomplishments[22] and a supplier of raw materials necessary for the development of different industries, transportation, etc.; it was a crucial element in the development of certain regions. It is very interesting the opinion of the Austrian Gunter B.L. Fetweis who claimed that mining influenced: state and policy; economy and society; technical development; arts; science[23].

In this area, mining has been for a long period of time, but at that moment coal

[19] Ilie Puia, *Istoria economiei*, Centrul Editorial A.S.E., Bucureşti, 1993, p. 93-102.
[20] *Dicţionar cronologic al ştiinţei şi tehnicii universale*, Editura Ştiinţifică şi Enciclopedică, Bucureşti, 1979, p. 361-370; I. Simionescu, *Ce se scoate din cărbune?,* Gazeta Jiului, II, 1923, nr. 37, p. 3.
[21] Henri Morsel, *Energie*, în, *Dictionnaire d'histoire economique de 1800 á nos jours*, Hatier, Paris, 1987, p. 123-124.
[22] L. Vajda, *Începuturile revoluţiei industriale în mineritul şi metalurgia din Transilvania*, Anuarul Institutului de Istorie Cluj, X, 1967, p. 173-195
[23] Gunter B.L. Fetweis, *Reflexion uber den Bergbau im Ostalpenraum zur Zeit des Georgius Agricola*, Res Montanorum, Leoben, 1994, nr. 9, p. 7.

and iron extraction became very important. Between the years 1740 and 1745 the Hapsburg Empire lost the rich Silesian region of in favour of Prussia; as a result, the Hapsburg Empire was forced to start looking for new areas with rich natural resources. The Austrian state involved in this activity through the institutions previously founded to this special purpose, through the investments made in the mining field[24], through the approved legislation, with direct reference to the Austrian Law of Mines – also called the General Law on Mining[25] - issued on May 23, 1854.

The Austrian Law of Mines put the mine deposits under the authority of the principle res nullius. This law allowed the state to assign freely and on permanent basis the mine property to the one who discovered the deposit, in compliance with the regalian right. According to the art.3 in the Law, „in compliance with the regalian right means that supreme right according to which certain minerals found under the form of natural deposits shall be made available exclusively to the supreme ruler. All the metal, sulphur, potash alum, sulphuric acid or salt mines that can be mined belong to the mine regalian right; this is also valid for the cementing waters, graphite and ozokerite, together with all types of hard and brown coals"[26].

The Austrian Law of Mine forced the small undertakers to join together into mine companies on shares and subordinated the management of mines to the Ministry of Finance and to the Inspectorates (called Căpitanate in the Romanian language; the Jiu Valley region was allocated to Zlatna Mine Inspectorate). This system was also preserved during the Austrian – Hungarian dualist Empire (1867-1918)[27], etc. There was also some stock available which could be invested in an efficient industry; the investments increased after the implementation of the Austrian Law of Mines on May 23, 1854[28]

There were also small undertakers, especially involved in the mining of gold that organized themselves in mine associations on mine shares; all the same, there were persons who were interested to large sums of money in the mining filed in Transylvania and Banat. The penetration of these large sums of money was positively influenced by the selling of state owned properties on the market and the industrial bourgeoisie which provided support for the import of capital. One other major aspect was a large offer of cheap manpower, as the imperial decrees issued between 1853 and 1854 stated the abolition of serfdom[29].

There were several means through which the „big" capital entered the

---

[24] Ludovic Vajda, *Începuturile dezvoltării mineritului de cărbuni în Transilvania*, Acta Musei Napocensis, I, 1964, p. 397-419.

[25] *Legea generală minieră din mai 1854*, in vol., *Legea Minelor austriacă. Din 25 mai 1854*, Tip. „Lupta" Nicolae Stroilă, Bucureşti, 1923, p. 5-83. On July 21, 1861, Hungary also adopted the Austrian Law of Mines instally approved on May 23, 1854, and „it was to remain in force until the drawing up of a definitive law of mine" (*Legea minieră ungară*, in vol., *Legea Minelor austriacă. Din 25 mai 1854*, p. 87-90).

[26] *Legea generală minieră din mai 1854*, p. 5.

[27] From among the prerogatives of Mine Inspectorates: granting the right for exploration and use, surveillance of mines and penalties for possible infringements etc. (Ioan Popa, *Administraţia minieră şi prosperitatea mineritului din Ardeal*, Miniera, VII, 1932, nr. 7-8, p. 2338-2339).

[28] L. Vajda, *Începuturile revoluţiei industriale în mineritul şi metalurgia din Transilvania*, Anuarul Institutului de Istorie Cluj, X, 1967, p. 174.

[29] L. Vajda, *Capitalul străin în industria minieră şi metalurgică a Transilvaniei (1867-1900)*, Acta Musei Napocensis, IX, 1972, p. 231-232.

Transylvania and Banat markets: either directly, through capital investments of banks or of foreign financial groups, or in an indirect manner, by getting important shares in Hungarian banks that owned mine companies in Transylvania or when the German, Austrian, French money founded industrial undertakings in Transylvania together with the industrial capital and large Hungarian banks[30]. The first bankers interested in investing both in Transylvania and in Banat regions brought there Austrian capital, partly associated with the French capital: The House of Rothschild, the Austrian bank aristocracy under the management of Creditanstallt and the French bank aristocracy in relation to Société Générale de Credit Mobilier; between 1848 and 1867 they took hold of the most important mineral resources previously discovered and commissioned[31]. After the year 1867, the Austrian and the French capitals maintained and strengthened their positions, Transylvania and Banat becoming more dependent on Austria who exported intensively capital in these regions. They focused mainly on the production of raw materials, railway construction, banking operations. If at the beginning, Transylvanian bourgeoisie was almost completely excluded from the mining and metallurgy of Transylvania and Banat, in late 19th century and early 20th century, it were more than one situation when the bourgeoisie in Hungary, especially the one in Budapest associated with the Austrian capital[32]. From the middle of the '80s of the 19th century, the German capital obtained a significant position that entered, especially in the extractive industry of precious metals, either through Austrian banks, or alone. Also, the French capital maintained its position and conquered other new positions, by the help of the banks in Budapest, and especially by Credit Lyonnais, the English and Belgian capital, but the Austro-Hungarian capital held the leading position[33].

On this basis, few large companies that dominated economically for a long period time were founded in the mining and metallurgical industry of Transylvania and Banat, together with other undertakings or state-owned companies:

- StEG (The Imperial - Royal Austrian Company of the State – Owned Railways) was founded in December 1854 in Paris by a group of bankers[34], mostly French and Austrians. On the first day of January 1855, StEG purchased the mining domain of the Hapsburg state in Banat for the sum of 11,123,046 florins comprising an area of 133,168 ha; subsequently, the company also bought other mining and metallurgical assets within the mountain area of Banat;
- Societatea de Mine şi Cuptoare de la Braşov (Company of Mines and Furnaces in Braşov), founded in 1858, which invested in iron mines located in the regions of Banat and Transylvania, and in the Jiu Valley coal mining[35]. The company was founded by Czech and Austrian capital, with the support of the Austrian Wiener

[30] *Ibidem*, p. 232-233.
[31] Vajda, *Cu privire la pătrunderea capitalului austriac în industria minieră şi metalurgică a Transilvaniei între 1848-1867*, Studia Universitatis Babes-Bolyai, series Historia, fasciculus 2, 1965, p. 63-77.
[32] Idem, *Capitalul străin în industria minieră şi metalurgică a Transilvaniei (1867-1900)*, p. 229-230
[33] *Ibidem*, p. 231.
[34] N. Maghiar, Şt. Olteanu, *Din istoria mineritului în România*, Editura Ştiinţifică, Bucureşti, 1970, p. 200-211; 230-236; L. Vajda, *Începuturile dezvoltării mineritului de cărbune în Transilvania*, p. 403-408; Rudolf Gräf, *Domeniul bănăţean al StEG. 1855-1920*, Editura Banatica, Reşiţa, 1997.
[35] N. Maghiar, Şt. Olteanu, *op. cit.*, p. 211.

Bankverein bank which,, in turn, attracted the Hungarian Commercial Bank of Pest; this one had links with Deutsche Bank and Banque de Paris et des Pays-Bas, to where Wiener Bankverein had interests[36];

- between 1884-1899 the gold quadrilateral of Apuseni Mountains of Transylvania was founded with in the town of Brad in its center; it was an industrial complex, known under the name of „Ruda 12 Apostoli" Mine Association that belonged to a German corporate in Gotha, and at the end of the 19th century and the beginning of the 20th century, it became the most important undertaking involved in gold mining in center and south-eastern part of Europe[37];
- the mining companies that used to mine the coal in the Jiu Valley.

4. SHAPING AND DEVELOPING THE INDUSTRIAL COMPLEX IN THE JIU VALLEY

4.1. Initial investments and leases

I have outlined here the framework in which the coal mining industry in the Jiu Valley started in the middle of 19th century and which gives good reason for such a process. It goes without saying that the existence of coal in the Jiu Valley is known before the mid-nineteenth century. Coal, which outcropped in many areas, was easy to discover by local people.

