

Blaenavon (United Kingdom)

No 984

Identification

<i>Nomination</i>	The Blaenavon Industrial Landscape
<i>Location</i>	Wales
<i>State Party</i>	United Kingdom
<i>Date</i>	28 June 1999

Justification by State Party

Iron and coal were characteristic materials of the Industrial Revolution, and the principal products of the South Wales Valleys, where many settlements came into being with the establishment of mines, ironworks, canals, and railways in the 18th and 19th centuries. The collieries and ironworks of South Wales were for more than 150 years of prime international significance. Through the establishment of a series of carefully planned new ironworks in the late 18th and early 19th centuries, South Wales became the largest single iron-producing region in Britain. The output of pig iron grew from 39,600 tons in 1796 to 666,000 tons in 1852. Iron from Welsh furnaces and forges was employed on railways and for countless other purposes in five continents, while Welsh coal was loaded on to steamships as fuel in numerous distant ports. Skilled migrants took their knowledge and expertise of mining and iron-working technology all over the world, together with aspects of the distinctive culture which had evolved in the valleys.

The area around Blaenavon is one of the best examples in the world of a landscape created by coal mining and ironmaking in the late 18th and the early 19th century. The parallel development of these industries was one of the principal dynamic forces of the Industrial Revolution. In the major preserved sites of Blaenavon Ironworks and Big Pit, together with the outstanding relict landscape of mineral exploitation, manufacturing, transport, and settlement which surrounds them, can be seen evidence of all the crucial elements of the industrialization process.

The main focus of the area is Blaenavon Ironworks, where there are remains of a works with six blast furnaces in which, from 1789 until 1902, ore was smelted to produce pig iron. With its exceptional range of surviving structures, Blaenavon Ironworks is the best preserved blast furnace complex of its period and type in the world.

The entrepreneurs who established Blaenavon Ironworks in 1789 controlled and exploited an extensive landscape in order to provide the minerals, energy, and infrastructure needed for a new ironmaking enterprise which would put

into practice the latest methods of the Industrial Revolution. Within a short distance of the Ironworks can be seen evidence of the sources of all its raw materials. Big Pit is a coal mine sunk by the Blaenavon Company about 1860 which operated until 1980. On the hills north of Blaenavon, extensive evidence can be seen of the methods used to extract iron ore and coal during the first decades of the operation of the ironworks, together with the quarries for limestone. Linking the Ironworks, the ore workings, the quarries, and the wharves on the Brecknock and Abergavenny Canal is a network of daringly engineered primitive railways, constructed at a time of imaginative innovation in railway technology. Blaenavon's principal contribution to ironworking technology came in the late 1870s, when Percy Gilchrist and Sidney Gilchrist Thomas perfected there a process for making mild steel from pig iron smelted from phosphoric ores.

There was no extensive settlement in the area before the establishment of the Ironworks in 1789. In the town of Blaenavon, south of the Ironworks, there remain many buildings which are eloquent evidence of the area's industrial past – the homes of ironmasters and the working community, a church and a school built by the owners of the Ironworks, chapels founded by English-speaking and Welsh-speaking congregations, shops, public houses, and the impressive Workmen's Hall and Institute built in 1894, financed by a levy on the wages of miners and ironworkers.

The pattern of community at Blaenavon provides valuable evidence of the beginnings of a kind of human experience which can be seen in industrial regions in all five continents. The technology of the multi-furnace coke-fuelled ironworks, of steam-powered blowing engines, deep mines, and primitive railways, were among many developments put into practice at Blaenavon which became characteristic of the Industrial Revolution and were exchanged with regions in many parts of the world. The rapid growth of population at Blaenavon produced new settlement and land-use patterns which contrasted sharply with the existing rural settlement structure and were characteristic of rapidly industrialized communities in many countries.

