

Falun (Sweden)

No 1027

Identification

<i>Nomination</i>	The historic cultural landscape of the Great Copper Mountain in Falun
<i>Location</i>	Dalarna
<i>State Party</i>	Sweden
<i>Date</i>	26 June 2000

Justification by State Party

The Great Copper Mountain in Falun and its cultural landscape are an outstanding example of a technological ensemble with an historical industrial landscape and unique type of buildings and settlements.

The Falun Copper Mine, otherwise known as the Great Copper Mountain (*Stora Kopparberget*) is the oldest and most important mine working in Sweden and the world, and of great international significance. It is one of the world's most remarkable industrial monuments. The manmade landscape surrounding the mine is very remarkable and unique by Swedish and international standards. The Falun mine has developed and influenced international mining technology and played a very important part in the world economy.

Criterion iv

Category of property

In terms of the categories of cultural property set out in Article 1 of the 1972 World Heritage Convention, this is a *site*. It is also a *cultural landscape* as defined in paragraph 39 of the *Operational Guidelines for the Implementation of the World Heritage Convention*.

History and Description

History

The oldest surviving document relating to the Great Copper Mountain was issued in 1288, but scientific studies suggest that its origins date back to the 8th or 9th century. This was a period when there was considerable trade between Germany and Sweden and Germans settled in Sweden, and so it is likely that the Swedish industry was upgraded at this time under German influence. There is considerable evidence of this in the form of the technology being applied, such as fire-

setting and mine drainage, the origins of which can be traced to continental sources such as the Harz Mountains.

A charter of 1347 led to the creation of a distinctive manmade landscape. Miners were granted the right to establish new settlements in the forests without paying any compensation to the landowners. At the same time they were exempted from land or forest taxes and their properties could pass to their children.

The 15th century was a period of unrest and armed conflict. The "free miners" of the Great Copper Mountain played their full part in this, protesting against trade restrictions and taxation. This culminated in a major rising in 1531–34, as a result of which several distinguished citizens of Falun were executed on the orders of Gustavus Vasa.

During the 16th and 17th centuries the Great Copper Mountain was the mainstay of Sweden's economy, enabling it to become one of the leading European powers. By the mid 17th century Falun was producing 70% of the world's output of copper. It was exported all over the world – for the roofs of the Palace of Versailles or for Spanish coinage, for example. The revenue from copper financed the disastrous involvement of Sweden in the Thirty Years' War (1618–48).

The Great Copper Mountain was organized as a corporate operation, with free miners (*bergsmän*) owning shares (*fjärdeparter*) proportional to their interests in copper smelters. The 1347 charter covered, *inter alia*, ore extraction, settlement, and trade within the region. It may justifiably be considered to be the precursor of the later joint stock companies, and it is often referred to as "the oldest company in the world."

A cultural region known as Kopparbergslagen developed around Falun which is unique to Sweden. There were no fewer than 140 copper smelting furnaces in the region at this time, and the free miners had their estates and manor-houses close to the furnaces. The agrarian landscape was dominated by grazing land and wooded pastures. A crop-rotation system with a five-year cycle, known as *lindbruk* or the Falun method, was developed here in the 17th and 18th centuries.

Despite the high level of technology developed and applied in and around the Great Copper Mountain, there were inevitably accidents, and especially in the 17th century, when production was at its most intensive. The most dramatic was that in 1687, when a massive landslide led to the creation of the Great Pit (*Stora Stöten*) there.

The town of Falun was founded in the 17th century: its population of some six thousand people made it the second largest city in Sweden at that time. The formal 1646 layout survives in the three districts of Gamla Herrgården, Östanfors, and Elsborg.

The copper furnaces were water-powered from as early as the 13th century, and the earliest water-powered hoisting gear was built in 1555 at Blankstöten, one of the open-cast mines. Ponds, dikes, and canals were constructed to supply the furnaces and the mines; the oldest surviving dam dates from the 14th century.

