

Zollverein (Germany)

No 975

Identification

<i>Nomination</i>	The Cultural Industrial Landscape of the Zollverein Mine
<i>Location</i>	Land Nord-Rhein-Westfalen
<i>State Party</i>	Federal Republic of Germany
<i>Date</i>	4 November 1999 (revised text)

Justification by State Party

When the Zollverein Mine XII was completed in 1932, it was considered to be the most modern and beautiful coal mine in the world, the daily output of which, 12,000 tonnes of hard coal, was four times higher than the normal figure. The same year saw the end of the Bauhaus, the most noble objective of which had been to work towards the “new building of the future” by fusing craft and art. In the opinion of the founder of the Bauhaus, Walter Gropius, the goal of architecture was to create objects and spaces for the purpose of which a new development of form had to proceed, in particular, from the works of engineering and industry. At the Zollverein mine the Bauhaus maxim that form must be oriented towards function is perfectly translated into reality.

Zollverein XII was created at the end of a phase of political and economic upheaval and change in Germany, which was represented aesthetically in the transition from Expressionism to Cubism and Functionalism. At the same time, Zollverein XII embodies this short economic boom between the two World Wars, which has gone down in history as the “Roaring Twenties.” However, Zollverein is also, and by no means least, a monument of industrial history reflecting an area in which, for the first time, globalization and the worldwide interdependence of economic factors played a vital part.

The architects Fritz Schupp and Martin Kemmer developed Zollverein XII in the graphic language of the Bauhaus as a group of buildings which combined form and function in a masterly way. **Criterion i**

The cultural landscape of the Zollverein Mine bears unique witness to the complex interrelationships of living and working, dominated by large-scale industry, in the midst of one of the largest cultural landscapes in the world. **Criterion ii**

Zollverein XII is an individual monument of outstanding significance in the landscape. During the phase, never to be

repeated, of concentration of groups of heavy industries, it was built as an investment provided with all the visionary ambitions of industrial rationalism. Thus it embodies one of the most fundamental ideas of industrial activity in a globally unique manner. **Criterion iii**

With a daily output of 12,000 tonnes of usable coal, Zollverein XII was the most efficient mine in the world. Under the difficult geological conditions of the region, the achievement of this level of output was an outstanding technological feat. **Criterion vi**

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

Consolidation of the mining claim area was completed in December 1847: the area concerned covered 13.2km². At that time it was the northernmost mine in the region. It belongs to the Gelsenkirchen anticline, in which the coal seams, averaging 1.17m thick, are deeply stratified. Mining began in the mid 19th century at a depth of *c* 120m and finished at the fourteenth level (1200m). By the end of mining the underground roadways extended over 120km; they were accessed by twelve shafts, opened up progressively between 1847 and 1932. When Zollverein XII was opened, the earlier shafts were used solely for the movement of men and supplies; all the extracted coal was handled by the new shaft until the mine closed in 1986. The methods of mining evolved as technology developed from hand picks to mechanized coal cutting.

The coals being extracted at Zollverein were especially suitable for coking. Consequently, the first stack-type coke-ovens were built there in 1857. The coking plant expanded considerably over the decades that followed. However, when the Zollverein mine was taken over by the steel company, Vereinigte Stahlwerke AG, in 1926, a new coking plant (the Nordstern plant) was built to process all the coal from its pits in the region. Coke production returned to Zollverein in the late 1950s, when the then holding company for the mines in the region, Gelsenkirchen Bergwerks AG, decided to build a new coking plant to supplement the Nordstern plant. It began production in 1961 from eight batteries, each of 24 ovens, producing 8600t per day; there were also facilities for processing by-products such as tar, sulphuric acid, benzene, ammonium compounds, and gas. This plant closed down in 1993 because of the fall in the demand for coke.