Criterion ii

Blaenavon is a monument to the working class culture which emerged from the Industrial Revolution in the South Wales valleys, and flourished in the later decades of the 19th century and the early 20th century. It has many points of contact with the culture of such industrial areas as the Ruhrgebiet, the coal fields of northern France, or the cities of northern Italy, and mining and metalworking settlements throughout the world. The tensions between employer and employee, the Established Church and Dissent, Welsh speakers and English speakers, can be observed in many features of the site. The wide extent and unusually complete survival of the landscape of work and society created at Blaenavon provide an exceptional testimony to early industrialized culture.

Criterion iii

Blaenavon illustrates with clarity the early formative stages of the Industrial Revolution with respect to the crucial developments which took place in ironmaking and coal mining in the late 18th and early 19th centuries. The value of technological monuments, like the blast furnaces, the lift tower, and the coal mine (Big Pit), is vastly enhanced by the survival in the surrounding landscape of evidence of

the exploitation of resources and the creation of an infrastructure for industrialization, which included transport systems, mineral extraction, and developing industrial and urban communities. All the crucial elements of the Industrial Revolution can be observed, including continuing technological advance, the conversion from organic to mineral materials, sustained growth in output, increasing capitalization of production, regional specialization, urbanization, and changing social relations.

Criterion iv

The Blaenavon landscape was the product of the human creativity of many individuals, entrepreneurs, technologists, engineers, and workers, over several generations. It is an outstanding example of characteristic forms of human settlement and the exploitation of mineral and energy resources associated with the coal and iron industries in the first phases of the Industrial Revolution. With de-industrialization and new patterns of development, land use, and living standards in the 20th century, similar landscapes elsewhere have proved both fragile and vulnerable to the pressures of land reclamation, redevelopment, and decay. The high degree of survival of land use and settlement patterns at Blaenavon is now complemented by appropriate means taken to afford their protection and conservation for the future. **Criterion v**

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

From at least 1675, and probably earlier, iron ore was extracted on the mountains of Blaenavon. However, the area was virtually unsettled and used only for small-scale iron mining and grazing.

In 1788 Lord Abergavenny leased the common lands, "Lord Abergavenny's Hills," to Thomas Hill, Thomas Hopkins, and Benjamin Pratt. These three entrepreneurs saw the opportunity to build a major new ironworks at Blaenavon, putting into practice the latest technology and organization of the Industrial Revolution in a new and resource-rich setting. By 1789 the Ironworks consisted of three blast furnaces utilizing steam power, making it the second largest ironworks in Wales and one of the largest in the world. Iron ores, fireclay, coal, and limestone were supplied by the company's own mineral properties. By 1796 the furnaces were producing 5400 tons of iron a year. Houses were built beside the company's ironworks, mines, and quarries for key workers, and a dense network of primitive railways was created to carry raw materials to the works and products towards markets. Population grew rapidly through the migration of workers from rural areas of Wales, from the industrial Midlands, Ireland, Scotland, and rural England. A rapidly created industrial landscape grew up of iron-ore patches, coal mines, limestone quarries, iron forges, brick works, tramroads, watercourses,

and workers' houses, all controlled by the Blaenavon Company.

By 1812 there were five furnaces capable of making 14,000 tons of iron a year. New primitive railway connections were made with the Brecknock and Abergavenny Canal through the 2.4km long Pwll-Du tunnel, the longest ever built on a horse-drawn railway. The Garn-Ddyrys Forge, to convert pig iron to wrought iron, was built on the mountain north of Blaenavon in 1817. Adit mining for iron ore and coal developed on a larger scale, replacing surface scouring, and shaft mines were introduced, with sophisticated drainage, haulage, and ventilation arrangements. New sources of limestone were explored and larger quarries opened. During the 1840s and 1850s the scattered housing of the workers and the works' school, church and chapels were complemented by the evolution, on land outside the company's ownership, of a town with a variety of urban functions.

