

MINING HERITAGE & CLOSURE MINES*Carvajal, D.J.; González, A.*

Hydrogeology and Environment Group

High Polytechnic School. The Rabida Campus - University of Huelva

21819-Palos de la Frontera. Huelva. Spain

djcarvaj@uhu.es arsenio@uhu.es

Key words: heritage, protection, mining, international organisations, museums, parks.

ABSTRACT

The deep and continuous changes that come affecting to technologies used in the mining industry have left a great heritage that a modern average multidisciplinary -and from all the corners of the planet- it is overturned in that constitutes a rich base with that to put heading for a more promising future. A town that is not able to lean on and to defend its past, difficulty will be able to face the future with clear perspectives of progress and obtaining of a better quality of life. The mining heritage is the history of the towns that successively have come using the matters minerals, and therefore it is part of the humanity's history, being for it very necessary today in day that the importance is valued that the extractive activities have possessed and they possess in our to happen daily, and that it is protected to the maximum as generating source of wealth and important alternative to the future development of many depressed mining areas.

INTRODUCTION

A high level of concern exists to international scale to be able to preserve for the future generations all those useful -machines, tools, tackle, etc. - and materials related with the production in the traditional industries that have left outside of use a series of direct testimonies after their closing, as the railways, power-house, industrial facilities of the steel, textile or coal that they are part of our more recent history and that the new technologies, the use of new materials -as plastics, for example- and modern activities have left in disuse and, in many cases, forgotten.

This phenomenon, known by Industrial Archaeology, has its beginnings in the XIX century, but it is not up to 1960 when its diffusion begins and already in the decade of the 70 when it takes doctrine body and it ends up consolidating trying to investigate, to analyse, to register and to preserve the remains of any industrial activity, being begun from then to put in value the materials abandoned by the industry, and to try society takes conscience of its patrimonial value and of the necessity of its conservation for use and enjoyment of the future generations.

The mining heritage tries to preserve, to conserve and to disclose all those elements characteristic of the extractive activity that have had a great protagonist, ending up being denominated mining-metallurgist heritage more openly to be able to include to the final result of the extraction that is the obtaining of the metal.

The mines represent an important heritage, because they are an example that conjugates the geological and mining aspects that we need to protect and preserve for to be able to transmit it and to disclose it and that this way it is known better.

The figure of the natural heritage has always made shade to other considerations - like geological and mining -, being today the figure of cultural park or ecomuseum one that

is uniting all the patrimonial aspects. Nowadays there are already many the natural parks that include the protection of the mining heritage inside their enclosures, toward a work of conjunction of values and betting for a new model.

THE MINING-METALLURGIST HERITAGE IN WORLD

Today in day there are many associations and organisations that exist all over the world in behalf of Industrial Archaeology and recently they have arisen a great number of them with the thematic one it specifies and it sums up of the mining activity, aided under the term of mining-metallurgist heritage and that they have been divided of the industrial archaeology constituting for if alone one of the thematic but important association. A clear example of international level is The International Committee for the Conservation of Industrial Heritage (TICCIH) that completed its 25 anniversary in the 2000 that it has a section dedicated to the mining heritage and that it summons a next scientific meeting in June of 2001 in Butte, Montana, U.S.A.

In November of 1998 the European associations (Belgium, Finland, France, Germany, Greece, Ireland, Holland, Portugal, Spain, Great Britain, Slovenia, Czech Republic...), related with the industrial heritage, gathered in Barcelona (Spain) -a petition of the Belgian association agreed - that the 2002 were proposed for the European Industrial and Technical Heritage Year. In November of 1999 it is founded European Federation of Associations of Industrials and Technical Heritage (E-FAITH).

Next we pass to expose shortly which are the most excellent facts that have been happened in some countries with regard to this phenomenon of the Industrial Archaeology and the mining heritage.

In Ireland the organism that takes the responsibility of its conservation is the Geological Survey of Ireland through the Heritage Service created in 1845 and present at this year 2001 will open its doors the National Mining Heritage Centre in the mines of Shalle. In 1996 the Mining Heritage Society is created and already in 1998 they started: the Mining Museum of Arigna, the Glengow Silver and Lead Mines and the Quarries of Liscannor, already existing other projects in march like: the Allihies Museum, Avoca Mines Heritage it Mines Park, The Bunmahon Cooper Coast -all of them old copper mines - and Castlecomer -on coal mining-, and on the other hand a mine of the age of the Brass in the centre of the Killarney National Park (Puche, 1999).