Many foreign scientists and businessmen visited Falun in the 17th, 18th, and 19th centuries, and all were very impressed by the enormous size of the mine, the smoke from the furnaces, and the remarkable structures related to the copper industry. The Great Copper Mountain became Sweden's first

tourist attraction: the first recorded use of the word "tourist" is from 1824.

This was a leading centre of technological progress from the 16th century onwards. Among those who worked there and developed their research were the mechanical engineer Christopher Polhem and the chemist Jöns Jacob Berzelius.

As the demand for copper receded in the 18th and 19th centuries, production was extended to other mineral resources of the Great Copper Mountain, including sulphur, lead, zinc, silver, and gold. In 1888 the old company was reconstituted as a modern limited company, Stora Kopparbergs Bergslags AB. The old copper furnaces were abandoned and large new factories built. Outside Falun itself the company had been acquiring iron mines and setting up iron and steelworks, and it became one of the major Swedish enterprises in this field. Another area was that of forestry, producing paper and sawn timber.

The company celebrated its seventh centenary in 1988. However, by 1992 all the viable ore deposits had been extracted and so mining ceased: the last round of shots was fired on 8 December 1998. The only industrial activity remaining is the production of the traditional and very distinctive Falun (Swedish) red paint, used for the protection of the wooden buildings of Sweden and other parts of Scandinavia.

Description

The property proposed for inscription consists of the Great Copper Mountain and several areas around it which make up Kopparbergslagen. The core area is the historic mine at Falun with associated facilities above and below ground. The other areas contain many furnace sites, waterways, ponds, canals, and ancient mining settlements. There is a specific landscape of slagheaps and furnace remains to the north of the mine. To this should be added the town of Falun with its 1646 gridiron street plan and the three districts of wooden houses (Gamla Herrgården, Östanfors, and Elsborg). Four of the areas are free miner landscapes: the area north of Lake Varpan between Österå and Bergsgården, the area surrounding Lake Hosjö, the Sundsbornsån valley, and the Knivaån valley from Staberg to Marieberg. Also included is Linnévägen, the well preserved ancient bridle path and cart track leading to the mining town of Röros in Norway and named after the famous Swedish naturalist Carl von Linné (Linnaeus), who travelled along it in 1734.

- The Great Copper Mountain

This consists of the underground mine itself, where operations ceased in 1992, and the enormous pit (Stora Stöten), measuring 300m x 350m by c 90m deep, resulting from a colossal cave-in in 1687. There is visitor access to some of the older parts of the mine, notably the impressive Creutz's Shaft, which is 208m deep and partitioned by what is often called "the highest timber structure in the world." A vast open chamber known as *Allmänna Freden* (Universal Peace) houses a display of historic working equipment.

Above ground the historic mining landscape comprises mine spoilheaps and heaps of "Swedish red," together with historic buildings from the 17th–19th centuries. As mining operations expanded a number of these wooden buildings were moved around.

They include mining installations such as headframes, wheelhouses, powder magazines, tally chambers, administrative offices, workshops, stores, mills, and living

quarters. They date from the late 17th century (Bergmästaregården) to the 20th century. Several have been adapted for alternative use: thus the former administrative building (*Stora Gruvstugan*), built in the 1770s, has been the Mining Museum since 1922. The 20th century Paint Factory is still in use, producing "Swedish red" paint. The most recent building is the Berget Auditorium, designed by Bo Wederfors and awarded the prize for timber architecture of the National Association of Swedish Architects in 1988.

- The furnace landscape

This consists of three large slag heaps lying to the north of the core area: Ingarvshyttan, Syrfabriksågen, and Hyttberget. Between them are to be found the remains of historic industrial installations such as furnaces, roasting houses and early tracks. Archaeological excavations have been carried out on several of these sites.

- The town of Falun

The oldest surviving building in this planned town, laid out in 1646, is Stora Kopparberg Church, part of which dates from the 14th century. The main square (Stora Torget) is the site of the Kristine Church (1642–60), the Town Courthouse (1647–53), and the head office of the Stora Kopparberg Bergslag Company (1766). Following a major fire in 1761 there was considerable rebuilding, and there is some particularly fine late 17th century buildings along Åsgatan.