The Hapsburg Emperor Joseph II (1780-1790) wrote in his official travel journal in Transylvania in 1773 that „at the end of the valleys (Crivadia – our commentary**)** on the left side, a ridge was mined and coal was discovered there, but it doesn't not worth much in a country rich in wood…". Also, the story of Emperor Joseph II goes with the following lines „close to the narrow pass, among the above mentioned large pieces of rocks (in Vâlcan Pass – our commentary**)**, one can see the mine hole dug by Prince von Lobkowitz, which is covered by trees, and by younger forests"[38]. In the year 1782, a mineralogist, Benkő Janos, told that he saw how „coal has been ignited and burned for a long period of time"[39]. In 1788, during the last Turkish attack in the Jiu Valley, the imperial border guards tried to stop the invaders by igniting a large amount of coal in Arsului Valley, around Vulcan, thus delaying their advance[40]. An explorer, Solyom-Fekete Ferencz said in 1888 that „not once and not in one place, the miners of that time used to dig wells to bring to surface the greenish color mud that were bore gold nugget and they crossed coal beds whose use

---

[36] Alexandru Toth, *Începuturile exploatării cărbunelui din Valea Jiului şi dezvoltarea acesteia până la sfârşitul secolului al XIX-lea*, Studii. Revistă de istorie, XVI, 1963, nr. 6, p. 1304-1305.
[37] Ion Rusu Abrudeanu, *Aurul românesc*, Editura „Cartea Românească", Bucureşti, 1933, p. 256; Mircea Baron, *Societatea „Mica". 1920-1948*, Editura Universitas, Petroşani, 2006, p. 223-243.
[38] Ileana Bozac, Teodor Pavel, *Călătoria împăratului Iosif al II-lea în Transilvania la 1773*, vol. I, Centrul de Studii Transilvane, Cluj-Napoca, 2007, p. 585-586.
[39] Silvestru Moldovan, *Ţara noastră. Descrierea părţilor Ardealului de la Mureş spre miazăzi şi Valea Mureşului*, Tipografia Arhidiecesană, Sibiu, 1894, p. 77.
[40] Iacob Radu, *Istoria vicariatului greco-catolic al Haţegului*, Tipografia Gutenberg, Lugoj, 1913, p. 13, 341.

was unknown but they seemed familiar with it"[41]. Perhaps occasionally, the native people used coal for heating purposes and Transylvanian historian Teglas Gabor said that blacksmiths in the villages of the Jiu Valley or in the neighboring villages used it in workshops in place of charcoal[42].

Ion D. Sirbu (1919-1989), known Romanian playwright, born in Petrila, in the Jiu Valley, wrote a beautiful book entitled „Povestiri petrilene" („Stories of Petrila"); the Part I includes 23 old stories related to the mining activity. One of these stories is called „Omul şi muntele" („The Man and the Mountain") is worth to be told here because it is a beautiful fantasy about beginnings of mining in the Jiu Valley: „The time when there was no mine or a factory in Jiu Valley and the local shepherds were earning a living hardly. With their sheep, the surrounding forests ... And from amidst these kind and meek persons, a haughty, proud lad raised. He didn't care much about the mountain and he was afraid of nothing and nobody. He used to cut down the wood without requiring permission, and went hunting and fishing as everything around him was his property. Mount kept mum, endured a lot and said to itself: You just wait until I grab you. When he married, custom required that any lad should introduce his mistress to the old mountains. Retezat Mts., Vâlcan Mts. and Şurianul Mts. received her respects. Only Parâng Mts., the mountain he earned his living, rejected her.

- I shall neither accept her nor you.
- Very well; not matter that, I shall still marry her. But I am going to settle the accounts with you first.

This fierce fight with the stubborn mountain has been going on starting from that very moment"[43].

Of course, a nice story, which relies on early searches, but the real life, in most cases, outstripped fiction, and the elderly mining of mountains in search of coal began in the more prosaic manner: the need to support progress and prosperity of a society with the help of this mineral, and the shepherds and hunters, who ventured into this area as other people have had to face the alternative to remain faithful to their ancestral occupations or to attach to modern development.

It is well-known the fact that in 1840, Hoffmann brothers and later on, Carol Maderspach, performed exploratory activities in the Jiu Valley and they laid the base of some rudimentary workings at surface, probably in the areas of Petroşani, Vulcan, Petrila, that continued operating during sixth decade of the 19th century[44]. The Austrian Law of Mines of May 23, 1854 required a unification of these small undertakers and, to this end, they merged with the Mine Union of Western Ardeal; between 1858 and 1859 they got the first mining perimeters (reaching an area of 45.116 m^2) recorded in the Land Registration Book for Mines of Alba Court of Law.

Later on, these perimeters were purchased by the Company of Mines and Furnaces in Braşov. This Company, who was the forth manufacturer of cast iron in the Hapsburg Empire, took also the metallurgic plant in Călan (nearly the area of the Jiu

[41] Solyom-Fekete Ferencz, *Sylvölgy a benepesitese valomint annak egyeb tortenetei*, în, *A Hunyadvármegyei törtenelmi es regeszeti tarsulat evkonyve*, 1888, p. 76.
[42] Teglas Gabor, *Hunyadvármegye közgazdasági leirása*, Budapest, 1903, p. 22.
[43] I.D. Sîrbu, *Poveşti petrilene*, Editura Junimea, Iaşi, 1973, p. 35-36.
[44] A. Schreiber, *Valea Jiului.1840-1926*, Montanistică şi Metalurgie, V, 1926, nr. 9 şi 10, p. 8.

Valley). They provided the metallurgically processed items necessary for mining purposes. The Company of Mines and Furnaces in Braşov was the first powerful company that operated in the Jiu Valley. For around ten years, the Company made serious investments and broad researches; consequently, serious coal deposits were discovered at Petroşani, Livezeni and Petrila and as a result, the Company got a large number of mining rights. These researches and preparatory operations created a suitable framework for the development of industrial activities but this process slowed down due to the lack of efficient transportation means[45].

There were also other private owners who had made investments in the Jiu Valley. Beside these private undertakers, there was also the Austrian state, and after the year 1867, the Hungarian state became interested in the underground richness of the Jiu Valley. It involved in several mining areas and performed exploratory operations in accordance with the Austrian Law of Mines of May 23, 1854[46].

On December 30, 1858, Maximilian Egon Fürstenberg et Comp. was granted the first mining right within Petrila area; the next eight mining rights were granted to the Mine Union of Western Ardeal[47] on March 15, 1859. They were in the perimeter of Vulcan, Petroşani and Livezeni villages.

More and more undertakers became aware of the economic value of the Jiu Valley coal basin, if taking into consideration the results of geological surveys, and exploratory operations that confirmed the existence of an important high quality coals. Consequently, they intended to get exploration permits and mining concessions and at the end of 1876, there was franchised a surface of 66,690,076 m^2 in the Jiu Valley[48].

As these small undertakers didn't possess the necessary finance to capitalize the concessions that had been granted to them, gradually, they had to give up in favour of powerful companies – at the beginning the Company of Mines and Furnaces in Braşov. Thus in 1909, there were four powerful companies which were involved in production in the Jiu Valley[49]: „Salgótarján" Company holding a leased surface of 31,619,329.3 m^2; „Uricani–Valea Jiului" („Uricani-Jiu Valley") Company holding a leased surface of 27,672,966 m^2, the State Mines of Lonea = 24,109,448.8 m^2 and „Valea Jiului de Sus" („The Upper Jiu Valley") Company = 6,271,124 m^2.

Generally, the mine perimeters were leased between 1858 and 1916; minor changes that didn't alter the predetermined structure were made after I World War and both the size of perimeters, together with their names were maintained after II World War.

Beside this vast land registration operation that favoured the development of the industrial area in the Jiu Valley, there were the big losers that had been adversely affected by the modernization trend; i.e. the inhabitants of the villages founded at the beginning of the 19th century. The native countrymen lost the land they held possession, either, through expropriation means or selling this land at prices lower than the real value of them[50].

---

[45] L. Vajda, *Începuturile dezvoltării mineritului de cărbuni în Transilvania*, p. 410-411.
[46] A. Schreiber, *op. cit.*, p. 8.
[47] *Ibidem*.
[48] *A Magyar Korona Országainak szentelepei es szenbányászata*, Budapest, 1878, p. 272.
[49] Henrich Victor, *A Zsilvölgy bányászatának roved ismertétése*, în, *Hunyadvármegyei Almanach*, Kroll Gyula könyvnyomdájá, Deva, 1910, p. 115
[50] Sebastian Stanca, *Monografia istorico-geografică a localităţii Petroşani*, Editura Fundaţiei Culturale „Ion D. Sârbu", Petroşani, 1996, p. 60.

The mine companies had exclusive exploration permits for the leased land in the Jiu Valley. Some of these surfaces were mined based on the mining rights; other surfaces of land didn't change their status and the permits were renewed every year. In spite of the fact that these coal companies, which exist before and after I World War, owned the whole mining perimeter of the Jiu Valley, they didn't capitalize the whole perimeter and preserved it; these companies didn't allow other private undertakers to enter this area and when this thing happened, these coal powerful companies used to incorporate them.

It was not enough to know the economic value of the coal deposits located in the Jiu Valley. There were a series of elements, such as isolation of this region, the existing connecting routes with Hațeg County and with Romania, unreliable internal communication routes, coal transportation to the blacksmith's shop with the help of the horse, that turn inefficient coal mining and after its capitalization, there wasn't enough money left to cover the expenses related to exploratory and opening operations. Consequently, it became imperiously necessary to settle the matter of transportation, both inside the Jiu Valley area and mostly to and from Jiu Valley.

