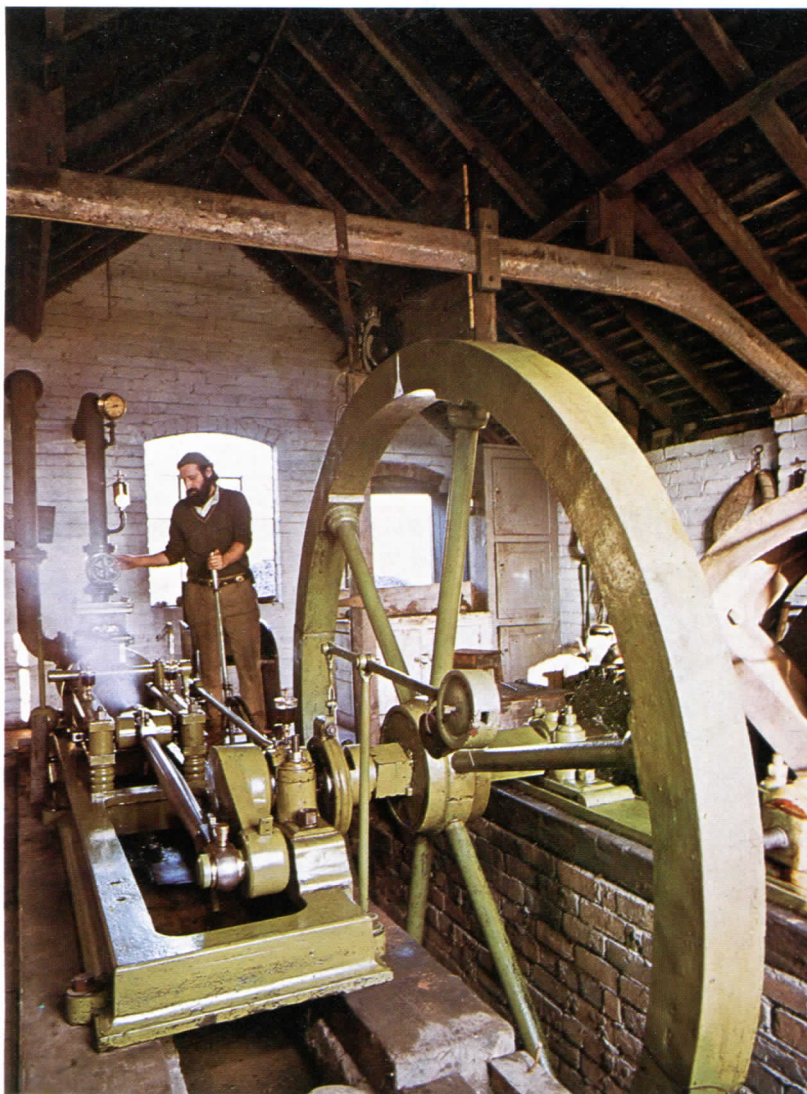