In United Kingdom, it is in 1959 when the British Archaeology Council founded the National Survey Industrial of Monuments dedicated to the inventory and conservation of monuments. In 1968 the Foundation of the Museum of the Valley of the Iron Bridge is created and nowadays the Ironbridge Gorge Museum, with a surface of 15,5Km² and with 300.000 visitors a year, they bills about 10.800 million pesetas lives (about 50 millions \$USA); also, there are other important museums like the National Coal Mining Museum and the Peak District Mining Museum, or with smaller entity like the Florence Heritage Mines Centres, in Egremont, West Cumbria. In 1968 he/she took place the First International Congress of Industrial Archaeology. It is also the National Association of Mining History Organisations, NAMHO, from 1979 with 70 entities removed in 40 mine-museums, 20 societies and 10 institutional members, besides some 2000 people, of those that single three societies integrate practically half of these people, that are: Peak District Mines Historical Society Ltd., Northern Mines Research Society and Shropshire Caving & Mining Club. Other communities are the Association for Industrial Archaeology and Trevithick Society. Also in United Kingdom is the Historical Metallurgy Society.

In Portugal the Geological and Mining Institute has inventoried all the points with interest in mining heritage and it collaborates in several projects in the Pyrite Belt: Mining Park de Cova dos Mouros, Lousal Mines (Grândola), Mine of Aljustrel and Sacred Domingo. The mine of Neves Corvo has already before its closing a musealisation project. It exists enough interest in constituting an Iberian Society for the Defence of Geological and Mining Heritage. From 1980 the Portuguese Association of Industrial Archaeology is developing an important work of protection and divulgation of mining and industrial heritage. Already in 1998 it organised a titled seminar The Archaeology and Mining Museology, in Lousal-Lisbon.

In United States there are many mine-museum of gold, uranium, copper, etc. Some examples can be the Western Museum of Mining and Industry in Colorado Springs, the Black Hills Mining Museum in Lead, South Dakota, Sterling Hill mine in Ogdensburg, in New Jersey underground -mine of zinc -, World Museum of Mining in Butte, Montana, and the National Mining Hall of Fame in Leadville, Colorado, the Crystal Gold Mines, Idaho, the Minnesota Museum of Mining in Chisholm, and the Bisbee Mining & Historical Museum, Arizona. Among the existent organisations are the Society of Mining Law Antiquarians, the Society for Industrial Archaeology and the Mining History Association.

In Canada several mine-museum projects already exist, such as British Columbia Museum of Mining, in Britannia Beach, on copper mining, Bell Island Mines, in Newfoundland, Cape Breton Miner's Museum, in Glace Bay, Nova Scotia, Atlas Coal Mine Historical Society, in Drumheller, on coal mining, and it is also in Alberta the Association Québécoise pour le Patrimoine Industriel.

In Japan it is of highlighting the Ashio Mining Museum that has received 500.000 visits in one year (Mining Journal, 1999), and other like the Yunooku Gold Mining History Museum.

In Australia the Australian Mining History Association exists from 1995 with more than 130 collective members and singular (Mining Journal, op. cit.). The State Mines Heritage Park & Railway is a good Australian example of the setting in value of the mining heritage.

In Germany it is founded in 1906 the Deutsches Museum von Meisterwerken der Naturwissenchaft a Technik of Munich, by the hand of Arthur Miller who is the precursor of the Industrial Archaeology. As for mining museums, the Deutsches Bergland Museum in Bochum, inaugurated in 1930, and that today it receives 400.000 visits a year (Mining Journal, op. cit.) and it is located in full carboniferous mining basin of the Ruhr. In 1934 the Musée of Houillère Mine (Saraland Mines - Museum) is founded at Bexbach in the carboniferous basin of the Sarre. Also in Germany is the Society for Mining Archaeology.

In Austria they opens up to the public in 1930 the underground Hinterbrühl gypsum mine, located in Modling that had been in activity during the period 1848-1912.