Subsequently, the most important investment was the construction of the railway that connected Petroşani to Simeria. It was a gate opened to whole Transylvania. At the same, it was necessary to construct a modern road that connected the Jiu Valley to Romania. Yearly, 60.000 - 70.000 cows used to cross Petroşani from Romania and went to the Hapsburg Empire. After the year 1874, the Hungarian Government understood the huge opportunity involved by coal mining and drew up the plan for a large and solid road that had to cross the Jiu gorge; this road was marketing coal to the south area of the Carpathians. The construction of the road that connects Transylvania to the Southern Romania ended in 1890. This road represents the result of common action initiated by Romania and Hungarian authorities and its grand opening was on September 4, 1894[51].

The railway that connects Simeria to Petroşani was constructed between 1868 and 1870 and the Company of Mines and Furnaces in Braşov played an important part in this respect. The Company of Mines and Furnaces in Braşov was granted the construction of the railway between Arad and Alba Iulia – constructed between April 1867 and December 1868 - and of the branch Simeria – Petroşani, on August 1866. The construction of the railway between Simeria and Petroşani started in the spring of 1868 and they employed both the local labour force and workers brought from different parts of the Hapsburg Empire, including from the Northern part of Italy; from the very beginning the designers studied the idea to extend the route of the railway, through the Jiu gorge, to Romania. Between 1919 and 1948 the Romanian state brought this idea to an end.

On August 18, 1870, the above - said railway of 78,8 km in length (of which only 5,7 km with horizontal layout) was commissioned temporarily; the whole construction cost 12 million florins and if there was added the subsequent equipment, one km of railways cost 136.850 florins. Both the main and secondary railways were operated with 21 locomotives, 64 passenger cars and 513 goods wagons of which 126 wagons were for coal transportation[52]. The construction of the railway that connected Simeria and

[51] *Ibidem*, p. 62.

[52] Ludovic Vajda, *Prima cale ferată din Transilvania*, Acta Musei Napocensis, VIII, 1971, p. 287-298; Ilie Popescu, *Căi ferate. Transporturi clasice şi moderne*, Editura Ştiinţifică şi Enciclopedică, Bucureşti, 1987, p. 88-91; Horváth Ferenc, *Az erdélyi vasútépitészet elözménzei. Az Elsö Erdélyi Vasút Arad-Gyulafehérvár*

Petroşani, together with the construction of the 19 km railway that connected Petroşani to Lupeni (between 1891 and 1892) created a suitable infrastructure for a rapid progress of the mining and of the whole Jiu Valley.

4.2. State as industrial investor

As a matter of fact, state entered the Jiu Valley in 1865 through the Treasury House for the Management of Mountain Riches (called Tezaurariatul Montanistic in the Romanian language). At the beginning there were exploration operations and there followed opening operations. The first properties of the Treasury House for the Management of Mountain Riches dated back in 1865 when the Austrian Ministry of Finance took possession of the surfaces necessary for coal mining in the Jiu Valley, with the view to increasing the selling price of the items made by steel factors on Hunedoara.

As there were a lot of important persons who had economic interests in the area of Jiu Valley, including the Hungarian minister of finance, and the mine experts became more and more aware of the value embedded by the coal deposits, the authorities invested a large sum of money to start the operations necessary for the creation of state-owned mines in the Jiu Valley. In November 1868, the Temporary Office of Mine was founded in the Jiu Valley; all the investments in this area were taken out from the jurisdiction of the steel plant in Hunedoara and were directly subordinated to the Hungarian Royal Department of Mines in Cluj.

There is a lot of literature on the operations of the state, carried out through the Treasury House for the Management of Mountain Riches, in the Jiu Valley between 1865 and 1879. [53] The researches carried out in the Eastern part of the East Jiu revealed, with the help of natural outcrop, 21 coal seams, some of them thicker and others thinner; consequently, it was possible to start the first important operation: the mining of the adit at Deak Mine (Petrila) on December 24, 1868 at the level 634.3 m. [54] At the end of August 1869, the seams 1, 2, 3, 5, 13 and at the end of October 1869, the main seam no. 3 (of 37 m in thickness) was penetrated. In the month of June 1869, the project of the double industrial railway Deak Mine/Petrila – Petroşani of 2,570 m was finalized; its construction was finalized in the month of December 1869 but it was extended with a simple railway from Jiet Mine to Deak Mine / Petrila. The estimates said that 218,995 forints were spent on these operations, aspect that „shows the rapid advance of these activities…". Lonea adit was started and it had to advance 1,500-1,700 m up to the coal seam.

The year 1870 is under the sign of hopes due to the finalization of the railway that connected Simeria to Petroşani; nevertheless, it couldn't provide a capacity for the transportation of coal of 300 tons/day or 600 wagon/month, so the mining operations had to be stopped because large amount of coal piled-up on the loading platforms. Mining and supporting operations were carried out on the gallery at Răscoala and researches within the area of Sălătruc were performed, operations that allowed the granting of certain

fövonala és Piski-Petroszény szárnvonala, Müszaki Szemle, IV/15, 2001, p. 5-9; Horváth Ferenc, Kubinszky Mihály, *Ibidem*, IV/16, 2001, p. 3-5.

[53] Kantner Ianos, *A zsilvölgyi m. kir. kincstári szénbányászat*, B.K.L., XXXVI, 15 august 1903, vol. II, nr. 16, p. 235-258.

[54] Winkler Benö, *A zsilvölgyi köszenmedenczéröl*, B.K.L., III, 1870, nr. 7-8, p. 52.

perimeters for their further mining. The activity concentrated around Deak Mine/Petrila but a fire broke out after a while; consequently, the focus turned to the coal mining at surface and there was started the uncovering of coal seams in the valley of Jiet creek and in the neighbouring valleys; there were also opened two pits for stone and lime which were to be used for construction purposes and in the month of November 1870 the first steam machine for the production of bricks was commissioned in the Jiu Valley; a steam-power driven saw machine was installed at Petrila and it was used for the processing of wood cut down from the forests on Auşelu Mountain.

Deak Mine/Petrila saw an intensive activity during 1872; opening ways were being mined in the following mine fields: Jieț (started production in the month of December 1873), Răscoala and Sălătruc. Unfortunately, during the night of December 10, 1872 an explosion of methane and coal dust burst at Deak Mine/Petrila; thus, a fire broke an the seam no. 3 and the mine became too hazardous for mining. On this occasion, the upper side of the shaft and the housing of the extraction machine were affected by the fire.

Unfortunately, the results of the explosion occurred in the month of December 1872 had a negative effect over the state-financed mining in the Jiu Valley; consequently the surface mining of the seam no. 3 (Deak Mine/Petrila) ceased in the month of June 1874 and in August 1874 the underground mining was also ceased. There were also stopped the mining of the cross way at Lonea Mine, the working on the main shaft at Jieț, the opening mining at Răscoala and Sălătruc which had already 391.8 m and 407.8 m, respectively.

The reasons for these decisions were the probable financial losses because there was registered a negative balance of 324,297 forints at the end of the financial year 1874. The coal output diminished because Deak Mine/Petrila was the mine that had the highest coal output. After the accident occurred in the month of December 1972, the mining in the Jiu Valley reached back to the first stage in the mining of coal deposits because these wasn't taken into consideration the idea to open and prepare coal seams at other mines or at surface. The researches and the exploratory operations of other mine fields were in the buds or there were not enough information on the location of coal seams.

Opening mining from Lonea and Jieț couldhave brought the Jiu Valley mining in a favourable situation but the economic crisis broken in 1873 brought about a serious shortage of material means of social support given by the higher managing departments. As a result, the year 1874 saw 59,208 tons of coal (compared to 1873 when 79,390 tons of coal were mined out) and the coal output continued to decrease in 1878 when 53,096 tons of coal were mined: 26,813 tons of coal at Lonea Mine, 14,478 tons of coal at Jieț Mine and 11,805 tons of coal at Deak Mine/Petrila.

All those information led to a predictable decision. According to the Order issued by the Hungarian Ministry of Finance on March 5, 1875, the iron ore mines in Hunedoara County and the coal mines in the Jiu Valley belonging to the Hungarian Royal Treasury House, evaluated for 11,428,571 forints, were put on sale. This is not surprisingly because ever since the foundation of state-owned mines in the Jiu Valley, the idea was that most mining rights would be granted to private undertakings. The area that could be granted laid Eastern of Jiet creek, located in the Eastern part of Jiu Valley.

On August 31, 1879 the Mine Department in the Jiu Valley received a copy of the contract for the leasehold of state-owned mines in the Jiu Valley, according to which the

coal mining was leased for a period that started on the 1st of August 1879 and ended on December 31, 1896 for am amount of 100,000 forints per year. [55] This transaction ended a period when state-owned capital was present in the mining activity of the Jiu Valley. This presence was beneficial because it created a solid base for the mining activities performed in the Jiu Valley through industrial and social activities.

The evaluations said the state-owned coal deposits reached around 370 million tons in 1903 and the inventory value of the assets reached 94,307,948.99 crowns.

4.3. The Company of Mines and Furnaces in Braşov

The Company of Mines and Furnaces in Braşov held its position in the Jiu Valley until 1894. They possessed their own mining rights and in 1879 they held on lease the state-owned mines. After 1882 the society succeeded to get, with no expenses, the mining rights from Vulcan given up by the state.[56] After more than ten years of exploratory operations, the company started the opening and preparatory operations between 1867 and 1869.