Falun also has a number of well preserved old workers' houses at Elsborg, Gamla Herrgården, and Östanfors. The Villastaden district, as its name implies, has some fine early 20th century villa architecture.

- The free miner landscapes

Bergsmanslandskapet, the first of these landscapes, lies to the west of the core area. It consists of spoilheaps, furnace sites, and well preserved early settlements. There is a network of waterways, canals, dikes, ponds, and dam buildings stretching from Igeltjärn in the north-west to the Crown Dikes and the mine in the south-east.

The Österå-Bergsgården landscape to the north-west of the mine, on the western and northern sides of Lake Varpan, contains these two free miner settlements, each of which had some ten copper-smelting furnaces and more than 25 ore-roasting furnaces in the 17th century. This heyday is represented today by enormous slagheaps, furnace chambers, workers' houses, and manor houses. There are some particularly well preserved free miners' homesteads in this area.

Copper furnaces were first recorded (in 1357) in the third area, that of Hosjö. There are many well preserved miners' homesteads, and Linnaeus was married in 1739 at one of these (Sveden), the home of the famous bishop and author Jesper Swedberg and his world-renowned son, the philosopher Emmanuel Swedenborg.

The Sundsbornsån valley, running along the waterways joining Lakes Runn and Toftan to the north of the Hosjö area, is a manmade landscape containing many archaeological remains from the Neolithic period and the Iron Age. There were many copper furnaces here from medieval times until the early 19th century. Once again, there are many fine miners' homesteads of the 18th and 19th centuries.

The fourth area is the Knivaån Valley, on the eastern side of Lake Runn. There is abundant evidence of its mining past.

Staberg is particularly noteworthy for its slagheaps and smelting remains. Of particular importance is Gamla Staberg, a free miner's homestead from around 1700 with a fine Baroque garden that is currently being restored.

Management and Protection

Legal status

The monuments, sites, and landscapes that make up this nominated area are all protected under the comprehensive and interlocking Swedish legislation for cultural and environmental protection. The relevant measures are the following:

- The Cultural Monuments (etc) Act (1988: 950) with Amendments up to and including SFS (1996:529)

All archaeological sites and monuments are given full legal protection. Listed historic buildings are given similar protection, as are ecclesiastical buildings of the established Church of Sweden. Any interventions must receive authorization from the National Heritage Board (*Riksantikvarieämbetet*) in the case of archaeological monuments or the relevant County Administration in the case of built heritage.

- The Environmental Code (1997)

The Code lays down general rules relating to the protection and conservation of the environment. There are two provisions relating to cultural values. First, it specifies fundamental requirements for the use of land and water areas, designed to maintain their cultural values. These are applicable to public authorities as well as private individuals or enterprises. Secondly, it introduces the concept of the cultural reserve. There are considerable restrictions over use and construction in these areas. The Code is regulated by County Administrations. It interacts with the Building and Planning Act 1987 and the associated Ordinance.

- The Planning and Building Act (1987: 10)

This Act (supported by the Planning and Building Ordinance, last updated in February 1997) gives local authorities considerable autonomy in regulating planning and developments within their respective districts. However, the State is given powers to intervene in matters considered to be of national importance where it is adjudged that the Environmental Code has not been properly implemented. So far as cultural heritage is concerned, general requirements are laid down for buildings, sites, and public open spaces. Alterations to existing buildings must take account of structural, historical, environmental, and architectural values. The special characteristics of buildings of historical and architectural importance must be preserved. Local authorities are required to produce and implement comprehensive plans, which are made binding through detailed development plans and/or area regulations.