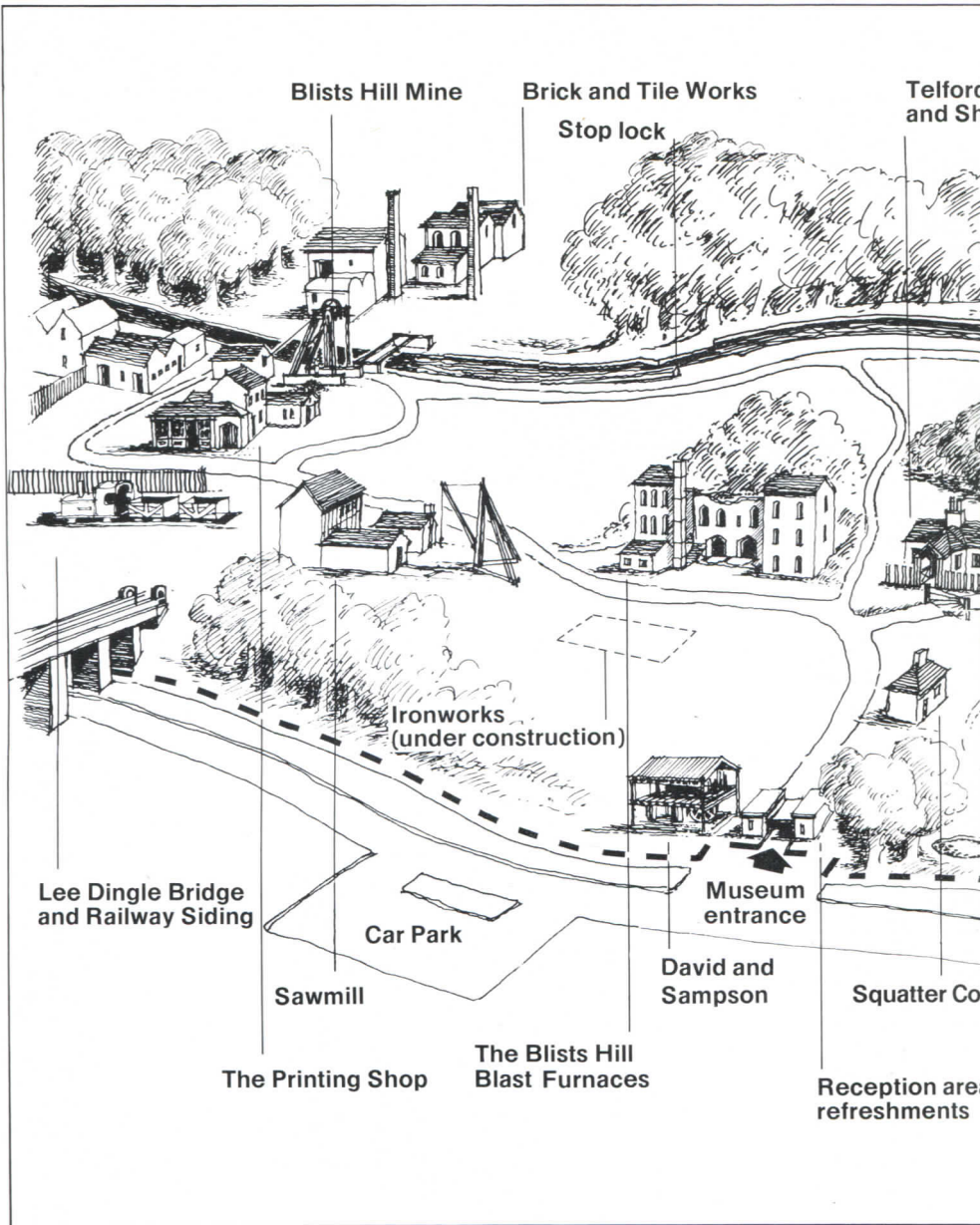