In the 1860s, the Company brought into production a new steelworks across the valley at Forgeside, making the old ironworks increasingly redundant and protecting it from redevelopment. In 1878, Sidney Gilchrist Thomas and Percy Gilchrist invented at Blaenavon the Basic Bessemer or Thomas process, which was of world-wide importance in permitting phosphoric iron ores to be used in bulk steelmaking. The scale of production expanded, and the iron products of Blaenavon and the skills of its workforce continued to be exported throughout the world. Big Pit was sunk to serve the new works, and the new settlement of Forgeside was built. The population of Blaenavon parish, which had been minuscule before the Ironworks was built, had grown to 11,452 in 1891. The social development of the area created a thriving urban culture with many chapels, schools, pubs, and tradesmen, and a Workmen's Hall and Institute was built in 1895 to provide social and educational facilities.

Relative decline in steelmaking from around the turn of the century permitted the growth of coal production for export. Demand for the high-quality steam coals of South Wales continued to grow, and the industry reached a peak in 1913, at which time coal mining employed directly 250,000 people in Wales, or one in four of the adult male population. Big Pit was enlarged, and after the nationalization of the British coal industry in 1947 it was further expanded. Nevertheless, employment in the area was falling, and the population has declined continuously since its peak in 1921 of 12,500 to the present 6,000 inhabitants. Steel production ceased in 1938, and Big Pit, the last substantial working colliery, closed in 1980.

Economic and social decline has meant that much of the fabric of the town is in need of investment, but the development of new industries, the opening of Big Pit as a mining museum in 1983, and the conservation of Blaenavon Ironworks have contributed to economic regeneration. The town and the surrounding landscape have survived little altered to represent the story of their past.

Description

The Blaenavon Industrial Landscape, which is located at the head of the Avon Llwyd and on the southern flank of the Usk Valley, lies at an altitude of between 70m and 581m above sea level. The site is about 24km from the sea

at Newport and about 40km from Cardiff, the Welsh capital. Blaenavon is at the north-eastern corner of the South Wales valleys, at a point of abrupt landscape change, from the patchwork of fields and farmsteads which comprise lowland Monmouthshire to a dramatic landscape shaped by ironworking and coal mining.

- Blaenavon Ironworks

The Ironworks is the focus of the industrial landscape of Blaenavon and the *raison d'être* of the mineral workings and settlement.

The furnaces, in their completeness and diversity of form, provide a better impression of 18th and 19th century ironmaking technology and its development than any other group in Britain. The cast-house of furnace 2 is intact, demonstrating the characteristic arched form of such structures, to provide shelter yet permit ventilation. Foundations of the blowing engine house have not yet been excavated, but the base of its massive chimney (from which Stack Square takes its name) is clearly visible, as are the cast-iron pillars and brackets which carried blast pipes to the furnaces.

The Blaenavon Company was reorganized as a joint stock company in 1836, when James Ashwell was appointed managing director. The most impressive monument to Ashwell's work at Blaenavon is the water-balance tower at its northern end, built in 1839. This is the best preserved example of this form of lift technology using water to counter-balance loads, used in the mine shafts of south-east Wales and at several ironworks. A foundry, well ventilated by open arches, was constructed on the site of the original Boulton & Watt blowing engine house, some time after 1860. Above the furnaces is a range of ruined kilns in which iron ore was calcined, or roasted.

- Big Pit

Big Pit is a museum of coal mining of international significance. The first shaft at Big Pit was sunk in 1860 or before and was linked below-ground to workings dating from the 1830s for iron ore and coal. It was the last deep mine to work in the Blaenavon area, and the surface buildings remain almost exactly as they were when coal production ceased in 1980. They date from between the late 19th century and *c* 1970 and are characteristic of the surface structures of a modest-sized South Wales colliery, without architectural pretension but exceptional in their completeness.

The structures include the winding engine house (1952), the steel headgear (1921), in use until 1976, a fan house, a compressor house, a haulage engine house, a welding and fitting shop, a smithy, a stable block, an electricians' workshop, a sawmill for pit props, the offices of the manager and under-manager, and an isolated powder house. On the hillside above the main buildings are the miners' baths and canteen, opened in 1939, built in the International Modernist style favoured by the architects of the Miners' Welfare Committee. It is the only baths building in Wales from the inter-war years which retains its hot-air lockers for drying clothes, shower cubicles, automated boot brushes, canteen, and medical room.

