

THE MINING VILLAGE OF ROSAS

The name of the village of Rosas inspired the name of a type of quartz of which the territory is rich - Rosasite. Samples of rosasite can be seen along with other minerals in the exhibition created in the former chemical laboratory of the mine.



photo 1: Rosas washing plant

The former lab is just one of the many exhibition spaces created in the former mine, since the whole area of the old mine Rosas is now a museum, complete with a lovely accommodation system, where plants, buildings, stories of workers, industrial disputes, accidents, child and female labor and industrial history have found a way thanks to a great project for the conservation and enhancement work realized by Administration of Narcao thanks to the grants assured by European Union, and thanks to the Association of Former Miners of Rosas, who also runs the refreshment point.

The history of the mine began in 1832, when Enzo Perpignano identified a deposit of blende (zinc sulphide) and galena (lead sulphide) under Monte Rosas. The whole area proved rich in metals, particularly lead and zinc, but the problem, which occurred with increasing intensity over the years, was the irregularity of the mineral deposits and the extreme variability of concentrations.

The first mining lease was granted to the *Limited Company Union of Mines of Sulcis and Sarrabus*, formed by the same Perpignano in 1851.

Mining operations began immediately and in two years: Narcao, in whose territory extended about 400 hectares of mining area, became a municipality in the Kingdom of Italy: in 1858 already 2,316 inhabitants were living in the mining village.



photo 2: the former chemical laboratory

After a very fruitful debut, the economics of the mining operations were progressively diminishing and with the unification of Italy in 1861, the Company had to stop the operations: the Ministry of Industry revoked the license in 1862.

When the *Limited Company of the Union of Mines of Sarrabus and Sulcis* failed, Rosas mine was put up for auction and was bought by a lady of Marseilles, Elena Felicia Poincel, unaware of the fact that the grant had been revoked: the French lady appealed and three years later, in 1869,



foto 3: the Rosas washing plant at the beginning of XX Century

she sold the rights to English businessman, Thomas Clarke, a member of the American Company *Cagliari Mining Ltd.*, which in turn had to return them to Mrs. Poincel. In this period the Rosas mine was probably the main mixed lead and zinc mineral deposit in Sulcis.

There followed years of ups and downs in production and also sudden changes in ownership. In 1881, the mining production was

about 1,000 tons per year of refined metals that were taken by animal-drawn carts to Porto Botte, about 30 miles, to be boarded.

In the meantime, a new field of blende and galena had been discovered and a new washing plant was built with important technological innovations aimed to separate the waste from the ore. However, Mr Hilarion Roux from Marseille, who took over the



foto 4: Rosas washing plant in a picture published by the "Miners and Engineers Digest" New York May, 9, 1908

mining operations, in 1881 had to declare bankruptcy in 1883 and for four years, Rosas mine remained inactive.

Only in 1887 a Sardinian business group came forward, formed by the mining engineer Giorgio Asproni, by Mr. Louis Merello, by Sir Eugene Cao, James and by Sir Giacomo Boero. A new research campaign for calamine started immediately and focused attention on the exploitation of lead and copper, the washing plant was restructured, and transportation system improved with the

construction of the Siliqua-Porto Botte road.

Nevertheless, following a severe economic crisis that affected the whole Island, the group decided to sell the mine to the *Societ  Anonyme Mini re* of Liege with Main Office in Turin. From 1898 to 1907, the Belgian company bought other adjacent mining areas and the mining operations finally regained momentum.



foto 5: Rosas washing plant: the ball mill

The situation on the international market, the intensive exploitation of mineral resources, the problems of separation of mixed minerals decreed a new crisis in 1908-1910. The next year the Rosas mine passed in the hands of Mr Karl William Wright.

British engineer did not have much luck, but was remembered for improvements to the Manager's House and for his wife called "The White Lady", an albino woman who wandered into the garden of the palace at night reading in the light of a candelabrum.

One day the woman, suddenly disappeared, someone crept murder suspicion. In fact it seems that she returned back to England, intolerant to the climate of Sardinia.



foto 6: Rosas Mine guest house

Soon after, her husband followed her: Limited Company leased the concession to the Limited Company Mines of Domusnovas and sold it in 1922.

Meanwhile, World War I had crippled the mining industry: production workers went rapidly from 700 to 120. But after 1924, when the company changed its name to the Limited Company Mines of Rosas there was a restart of mining production, but it did not last long.