Blists Hill Open Air Museum

A guide to the museum and exhibits

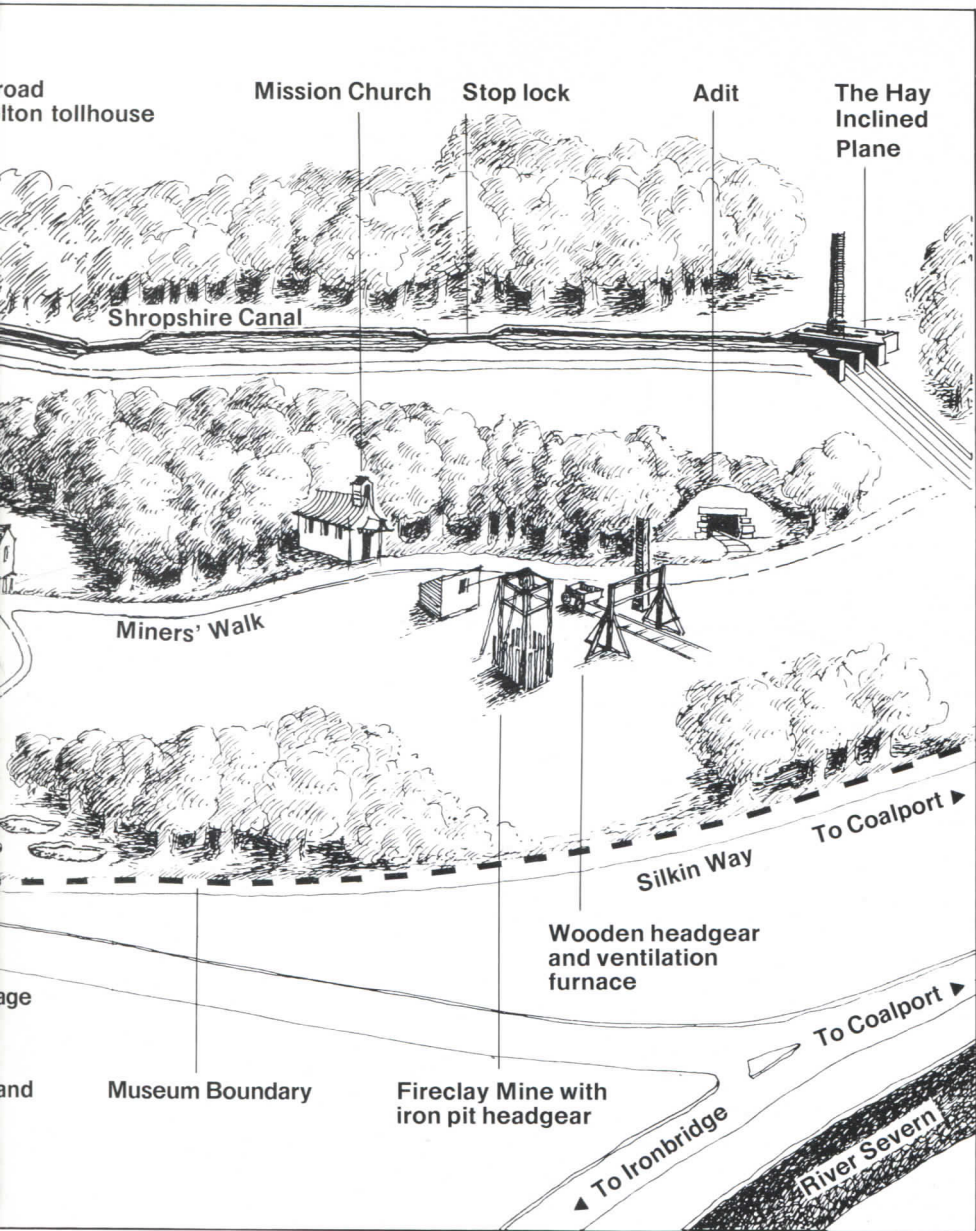


Ironbridge Gorge
Museum Trust



The Ironbridge Gorge is rich in the remains of early industry. Here evidence survives in profusion of the achievements of those who transformed Britain into the 'workshop of the world'. From the mid-sixteenth century the Gorge was an important coalmining area, large quantities of coal for domestic use being taken away by barges down the Severn into Worcestershire and Gloucestershire. In 1709 at Coalbrookdale Abraham Darby I first smelted iron using coke instead of charcoal as his fuel, paving the way for a rapid growth of the iron industry in the time of his son in the 1750s. In the last decades of the eighteenth century, after the building of the Iron Bridge, the Gorge attracted visitors from all over the world, and was generally reckoned to be the most

Front cover: Steam Colliery winding engine built about 1860 and reconstructed at Blists Hill Open Air Museum.



important ironmaking area in Britain. Apart from the ironworks, the ingenious railways and canals, the porcelain works, the chemical plants and the density of shipping on the Severn all left deep impressions upon those who saw them.

The Ironbridge Gorge Museum Trust was constituted in 1968 to preserve for posterity the monuments of one of the most important periods of human history. Wherever possible it is the policy of the Museum to preserve buildings or machines where they stand, but this is not always feasible, and some items which would otherwise be destroyed are being transferred to the 42-acre Blists Hill Open Air Museum. There are several important monuments at Blists Hill, among them three nineteenth century blast furnaces, a canal inclined plane and

a brick and tile works, which are being preserved *in situ*. In addition, several steam engines, some pit headstocks, various cottages and the machinery for an iron works are among the items which have been saved from destruction elsewhere, and have either been re-erected or await re-erection at Blists Hill. Work has begun on the creation of a small town area made up of the sorts of shops and workshops which could be found in this part of Shropshire in the late nineteenth century.