Big Pit is one of only two mining museums in the United Kingdom where visitors can be taken underground. Visitors are taken in the cage down the shaft of 1860 to a

range of workings, some dating from the 1830s, including the ventilation system, a large 20th century haulage engine, the 19th century stables, etc.

- The landscape north of the Ironworks

The landscapes to the north of Blaenavon Ironworks comprise one of the area's most precious historical monuments. It is possible within this area to gain an understanding of the ways in which all the raw materials necessary for making iron were obtained - coal, iron ore, fireclay and limestone. The areas around Garn-yr-erw, Pwll-Du, and Pen-ffordd-goch appear at first sight to be wholly disordered, to be nothing more than random dumps of spoil. However, closer examination reveals evidence of the earliest periods of mining and quarrying in the area, phased relationships, and patterns of mineral extraction over several generations.

One of the best preserved areas of coal measure workings, at Pen-ffordd-goch, covers some 40ha. There is much evidence of hushing or scouring, the process of impounding water with dams and then releasing it to expose veins by removing overburden, or to wash piles of ore extracted from adits. This was probably carried out before the 17th century and expanded in the first two decades of the Blaenavon Ironworks. To the south of Pen-ffordd-goch are numerous bell pits, the most primitive form of shaft mine. The remnants of hushing ponds, leats which supplied them with water, crowsfoot-shaped tips of waste materials, the collapsed entrances to adits, the abandoned earthworks of primitive railways, subsidences indicating the presence of pillar-and-stall mining systems beneath, and the site of a weighing machine can also be observed in the area.

Remains exist of the earliest shaft mine in Blaenavon, Engine Pit of *c* 1806. The substantial remains of Hill's Pits at Garn-yr-erw, sunk between 1839 and 1844 to provide both coal and iron ore for the Ironworks and operated until 1893, provide evidence of later, more advanced mining technology. The outstanding monument is the stone chimney which survives to a height of 6m and served the boilers of the winding engine.

The area also provides evidence of how limestone, used as a flux in the ironmaking process, was obtained. The main quarries were at Pwll-Du at the head of Cwm Llanwenarth, and at Tyla to the west. There were also other smaller, earlier, quarries on the Bloreng. The Pwll-Du quarry was operating in roughly its present shape by 1819, and is exceptionally well preserved. The open hillsides provide much other evidence of the industrial past, such as a mid 19th century rectangular powder house and brickmaking establishments.

In parts of the landscape, particularly near Pwll-Du, the late 18th and early 19th century workings are overlain by tips of waste from opencast workings for coal of the 1940s. These are believed to be the only early opencast workings in Britain to survive unrestored, enabling the process of overburden removal and the contrast in scale with earlier workings to be understood.

- Transport systems: canals and primitive railways

The improvement of transport systems was a key component of the Industrial Revolution and was vital to the success of the coal and iron industries with their bulky

goods and requirement to exploit new regions. Much evidence remains in the landscape of the transport systems by which Blaenavon Ironworks was supplied with raw materials and its products were conveyed to the coast. These superseded a series of primitive trackways whose remains can still be seen, and continued to evolve over several generations.

The outstanding feature of the Brecknock and Abergavenny Canal, constructed between 1797 and 1812, is the basin at Llanfoist, situated on the side of the mountain and approached up a steep track. It was the terminus of the primitive railway built by Thomas Hill (Hill's Tramroad), completed in 1817. There is a substantial warehouse for storing iron semi-products before they were loaded on to canal boats. A tunnel under the canal, some 33.6m long, was constructed to accommodate the old parish road. The canal is crossed by a bridge built of cast-iron plates carried on cast-iron T-section girders which is of considerable historical significance.