The construction of the stretch of the Cologne-Minden railway between Oberhausen and Hamm in 1847 was decisive for the location of the early Zollverein shafts, which were sunk 500m from the new line so as to facilitate transport of the coal and coke produced. The first passenger station did not open until forty years later. There were also links with the Emscher Valley line, also opened in 1847, which cut the north-western corner of the Zollverein concession. There followed a series of internal link lines during the next eighty years. It was connected with that of

the neighbouring Bonifacius mine after Zollverein was taken over by Vereinigte Stahlwerke in 1926.

Coal mining produces enormous quantities of waste material, which is deposited in the characteristic pit heaps. The earliest of these, to the east of shaft 1/2, was planted with trees in 1895 and used as a recreational area for the mine officials. A second grew to the west of shaft 1/2 from that time, and in 1932 was used for pond management, to dry out the boiler-ash and coal slurries from Zollverein XII. A heap begun in 1880 was partially cleared in 1958 to provide land for miners' housing. Other heaps were used for filling areas where coal had been removed from a steeply dipping seam and on an abandoned airfield.

Intensive mining resulted in a number of subsidences, in some places as deep as 25m. This necessitated clearance of irretrievably damaged housing and other facilities. Subsidence exacerbated the water problems in the so-called Emscher Zone, where mining adversely affected the gravitational flow and created large areas of swamp. Local industries and municipalities created the Emscher Association, which carried out a number of projects using pumping stations and creating polders.

The workforce steadily increased to *c* 5000 by the end of the 19th century. During the 20th century it fluctuated between 5000 and 8000. Because there were no alternative property developers when work began in 1847, Zollverein began to construct housing for its workers. Building projects were integrated with the mine operating programmes.

Large building sites were purchased and by 1860 146 flats were ready for occupancy; at that time the mine employed 710 workers. This "Hegemannshof Colony" expanded steadily (by the turn of the century it covered around 90ha), and subsequently two more colonies, "Ottekampshof" and "Beisen," were added. By World War I the property owned by the mine had grown to over 720ha. However, this was by no means adequate for a workforce that numbered some 5000 at that time. Between the two World Wars new workers' housing developed, notably the housing estate built by the Trust Agency for Miners' Housing. In the late 1920s the mine could provide each of its salaried employees and officials with an apartment, but only some 3000 were available for the 8000 workers. After World War II new estates consisting of apartment blocks were built by the housing association established by Vereinigte Stahlwerke AG, such as the Kaldekirche, Westerbruch, and Kapitlacker estates from the 1950s. The Glückauf estate was built by the miners themselves working in collaboration. The houses were owned by private individuals. Two Pestalozzi villages were also built for apprentices. In 1958 there were 7061 dwellings available for a workforce of 8000.

From the start the mine provided consumer services for its employees, selling food and manufactured goods at low prices. They began on a "cooperative" basis, profits being returned to consumers in the form of an annual dividend. This scheme, with its six outlets, was taken over as a company enterprise by Vereinigte Stahlwerke. The system gradually declined after World War II because of competition from commercial stores, and the remaining outlets were bought out in the 1970s.

From the mid 1920s the mine provided welfare services for its employees. The first welfare centre was set up in 1928 (it was rehoused in 1938) and the second in 1934. A large modern welfare centre designed by Fritz Schupp was built in

1953. However, Zollverein closed its welfare facilities in the early 1960s, in line with the current trend in the Ruhr.

Description

- The pits

Only the foundations of the Malakow towers of the original pit survive; they are built over by the present headgear (Pit 1, 1956-58; Pit 2, constructed at the Friedlicher Nachbar mine 1950, transferred to Zollverein 1965), both designed by Fritz Schupp. The brick winding-engine building dates from 1903, with an extension by Schupp of 1958. The 1922 main store has a reinforced concrete frame. The pithead baths are in the form of a brick hall, capable of providing facilities for 3000 miners. The ensemble is completed by the imposing administrative building (1906), the director's villa (1898), and the mine officials' residence (1878). Less survives of the buildings of Pits 3/7/10, 4/11, and 6/9, apart from the 33m high headgear of Pit 10 (1913).