The entire area covered by the nomination was classified as a series of areas of national interest in 1987 under the provisions of Chapter 3 of the Environmental Code. The Great Pit was protected under the Cultural Monuments Act as a heritage site in 1995 under a resolution of the County Administrative Board. There are currently thirteen archaeological sites and monuments and historic buildings in the nominated area which are also protected as heritage sites

under this Act and four more are being considered for this level of protection. In addition, substantial areas are also protected under the Planning and Building Act. All the areas in the nomination are covered by local authority development plans and area regulations.

Relevant authorities are Dalarna County Administration (*Länsstyrelsen Dalarna*), Falun Municipality, and the Church of Sweden, through the Falun Ecclesiastical Congregation (*Falu Kyrkliga Samfällighet*). Overall supervision of all cultural property is exercised by the National Heritage Board (*Riksantikvarieämbetet*).

Management

Ownership of properties included in the nomination and their management is distributed between Stora Kopparbergs Bergslags AB (the Falun mine, managed by the Dalarnas Museum located in Falun), the Falun Municipality, and individuals (homesteads, town buildings).

Under the terms of the Environmental Code and the Planning and Building Ordinance, a comprehensive plan for the centre of Falun was adopted in 1998, and this is supported by detailed development plans in the other areas, with specific provisions for the protection of buildings and settlements of historical interest. Detailed development plans are also in force for substantial areas outside the nominated area. These are covered by a cultural environment plan for the entire municipality, also dating from 1998. Since 1998 work has been in progress to develop the Falun Mine and Kopparbergslagen as an ecomuseum. This is a joint enterprise of the Municipality of Falun, the Dalarnas Museum, and Stora Kopparbergs Bergslags AB (hereafter referred to as Stora), working with voluntary bodies.

Although mining ceased at Falun in 1992, Stora has respected its obligations vis-à-vis the industrial heritage by maintaining the buildings and the mining environment adjoining the Great Pit, as well as the giant timber wall in Creutz's Shaft. The company has a long-term management plan for all its heritage sites in Sweden, of which Falun is unquestionably the most important.

Although the development plans and those of Stora cover virtually every aspect of the future maintenance and development requirements of the entire area covered in the nomination, there is no overall management plan *sensu stricto*.

Conservation and Authenticity

Conservation history

Swedish industrial companies have long been conscious of the importance of their industrial heritage, and the country probably possesses the largest number of industrial monuments and museums anywhere in the world, covering mining, metallurgy, paper and board production, and engineering. Since 1973 there has been a series of surveys and inventories of cultural properties of all kinds in the area covered by the nomination. The most comprehensive of these was probably the total inventory and documentation of the mine itself and the associated buildings carried out by the company before mining operations ceased. Other important survey and inventory projects have been carried out by the National Heritage Board and the Dalarnas Museum.

In exercising their statutory functions the relevant national and local authorities have ensured that the heritage sites and monuments have maintained a high level of conservation.

Stora has ensured that all the properties in its ownership have conformed with statutory requirements in this respect.

Authenticity and integrity

The authenticity of individual buildings and monuments within the nominated area is high. This is the result of the stringent conditions laid down in the relevant legislation regarding maintenance and the selection of materials for restoration and implemented by the national, county, and municipal agencies involved.

The integrity of both the Great Pit and its associated buildings and the urban fabric of the old part of Falun has been sedulously maintained by the application of statutory regulations, reinforced by a strong resolution on the part of the residents to ensure the survival of the evidence of Falun's great industrial heritage.

Evaluation

Action by ICOMOS

An ICOMOS-TICCIH expert mission visited Falun in January 2001. ICOMOS consulted TICCIH experts on the cultural significance of this property.

Qualities

The Great Copper Mountain and its cultural landscape at Falun is one of the most outstanding industrial monuments in the world. Copper was mined there from at least the 13th century, and probably much earlier, until the end of the 20th century. It claims, with some justification, to be the oldest joint-stock company in the world. Many important developments in the extraction of copper ores and their refining took place at this site, and the cultural landscape bears abundant witness to its long and distinguished technological history. The dominance of Sweden as the major producer of copper in the 17th century had a profound impact on that country's economic and political development, and hence of that of the whole of Europe.