The wharf built by Hill at Govlion, where the road from Blaenavon to Abergavenny crosses the canal, was the terminus of Bailey's Tramroad, a primitive railway built by the ironmaster Crawshay Bailey in 1821 to link his ironworks at Nantyglô with the canal.

The ironworks was served by a dense network of railways which developed from the 1780s onwards. Hill's Tramroad provides many insights into an important period of technological development. On most stretches the stone blocks on which the rails were mounted remain *in situ*. A series of counterbalanced inclined planes take the railway down the mountain to Llanfoist. The 2400m long tunnel under the mountain at Pwll-Du was the longest ever constructed for a horse-operated railway in Britain. It is believed that most of the tunnel survives intact below ground and an exploration and survey is planned.

There are many other remains of primitive railway systems in the Blaenavon area. Stone blocks, cast-iron sleepers, and wrought-iron and cast-iron rails can still be observed from track beds and waste tips.

- The management of water resources

In an upland setting like that of Blaenavon, which lies high on the watershed, the careful management of water was vital to provide sufficient and reliable supply, even in drought, to operate water-balance lifts, carry out scouring, and feed steam engines. Surface and underground drainage was also of the utmost importance for mining operations. Watercourses and drains can be seen in many places on the hills above Blaenavon, often with relationships to one another which allow relative dates to be determined. Near all the mineshafts are small reservoirs for water-balance and steam-engine supply, fed by many kilometres of watercourses which also served to drain the surface.

- Vertical integration: the forging side of the iron industry

The forge at Garn-Ddyrys, alongside Hill's Tramroad, came into operation in 1817. It stands on a bleak hillside at an altitude of some 400m. The principal features of the site are some blocks of solid ironworking waste, one of them 4m in height, remnants of the ponds which formed part of the forge's water-power system, the ruins of a manager's

house and workers' cottages, and traces of the primitive railway connections to the site, including an intact tunnel built to carry Hill's Tramroad underneath slag tips. To the south of the town of Blaenavon is Cwmavon, where there was a forge which operated from about 1804. There are no remains above ground, but the site has remained undeveloped and the remnants of the water supply are intact.

In the late 1850s the Blaenavon Company established a new ironworks on the opposite side of the valley from its original furnaces at a site which became known as Forgeside. Forges and rolling mills were moved here from Garn-Ddyrys. The new works was able to make up to 500 tons a week of iron rails, tyres for railway wagons and carriages, and plates for boilers and ships. In 1880 the Company began to make mild steel by the Gilchrist Thomas process, which it was in the unique position of being able to use without royalty payments. The Forgeside works continues to operate on a modest scale.

- Workers' housing

A variety of workers' housing, some from the earliest years of ironworking, remain within the Blaenavon landscape. The Company had to provide housing for its workpeople in the early years of its operation, since the area was only sparsely inhabited before the 1780s. The Company usually built dwellings very close to its ironworks, mines, quarries, or transport routes.

Adjacent to the Ironworks stands Stack Square and Engine Row, a small group of solidly constructed stone cottages. They were probably erected in 1788 for the skilled workers who operated the furnaces from the time they were built. The houses form a square into which a 50m high chimney stack for a new engine house was placed in 1860, the base of which can still be seen.

The very primitive buildings contemporary with Stack Square, some of them single-room back-to-back houses, no longer survive, but in most cases their locations are clearly visible and archaeologically intact. Between 1817 and 1832 the Company constructed about 160 single-fronted, three-room, two-storey dwellings, which have been called Blaenavon Company Standard Houses. They were usually built in terraces, some with as many as thirty dwellings, but some with as few as five. The terrace at Cwmavon, probably built in the 1820s, is the best example of this type of house.

- The town of Blaenavon

The growth of population in the Heads of the Valleys region of South Wales, where most of the ironworks were located, was one of the most dramatic demographic movements of the late 18th and early 19th centuries. Workers were initially housed by the iron companies where their labour was required, and the company shops were the main source of goods. Gradually a number of populous towns with centralized urban services and facilities developed. The characteristic form of these towns was chaotic, dictated by the axes of trackways and railways and the availability of land. Blaenavon is among the best examples of these emerging urban centres in South Wales.

