



Conservation of the European mining and metallurgical heritage — Part 2

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In the June 1999 issue of the *CIM Bulletin* an inventory of Mining Museums Across Canada was published. Because museums are an important educational tool and a touristic attraction, it is a pleasure to have professors Octavio Puche Riart and Luis Felipe Mazadiego Martínez respond to our invitation to write about the European mining and metallurgical museums. Part 1 of this article appeared in the May 2000 issue.

TABLE 13. Metal mining museums

Country	Mining museums
Austria	Bad Bleiger, Jochberg, Leogang, Muelbach
Germany	Altenberg, Aue, Bad Bilungen-Bergfreiheit, Bergisch-Gladbach, Beswig-Ramsberg, Bodenmain, Fischbach-Nehe, Freiberg, Frohau, Goslar, Hilchenbach-Müsen, Hünsterthal, Kirchheimbolanden, Masberg, Meissner-Abterode, Obörschöna, Oelsenitz, Pobershau, Saarlouis, Schriesheim, Siegen, Waschleite, Wettelrode, Wieden-Utzenfeld
Great Britain	Llandudno, Minera, Sygun, Wanlockhead, North Travistock
Italy	Champdeprez, Massa Maritima, Vipiteno
France	Pontgibaud
Spain	Bañolas, Bellmunt, La Unión, Río Tinto, Valverde del Camino
Poland	Ólskuz
Norway	Lokken, Røros

TABLE 14. Iron museums

Country	Mining museums
Austria	Eisenerz, Hüttenberg-Kärnten
Spain	Aia, Besullo, Cerain, Dos Teixos, Herrerías, Legazpi, Mazanovo, Ripoll
Norway	Arendal, Sulitjelma
Great Britain	Clinderford, Iron Bridge
Germany	Dortmund, Elbingeroode, Vöcklingen
Sweden	Ekilstuna, Forsmarks, Karlholms, Langbans, Österbybruk, Vällnora
Slovakia	Kosica, Medzev
Belgium	Liège, Saint Hubert
Hungary	Lillafüred
France	Nancy
Finland	Outokumpu
Czech Republic	Medenec

Metal Mines

More than half of the mine museums account for the exploitation of metals. The most numerous are the Zn-Cu-Pb pyrite and Fe-Ni-Co sulphide mines, in many cases were originally for the production of silver. They account for about one quarter of the total number of mines and a little less than half of the metal mines (Table 13). Iron accounts for 12% of the total, including not only mines and museums, but ancient ironworks and blast furnaces as well (Table 14).

Silver mines account for 10.4% of the total and 18.3% of the metal mines. Many of the sulphide mines studied also produce significant quantities of silver, such as Pontgibaud, Vipiteno or Linares, but they are not

TABLE 15. Silver mining museums

Country	Mining museums
France	Alpe d'Huez, L'Argentière-La-Besse, Melle, Le Tillot
Slovakia	Bánska Stianvica
Germany	Bayreuth, Bleihalf, Geising, Johangeorgenstadt, Langelsheim-Lautenthal, Sank Andreasberg, Schönborn-Dreiwerden
Switzerland	Davon-Platz
Norway	Kronsberg
Italy	Perosa Argentina
Great Britain	Ponterwyd
Sweden	Sala
Austria	Oberzeiring, Schawaz

TABLE 16. Gold mining museums

Country	Mining museums
Roumania	Brad
Great Britain	Dolgellau, Lampeter
Czech Republic	Jilova
France	Jumilhac-Le-Grand
Spain	Las Médulas
Norway	Lyklyn
Finland	Tankavaara
Italy	Mancugnaga, Predosa

TABLE 17. Pegmatite metals museums

Country	Mining museums	Ore
Spain	Almadén	Cinnabar
Italy	Monte Amiatta	Cinnabar
Slovenia	Idria	Cinnabar
France	Massiac	Antimony
Switzerland	Sargans	Manganese
Great Britain	Pendeen	Tin

considered in the context of this grouping (Table 15). Gold museums are given in Table 16. There are also other pegmatite metals, as well as low temperature hydrothermal and even other types of metals, that have not been mentioned in the preceding headings, all of which account for 4.7% of the total and 8.3% of the metal mines (Table 17).

Industrial Minerals Mines

38.5% of the museum mines or mining museums account for minerals, such as coal, salt or construction materials. The most numerous are the coal mines. The European pit coal mines, that have functioned at full capacity since the beginnings of the Industrial Revolution, closed down mainly in the seventies and the eighties. To relocate some of the surplus labour and to prevent depopulation of the rural areas, touristic alternatives had to be found. In terms of museums, these mines account for 14.6% of the total number of mines and 37.8% of the non-metal mines (Table 18). Construction materials account for 13.4% of the total and 34.5% of the non-metal mines (Fig. 10). Within this grouping cut stone should be highlighted, mainly slate (Table 19); limestone and marble (Table 20); stone (Table 21); salt (Table 22); and others (Table 23).