In Sweden has a good example of ecomuseum with its the Bergslagen Ekomuseum that embraces a mining region constituted by seven municipalities where they can visit mines, foundries, forges, energy power stations, the miners' housings and the bosses' palace-residence and so on. In Switzerland exists the Société Suisse d'Histoire des Mines.

In France in 1791 it was built museum of the Technique of the World, the Conservatoire des Arts et Métiers in Paris, but it is not until the years 60 is when the Industrial Archaeology is born. In 1960, to initiative of Raymond Aubet, becomes to the Mine Temoin d'Alés a Centre Historical Miner, and in 1966 it founded the Museum of

Nancy's Iron. In 1976 the ecomuseum concept is born in the context of a colloquy in Le Creusot titled Industrial Heritage and Contemporary Society. Exists in France The Association pour L'Étude des Mines et de la Metallurgie under the direction of Le Centre de Culture Scientifique, Technique et Industrielle, and the Equipe Interdisciplinaire d'Étude et de Recherches Arqueologiques -ERMINA- sur les Mines Anciennes et le Patrimoine Industriel. In the last 10 years a mining-tourist centre opens up half yearly, proliferating many mine-museum, historical-mining museums, ecomuseum, museums of the territory, geomining parks, etc., such as the Mine Blue, in Noyant-la-Gravoyère, or the Centre Historique Minier of Lewarde, that overcome the 100.000 visitors a year (Puche, 1996). Other examples are Ecomuseum Le Creusot-Montceau-les-Mines in Borgoña metallurgic-mining region, and Le Musée de la Mine de Cap Garonne.

Also, and with the help of the Spanish Society (SEDPGYM), in Latin America recently several similar American Societies have been created –with objective of the defence of geological and mining heritage-, such as the Oriental Cuban Society (Moa, Holguin), the Nica (Managua, Nicaragua), the Salvadoran (Republic of El Salvador), and the Boyacense (Sogamoso, Boyacá, Colombia). In July 1997 it took place in Quito (Ecuador), in the frame of the 49 International Congress of Americanist, a Industrial Archaeology and Conservation of Mining-Metallurgist Heritage Symposium in Hispanic world. In September of 2001 it will take place in Santiago de Chile that will be Third Latin American Colloquy on it Rescues and Preservation of the Industrial Heritage, as continuation to those carried out in Mexico and Cuba.

THE HERITAGE MINER-METALLURGIST IN SPAIN

By the middle of 1994 an idea arises in Spain –after the International Congress of Mining and Metallurgy in León- and in 1995 fifty people's April -among those that the Spanish joint author of this report was- they take place in Madrid the Assembly foundational of the Spanish Society for Defence of Geological and Mining Heritage (SEDPGYM) being legalised in October 9th of that same year. Today it possesses near 400 partners and carries out a nurtured number of activities that they go from the impression from their Bulletin to the organisation of five Scientific Sessions –the last in the mining district of Linares, Spain November 2000-, being convocated in these moments the sixth –a to take place in Beja, mining district of Baixo Alentejo, Portugal in October 2001-, and that in turn it will be the II International Congress about this topic. Also, this Society carries out other activities along the such year as field trip, exhibitions, cycles of conferences, seminars, collaboration in the foundation of geological-mining museums, etc.

As examples of experiences in those that has put on in value their Mining Heritage, some with more consolidation degree and others with the setting in work of so alone the first phases of wide projects, they can make an appointment the following ones:

Mining museum of Cerain (Guipúzcoa) next to Legazpi, museum project, facilities metallurgical, train mining etc.

Museographical Complex of Mining, in Barruelo of Santullán (Palencia), consistent in a visitable mine, a cultural centre and an interpretation centre with more than 600 m² on topics geological-miners.

Museum of the Mining of Castilla-León in Sabero (León) located in the restored building of the old Ironworks San Blas.

Mining Historical museum Francisco Pablo, from 1988, in Almadén (Ciudad Real) -mercury mining.

Museum of Puertollano (Ciudad Real) –coal mining-.

Museum of Gavà (Barcelona), you mine prehistoric of Gavà, (Llobregat) –variscite, sílex, turquoise and oligist -.

Geologic-mining museum of Peñarroya-Pueblonuevo (Córdoba) –coal mining-.