Blaenavon is largely of mid 19th century date. Its buildings reflect powerfully the distinctive culture that had developed in ironworking and coal-mining areas of the

South Wales Valleys. The only significant link with pre-industrial society in the area is the site of Capel Newydd, a tiny chapel first mentioned in documents in 1577 and demolished in 1863.

The town grew gradually, and did not follow a particular plan. In the 1840s there were three principal clusters of buildings in the area, one around the Ironworks, one along the east-west axis, now King Street, where any pre-industrial settlement was probably concentrated, and one around St Peter's Church. The spaces between the three nuclei were gradually filled with buildings which evolved into a recognizable town by the 1850s. A significant development was the naming of the streets in the 1860s.

One group of buildings is closely linked with the first generation of ironmasters - the ironmaster's mansion (Ty Mawr), and St Peter's church and school, built alongside the Blaenavon Railway between 1800 and 1816. Blaenavon's many chapels - Bethlehem (1820), Horeb (1862), Moriah (1888) - provide much evidence of the town's culture in the 19th century. As in most industrial communities in South Wales the chapels were important educational as well as religious institutions, and also expressed the identity of Welsh-speakers working for English entrepreneurs.

Some of the social and educational roles of the chapels in the South Wales Valleys were taken over in the late 19th century by working men's institutes. Blaenavon's Workmen's Hall and Institute is the most imposing building in the town. Designed by E A Lansdowne of Newport and opened in 1895, it cost £10,000, which was raised by a halfpenny per week levy on the wages of miners and ironworkers, who reduced the cost of construction further by contributing voluntary labour.

Management and Protection

Legal status

The nominated site is protected through planning policies set out in development plans, including the Gwent Structure Plan, the Torfaen Local Plan, the Monmouth Borough-Wide Local Plan, and the Brecon Beacons National Park Plan. The United Kingdom planning system operates on the basis of regulating the development and use of land in the public interest and protecting interests of acknowledged importance.

Within the nominated area there are twelve Scheduled Ancient Monuments of national importance protected under the Ancient Monuments and Archaeological Areas Act 1979. There are 82 buildings within the nominated area listed by the Welsh Office under the provisions of the Planning (Listed Buildings and Conservation Areas) Act 1990 as being of special architectural or historic interest. In and around the town of Blaenavon 54 buildings have been listed as being of special architectural or historic merit. There are also 28 Listed Buildings near the Brecknock and Abergavenny Canal. Damaging or carrying out unauthorized work to any of these protected sites is a criminal offence punishable by a fine or imprisonment.

Within the nominated site there are four Sites of Special Scientific Interest (SSSIs), designated by the Countryside Council for Wales (CCW), under the Wildlife and

Countryside Act 1981, as amended. The CCW monitor these sites and have powers to ensure that their special conservation interest is being properly managed. Damaging SSSIs is a criminal offence which may be punishable by a fine.

Cwmavon and the town centre of Blaenavon were declared Conservation Areas in 1984 under the Town and Country Planning Act 1971, now replaced by the Planning (Listed Buildings and Conservation Areas) Act 1990. The Act requires planning permission for any development in the town or open landscape. Planning applications are determined by the relevant Local Planning Authorities, in the light of government guidance and development plan policies. Planning Authorities can take enforcement action against development without planning permission.

Much of the site is included on the Register of Landscapes of Outstanding Historic Interest in Wales, published jointly by the Countryside Council for Wales, Cadw, and ICOMOS UK. While the Register does not entail any statutory controls over development within the site, it is anticipated that it will be taken into account in the Development Plan process.

Management

Owing to the nature of the site, which covers 3290ha, ownerships are numerous and diverse in size and character. Many of the key assets are held safely within responsible public ownership and managed in the interests of conservation.

Cadw - Welsh Historic Monuments, on behalf of the Secretary of State for Wales, is the owner and guardian of Blaenavon Ironworks (1.75ha), with statutory responsibility for care and maintenance under the provisions of the 1979 Act.