TABLE 18. Coal mining museums

Country	Mining museums
France	Alés, Decazeville, Lewarde, Nievre, Petit Roselle, Saint Etienne, Le Tarn, Villard Saint Pancrace
Spain	Barruelo de Santuyán, Cercs, El Entrego, Puertollano, La Robla, Sabero
Switzerland	Horgen
Belgium	Beringen, Blegny-Trimbleaur, Fontaine-L'Eveque, Houdeng-Aimeres, Liège, Wasmes
Great Britain	Blaenafort, Chatterley-Whitfield, Iron Bridge, Overton
Germany	Bexbach, Clausthal-Zellerfeld, Essen, Peissenberg, Teuchen

TABLE 19. Construction materials museums

Country	Mining museums
Great Britain	Blaenau Ffestiniog, Llanfair, Llanveris
Spain	Trones
France	Caumont-L'Evente, Noyant-La-Gravoyère

TABLE 20. Museums for limestone and marble

Country	Mining museums
Belgium	Basècles, Maffle, Rance
Spain	Canteras
Italy	Carrara
Finland	Loha
Germany	Chemnitz, Nolfstein

Mining Museums of General Nature

Nearly all of the museums exhibit the individuality of the products of the mine or mining valley they come from. Nevertheless, 4.7% of the museums are usual museums, although this is somewhat difficult to appreciate. In many cases located in the capital cities or the principal mining schools, the majority are national museums, and aspire to gather the general char-

acteristics of the mining history of a given country (Table 24).

Conclusions

Active conservation projects have generally been supported by institutions, but many have been underwritten by private enterprise due to their business potential. What is still lacking in this area, however, is an awareness of the economic

and touristic potential of these archaeological treasures. It seems that the current tendency is to reconstruct works, buildings and antique devices "in situ," preserving their natural and cultural environment, as opposed to the nineteenth-century concept of the "cemetery museum," where small personal property was preserved. The latter were located in larger cities, taking the exhibited objects out of their context. The following factors should be considered for a successful organization of museum mines:

- Ensure the most exhaustive treatment of the chosen theme, keeping in mind that visits to the underground and train rides hold the greatest appeal to scholars, family and senior citizen tourists.
- Seek originality of presentation. Today, Europe offers so many different choices that it has become necessary to give a special touch to each museum to attract the general interest of the public.
- Benefit from regional exclusivity, and locate the museum in an area not too far from large urban centres. The potential audience is an important factor in the consideration of the site's profitability.
- Combine cultural and commercial use. Some museum mines host subterranean hospitals, as is the case of Bad Bleiger (Austria), Neubulach (Germany) or Wieliszka (Poland), but the most common solution is a museum

TABLE 21. Museums for stone

Country	Museums of stone	Lime quarries and furnaces	Other
Belgium	Muno, Vielam-Salmchateau, Rebec-Rognon	Antoign	Eben-Emael (flint), Bomm (brickworks)
Great Britain	Wirkswork		
Italy		Cinto Euganeo	
France			St. Ours (puzzoli stone)
Austria			Hinterbrüll (plaster)

Fig. 10. The underground quarry, Corsham-Wiltshire, Great Britain.



TABLE 22. Salt museums

Country	Mining museums
Austria	Altaussee, Bad Ischl, Hallein-Dürnberg, Hallstatt
Germany	Berchtesgaden, Heilbronn, Merkers, Salzhemdorf
Switzerland	Bex
Spain	Cardona
Great Britain	Northwich
Poland	Wieliszka
Roumania	Slanik

TABLE 23. Other industrial minerals museums

Location	Country	Substance
Perticara	Italy	Sulphur
Urbino	Italy	Sulphur
Grodbendonk (Amberes)	Belgium	Diamonds
Stullen-Frefhung	Germany	Fluorite
Can Tintorer (Gavá)	Spain	Variscite-Turquoise
Idar-Oberstein	Germany	Agate
Hauzenberg	Germany	Graphite

TABLE 24. Mining museums of a general nature

Location	Country
Germany	Bochum, München
Holland	Kerkrade
Norway	Hornes, Oslo
France	Paris
Czech Republic	Prague
Spain	Madrid
Italy	L'Iglesia
Hungary	Sopron

combined with other lucrative activities, such as restaurants, cafeterias, souvenir shops, shows, etc, that attract additional revenue.

- Integrate the more complex tours, such as territory museums, natural areas, theme parks and other excursions of a recreational or cultural nature.

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