Mine Museum of Cardona salt mountain (Cardener), in Catalonia, the humanity's declared heritage for the UNESCO.

Mining Historical museum D. Felipe of Borbón and Greece, in Madrid.

Mining and Industry Museum –MUMI– El Entrego, Asturias, with 75.000 visit –coal mining-.

Geomining Museum of Spain, in the Geologic and Mining Institute, in Madrid.

Museum Historical Miner of the Union (Murcia).

Mine Museum of Cercs (Berguedá), in Cataluña –coal mining-.

Mining park of Riotinto, with more 2000 m² expositives in operation, 22 km of mining railroad in operation, roman necropolis, rail museum, 90 km² of visitables areas mining, visitors' housing, ethnographic museum and approved project of mine underground-museum, and that at the moment it receives 40.000 visits a year.

Projects of geological-mining Park of Mazarrón and Archaeoindustrial Park of The Union (Murcia).

Pre-project of Geologic-mining and Industrial Park of Tharsis (Huelva), there has been formed a work commission recently with the mayors of the affected municipalities, unions and people of the mining company and other persons of area.

PERFORMANCE ON THE MINING-METALLURGIST HERITAGE IN PYRITE BELT OF HUELVA (SPAIN)

It is a new way of revitalizing this important legacy of the past conserving the signs of identity of the mining communities and of people that made it possible. In these mining places it has been the print of the different technological advances, the stamp of the nationality of the operating mining companies and some aspects of the life that it was developed in each time.

In the historical pyrite belt of Huelva (Spain) they goes existing certain degree of social understanding on these topics, thanks to the important work that they come carrying out organizations like the Association of Friends of the Railway "Riotinto Mining Area" for some years, all the mines had its mining railway since of which they have been a great quantity of elements that they integrate the important historical mining heritage of the pyrite belt.

On the other hand, since in 1987 the Rio Tinto Foundation was created for the Study of the Mining and Metallurgy, this has impelled in a constant way the preservation of all material that can constitute an important database for investigating futures and it has developed a great project of Mining Park of the mining District of Riotinto, carried out with the support of continuous convocations of School-shop with twice as much objective of to conserve the mining-metallurgist heritage and to form professionals in this and other topics of among the youths of the district.

Something conservation and restoration projects they are that steam machine – that they puts into operation the first days of every month-, railway materials, wooden and

metallic mining shafts, and construction of a complete space of Roman gallery is also culminating.

Another important activity is that of the Centre of Historical-mining Investigation of the Foundation, constituted at the moment by the historical archives a lot of mines, cartoteque, library and a great phototeque.

Nowadays great interest exists for the conservation, defence, divulgation and exploitation of this important heritage from diverse organisms and public institutions, such as city councils, Delegation of Huelva and University of Huelva that are summing up for example in restoration of locomotives, archives cataloguing, preparation of projects, realization of defence meetings of mining-metallurgist heritage, industrial archaeology, etc., in different towns and mining centres of the county.

THE MINING HERITAGE AS USE ALTERNATIVE

The essential philosophy of the use of the mining heritage as alternative of development of the mining regions consists on studying the possibilities of recovery of the area from all the points of view, not exclusively from the environmental means or landscape. Any project that it tried to return some areas with big exploitations to their initial natural state not alone would be impossible or inviable but rather it would not be keeping in mind the future socio-economic of communities of environment.

The idea that should prevail is "environmental recovery yes, but without destroying the heritage", since this can be considered as an exploitable resource -after finish mining activity- of such an important value or more than as benefits generated to the mining company and the society by the properly this exploitation.

Also, they must have very in mean necessities so much current as future of communities with purpose of being able to prioritise among possible use alternatives: recreational usage (wetlands and artificial lagoons, schools of risk sports, escalade, rockdromes, amphitheatres), environmental uses, diversion areas, dumping-places, residential areas, agricultural or forest uses, industrial facilities, etc. Also, and in a simultaneous way, it would be necessary to study their patrimonial value, in such a way that if this it was of great interest could optionally to carry out a project of type Museum or geo-mining Park.