The landscape is noteworthy not only for its technological heritage but also for the abundant evidence of the social structure of the mining community over time. It contains many small mining settlements and miners' dwellings, as well as a planned town of the 17th century, which graphically illustrate the special socio-economic framework of much of European mining up to the late 19th century.

Comparative analysis

There are several World Heritage sites associated with mining: Kutná Hora (Czech Republic), the Rammelsberg/Goslar site (Germany), Røros (Norway), Banská Štiavnica (Slovakia), and Blaenavon (United Kingdom) in Europe, and Guanajuato (Mexico), Potosí (Bolivia), and Zacatecas (Mexico).

Of the European sites, the nomination of Kutná Hora extends only to the historic centre, omitting the early mines. The significance of Banská Štiavnica also lies in its historic town centre, together with its significance in mining research and education: the industrial remains do not compare with those of Falun. The cultural landscape of Blaenavon developed around coal and iron-ore mining and iron production, but it is significantly different in many respects from Falun. Røros is a very well preserved wooden town that developed around its copper mining activities in the

17th century. Whilst it is comparable with Falun, it lacks the extensive industrial heritage of Falun. The Rammelsberg silver mining area and the fine associated medieval and Baroque town of Goslar is comparable in time-scale with Falun, but its visible industrial heritage is considerably less prominent than that of Falun.

Of the three Latin American sites, only Guanajuato possesses significant industrial monuments, but this is different in scale, nature, and period of exploitation from those of Falun.

It is justifiable to assert, therefore, that the Great Copper Mountain and its associated cultural landscape around Falun is exceptional as being one of the most enduring and complete monuments of the world's industrial heritage.

ICOMOS recommendations for future action

The properties covered by the nomination are protected by a number of statutory instruments and regulations. They are also included in land-use plans at several levels. There is also a general plan for the improvement and management of all the Stora industrial heritage sites. There is, however, no overall coordinating management mechanism. ICOMOS and TICCIH consider that it is essential for these diverse measures to be coordinated by means of a comprehensive management plan (to include a special plan relating to tourism).

In response to the Bureau referral of this nomination back to the State Party, requesting the provision of a coordinating management plan (as recommended by ICOMOS), a detailed plan was supplied by the State Party. This was found on examination to be fully in accordance with the requirements of the Committee and ICOMOS.

Brief description

The enormous mining excavation known as the Great Pit at Falun is the most striking feature of a landscape that illustrates the survival of copper production in this region since at least the 13th century. The 17th century planned town of Falun with its many fine historic buildings and the industrial and domestic remains at a number of settlements spread over a wide area of Dalarna provide a vivid picture of what was for centuries one of the world's most important mining areas.

Statement of Significance

The Great Copper Mountain and its cultural landscape at Falun graphically illustrate one of the most significant areas of mining and metals production. Mining ceased at the end of the 20th century, but over many centuries it had exerted a strong influence on the technological, economic, social, and political development of Sweden and Europe. The history of the mining industry can be seen in the abundant industrial and domestic remains characteristic of this industry that still survive in the natural landscape around Falun which has been moulded and transformed by human ingenuity and resourcefulness.

ICOMOS Recommendation

That this property be inscribed on the World Heritage List on the basis of *criteria ii, iii, and v*:

Criterion ii Copper mining at Falun was influenced by German technology, but this was to become the major producer of copper in the 17th century and exercised a profound influence on mining technology in all parts of the world for two centuries.

Criterion iii The entire Falun landscape is dominated by the remains of copper mining and production, which began as early as the 9th century and came to an end in the closing years of the 20th century.

Criterion v The successive stages in the economic and social evolution of the copper industry in the Falun region, from a form of “cottage industry” to full industrial production, can be seen in the abundant industrial, urban, and domestic remains characteristic of this industry that still survive.

Bureau Recommendation

That this nomination be *referred back* to the State Party, requesting the provision of a coordinating management plan.

ICOMOS, November 2001