Blists Hill itself has an interesting industrial history. Coal mining in the area did not begin until the late eighteenth century, much later than at the western end of the Ironbridge Gorge, because the coal measures lie some 600 feet below the surface at Blists Hill whereas they outcrop on the surface on the other side of the Lightmoor Fault near the Iron Bridge. William Reynolds (1758-1803), the most inventive of the Shropshire ironmasters, drove the famous Tar Tunnel in 1786

from the banks of the Severn to connect with the shafts of coal mines at Blists Hill. In 1791-93 the Shropshire Canal was constructed through the area, and the Hay inclined plane linked its upper level with a short section parallel to the river, around which William Reynolds developed the 'new town' of Coalport, bringing in new industries like china making and the manufacture of wrought iron chains, building cottages for workers, and sharing in the administration of the ferry, the roads and the bridge. The development of Coalport is described in Museum Guide 5.02. In the 1830s and 40s the Madeley Wood Company built three blast furnaces at Blists Hill, and in 1851 added a brick and tile works. Ten years later the London & North Western Railway branch line from Wellington to Coalport was constructed through the area.

In the mid-nineteenth century Blists Hill must have been an impressive spectacle. Perhaps 400 or 500 people were employed within the present boundaries of the Museum. Flames and smoke continuously poured from the three blast furnaces, and the whole area was lit up when each of them was tapped, twice every twenty-four hours. Iron chains clanked and steam winding engines thudded at several coal, clay and iron ore mines. Dense smoke engulfed the brick kilns and horses patiently plodded along the canal towpath pulling trains of tub boats to the Hay inclined plane. Occasionally a breathless locomotive would struggle up the bank with several coachloads of shoppers from Coalport going to the markets at Wellington or Oakengates, or china makers returning home to Madeley. Horses and their drivers constantly passed to and fro across the dense network of plateways which linked mines, furnaces, brickworks and waste tips.

The decline of the area began in earnest in 1912 when the blast furnaces were blown out. The closure of the canal soon followed, and between the two World Wars the labour force at the pits and the brick and tile works dwindled to a handful. The mines were finally abandoned in 1941, although the brick and tile works continued to operate on a small scale into the 1950s.

Passenger services on the railway ceased in 1952, and goods trains last ran to Coalport some eight years later. In the mid-1960s the slag tips were quarried for

roadmaking materials, the Telford Development Corporation installed a trunk sewer along the track of the railway, on top of which was laid the footpath, now known as Silkin Way, which forms the route from the car park to the Museum entrance.

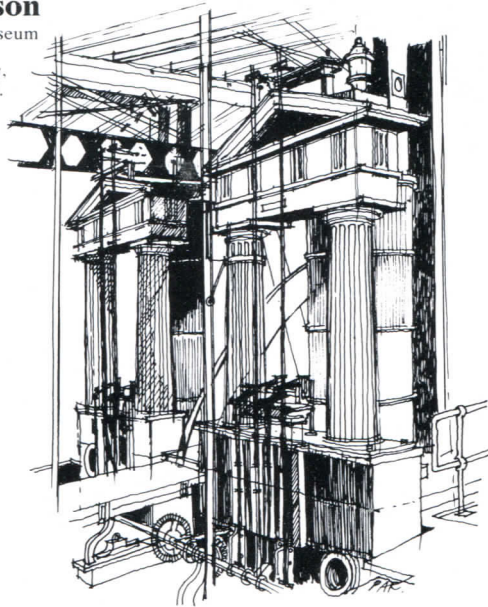
The Ironbridge Gorge Museum Trust was set up in 1968, and almost at once volunteers began to clear undergrowth and excavate the remains of the Hay inclined plane and the blast furnaces. The canal was re-dug and watered, the slope of the incline cleared of trees, the masonry of the furnaces and the brickworks restored, railway sidings were uncovered and pathways laid through the woods. In the years since then many exhibits which could not be restored *in situ* have been brought to Blists Hill and reconstructed.

Blists Hill Open Air Museum

On the following pages are details of the principal exhibits, each of which can be identified on the map on pages 2 and 3. Some are original features which have been restored by the Museum Trust, others have been moved and reconstructed here.

David and Sampson

Built 1851. Moved to the Museum and reconstructed 1971.
From the Lilleshall Company,
Priorslee Ironworks, Telford.



Standing at the entrance to the Museum are David and Sampson, a pair of beam engines built in 1851 by Murdoch Aitken & Company of Glasgow for the Priorslee Ironworks of the Lilleshall Company, about six miles from Blists Hill. The engines were used to blow air into the furnaces and were regularly operated until 1900, when a large vertical compound engine was installed. Thereafter they were used as standby engines, and were last operated in 1952. The furnaces were blown out in 1959, their closure marking the end of ironmaking in Shropshire. The engines were presented to the Museum by the Lilleshall Company.