The Big Pit Mining Museum site covers 22 ha, plus 5.6ha of railway sidings. Currently owned by a charitable trust, it is proposed that it will be taken over by the National Museums and Galleries of Wales, who have responsibilities for care and maintenance of cultural features and the encouragement of public access and education under the provisions of their Royal Charter.

The town of Blaenavon contains hundreds of separate owners and tenants of residential, commercial, and other properties, including churches and chapels. Several key Listed Buildings, such as the Workmen's Hall and Institute, St Peter's School and the former Town Council Offices, are owned by Torfaen County Borough Council.

The open area of former mineral workings is in the ownership of a few parties. Much of the nominated site is "urban common," which means the area is unfenced and used by the Commoners for grazing sheep. The common land is also available to the public with free rights of access on foot for air and exercise. Substantial parts of the open landscape are already owned by local authorities. Confirmation has been received from the owner of the largest areas of mineral landscape that it will not seek to extract coal from within the nominated site boundary and that it is willing to co-operate in the protection of the relict industrial landscape and in increasing public access to the area.

The Brecknock and Abergavenny Canal is in the ownership of British Waterways, a public body responsible for the conservation and management of the waterways network.

A number of local authorities and Government agencies have management responsibilities for, or interests in, the nominated site.

- The Blaenavon Partnership

In order to co-ordinate the approach to management of the heritage resource, the Blaenavon Partnership was established in August 1997. It now comprises Torfaen County Borough Council, Monmouthshire County Council, and the Brecon Beacons National Park Authority, which have direct management responsibilities, and Blaenau Gwent County Borough Council, which lies just outside the nominated site boundary. Blaenavon Town Council is also a member.

The Government agencies within the Partnership are Cadw, the Royal Commission on the Ancient and Historical Monuments of Wales, the National Museums and Galleries of Wales, the Countryside Council for Wales, the Wales Tourist Board, the Welsh Development Agency, and British Waterways. The Partnership also includes the National Trust, which is the premier non-governmental agency concerned with heritage sites in the United Kingdom.

Within the framework of the Partnership the Blaenavon Industrial Landscape Management Committee has been established to agree an overall management strategy and recommend policies, plans, and projects for implementation by the various partners acting within their own constitutional framework, and using their individual executive powers and individual budgets. This advisory Committee meets twice a year.

The executive management for the Partnership is carried out by the Blaenavon Industrial Landscape Project Board, chaired by the Chief Executive of Torfaen County Borough Council. The Project Board includes other chief officers of Torfaen County Borough Council and senior officers representing Cadw and the National Museums and Galleries of Wales. The Countryside Council for Wales and the National Trust and other parties attend from time to time.

Since 1997 the Partnership has maintained contact with community councils and groups, including business leaders, residents, and the local tourist association. It has also maintained contact with major landowners in the area and commoners' associations who have a direct interest in much of the landscape.

The Project Board is serviced by the Co-ordinating Officer, who ensures co-ordination and continuity of action between the various partners. The main expenditure is made by the authorities, agencies, and other partners within the Partnership through allocations in their individual budgets to specific projects.

Conservation and Authenticity

Conservation history

Blaenavon Ironworks has been in state care since 1975. At the time of coming into guardianship the monument was in

a ruinous state. Little or no repair to the masonry structures had been carried out for a century, and stone had been robbed for building elsewhere. Much of the site was buried in rubble and waste. Since 1975 a programme of excavation, consolidation, and repair has been carried out according to current best conservation practice. A team of masons is employed full time at the Ironworks, and additional specialist contractors are drawn in when necessary. A conservation architect supported by an industrial archaeologist and administrative staff manage the site.

Big Pit closed as a working coal mine in 1980 and was handed directly to a museum trust, who opened it in 1983. The main attraction of the site is the underground tours conducted by former miners. In order for public access to be achieved with safety, the shaft and galleries together with winding gear and other equipment have to be rigorously maintained with due attention to their historical integrity. Approximately £4 million capital has been spent on setting up and running the site since 1983, together with £5 million revenue support. The surface buildings are structurally sound but require maintenance and repair for which a programme of work has been devised.