At Pit XII the central hoisting unit (Schupp, 1932) is preserved almost in its entirety. The building axis, which runs parallel to the tracks of the mine railway station, is defined by the central energy-supply plants. These comprise the compressed-air plant (boiler house and upstream compressor houses) in the north and the control station in the south. The stack on the axis of symmetry behind the boiler house, the main feature of the ensemble, was demolished in 1979 for safety reasons.

At right-angles to this group are the buildings of the tub turntable, raised so as to permit passage for wagons. The buildings of the screening plant, the electrostatic precipitator, and the refuse hopper are annexed to this group. The belt-conveyor bridge establishes a functional connection between the refuse hopper, the picking-belt hall, and the coal-washing plant.

With the change from tub to skip extraction at the pit large parts of the tub turntable became redundant, but it was necessary to build an additional conveyor-belt bridge and a connecting building. The facade on the right of the pithead building was closed because of appearance of the "court of honour" was impaired by the new structures.

This entire ensemble was the work of Fritz Schupp, apart from the roof superstructure, which had to be raised in 1982 to accommodate large new dust-extraction plant.

- The coking plants

The coking plants at the individual Zollverein pits have all been demolished, but the central plant has been conserved since it closed down in 1993. The ovens extend over a distance of nearly 1km, parallel to the former Cologne-Minden railway line. Their equipment – pushers, quenching station, screening plant, and loading stations – are all intact, as are the gas-treatment and by-products installations, and ancillary buildings. The result is a unique example of a large-scale industrial complex, which is open to the public and had more than 200,000 visitors in 1999.

- The railway lines

The original main railway lines (Cologne-Minden and the Bergische-Märkische line) are still in use, as part of the Bahn AG network. The railway connection between the Cologne-Minden line via the mine to the Rhein-Herne Canal is also preserved. The route from Zollverein to Bonifacius no longer has its tracks; it is now used as a bicycle path.

- The pit heaps

Most of the mine-refuse heaps are still visible, several having been planted with trees and used as local recreational areas. Subsidence has created small valleys which would be waterlogged had corrective measures not been taken. The pumping stations built in the 1960s and 1970s to relieve problems associated with gravitational water flow are standard functional structures.

- Miners' housing

In the former Hegemannshof and Ottekampshof colonies a considerable number of houses survive almost in their original state, but in a bad state of repair. These are for the most part four-dwelling buildings on a cross-shaped ground plan. They are built in brick, with large gardens attached. Large sections of both estates were, however, demolished in the 1960s as part of large-scale redevelopment projects and replaced by multi-storey apartment blocks.

The early private development in the centre of Katernberg and around the Roman Catholic church is virtually untouched. The facades of the upper floors retain their elaborate decorative details. The buildings around the market place such as the post office and the former town hall, built on land donated to the community by the mine, have preserved their original appearance to a considerable degree.

The Glückauf houses still survive, as do the Pestalozzi villages, with their characteristic single-storey houses with pitched gabled roofs in quiet winding streets. The multi-storey apartment blocks built by the housing associations are undistinguished in style; they are set apart from the earlier housing by the fact that they do not have individual gardens but are sited with extensive green areas around them. The Kapitalecker estate has survived essentially in its original form, though it is greatly in need of repair. Of greater interest are the Westernbruch and Kaldekirche estates with their decorative clinker brick facades.

The successive groups of houses constitute a remarkable sequence of approaches to workers' housing over a period of 140 years, during which profound social and economic changes took place.

- Consumer and welfare facilities

Two of the consumer facilities survive, although one had to undergo extensive rebuilding after wartime damage. One is a three-storey brick-built structure and the other is two-storey with a decorated plaster facade. Both are now in use as retail shops.

The former welfare centre 1 in Viktoriastrasse still fills a similar function, as offices for medical and law practices. Modifications to the brick building designed by Fritz Schupp in 1938 to adapt it for its present use respected the original design and detailing. His 1953 centre, now in use as accommodation for asylum seekers, has been conserved but is not in a good state of repair.