David and Sampson share a massive cast-iron flywheel to which the beams are connected by wooden rods. The steam pistons move the beams up and down,

and they in turn operate the pistons in the air cylinders to provide the blast. The massive blast main through which the air was conveyed to the furnaces can easily be identified. A remarkable feature of the engines is their classical ornamentation. The engines are fully described in Museum Guide 4.03.

Blists Hill Blast Furnaces

In situ. Built 1832-44. Remains excavated 1973.



The Madeley Wood Company built the three furnaces at Blists Hill in 1832, 1840 and 1844, and pig-iron was produced here until they were taken out of blast in 1912. The original engine house stood to the north of the furnaces and was demolished about 1873, when the present north engine house was constructed. The south engine house bears the date 1840. The furnaces stood some fifty feet high in the area between the engine houses. Their bases were of brick and stone, but the main stacks were of refractory brick encased with wrought-iron plates. Only parts of the bases can now be seen. Above the furnaces rises a high retaining wall, pierced with Gothic arches, behind which were blacksmiths' workshops and storerooms. From the charging area at the top of the wall extended bridges across which the furnaces were fed with raw materials. Beneath the furnaces ran tunnels which carried pipes conveying air from the blowing engines to the tuyere pipes which carried it into the furnaces. To the south of the furnace area an inclined plane runs up to the top of the retaining wall. It was used to convey raw materials to the charging area. Other supplies of ore and coal were brought by canal directly to the upper level. On the top of the retaining wall was a small engine which worked the incline, and a calcining kiln in which iron ore was given a preliminary 'roasting' before it was fed into the furnaces.

The north engine house contains a vertical blowing engine which was brought to the Museum from Priorslee works of the Lilleshall Company, where it was used from about 1886 to blow the Bessemer convertors used to make steel. It is very similar to the engine installed here about 1873 to blow the blast furnaces. The steam cylinder is in tandem with the air cylinder, sharing a common piston rod and connecting rod to the huge cast-iron flywheel.

The boilers which supplied steam to the engines have long since disappeared, but a modern boiler house was built in 1974 and stands against the north engine house.

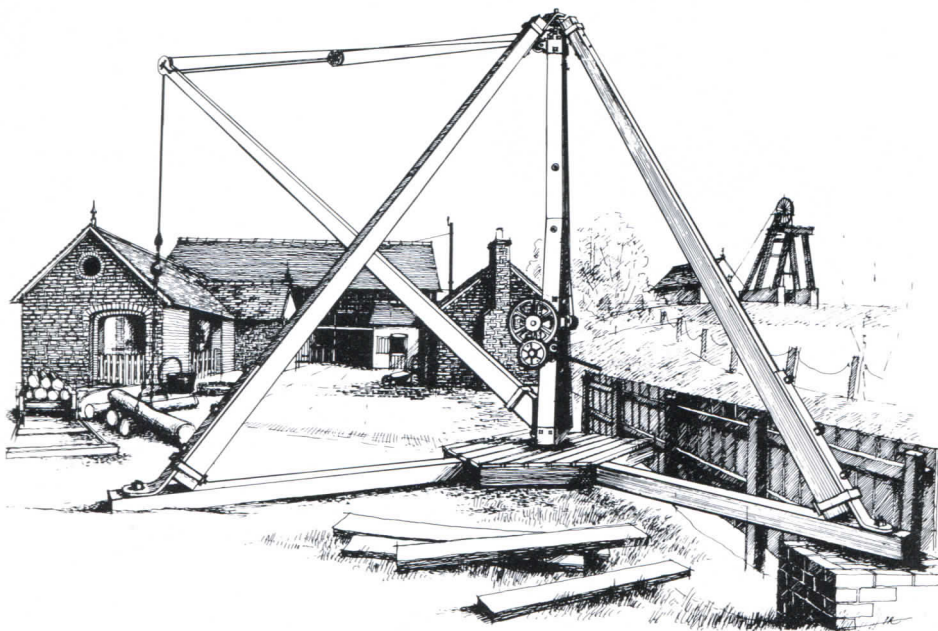


Ironworks

Immediately in front of the blast furnaces a nineteenth century wrought-ironworks is being established. There will be puddling furnaces for the manufacture of wrought-iron from pig-iron, a steam hammer and a rolling mill through which billets will be passed to form bars of various sizes.