What it is necessary to have very clear to undertake this type actions, it is that any project type that it is tried to approach it should conjugate aspects -such multidisciplinary as anthropological, archaeological and historical studies- that try of giving explanation to the changes that have left taking place in the work industrial productive -processes, relate social, technology, etc.-, in ways of life inside the exploitation and in the communities, allowing us everything it the understanding of the missing mining culture and the knowledge of the socio-labor conditions in those that lived.

This type of projects converges toward the denominated ecomuseums, open museums or cultural parks where they gives way the idea of static museums and it is focused toward a more dynamic model and with an important load of human aspects, where the elements are in situ and even in operation, and where you can usually appreciate, also, the manual and artisan work.

MUSEALISATION AND THEMATIC PARKS

The tourism, source of very important revenues for many countries, is an activity that is in constant evolution being continually to adapt to the demands of the market that every day is much more demanding and it requests something more than sun and beach, opting for an interior tourism, a tourism more in consonance with the environment and the country space –rural tourism- and with some strong connotations of cultural type. This joint must be taken advantage of by the organizations defenders of the heritage and to get the enough institutional support to undertake actions guided toward the setting in value of this rich historical-cultural legacy.

In this sense during these last years have increased considerably –so much on the part of the private initiative as public- interest for this type of tourism, what has been translated in the proliferation of great number of museums –musealisation- that have had great importance like source of revenues of depressed areas because of the end of a certain predominant economic activity. This tendency for the mining culture has international character, but it has been developed mainly in the most advanced countries as Japan, USA, the European Union, Canada, etc. In Europe three Mine-museum, Lewarde (France), Wieliczka (Poland) and Kerkrade (Holland), they possess more than 100.000 visits a year (Puche and Mazadiego, 1997).

As example of this new tendency the Ironbridge Gorge –with a surface of 15,5 km²- is one of the first museums that pursues the objective of the recovery of the industrial heritage. It is located in one of the English valleys of the Severn river in which during the XVIII century that it was a region with a tremendous activity thanks to the exploitations of coal and to the trade of the iron, being the bigger centre producing of iron of Great Britain. Today in day it receives more 300.000 visitors year, with a cash of 10.800 million pesetas, about 50 millions \$USA (Puche, 1996).

The Cultural Parks integrate multiple aspects at regional level. As model of this type of parks it can comment Aragon Government (Spain) interest that promulgated a law of creation of cultural parks. As example of this politics it is necessary to mention the Cultural Park of the River Martín, in Ariño, that includes many thematic –rupestrine arts, geology and speleology, fauna, flora, Iberian culture, palaeontology and popular arts- besides creation a Congresses centre in an miners old school of mining company SAMCA. What is pretend with it is it that people become aware of the rich heritage that possesses in the area that values it and mainly that participates in her conservation.

The modern idea that is also pursued today in day is that the Museums be able to interpretation centres, investigation and formation.

CONCLUSIONS

From it has been exposed in this article can be extracted the following conclusions:

- 1) it exists great concern and international sensitization to preserve the history of the mining and, in consequence, a culture that it needs to be diffused through museum experiences, cultural parks, etc.
- 2) it is necessary to undertake diffusion actions and development about the necessary protection and defence of great value that it represents the mining heritage, as the humanity's heritage, through the development of projects and publications as well as to generate several activities as courses, shops, conferences, divulgatives meeting from primary school, etc.

- 3) we have the obligation of preserving for the future this heritage, as historical inheritance that our ancestors have bequeathed us.
- 4) this task must be multidisciplinary and in her it must involved to communities.

REFERENCES

- Mining Journal (1999). **Mining history matters**. March 19. London.
- PUCHE, O. (1996). **The conservation of the mining heritage in Great Britain**. Bull. SEDPGYM, 5, 2. Madrid.
- PUCHE, O. (1996). **France and the mining and archaeological heritage**. Bull. SEDPGYM, 4, 1. Madrid.
- PUCHE, O. (1999). **The conservation Ireland's mining heritage**. Bull. SEDPGYM, 14, 7. Madrid.
- PUCHE, O. AND MAZADIEGO, L.F. (1997). **Conservation of the mining metallurgist heritage Spanish: recent performances and proposals**. Tecnoambiente, 69, 39-43. TIASA. Madrid.
- SEDPGYM (1996-1999). **News and comments on the geological and mining heritage**. Bulletins 7, 8, 13, 14. Madrid.