East Jiu River removed the earth from its bed and uncovered the outcrops of the coal deposits leased by the Company of Mines and Furnaces in Braşov; this stage can be considered the starting point of *Petroşani Est (East Petroşani) Mine*. Between the years 1867 and 1868 the mining of the Eastern way started at the level 621.7[57] and this operation opened the mine at its upper side and crossed the seams 3 and 5[58].

The mining of the main adit - Gustav - started on the right bank of West Jiu River in 1869, operation that laid the foundation of *Petroşani Vest (West Petroşani) Mine*[59].

The Society of Mines and Furnaces in Braşov got its first coal production from these two mines. In 1871, the daily coal output could hardly fill in a couple of wagons but, it increased gradually and reached 30 wagons between 1872 and 1873. These were the highest coal output ever registered and they were celebrated in a special manner. [60]

Dâlja Mine was opened in the second part of 1890 as an extension of West Petroşani Mine through the main adit located at the level 610 m and extended along 2,000 m[61].

The Company of Mines and Furnaces in Braşov also supported the opening of *Cimpa Mine* around the year 1885. The mining operations didn't last long due to the difficult transportation and the low quality of coal. This mine, together with Lonea and Jieţ Mines, opened by the Treasury House for the Management of Mountain Riches were closed down. In spite of the fact that these mines were leased to the Company of Mines and Furnaces in Braşov and later on to „Salgótarján" Company which committed itself to uncover other coal beds, coal mining in these mines started only after 1908. Deak Mine/Petrila was the only mine taken on lease by the Company of Mines and Furnaces

---

[55] . Poporogu, *Pătrunderea capitalului străin în industria minieră a Văii Jiului în a doua jumătate a secolului al XIX-lea*, Sargetia, XV, 1981, p. 254.
[56] A. Schreiber, *op. cit.*, Montanistică şi Metalurgie, VI, 1927, nr. 5, p. 6.
[57] DJANH, *Fond Societatea „Petroşani". D.M. Serviciul Tehnic*, file 81/1930, f. 4.
[58] *Monografia Societăţii „Petroşani", 1925,* p. 74-75.
[59] A. Schreiber, *op. cit.*, Montanistică şi Metalurgie, VI, 1927, nr. 1 şi 2, p. 5.
[60] *Ibidem*.
[61] *Monografia Societăţii „Petroşani", 1925*, p. 83-85; Andreics Janos, Blascheck Aladar, *op.cit.*, p. 21.

in Braşov from the Treasury House for the Management of Mountain Riches that would remain operational and would continue to develop[62].

Another important achievement of the Company of Mines and Furnaces in Braşov was the opening of *Aninoasa Mine* around 1890, within the area of Iscroni village. Previously, the Company of Mines and Furnaces in Braşov had mined the outcrop from the Eastern and Western sides of Aninoasa creek. Later, as the open cast mines exhausted the surface coal, there followed into the underground mining into the mountainsides that bounders Aninoasa creek valley, and thus the underground mine was open, first above the level of these galleries[63]. In order to remove the coal output from Aninoasa, the Company of Mines and Furnaces in Braşov installed in 1892 a rope car equipment, with a total length of 4,200 m, up to West Petroşani Mine; the rope car was driven with a steam engine, it was made at „Obach" plants in Vienna[64]; in 1914, a second rope car was installed in parallel with the first one.

All this activity increased the coal production from 93,182 tons in 1879 to 136,546 tons in 1880 and 242,007 tons in 1894. In 1892, 77.2% of the hard coal extracted in the Austro-Hungarian Empire came from the production of the Company of Mines and Furnaces in Braşov, therefore from the Jiu Valley[65].

4.4. „Uricani - Jiu Valley" Company

During the last decade of the 19th century, there was a fierce fight over the important coal-bearing riches of the Jiu Valley between the Austrian capital, which had become predominant, and the French and the allied Hungarian capital, as well as the German one. The assault of foreign capital to the Jiu Valley mining industry materialized into a gradual conveyance of the Austrian and Hungarian capital towards the German, French, Belgian and British control.

An example was represented by what was happening in Lupeni, where the mining activity entered a modern stage in the '80s of the 19th century. The contribution of Hoffmann Rafael, a mining rights owner, was very important as he brought in foremen and workers from Styria and Galicia; he sent coal samples to Germany for analysis, the results showing that the coal had coking potential. Thus the value of the mining rights from Lupeni increased and among the first private companies that tried to buy mining rights in this region was the Company of Mines and Furnaces in Braşov, unsuccessfully though.

On February 9, 1891 *Uricani-Jiu Valley Anonymous Coal Mine Company* was founded, with an initial capital of 3 million forints, subscribed by nine persons, members of the Hungarian Parliament, capitalists from Budapest and from countryside and the main object of activity was coal mining from the perimeters of the mines that had been obtained[66].

During that time, Hoffmann Rafael sold his mining properties to a group made

---

[62] *Ibidem*, p. 16-17
[63] *Monografia Societăţii „Petroşani", 1925*, p. 88-89.
[64] Andreics Janos, Blascheck Aladar, *op. cit.*, p. 39.
[65] Ludovic Vajda, *Capitalul străin în industria minieră şi metalurgică a Transilvaniei (1867-1900)*, p. 236.
[66] I. Poporogu, *op. cit.*, p. 255-256.

of French capitalists, supported by the French Credit Lyonnais Bank; the group brought in its own experts who worked in Lupeni[67] for several years.

The two groups merged in 1892 under the name of *Uricani- Jiu Valley Anonymous Hungarian Coal Mine Company***,** which became the second largest private company in the Jiu Valley, giving birth to „a mining boom of great importance for the local industry"[68]. The company was set up with a capital of 6 million crowns, which increased to 10 million crowns in 1896; the Company's group of French capitalists entrusted the representation of their interests to the Hungarian General Bank of Credit in Budapest, and starting with 1897, the Bank was entrusted with the selling of the mined coal as well[69].

In 1895 and 1902 the company bought other surfaces[70]; in 1903 it managed to own 27,672,966 m^2 of mining rights, plus 90 mining perimeters[71], and before I World War, it owned mining rights with a surface of 27,890,061.4 m^2, taking over the entire mining sector in Lupeni.

Researches focused on the coking characteristic of the coal in Lupeni and led to the conclusion that it coked better if damped coal was used. Based on these conclusions, in 1899 „Uricani-Jiu Valley" Company created *Uricani-Jiu Valley Anonymous Coke Manufacturing Company*, with a capital of 200,000 forints, having the Hungarian General Bank of Credit and Oberschlesische Kokswerke-und Chemische Fabriken A.G. in Gleiwitz as main shareholders; this company drew up the project for a coking plant in Lupeni. It was a small-sized installation, commissioned in September 1900, and it comprised the installation of the coking plant, with 30 coking cells for 0-18 mm coal; the coal washing plant, with a capacity of 200 tons/10 h.; the installation for the drying of the coal dust. The length of burning reached 42-44 hours and a silvery, soft, frail-type coke was obtained, which was well below the quality of the one obtained in Silesia[72].

4.5. „Salgótarján" Company

The penetration of the financial and industrial capital into the Jiu Valley coal basin before I World War was broadly brought to an end through the *Anonymous Coal*

---

[67] A. Schreiber, *op. cit.*, Montanistică şi Metalurgie, VI, 1927, nr. 5, p. 6.
[68] I. Poporogu, *op. cit.*, p. 256.
[69] Margareta Toth-Gaspar, *Condiţiile de muncă şi viaţă ale minerilor din Valea Jiului şi luptele lor greviste până la sfârşitul secolului al XIX-lea*, Acta Musei Napocensis, I, 1964**,** p. 258; Alex. Toth, *Mineritul din Valea Jiului în faza trecerii la capitalism şi dezvoltarea lui până la primul război mondial*, Studia Universitatis Babeş-Bolyai, Series Historia, Fasciculus 2, 1963, p. 83.
[70] A. Schreiber, *op. cit.*, Montanistică şi Metalurgie, VI, 1927, nr. 5, p. 6.
[71] Krizko Bohus, *Az Urikány-Zsilvölgyi magyar köszénbanya-resz-tars. Lupényi bányatelepének rövid ismertetése*, Budapest, 1903, p. 4.
[72] I. Poporogu. *Din istoricul exploatării miniere şi începuturile luptei revoluţionare a minerilor din Lupeni*, Sargetia, V, 1968, p. 287-288; a presentation of the factory can be found in, DJANH, *Fond Societatea „Petroşani". D.M. Serviciul Tehnic*, file 45/1932-37, f. 157. The factory functioned with breaks until August 1925, when it was completely shut down, after on August 18th, 1920 the benzol shop had been shut down.

Mine Company from Salgótarján[73]; as it was in the German capital's sphere of influence, it acquired important mining perimeters.

As the business of the Company of Mines and Furnaces in Braşov began to go wrong, it seemed that it was not able to renew the lease on the state - owned mines, which had expired at the end of 1896. The Company of Mines and Furnaces in Braşov tried to save itself by contracting a 2 million forint loan from a company in Düsseldorf, but the negotiations were not successful; the problem was taken over by the Wiener Bankverein, which represented the German financial capital and by the Hungarian Commercial Bank in Budapest. Finally, *„Salgótarján" Company* bought the mines and the mining permits valid for the Jiu Valley of the Company of Mines and Furnaces in Braşov, together with other coalmines owned by this company in Hungary, and the lease contract signed with the Treasury House for the Management of Mountain Riches, on its mines in the Jiu Valley for 3.5 million forints[74].