Saw Mill

Reconstructed 1975-77. Buildings and equipment from various sources.

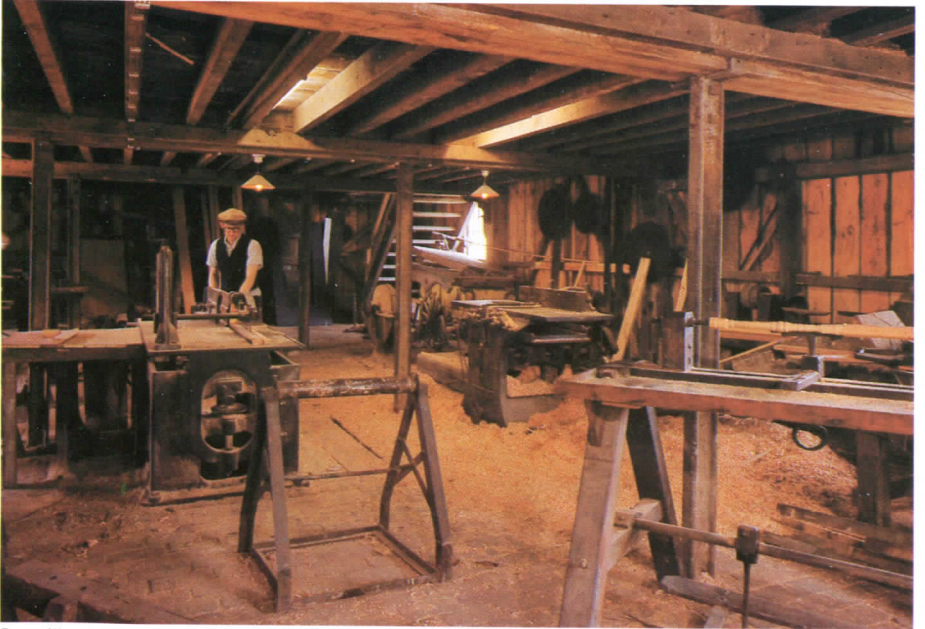


Saw mills of this sort were a common feature of the English countryside in the late nineteenth century. Their purpose was to cut logs into timbers of various sizes. The logs are cut into planks by the horizontal reciprocating saw, made by John Pickles & Son of Hebden Bridge, Yorkshire, in about 1890, which is housed in the long, single-storey building with open sides. The logs are fixed to a carriage on rails which moves the timber forward through the saw by means of a rack-and-pinion mechanism. The two-storey wooden building, which dates from the mid-nineteenth century, houses a circular saw made by T. Robinson & Son Ltd., of Rochdale about 1910, as well as a thicknesser and planer, a foot-operated lathe and drill, and other equipment.

The saws are powered by underground line shafting which is driven by a 60 h.p. Fielding & Platt oil engine of about 1914, in the brick engine house beside the main gates into the yard. Other single-storey buildings around the yard are the office, with a floor of locally-made geometric tiles, and a timber drying shed, together with a wooden crane.



Shelton tollhouse



Sawmill

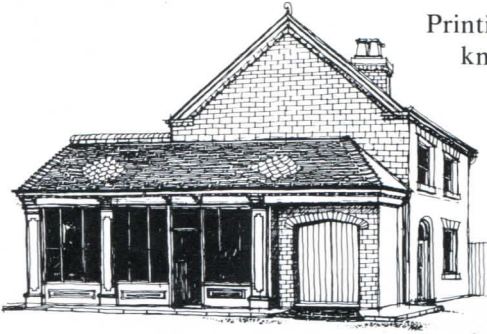


Blists Hill Mine

Printing Shop

Reconstruction 1973.

Nineteenth century equipment, mainly from Kington, Herefordshire. The printing shop is the first building to be reconstructed in the town area of the Museum.



Printing was the principal means of spreading knowledge and information during the Industrial Revolution period, and the collections made by printers of the posters, handbills, pamphlets and tickets which they produced are a valuable source of information for the social historian. The use of iron in printing equipment made machines which were more efficient than earlier models. Many specialised

jobs were grouped under the name 'printing', among them typesetting, block-making, press work and book-binding. The building is a reconstruction of typical local style. A 'Cropper' treadle press, a 'Columbian' screw-and-lever press, and a 'Bremner' flat-bed rotary press make up the main equipment.