Blaenavon is substantially intact in its settlement pattern and housing stock. However, it has suffered as a result of population loss, economic decline, and change in retailing patterns. The local authority and other agencies as well as private owners have invested in the repair and rehabilitation of properties over the last ten years to ensure their continued use. The most notable success in the town has been the thorough conservation and enhancement of the Workmen's Hall and Institute during the 1980s.

The area of coal and iron-ore mining and limestone quarrying to the north of the ironworks is a large tract of disturbed land which is now open common and moorland. All the historic features are now essentially stable and protected from erosion by a gradual process of revegetation; they are not threatened by any active development. Some buildings and other structures within the area are vulnerable to weathering and decay. Torfaen County Borough Council is developing proposals in association with Cadw and respective landowners to carry out conservation work where necessary over the next five years and encourage greater access to the site by interested visitors.

Pwll-Du primitive railway tunnel was reopened and inspected by the Pwll-Du Tram Tunnel Research and Exploration Group (TREG) in 1999. At Garn-Ddyrys Forge, excavations by a local archaeological group in 1970 recorded important buried remains including those of puddling furnaces and rolling mills. The features are stable and below-ground, while the form of the site and its key elements are clearly visible.

The Brecknock and Abergavenny Canal is intact and is maintained by the British Waterways Board. The length of canal within the nominated site has recently been subject to extensive repairs, costing approximately £0.5 million, to ensure the structural integrity of the canal.

Authenticity

The test of authenticity as set out in the *Operational Guidelines* lays stress, in respect of cultural landscapes, on "their distinctive character and components" (§24.b.i). The

authenticity of the Blaenavon industrial landscape is unquestionably very high in these terms. An equally appropriate measurement might be that of integrity, as in the case of natural properties nominated for the World Heritage List. In terms of the conditions of integrity set out in paragraph 44.b of the *Operational Guidelines*, such as “all or most of the key interrelated and interdependent elements in their natural relationships” (§44.b.i) and “the necessary elements to demonstrate the key aspects of processes that are necessary for ... long-term conservation” (§44.b.ii), the integrity of the Blaenavon landscape must be considered to be high.

and remarkably complete example of a 19th century industrial landscape.

ICOMOS, September 2000

Evaluation

Action by ICOMOS

An ICOMOS-TICCIH expert mission visited Blaenavon in October 1999. ICOMOS also consulted leading TICCIH experts in this field.

Qualities

The area around the Blaenavon ironworks provides an extraordinarily comprehensive picture of the South Wales coal and iron industry in its heyday in the 19th and early 20th century, when it was one of the world’s largest iron and steel producers

Comparative analysis

There are remains of ironworks built in the late 18th century or the early 19th century at various places in Britain but none is as complete as at Blaenavon, which encompasses in addition extraction of raw materials (coal, iron, limestone), an elaborate system of land and water transport, and human settlement. It may, moreover, be considered to complement the World Heritage site of Ironbridge Gorge, which developed gradually from the 16th century, reached a peak of activity between 1750 and 1800, and then settled into a period of decline.

Similarly, it fills chronological and technological gaps between other early sites associated with ironmaking on the World Heritage List, such as Engelsberg (Sweden) and Völklingen (Germany).

Brief description

The area around Blaenavon bears eloquent and exceptional testimony to the pre-eminence of South Wales as the world’s major producer of iron and coal in the 19th century. All the necessary elements can be seen *in situ* – coal and ore mines, quarries, a primitive railway system, , furnaces, the homes of the workers, and the social infrastructure of their community.

Recommendation

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

Criterion iii The Blaenavon landscape constitutes an exceptional illustration in material form of the social and economic structure of 19th century industry.

Criterion iv The components of the Blaenavon industrial landscape together make up an outstanding