On January 2, 1895 „Salgótarján" Company took over all mines in the Jiu Valley that belonged to the Company of Mines and Furnaces in Braşov, and starting with January 1, 1898, for a better administration of the mines, two Mining Departments were set up, in Salgótarján and in Petroşani. In 1897 „Salgótarján" Company extended the lease contract for the mines in the Jiu Valley belonging to the Treasury House for the Management of Mountain Riches for another five years, namely until 1901, and in 1898 the validity of the lease contract was extended until 1906[75]; also in 1897 an agreement was signed with the Hungarian State, according to which the Deak/Petrila Mine remained in the full property of „Salgótarján" Company[76]. This way, in 1903 „Salgótarján" Company owned in the Jiu Valley 55,728,778.1 m^2 of mining rights[77], and before I World War, 34,983,372.6 m^2. Due to these surfaces, the existing equipment and the investment policy, „Salgótarján" Company became the strongest mining company in the Jiu Valley and, together with „Uricani-Jiu Valley" Company, dominated the Jiu Valley and the Transylvanian coal mining.

4.6. „The Upper Jiu Valley" Company

On May 17, 1900 a contract of foundation was signed, according to which two owners of mining perimeters in the Jiu Valley laid foundation of a mining association, divided into 128 parts (mine shares): *Coal Mines Company of the Upper Jiu Valley*, located in Vulcan. The two owners transferred to the new Company the land surfaces

[73] Andreics Janos, *A „Salgótarjáni köszénbánya Resz.-Tars", szenbányászátainak rövid ismertetese*, B.K.L., XXXII, 1899, nr. 21, p. 408-410. The „Salgótarján" Company was the largest coal producer in Hungary. It was set up in August 1868 when it took over the coal mines in Salgótarján. Its shareholders were traders and manufacturers from Pesta, but also Austrians, and later Germans. The company's banker was the Hungarian-English Bank, and it also had connections with the Hungarian General Credit Bank (DJANH, *Fond Societatea „Salgótarján"*, file 52/1920, f. 7; Alex. Toth, *Începuturile exploatării cărbunelui din Valea Jiului şi dezvoltarea acesteia până la sfârşitul secolului al XIX-lea*, p. 1309).
[74] I. Poporogu, *op. cit.*, p. 257-258.
[75] Andreics Janos, *op. cit.*, p. 409.
[76] *Monografia Societăţii „Petroşani", 1925*, p. 9.
[77] Andreics Janos, Blascheck Aladar, *op. cit.*, p. 14.

owned in Câmpu lui Neag, Uricani, Vulcan[78]. The production activity was carried out in the area of Vulcan, inside the perimeters of Arpad, Terezia, Carolus Gerbert mining rights. The development was made towards the Northern part of the coal ore on both banks of Crividia creek, and it aimed the mining of the surface coal, as well of those parts from the coal seams located closer to surface. The investment effort materialised into an increase of extracted coal output from 10,995 tons of coal in the second half of 1895 to 80,189 tons of coal in 1902[79]. On December 15, 1903, due to hardships in selling coal, the mine and all its mining rights, namely 50/50% - 64/64 mine shares - was sold to „Salgótarján" and „Uricani–Jiu Valley" Companies[80]. „The Upper Jiu Valley" Company continued to carry out its activity but under a new coordination and with other perspectives, which led to a production of 124,300 tons of coal in 1913.

4.7. The State Mines of Lonea

The last necessary organizational and technical development started in 1907 when, due to the coal crisis experienced by the Austro-Hungarian Empire, the Hungarian State decided the termination of contract with the „Salgótarján" Company and the re-opening of the mine which belonged to it in the Jiu Valley. This also happened because the Company of Mines and Furnace in Braşov, together with the „Salgótarján" Company, who leased the state mines – except for the Deak/Petrila Mine, which remained with the „Salgótarján" Company – had made no investments or opening, preparation and mining operations.

Based on a previously established program, new explorations were made in order to establish exactly the layout of the ore and an impressive investment program consisting of industrial buildings, mining works, and special endowments was implemented. The government was willing to invest 16 million crowns between 1908 and 1911[81], aiming: the opening of three mining fields through shafts, which shape the mining perimeter of Lonea today; the construction of the Petroşani Power Plant by 1912, equipped with two turbo-generators of 3,700 HP; the construction of the North Petroşani coal separation unit, with an output of 230 tons/hour; lamp rooms for 1,336 safety lamps on gas, Friemann-Wolf model; housing for clerk and workers, etc.[82].

We can see how, for forty years, the Jiu Valley mining tried to find the most adequate organizational and development methods. At the beginning of the 20th century the structures to be found in the Jiu Valley with certain changes until the end of the period between the two world wars and even in the first years after II World War.

---

[78] DJANH, *Fond Societatea „Valea Jiului de Sus"*, file 12/1925, f. 1-3.

[79] xxx, *A „Felso-zsilvölgyi köszénbánya Társulat" vulkáni bánámüveinek rövid ismertetése*, B.K.L., XXXVI, vol. II, 1903, nr. 20, p. 538, 540.

[80] DJANH, *Fond Societatea „Valea Jiului de Sus"*, file 1/1922-26, f. 12; Papp Karoly, *A zsilvölgyi oligocen mendence szentelepei Hunyad vármegyében*, în, *A magyar biradalom köszénkeszletete*, Budapest, 1915, p. 707-708, 721.

[81] Alex. Toth, *Mineritul din Valea Jiului în faza trecerii la imperialism şi dezvoltarea lui până la primul război mondia*l, p. 87.

[82] A. Schreiber, *op. cit.*, Montanistică şi Metalurgie, VI, 1927, nr. 6-7, p. 5; DJANH, *Fond Societatea „Petroşani". D.M. Serviciul Tehnic*, file 81/1930, f. 8 -10.

5. THE EVOLUTION OF THE INDUSTRIAL COMPOUND AT THE END OF THE 19TH CENTURY AND THE BEGINNING OF THE 20TH CENTURY

The mining companies and the state, as industrial investor, did not limit themselves only to a physical presence in the Jiu Valley; they were mainly interested in finding the most adequate technical solutions to mine the coal out with as high efficiency as possible and with bearable costs. We saw that after 1907-1908, the State Mines could spend significant amounts of money for opening and modernization purposes, but the two major mining companies in the Jiu Valley, „Uricani-Jiu Valley" and „Salgótarján" were most involved. As distinctive elements we could mention: the transition from the opening of the mine through adits to vertical shafts; the implementation of certain mining methods that took into account the size and configuration of the coal seams; an ever increased use of steam energy and of electric power; an increased use of the means and driving power used for transportation, from hand-barrows and carts to carriages, winches, rope cars driven by human, animal or mechanical force. Unfortunately, the previous practices were continued, i.e. the mining of the thin covering layers was which involved higher coal outputs with smaller costs. However, this was done at the expense of the main layer's mining and this policy generated great problems in the mining activity during the period between the two world wars.

In order to develop the mines from Lupeni, „*Uricani-Jiu Valley" Company* made significant investments. Gradually, opening and preparing operations were carried out, which allowed for the opening of the following mines: *Nord (North), Ştefan, Victoria, Ileana, Carolina*, on the Northern side of the basin, and of the *Sud (South)* and *Ella* mines, on the Southern side. Between 1892 and 1902 the coal mined from the North and South mines, and starting with 1900 from Ştefan Mine; it continued later with the development of the other mines[83].

According to the policy held for the opening of mining perimeters, a trend that determined an increase of the coal production, there were major concerns for the introduction of modern elements. With respect to transportation, we can notice that constant mechanization was intended. It was believed that the force of arms could be used only when the amount of transported material did not exceed 1 ton/man/km in one day; when it exceeded 1 ton/man/km the use of horses and mechanization was profitable. In Lupeni it was believed that the electrically-driven transportation installation in the underground was the best one and this system was designed since 1898. In 1903 there existed electricity on 1,450 m in Ştefan Mine and 1,400 m in North Mine, such an electrical line existed in the main gallery of the Southern pit; five electrical locomotives were used for traction that were manufactured in the Lupeni mines' workshops.

Installations for vertical transport were introduced, the first extraction machine was installed at the South shaft, initially having an electric engine of 65 HP and later another one of 120 HP[84]; five rope car installations were built mainly for the coal

[83] *Ibidem*, file 45/1932-37, f. 23-24, 31-32, 47, 144; file 23/1929, f. 2-16.
[84] Krizko Bohus, *op. cit.*, p. 26.

transport to the four coal separation units[85], where coal was mechanically classified into five categories: small = 0-10 mm, carbon dust = 10-18mm, nut = 18-35 mm, cube = 35-120mm, lump = > 120 mm[86].

The ever increasing demand for electric power of the mines from Lupeni was solved by building in 1900 year, of the Electric Power Station near Ştefan Separation Unit; this station was extended in the '20s of the 20th century, when it was equipped with four generators that delivered 11,800 kW[87].

The most important achievement of *„Salgótarján" Company* was the opening of the mines in *Vulcan* in 1900.