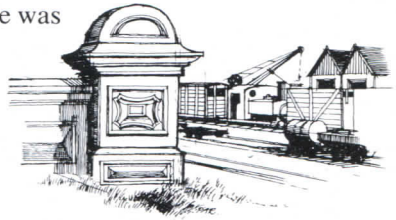
Lee Dingle Bridge and the Railway Sidings

Bridge: *in situ*. Built 1872.

Standard gauge siding: *in situ*. Mid-nineteenth century.

Plateway sidings: from Horsehay. Reconstructed 1972.

The wrought-iron truss bridge over Lee Dingle was built to carry a plateway which brought coal from the Meadow Pit, Madeley, across the valley to Blists Hill. It replaced a timber trestle viaduct built when the L&NWR branch line was constructed. On the far side of the bridge, outside the Museum, was an inclined plane called Bagley's Wind, beyond which



the brick path of the plateway can be traced alongside the playing fields of the John Fletcher School. Plateways had 'L' section rails, on which horses pulled small trains of wagons. When a plateway crossed a road, cast iron channel rails were used.

Near to the end of the bridge are some plateway sidings, made up of wrought-iron rails with cast-iron sleepers, brought to Blists Hill from the Horsehay Ironworks, Dawley, where they were laid in the nineteenth century by the Coalbrookdale Company. The wagons standing in the sidings, among them a unique plateway tanker wagon, also come from Horsehay.

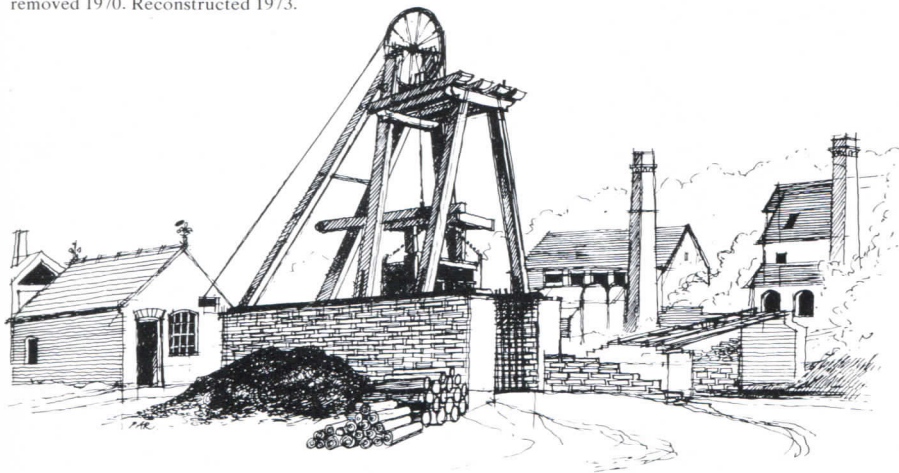
The standard gauge siding was built in the nineteenth century to enable wagons from the L&NWR branch line to be loaded with the products of the brick and tile works. In the siding stands the locomotive *Peter*, an 0-6-0 saddle tank, built in 1896 by Andrew Barclay Sons & Company of Kilmarnock (works No. 782). It came to Blists Hill from Messrs. Lunt Comley and Pitt of Stourbridge, who had used it since 1954, before which it was used at Kinlet Colliery, Shropshire.

The wagons in the siding came from a colliery on Cannock Chase. Next to the siding is a fixed-jib crane originally installed at Newport station, Shropshire.

Near to the railway siding is a large 'hay-stack' boiler, as used to supply steam to eighteenth century steam engines. It is one of only a few left in Britain. Two similar boilers provided steam for the engine on the Hay inclined plane.

Blists Hill Mine

Shaft: Original. Dug in late eighteenth century.
Headgear: Replica. 1973.
Winding engine house: Reconstruction 1972.
Winding engine: from Milburgh Tileries, Broseley, removed 1970. Reconstructed 1973.