Management and Protection

Legal status

When coal extraction ceased at Zollverein, the boundaries of the legally defined mining concession covering 13km² were no longer of relevance. The larger part, situated within the town of Essen, is within the Düsseldorf

administrative district of the Province of North-Rhine Westphalia (*Land Nordrhein-Westfalen*). The north-eastern corner is in the town of Gelsenkirchen.

The area nominated for inscription on the World Heritage List is protected under the Law Governing the Protection and Conservation in the Federal State of North-Rhine Westphalia of 11 March 1980.

Management

Different parts of the nominated area are owned by both public and private bodies: Landsentwicklungsgesellschaft Nordrhein-Westfalen, Ruhrkohle AG, Kommunalverband Ruhrgebiet KVR, and VEBA Immobilien.

Application of the legislation is supervised by the provincial Ministry of Employment, Social and Urban Development, Culture and Sport, working with the municipal authorities of Düsseldorf and Essen. Direct management is the responsibility of two non-profit-making foundations, Stiftung Industriedenkmalpflege und Geschichtskultur and Stiftung Zollverein.

A "Craftsmen's Guild," analogous to those at the great cathedrals, has been set up by the town of Essen and the Regional Development Company to carry out regular maintenance and provide training in conservation practices and techniques.

A National Park of Industrial Culture is being established, which will operate in accordance with a management plan covering the entire area of industrial sites making up the Zollverein. New uses have been devised for most of the main industrial features – a theatrical rehearsal stage, the municipal meeting centre, the North-Rhine Westphalia design office, a private art gallery, workshops for retraining the long-term unemployed, etc.

Conservation and Authenticity

Conservation history

A large-scale rehabilitation programme to preserve the external appearance of the mine complex was carried out in 1990–98. The steel frames of the buildings have been secured and conserved.

The interrelationship of the different industrial components has been secured by retaining at least one major item of plant in each building. In the case of the main boiler house, the vast items of equipment are still *in situ*, but the interior has been adapted for use as an exhibition centre in accordance with plans drawn up by the UK architectural office of Sir Norman Foster and Partners.

Maintenance is assured with the willing help of former workers of the Zollverein mine. There are also training programmes connected with maintenance and presentation of the complex.

Future projects include a major restoration project for the coke-oven plant and further conservation work on the pit heaps.

There is, however, no overall management plan for the historic industrial plant, with a clear management philosophy and objectives. Especially serious is the lack of any conservation programme for the many large items of equipment, the coking plant, or the "white side" of the coke ovens, the chemical processing plant. This is essential, and

should begin with a complete inventory of every item of plant on the site.

Authenticity

As an industrial landscape, the Zollverein mine has a high level of authenticity. It comprises all the components of intensive 19th and 20th century industrial exploitation – the complete complex of buildings and equipment necessary for the extraction and treatment of coal and the production of coke, the requisite transportation network (in this case of railways), and the dwellings and communal buildings of the large community of workers, as well as the vast heaps of pit waste.

The individual industrial components have of necessity lost their functional authenticity. However, a policy of sensitive and imaginative adaptive reuse has ensured that their forms survive intact, with significant items of industrial plant preserved, and that their interrelationships remain clearly and logically visible. In particular, the authenticity of the important group of industrial buildings designed for Zollverein XII by Fritz Schupp has been carefully conserved

Social and economic changes have meant that the authenticity of the surviving workers' houses is somewhat variable. However, efforts have been made to ensure that part at least of their group value and authenticity has been retained, so that the corpus illustrates the development of attitudes to workers' housing over an economically and socially significant period of 150 years.

Evaluation

Action by ICOMOS

An ICOMOS-TICCIH expert mission visited the property in February 2000.

Qualities

Coal was essential to the rapid development of industry worldwide in the 19th and 20th centuries. The Zollverein mine constitutes outstanding material evidence of the evolution and decline of this key industry over the past 150 years. The picture that it presents is a comprehensive one, covering the industrial, economic, and social aspects in a remarkably comprehensive manner. The buildings of Pit XII are exceptional examples of the successful application and adaptation of the principles of the Modern Movement to the requirements of heavy industry.