The coal reserve and its quality placed these mines on the first places among the mines of the company only three years after opening. It looks like nature helped this opening as well as any erosion produced by the waters that frequently used to wash the steep valley brought to the surface coal layers of considerable sizes. The layers cropped out one after the other so that there was almost no need for research expenses. The main layer was revealed on all its thickness, which allowed for a surface mining along 700 m at least.

The three mines opened here were:

- *Vulcan Vest (West Vulcan) Mine*, which was opened through the main adit of 1,580 m long. It was started in 1902 in the valley of Crividia creek, at 630 m ground elevation;
- *Vulcan Est (East Vulcan) Mine*, which was opened through a cross-cut way of 600 m in length from Arsului Valley, at 630 m ground elevation. It crossed the coal seams nos. 13, 9, 8, 7, 6, 5, 4 and 3, thus marking the main level.
- *Chorin Mine*, which developed through the opening of deep levels, where it was believed that the coal seams were horizontal or less steep. This layout gave hopes that the old mining wouldn't be influenced by the new ones all together. The lower level of the West Vulcan and East Vulcan mines was considered to be the separation line between them and Chorin Mine.

The mine opened by excavating the main shaft situated in the Crividia creek valley, at 580 m north of the bank of the West Jiu River. The excavation of the shaft started before I World War and it finished shortly after the war ended. The shaft was 352 m deep – it was excavated between the levels 619.2 m and 267 m – it had a diameter of 5.72 m, and its walls were built with prismatic concrete blocks of 0.45 m thick. This shaft was the deepest in the Jiu Valley, with a metal extraction tower of 30 m height; the shaft had a steam - driven extraction machine – initially of 600 HP, and later of 1,000 HP – able to extract four cars of 700 kg of coal, namely 500,000 tons of coal per year on every cage from a depth of 500 m and with a speed of 20 m/s. The shaft crossed the coal seams nos. 18, 17, 15, 13, and the two longitudinal ways, starting from the surrounding area of the shaft at level 480 m, one going towards east of 1,400 m long and another towards west of 1,600 m long, excavated mainly in coal, which

[85] Krizko Bohus, *op. cit.*, p. 27; DJANH, *Fond Societatea „Lupeni". Direcţia Minelor*, file 4/1925, f. 27-28;.
[86] Krizko Bohus, *op. cit.*, p. 28.
[87] DJANH, *Fond Societatea „Petroşani". D.M. Serviciul Tehnic*, file 81/1931, f. 26.

allowed for the opening of seams nos. 15, 13, 8/9, 7, 5, 4, 3[88].

Besides the opening of the Vulcan Group following the direction of the deposit, there were concerns for the creation of the technical conditions required by the extractions and enrichment of coal.

In the Crividia creek valley, near Chorin Mine, a central mechanical separation unit was built, with a capacity of 125 tons/hour, driven by an electric motor of 40 HP. The separation unit took over the entire production of the three mines in Vulcan, and starting with 1909 the production of the mine belonging to „The Upper Jiu Valley"Company**;** it also classified coal into five categories[89] after the removal of the shale.

In 1900 the building of the old Electric Power Station in Vulcan began. The Station had a 100 kVA generator driven by a 130 HP steam engine; in 1905 it was supplemented with a second 190 kVA turbo-machine. The installation was not enough in the supplying of mines belonging to„Salgótarján" Company' with electric power, and in 1909 the building of a new power station began in Vulcan; this one could provide power to all the electric equipment of the Company. The Electric Station in Vulcan was commissioned in February 1910: it had two Siemens-Schuckert turbo-generators of 1,080 kVA each, driven by a 1.200 HP Zoelly turbine. In 1913 the third Siemens-Schuckert turbo-generator of 2,500 kVA was ordered. It was driven by a Melms-Pfenniger turbine of 2,700 HP. The entire installation was supplied with steam at 300 °C and 13 atm obtained in five boilers with a burning surface of 409.5 m^2. In 1910 the Vulcan-Petroşani[90] power line was mounted as well.

Activity intensified at mines and the related activities of Petroşani Group of „Salgótarján" Company. The Group was made of the following mines: *Petrila*, *East Petroşani*, *West Petroşani*, *Dâlja*, *Aninoasa.* The surface installations were technically improved and they tried to relocate them so that they would become fit for a rational coal mining system. Similarly to Lupeni and Lonea, the Vulcan and Petroşani Groups gradually switched to opening through galleries when opening through shafts, an activity that required new installations once the mines became deeper.

Thus, at Petrila mine, former Deak, in 1912 the prospecting and exploration of the main coal seam came to an end; Deak shaft was deepened to 207 m until 1913, in comparison with 143 m in 1910. The old 60 HP extraction machine, mounted in 1872, was replaced with a more powerful machine, a metal tower for the shaft was built now; extraction or ventilation shafts were mined at the other mines[91].

Besides the opening and preparation works, which enable the increase of production, we could also mention the introduction of hydraulic embankment, used instead or together with dry embankment at Petrila mine in 1900, with a capacity of 33 m^3/oră, and in the Vulcan mining compound since 1915[92]. For the sorting of the extracted coal, „Salgótarján" Company used two coal separation units in Petroşani. East Petroşani separation unit, built in 1910, with a capacity of 70 tons/hour, driven by

[88] *Monografia Societății „Petroşani", 1925*, p. 95-112.
[89] *Ibidem*, p. 120.
[90] DJANH, *Fond Societatea „Petroşani". D.M. Serviciul Tehnic*, file 81/1931, f. 11.
[91] Papp Karoly, *op. cit.*, p. 711- 715.
[92] *Monografia Societății „Petroşani", 1925*, p. 73, 112.

an electric engine of 26 HP, separated the coal from East Petroşani and Petrila mines with the help of Westfalia system of mobile screens. The Western Separation Unit, built between 1896 and1897, had a separation capacity of 90 tons/hour; it was driven by an electric engine of 124 HP and took over the production from the West Petroşani and Dâlja[93] mines.

The electric energy necessary for the mines of the Petroşani Group came from the Electric Power Station, which had a capacity of 500 kVA. The Company of Mines and Furnaces in Braşov built it in 1894 in Petroşani and the same company developed it between 1898 and 1901[94]. The Electric Power Station functioned until 1916, being less used after 1910 and mainly serving as a back up installation[95].

We presented part of the technical investments carried out in the Jiu Valley. Technical endowment can be considered a prerogative of the Jiu Valley mining activity, which allowed it to attain a level of mining similar to the one practiced in other parts of the Austria-Hungarian Empire and especially to represent a starting point for the following period. Statistics provide us with an image of the achieved progress. Thus, according to an approximate calculation, in 1896 all Jiu Valley mines had tools and machines with an installed power of approximately 1,400 HP.

The mining companies had the following technical utilities:

- The State Mines, leased to „Salgótarján" Company had 1.5 km of underground railroad for transport; 1.7 km surface railroad with horse traction and 7.2 km with locomotives; 4 locomotives of 70 HP; 1 extraction machine of 60 HP; 1 fan, 670 cars;
- „Salgótarján" Company had 25 km of underground railroad, 2.5 km of surface railroad with horse traction and 9 km with locomotives; 5 locomotives with 400 HP; 2 extraction machines of 160 HP; 4 rope car installations; 14 steam boilers of 535 HP; 2 pumps for water drainage; 1 fan; 3 coal separation units;
- „Uricani-Jiu Valley" Company had 22.1 km of underground railroad and 0.8 km of surface railroad with mechanical traction; 4 steam boilers with 90 HP; 2 locomotives; 4 fans; 3 coal separation installations; 502 cars;
- „The Upper Jiu Valley" Company had 1.3 km of underground railroad; 2 km of surface railroad with horse traction; 6 cars.

During the following years, technical means had a more accentuated penetration, and the electric power was used on a large scale, in parallel with the use of pneumatic energy.

It goes without saying that at „Uricani-Jiu Valley" Company the power of the machines used increased from 130 HP in 1896 to 2,161 HP in 1903, 2,492 HP in 1906 and 4,485 HP in 1910, therefore resulted an increase of 34.5 times during 14 years. Significant increases can be noticed at „Salgótarján" Company as well.

According to a presentation in an almanac of Hunedoara county for 1910, in 1909, in the Jiu Valley mines had: 160,142 m of galleries; 14,732 m of car rope transportation; 145,410 m of railroad and an installed power of 6,360 HP; in order to obtain a coal production of approximately 1.5 million tons 10,049 people worked, of

[93] DJANH, *Fond Societatea „Petroşani". D.M. Serviciul Tehnic*, file 81/1931, f. 14-15.
[94] Andreics Janos, Blascheck Aladar, *op. cit.*, p. 47-48.
[95] DJANH, *Fond Societatea „Petroşani". D.M. Serviciul Tehnic*, file 81/1931, f. 11-12.

which: 44 technical clerks; 81 administrative clerks; 20 foremen; 81 deputies; 3,228 miners; 2,626 car drivers; 3,959 unskilled labourers[96].

According to a Report drawn up in 1911 by the Mining Inspectorate in Petroşani - institution created that year – there can be noticed that the Jiu Valley used 268.7 km of industrial railroads, of which: 45.6 km for steam locomotives, 8.9 km for electrical conveyance and 16.7 km rope car transportation routes; there existed 23 vertical shafts and seven inclined shafts; there were in operation 11 electric generators with an installed power of 9,853 kVA = 13,400 HP; the power of the steam engines was of 2,900 HP[97].