From that moment on the history of the Rosas mining basin is marked by stimuli of economic recovery, due to the self-sufficiency policy during the Fascist Era, and great difficulties. The Second World War was decisive: Rosas was inactive in 1946 and despite a modest recovery in production in the 50s and the take over of regional companies in the '60s, the depletion of the lines and the difficulty of ore treatment led to severe diseconomies that meant the end of mining operations, finally formalized in 1980.



foto 7: a miner's house renovated and transformed into a residence

SERBARIU COAL MINE

A history of hyperbole. Brief but intense and different, very different from that of all the other mines. First, because of the epopee of Serbariu regards a coal mine, very rare in Italy. Then because the mine is daughter of a war, that carried two main consequences: the invasion of Ethiopia in 1935, which resulted in sanctions against the fascist government by the League of Nations and the politics of Mussolini in favour of autarchy. "*We must break free from the foreigner in everything, exploiting all our own resources.*"



The coal basin of Sulcis - already exploited since the mid-'800 - seemed to be perfect for translating into practice the words of Mussolini. In those years the largest producer of lignite was the Limited National Coal Company ARSA, who ran the mines of Istria. In 1933 occurred the foundation of the Sardinian Coal Company which oversaw the excavation of Bacu Abis, Cortoghiana, Caput Acguas, Sirai and Piolanas.

Two years later in Rome was founded the Italian Coal Company (A.Ca.I.), which controlled both

the coal mines in Istria and in Sardinia.

Without wasting time a number of drillholes were perforated in Sardinia and the great coal basin Sirai-Serbariu was discovered. In a very short time the territory was turned upside down. In 1937 the first shaft was sunk with a 30 meters high iron castle, aimed to allow the access underground of the "cages" – slang name of the lifts carrying up to 60 miners underground at a time, that used to end their service at a depth of 103 meters below the ground after several stops. The following year a twin shaft was built, that reached the depth of 179 meters below the ground. Shortly before the Second World War, the population of the municipality of Serbariu reached 30,000 inhabitants.



The fascist government launched an appeal to Italians in search of work. Many thousand people responded. The town of Carbonia was built in 300 days: 11,923 people, mainly bricklayers and miners, immigrated in Sulcis, most of them coming from Sardinia. But 2.342 came from 68 provinces, mainly located in Abruzzo, Veneto, Tuscany and Sicily.

A varied humanity was sent by the fascist regime for political (as anti-fascists) and confinement reasons. The city of autarchy, as it was called the day of its birth, December 18, 1938, was designed in modern rationalist style, with a garden for each family, homes were equipped with hot water and coal cooking ovens, hotel for single workers, sports resorts, cinemas.

A.Ca.I also created a railway linking Carbonia to Sant'Antioco, about 18 km long, restructured and extended the harbor of Sant'Antioco, where ships designed to carry coal to the peninsula used to dock.

In Serbariu a huge coal washing plant - now completely disappeared - was built, as well as a big power plant, workshops, offices and a warehouse called "lampisteria" where workers used to change their cloths, take a shower after the work shift, and where the carbide lamps were distributed to the miners before descending into the heart of the earth.



Divided into three shifts per day, 4,000 miners used to work eight hours a day without rest. Miners were allowed to bring only the lamps underground. The lamps were delivered at the counter and in exchange the miners received a plate with a serial number.

The first mine lamps were carbide lamps, that being open flame lamps, caused high risk of fires because of the presence of coal dust in the mine atmosphere. Coal dust fires could cause a flare with a velocity of propagation of more than 1 km/second.

However, the fires were not the primary cause of the frequent accidents, 300 of them fatal, that marked the life of the mine: the most frequent cause of accidents was the landslide of rock. In particular, the collapse of the "roof" of the coal formation due to the particular rock sedimentation and fractures.

Remember that coal is originally a vegetal mass compressed by overlying sediments, deposited millions of years ago at the bottom of a humid area which, over time, due to pressure and heat of the soil, becomes a very light dark mass.



In the beautiful museum, that today takes the place of the Great Mine of Serbariu, coal exploitation systems are illustrated in a simulated mine tunnel located in the immediate



subsurface, which is the focus of the site visit: along the tunnels you can experience firsthand the life of the men "with the brown face".