Comparative analysis

The number of coal-mining complexes that operated from the 19th century through to the latter part of the 20th century has never been large, since mines closed down once their coal deposits were exhausted and mining moved elsewhere. The use of alternative sources of energy has seen the role of coal diminish greatly in the past half-century, and in consequence mines have closed down at an accelerating rate. In most cases, this has been accompanied by the demolition of the coal and coke treatment and handling installations. The Zollverein is a rare survival and no comparable site can be identified.

ICOMOS comments

The original nomination was of an area based on the previous extent of underground coal-mining concessions at the Zollverein mine. This bears no relationship to surface

features, frequently intersecting streets or districts, and does not include all the historic settlements, of which there are at least nine on the map provided with the original nomination. ICOMOS proposed that the nominated area be confined to the Zollverein XII and Zollverein I and II mines, with the adjoining coking plant. This would provide a clear site boundary, bordered by suitable roads and for the most part enclosed by a high wall.

It was accepted that the surrounding area is a cultural landscape with many important workers' housing complexes, villas, public buildings, churches, etc, but these would be better treated as the buffer zone to the main industrial complex. The zone should be extended to include the suburbs of Katernberg, Schonnebeck, and Stoppenberg. Consideration should also be given to the inclusion of other important mining sites in the area as part of the nominated area.

ICOMOS was very impressed by the meticulous and sensitive conservation and adaptive reuse of the 1930s buildings. It was, however, concerned about the interventions in the coking plant, now managed by an arts organization, and also by a proposal to build a five-storey glass block on top of the washing plant, to house a postgraduate institute of art and design.

At its 24th session in Paris in June 2000 the Bureau of the World Heritage Committee deferred further consideration of this nomination, requesting the State Party to reconsider the boundaries of the nominated area and the buffer zone, to abandon the plans to build a new structure on top of the washing plant, and to prepare a comprehensive management plan for the industrial site, with a conservation plan based on the preparation of a detailed inventory.

The State Party subsequently provided a new plan which took into account the revised boundaries proposed by ICOMOS and gave assurances about the future management of the coking plant and washing plant. In November 2000 a document was submitted to ICOMOS entitled *Regulatory regime for the conservation of "The Cultural Industrial Landscape of the Zollverein Mine"*. This document was studied by ICOMOS and TICCIH, who were of the opinion that it did not fully comply with the requirements of the Committee.

The State Party provided a management plan to ICOMOS two days before the 25th Session of the Bureau. Supplementary information was also supplied by the State Party regarding the structure and responsibilities of the Zollverein Development Company (*Entwicklungsgesellschaft Zollverein mbH*). This documentation has been studied by ICOMOS and TICCIH, who consider that it complies with the Committee's requirements regarding management.

The State Party had indicated that it wished to change the name of the nominated property to "The Zollverein Coal Mine Industrial Complex," a proposal with which ICOMOS is in agreement.

Brief description

The Zollverein industrial landscape consists of the complete installations of an historical coal-mining site, with some 20th century buildings of outstanding architectural merit.

Statement of significance

The Zollverein XII Coal Mine Industrial Complex is an important example of a European primary industry of great economic significance in the 19th and 20th centuries. The mine is especially noteworthy for the high architectural quality of its buildings of the Modern Movement.

ICOMOS Recommendation

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

Criterion ii The Zollverein XII Coal Mine Industrial Complex is an exceptional industrial monument by virtue of the fact that its buildings are outstanding examples of the application of the design concepts of the Modern Movement in architecture in a wholly industrial context.

Criterion iii The technological and other structures of Zollverein XII is representative of a crucial period in the development of traditional heavy industries in Europe, when sympathetic and positive use was made of architectural designs of outstanding quality.

Bureau Recommendation

That this nomination be *referred back*, to allow ICOMOS time to review the requested management plan received only recently from the State Party.

ICOMOS, September 2001