The number of tools used in the Jiu Valley mining increased and improved. Besides traditional tools such as: hammers, drills with a diameter of 35 mm, two headed hammers, large hammers, hook to remove the dust from holes, pole, coal shovel, saw, axe etc. Starting with 1902-1903 - in Lupeni, for instance - Hardy percussion drilling machines, Hardy and Elliot drilling machines, drilling machines manufactured in the „Uricani-Jiu Valley"[98] Company's workshops were used. In 1907, in Lupeni five pneumatic drills and five coal-cutting machines were used and in 1909 the high capacity Diamond coal-cutting machine was tried out, unsuccessfully, mainly because of the ore conditions; in 1911 In the Jiu Valley 30 coal-cutting machines and 217 coal pick hammers were used, the compressed air required for their driving being supplied by 17 compressors[99].

This technological development was meant from the very beginning to facilitate coal extraction, and gradually production increased from 853 tons in 1868 – the first known production in the Jiu Valley - to 2,229,855.3 tons in 1913, a level of production not to be attained again until the '40s of the 20th century.

At the same time, it needs to be told that this development couldn't have been carried out without the existence of a labour force able to put into practice a project state-owned or private capital, and the needs of the industrial revolution.

Until the beginning of the industrial exploitation of coal, the Jiu Valley population wasn't very large. The Jiu Valley population results, besides the natural increase, from two colonisation processes: the first one, of agricultural-pastoral type, takes place between the 16th and 18th centuries, when the settlements which form the Jiu Valley habitual space today are formed; the second one, of industrial type, starting with the second half of the 19th century and through to the '90s of the 20th century. Each of these stages brought to the Jiu Valley groups of population of certain specificity that were to create the ethno-demographic characteristic of the area and would determine quantity and structural changes both in respect of population and in respect of habitat: settlements and houses. Industrial colonisation brought in, during the first stage which lasted until the beginning of the 20th century, workers from Transylvanian mining areas, but from other parts of the Austro-Hungarian Empire as well: Romanians, Poles, Ruthenians, Czechs, Slovaks, Austrians, Germans, Hungarians, Serbs, Bosnians etc.

[96] Henrich Victor, *op. cit.*, p. 115-119.
[97] Alex. Toth, *op. cit.*, p. 89 -90.
[98] Krizko Bohus, *op. cit.*, p. 13.
[99] Alex. Toth, *op. cit.*, p. 90-91.

Table 1. Coal output of the mines in the Jiu Valley (tons) 1868-1914[100]

Year	Company		Jiu Valley	Year	Company				Jiu Valley
	The Company of Mines and Furnaces in Braşov [1]	The State Mines			The Company of Mines and Furnaces in Braşov [1]	Uricani-Jiu Valley[2]	The Upper Jiu Valley	The State Mines of Lonea[3]	
1868	852.9	-	852.9	1892	234,8567	24,567.5	-	-	259,424.2
1869	3,431.3	-	3,431.3	1893	234,434	90,724.5	-	-	325,158.5
1870	10,680.3	16,700	27,380.3	1894	242,007,2	120,761.5	-	-	362,768.7
1871	48,306.2	118,780	167,086.2	1895	299,816	215,151.5	10,995	-	525,962.5
1872	83,117.2	170,992	254,109.2	1896	372,742,6	230,721.7	44,719.2	-	648,183.5
1873	80,920	141,769.1	222,689.1	1897	357,514,4	190,069.7	44,641.4	-	592,225.5
1874	75,859.9	105,730	181,589.9	1898	423,316,8	231,081.2	55,247.1	-	709,645.1
1875	70,110.1	66,430	136,540.1	1899	405,212	220,508.8	66,216.8	-	691,937.6
1876	77,220	63,975	141,195	1900	516,890	288,240.1	75,366.3	-	880,496.5
1877	87,025.6	60,231	147,256.6	1901	563,970	300,082	65,441.3	-	929,493.3
1878	78,108.7	53,096	131,204.7	1902	567,340	298,437,8	80,189.4	-	945,967.2
1879	93,182.4	26,624	119,806.4	1903	687,070	344,918,3	80,000	-	1,111988.3
1880	136,546.5	-	136,546.5	1904	715,480	349,593	73,460	-	1,138,533
1881	141,613.2	-	141,613.2	1905	819,830	329,158	98,070	-	1,247,058
1882	146,680	-	146,680	1906	821,710	385,005	120,000	-	1,326,715
1883	161,160.5	-	161,160.5	1907	891,100	371,663	112,680	-	1,375,443
1884	189,372.2	-	189,372.2	1908	963,740	400,170	111,800	12,206.1	1,487,916.1
1885	180,322.4	-	180,322.4	1909	1,034,120	475,630	101,800	153,558.5	1,765,108.5
1886	198,422	-	198,422	1910	1,055,830	452,660	94,100	210,782.9	1,813,372.9
1887	187,846	-	187,846	1911	1,102,810	506,280	108,400	204,037.1	1,921,527.1
1888	192,735.9	-	192,735.9	1912	1,208,750	513,750	114,900	134,440.2	1,971,840.2
1889	198,880.6	-	198,880.6	1913	1,282,540	643,000	124,300	180,015.3	2,229,855.3
1890	228,487.4	-	228,487.4	1914	1,156,900	548,500	62,900	171,163.5	1,939,463.5
1891	233,519	-	233,519						

Why would such a process occur? Because the native population, the peasants, represented a numerically insufficient, unskilled labour force for the industrial activity to be developed and which, with small exceptions, refused to get a job in the mining industry. Under these circumstances, the state and the mining companies involved in coal extraction brought in the labour force from other areas, a usually skilled labour force, with a certain professional and cultural standard, able to put to good value the riches of the soil and to form here an industrial and working area with a specific feature.

Gradually everything in the Jiu Valley will be dedicated to mining, but this activity inevitably determined the appearance in the Jiu Valley of other activities, some directly, some indirectly connected with the work in the underground. This will determine the arrival, besides of the miners and of their families, from the same or different areas, of other social and professional groups, the basin developing as an integrated industrial group, with both positive and negative consequences on population: dynamic, structure, living standard etc., according to the mining activity's evolution.

---

[100] C. Hoisescu, *Minele de cărbuni din Valea Jiului (Petroşani)*, Analele Minelor din România, III, 1920, nr. 2, p. 114; *Monografia Societăţii „Petroşani"*, 1925, p. 142-143.

1. Until 1894, the Company of Mines and Furnaces in Braşov; between 1895-1920, the „Salgótarján" Company; between 1921-1948, the „Petroşani" Company.

2. Between 1892-1924, the „Uricani-Jiu Valley" Company; between 1925-1931, the „Lupeni" Company.

3. Between 1908-1925, the State Mines of Lonea; between 1926-1948, the „Lonea" Company

Censuses, as well as other statistical data indicated a constant increase of population[101].

Table 2. Population evolution

Year	1854	1870	1880	1890	1900	1910	1920
Population	6,770	12,671	16,001	18,701	28,711	49,971	60,053

And the labour force used in mining evolved from 65 employees in 1868 to 1,005 employees in 1882; 4,652 employees in 1990; 10,049 employees in 1909 and 13,860 employees in 1913[102]. All those who came to the Jiu Valley, beyond the motivation offer by work, did it to earn money and for the standard offered by the Jiu Valley's urban endowment. Many of those who came to the Jiu Valley, especially during the first period, came not only from mining areas, but also from areas with a certain living standard and those who brought them here were aware that they had to ensure for them at least the same conditions as they had in the place they left if not higher.

That is why the state and the mining companies were preoccupied to create an urban space through social, cultural and municipal endowments such as: workers' neighbourhoods (colonies) and housing for clerks, administrative and industrial buildings, hospitals, schools, churches, rest and relaxation locations etc. that would support mining in order to develop an integrated industrial compound, with a specialised labour force, able to answer the requirements of a complex activity, the land hiding secrets difficult to unveil and at the same time dangers that make the miner's work difficult and risky. From this development the Jiu Valley industrial complex is gradually created, which will play an important role in the general progress of the Romanian society during the past 150 years.

REFERENCES:

[1]. Almăşan, Bujor, *Exploatarea zăcămintelor minerale din România*, vol. I, Editura Tehnică, Bucureşti, 1984

[2]. Idem, *Zăcăminte minerale. Exploatare, Valorificare*, Editura Tehnică, Bucureşti, 1989

[3]. Andreics, J., *A „Salgótarjáni köszénbánya Resz.-Tars", szenbányászátainak rövid ismertetese*, Bányaszati es Kohászati Lapok, XXXII, 1899, nr. 21, p.408-410

[4]. Andreics, J.; Blascheck, A., *A Salgótarjáni köszénbánya reszv.-tars. Zsilvölgyi bányáinak*, Budapest, 1903

[5]. Baron, Mircea, *Societatea „Mica". 1920-1948*, Editura Universitas, Petroşani, 2006

[6]. Borş, T., *Raport de sinteză asupra geologiei şi persectivelor economice ale bazinului cu cărbuni Valea Jiului*, Trustul de Prospecţiuni şi Explorări Miniere, Bucureşti, 1964

[7]. Bozac, I.; Pavel, T., *Călătoria împăratului Iosif al II-lea în Transilvania la 1773*, vol. I, Centrul de Studii Transilvane, Cluj-Napoca, 2007

[101] *Buletinul guberniului provinciale pentru Marele Principatu Transilvania*, Cursul anului 1854, Secţiunea II, Mănunchiul IV, p. 110-111; *A magyar szent korona országainak. 1910. Evi. Nepszámlálása*, Budapest, 1912, p. 858; C. Martinovici, N. Istrate, *Dicţionarul Transilvaniei, Banatului şi celorlalte provincii alipite*, Institutul de arte grafice „Ardealul", Cluj, 1921, p. 29-30.