The supports of the underground tunnels did not reach the height of 1.60 m, so the miners had to enter the mine and walk curved.

There were levels where the miners use to dig the rock in a nearly horizontal position, lying on their back, with the sledgehammer in hand, with heavy trucks over half a ton heavy to be pushed by hand, since the draft animals were not allowed underground.

The BBR drills weighed over 25 kg and were used in the excavation of the tunnels, while the exploitation of the coal seam was carried out with mechanized systems, such as cutting knives drums, which produced loud noises, and caused amputation of hands and arms of unwary or less expert miners who did use them properly. More recently, around the 70's, were robots, or

"continuous miners" introduced in the coal mines. These machines dig, load the ore, transport it to the escape routes and evacuate the mining face.



After the war in Carbonia used to live more than 48,000 inhabitants: 14,000 worked in the coal basin of Sulcis, which in its highest production periods came to produce 100,000 tons of commercial coal per month.



Unfortunately, Sulcis coal is not particularly valuable: its calorific value is limited and it is particularly rich in sulphur and ash. Its extraction was particularly intense during periods of self-sufficiency, but in the 50's the competition with foreign coals became too strong.



Italy's entry into CECA (the European Coal and Steel Community) marked the beginning of a

period of irreversible decline marked by corporate reorganizations, inevitably accompanied by the closure of many work sites. In 1964 the Serbariu mine ceased its activities.

The miners were hired by ENEL (National Electricity Board) and the property passed to the Region and the Ministry of Treasury. The mine was permanently closed in 1971 and twenty years later property was bought by Carbonia Municipality.

IGLESIAS: THE MINING CAPITAL OF SARDINIA

A mine of argentiferous galena, but also of inventions, of innovative techniques and advanced systems, exceptionally rare in the world.



The history of Monteponi is a story of pioneers: just think that in this mine occurred the first use of dynamite for mining purposes in 1743. And it was also a great mining history.

It is not by chance that this story found its development in Iglesias, a city founded by Count Ugolino della Gherardesca in an area that was well known for its mineral resources since the era of the Phoenicians.

Starting from 1272 the nobleman, mentioned by Dante in his Divine Comedy, ordered some exploration works for silver in the area, he experienced the first miners to arrive from Tuscany and Germany, built

huge city walls and a mint to mint coins.

Mining productions in the Middle Ages were so numerous that the code of laws written during the Pisan domination (1302 - 1324) – *Breve di Villa di Chiesa* - has been preserved to this day. The modernity and completeness of the rules about mining operations is absolutely noteworthy.

The Aragonese kept it as a basic text.

But the industrial exploitation of Monteponi Mine started only during the period of Savoy, thanks to the great impetus given by the General Manager of the Ministry of Industry, Mr. Francesco

Mameli. Thanks to a new law, applied in Sardinia in 1848, the property of the underground belonged to the State, which could grant concessions to private companies. At a public auction, for 32,000 lire, a group of capitalists led by the Genoese banker Paolo Antonio Nicolay was awarded a thirty-year exploitation right of the mineral deposits in Iglesias.

In 1850 he founded the Company called Monteponi Royal Mine. Nicolay hired various technicians from many Italian regions, then in 1852 entrusted the direction of the mine to Julius Keller, a mining engineer exiled by the Austro-Hungarian Empire, who had already proved his skill in Montevecchio.



Engineer Keller remained at the direction of the Monteponi was only four years, however, he planned the most urgent works and the place to build the new treatment plant, necessary to further improve the results of manual sorting. His Managing Director position remained vacant until 1861, when the twenty-three years old Antonio Pellegrini took the reins of the situation: he improved the work conditions of the 1,000 miners employed in Monteponi, tried to improve the transport system, built the Vittorio Emanuele Shaft (1863) and two years later, he built the Bellavista Palace.

The building is on three levels: the ground floor and first floor originally housed the offices of the Company, while the top floor was devoted to the residence of the mine manager. The building has in its front a large garden with huge secular trees. At the centre of the garden it is possible to see a bronze bust depicts the engineer Erminio Ferraris. Currently the building is the seat of a branch of the University of Cagliari.

At that time there was another change at the top of the Company: Carlo Baudi di Vesme became president of the company and the headquarters of the same company were moved to Turin.



Around 1870 the railway was inaugurated: 22 km of track connecting Monteponi Scalo, to Cannelle Bay, located in front of St. Peter's Island, where he opened a port suitable for commercial ships, baptized Porto Vesme in homage to the president. Little by little the service network arose: a hospital with 40 beds, an aqueduct 8 km long, houses, shops and 14 treatment plants, employing 450 workers, almost all women and children, forced to work 8-10 hours a day for a wage that was about the half of the salary received by the men. In 1919 1,168 women and 628 children over ten years old worked in the mines of the area. Perhaps they would have been many more so if at that time the Central Government had not released the a law that prohibited the exploitation of child labor. On the other hand, this was the area with the most important industrial development

in Sardinia.

When, in 1869, the Minister of Finance Quintino Sella patrolled the island to compile a report on mining in Sardinia, he stressed the importance of creating in Iglesias a school aimed to form and train chief miners.



Two years later the school became a reality: it was seated in the former convent of the Franciscan friars that a few years later was transformed in the "Giorgio Asproni" Mining Institute. To formalize the importance of the mining area of Iglesias in 1872, the Mining Board of Sardinia was moved from Cagliari to Iglesias.

Soon after Pellegrini and Baudi di Vesme left their positions and were replaced by Erminio Ferraris, a mining engineer, and Roberto Cattaneo, lawyer. This management change opened a new chapter in the history of the Iglesias lead and zinc : time came to tackle the problem of water, present at an average altitude of 70 meters above sea level, that meanwhile became the level of mining operations.

The excavation of Sella Shaft and the arrival of two Belgian steam pumping plants was nearly useless: water continued to flood the tunnels and the work sites.

The solution was found with the digging of a new 5 km long draining tunnel connecting Vittorio Shaft with Fontanamare beach. The amount of money needed to build the tunnel was so enormous (about one million lire) that the Company claimed from the Government the release of a perpetual grant.

Engineer Ferraris managed the design and construction phase and after inauguration in 1889,

the gallery called Umberto I was able to drain not only Monteponi mine but also the nearby mines like San Giorgio, San Giovanni, Nebida, etc.

All the mines were rapidly dried up and production increased steadily so that at the beginning of the century in this area employed approximately 15,000 miners.



At the Universal Expo held in Paris in 1900, the Monteponi Company was awarded as a model for the adoption of innovative mining technologies.

But the workers were worried and discontent was widespread, especially after the end of the second World War, when employment level dropped dramatically and pace of work was heavily intensified, in order to stand the competition, so that in 1920 the royal guards and police fired on 2,000 striking miners.

The shots hit the men while walking along the roads near the city hall, protesting against working conditions of misery and exploitation, and against the mine management that, as emerges from the documents, circulated the rumor that the miners and their political organizations, such as the Italian Socialist Party, were planning to occupy the mines and were going to form the soviets.

This was a political justification that was used as a pretext to call for the use of force by local Authorities in order to regain the conquests obtained by the miners between 1919 and 1920. Several months before the slaughter, the sub-prefect gave instructions to the police commands to use the help of "trusted citizens" in their operations on the territory.

It was a massacre. The blood of the dead miners on May 11, 1920 marked the history of Sardinia: 7 workers were killed and 26 others (including five police officers) were seriously

injured.

At that time there was a number of foreign mining experts who came to study the "Monteponi model". Unfortunately, the Wall Street collapse marked a turning point. In addition to the general economic crisis, the depletion of some mining sites and the return of water infiltration had to be accounted. A temporary production recovery came only after the Second World War.



The Monteponi and Monteverchio Companies merged in 1962: the new limited company was the largest producer of lead and zinc in Italy. In addition, the Company management designed a major expansion program. A new transportation gallery was excavated, a new mucking and



hauling machine was invented, named "autopala", and Vittorio Emanuele shaft was newly equipped. Then, once public funding was received and completely spent, the expected results did not come and the work was stopped.

A rapid transition to state-owned companies (EGAM, SOGERSA, ENI, SAMIM, SIM) sorted two main results: the employment level was maintained and the construction

of a huge pumping station aimed to allow the exploitation of the deeper deposits took place.

The operating costs of the underground pumping system were so high, that very soon they reached the level of the mined ore market value.

In 1991 all the mining activities were moved to the Campo Pisano Mine, but their intensity progressively decreased till the fatal closure of the mining activity occurred in 1997.