[102] *Monografia Societăţii „Petroşani"*, 1925, p. 142-143.

[8]. Bujoiu, Ion E., *Cărbunii*, Buletinul Societăţii Politehnice, XLV, 1931, nr. 12, p.2106-2168
[9]. Direcţia Judeţeaă Hunedoara a Arhivelor Naţionale (Hunedoara County Department of the National Archives): - *Fond Societatea „Lupeni" (1924-1935);*
- *Fond Societatea „Petroşani" (1920-1953);*
- *Fond Societatea „Salgótarján" (1895-1923)*
- *Fond Societatea „Valea Jiului de Sus" (1911-1932);*
[10]. Feneşan, C.; Gräf, R.; Zaberca, V.M.; Popa, I., *Din istoria cărbunelui. Anina 200,* Reşiţa, 1991
[11]. Fetweis, G., *Reflexion uber den Bergbau im Ostalpenraum zur Zeit des Georgius Agricola*, Res Montanorum, Leoben, 1994, nr. 9, p.7
[12]. Gräf, R., *Domeniul bănăţean al StEG. 1855-1920*, Editura Banatica, Reşiţa, 1997
[13]. Henrich, V., *A Zsilvölgy bányászatának roved ismertétése*, in, *Hunyadvármegyei Almanach*, Kroll Gyula könyvnyomdájá, Deva, 1910
[14]. Hoffmann, K., *Bericht über die im Auftrage der durchgführten geol. Untersuchungen des Sieben tertiaren Kohlenbeckens im Zsiltal*, Magyar Föltari Társulat Munkálatai, vol.IV, 1868
[15]. Hoisescu, C., *Minele de cărbuni din Valea Jiului (Petroşani)*, Analele Minelor din România, III, 1920, nr. 2, p. 92-115
[16]. Horváth, F., *Az erdélyi vasútépitészet elözménzei. Az Elsö Erdélyi Vasút Arad-Gyulafehérvár fövonala és Piski-Petroszény szárnvonala*, Müszaki Szemle, IV/15, 2001, p.5-9
[17]. Kantner, I., *A zsilvölgyi m. kir. kincstári szénbányászat*, Bányaszati es Kohászati Lapok, XXXVI, 15 august 1903, vol.II, nr.16, p.235-258
[18]. Krizko, B., *Az Urikány-Zsilvölgyi magyar köszénbanya-resz-tars. Lupényi bányatelepének rövid ismertetése*, Budapest, 1903
[19]. Maghiar, N., *Din Istoricul exploatării şi utilizării cărbunilor minerali*, Revista Minelor, XXII, 1971, nr.2, p.88-89
[20]. Maghiar, N.; Olteanu, Şt., *Din istoria mineritului în România*, Editura Ştiinţifică, Bucureşti, 1970
[21]. Martinovici, C.; Istrate, N., *Dicţionarul Transilvaniei, Banatului şi celorlalte provincii alipite*, Institutul de arte grafice „Ardealul", Cluj, 1921
[22]. Moldovan, Silvestru, *Ţara noastră. Descrierea părţilor Ardealului de la Mureş spre miazăzi şi Valea Mureşului*, Tipografia Arhidiecesană, Sibiu, 1894
[23]. Morsel, H., *Energie*, in, *Dictionnaire d'histoire economique de 1800 á nos jours*, Hatier, Paris, 1987, p.123-124
[24]. Papp, K., *A zsilvölgyi oligocen mendence szentelepei Hunyad vármegyében*, in, *A magyar biradalom köszénkeszletete*, Franklin Tarsulat Nyomdája, Budapest, 1915, p.707-708, 721
[25]. Popa, I., *Administraţia minieră şi prosperitatea mineritului din Ardeal*, Miniera, VII, 1932, nr.7-8, p.2338-2339
[26]. Popescu, I., *Căi ferate. Transporturi clasice şi moderne*, Editura Ştiinţifică şi Enciclopedică, Bucureşti, 1987
[27]. Poporogu, I., *Pătrunderea capitalului străin în industria minieră a Văii Jiului în a doua jumătate a secolului al XIX-lea*, Sargetia, XV, 1981, p.249-260
[28]. Idem, *Din istoricul exploatării miniere şi începuturile luptei revoluţionare a minerilor din Lupeni*, Sargetia, V, 1968, p.285-295
[29]. Puia, I., *Istoria economiei*, Centrul Editorial A.S.E., Bucureşti, 1993
[30]. Radu, I., *Istoria vicariatului greco-catolic al Haţegului*, Tipografia Gutenberg, Lugoj, 1913
[31]. Rusu Abrudeanu, I., *Aurul românesc*, Editura „Cartea Românească", Bucureşti, 1933

[32]. Schreiber, A., *Valea Jiului.1840-1926*, Montanistică şi Metalurgie, Montanistică şi Metalurgie, V, 1926, nr. 9 şi 10, p. 7-8; nr. 11 şi 12, p. 5-6; VI, 1927, nr. 1şi 2, p.4-5; nr.3 şi 4, p.4-5; nr.5, p.5-6; nr.6-7, p.4-5; nr.8-9, p.4-5; nr.10, 11 şi 12, p.5-6

[33]. Semaka, A., *Istoricul cercetărilor despre cărbuni. Din cele mai vechi timpuri până în 1900*, Revista Minelor, XIII, 1962, nr.2, p.83-86

[34]. Simionescu, I., *Ce se scoate din cărbune?,* Gazeta Jiului, II, 1923, nr.37, p.3

[35]. Sîrbu, I.D. *Poveşti petrilene*, Editura Junimea, Iaşi, 1973

[36]. Societatea „Petroşani", *Monografia Societăţii „Petroşani", 1925*, Editura „Cartea Romneasca", Bucureşti, 1925

[37]. Solyom-Fekete, F., *Sylvölgy a benepesitese valomint annak egyeb tortenetei*, în, *A Hunyadvármegyei törtenelmi es regeszeti tarsulat evkonyve*, 1888, p.76

[38]. Stanca, Sebastian, *Monografia istorico-geografică a localităţii Petroşani*, Editura Fundaţiei Culturale „Ion D. Sârbu", Petroşani, 1996

[39]. Teglas, Gabor, *Hunyadvármegye közgazdasági leirása*, Budapest, 1903

[40]. Toth, A., *Începuturile exploatării cărbunelui din Valea Jiului şi dezvoltarea acesteia până la sfârşitul secolului al XIX-lea*, Studii. Revistă de istorie, XVI, 1963, nr.6, p.1299-1323

[41]. Idem, *Mineritul din Valea Jiului în faza trecerii la capitalism şi dezvoltarea lui până la primul război mondial*, Studia Universitatis Babeş-Bolyai, Series Historia, Fasciculus 2, 1963, p.1095-1125

[42]. Toth-Gaspar, M., *Condiţiile de muncă şi viaţă ale minerilor din Valea Jiului şi luptele lor greviste până la sfârşitul secolului al XIX-lea*, Acta Musei Napocensis, I, 1964, p.255-285

[43]. Tufescu, V.; Mocanu, C., *Depresiunea Petroşanilor*, Editura Ştiinţifică, Bucureşti, 1964

[44]. Vajda, L., *Capitalul străin în industria minieră şi metalurgică a Transilvaniei (1867-1900)*, Acta Musei Napocensis, IX, 1972, p.229-254

[45]. Idem, *Cu privire la pătrunderea capitalului austriac în industria minieră şi metalurgică a Transilvaniei între 1848-1867*, Studia Universitatis Babes-Bolyai, series Historia, fasciculus 2, 1965, p.63-77

[46]. Idem, *Începuturile dezvoltării mineritului de cărbuni în Transilvania*, Acta Musei Napocensis, I, 1964, p. 397-419

[47]. Idem, *Începuturile revoluţiei industriale în mineritul şi metalurgia din Transilvania*, Anuarul Institutului de Istorie Cluj, X, 1967, p.173-195

[48]. Idem, *Prima cale ferată din Transilvania*, Acta Musei Napocensis, VIII, 1971, p.287-298

[49]. Winkler, B., *A Zsilvölgyi köszenmedenczeröl*, Bányaszati es Kohászati Lapok, III, 1870, nr.7-8, p.51-55

[50]. *** - *A „Felso-zsilvölgyi köszénbánya Társulat" vulkáni bánámüveinek rövid ismertetése*, Bányaszati es Kohászati Lapok, XXXVI, vol. II, 1903, nr.20, p.537-543

[51]. *** - *A Magyar Korona Országainak szentelepei es szenbányászata*, Budapest, 1878

[52]. *** - *A magyar szent korona országainak. 1910. Evi. Nepszámlálása*, Budapest, 1912

[53]. *** - *Dicţionar cronologic al ştiinţei şi tehnicii universale*, Editura Ştiinţifică şi Enciclopedică, Bucureşti, 1979

[54]. *** - *Legea Minelor austriacă. Din 25 mai 1854*, Tip. „Lupta" Nicolae Stroilă, Bucureşti, 1923, p.5-83