This mine was one of several sunk at Blists Hill in the late eighteenth century. It reached a depth of 600 feet, passing through seams of tile clay, brick clay, fireclay and iron ore. From it, coal and iron ore were supplied to the Blists Hill blast furnaces, but in its last years of operation, the only product was clay which was trucked across the wooden bridge to the brick and tile works on the other side of the canal. At the turn of the century the mine was worked alternately with the nearby Shawfield Colliery by the same team of twelve miners, four surface workers, two cart horses and two pit ponies. The mine was abandoned in 1941.

The shaft and the foundations of the headstock are original, but the wooden headstock is an exact replica, erected in 1972-73 and the winding house was built on the site of the original at the same time. The steam engine dates from about 1870 but no maker's name has been found on it.

Across the canal from the engine house are some of the buildings and chimneys of the Blists Hill Brick and Tile Works which were operated in the late nineteenth century by the Madeley Wood Company. The two large warehouses at Blists Hill behind the winding engine house were part of the same works. None of the buildings are open to the public at present but restoration will proceed in due course. Close to the warehouse is a former Wolverhampton tram which was moved to Eardington near Bridgnorth in 1928 and converted into a Gospel Car and Sunday School.

Shropshire Canal with stop locks

Original. Opened 1793.
Restored 1972-73.



The Shropshire Canal linked the River Severn at Coalport with the mines and manufactories of the northern part of the Coalbrookdale Coalfield around Dawley, Oakengates, Wrockwardine Wood and Donnington Wood. The section near Blists Hill was from the start prone to damage from earthslips, and the stop locks were built so that a short stretch of canal could be drained for repairs without having to drain the whole level.

The vessels used on the Shropshire Canal were tub boats, about 20ft long and 6ft 4ins wide, which could be transferred from one level to another by means of inclined planes. They were drawn along by horses in trains consisting of up to twenty boats. Most tub boats were made of wood, but a few, like the Lilleshall Company boat No. 749 at Blists Hill were constructed of wrought-iron. This boat was discovered on a farm near Newport where it served as a drinking trough. It was brought to the Museum and restored in 1972. The wooden tub boat is a replica copied from one excavated at the Tweedale Basin, Madeley, in 1966. The third vessel on the canal is the ice-breaker 'Middlewich' which came from Chester, and is similar to those used between the inclines on the Shropshire Canal.

Hay Inclined Plane

Original. Opened 1793. Restoration in progress since 1968.



The inclined plane carried boats 207ft between the canal at Blists Hill and the short section which runs parallel to the River Severn through Coalport. The tub boats were floated on to wheeled cradles, which carried them up and down the slope on iron rails. At the top of the incline is the reverse slope up which a

steam engine pulled the cradles and boats out of the water. Generally, a loaded boat from the top, drew up an empty ascending vessel, but when there was a loaded boat at the bottom, the steam engine could be used to turn the winding drum. At the head of the incline are the massive walls which supported the winding machinery, and alongside are the remains of the mountings for the steam engine and for two haystack boilers.

The Hay inclined plane was able to pass a pair of five or six-ton boats in three-and-a-half minutes. It became fully operational in 1793, and its last recorded use was just over a century later in 1894.

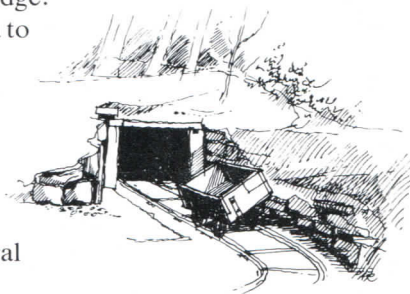
A more detailed description is available in Museum Guide 4.02. 'The Hay Inclined Plane'.

Foot-rid or Adit

Replica of a type of mine common in the area from the Middle Ages until the early twentieth century.

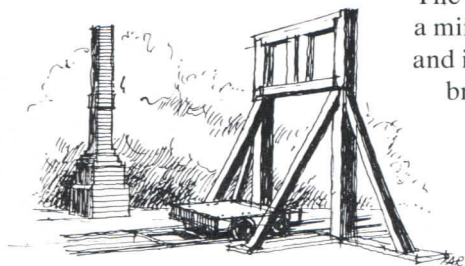
Until the late eighteenth century many of the mines in the Ironbridge Gorge were not pits but horizontal adits, drifts, or foot-rids, the latter being the most commonly used local name. A tunnel was driven into the side of the hill to the seams which it was desired to exploit, and the minerals brought out along railways. Some mines of this sort used in the present century can still be found on the south bank of the Severn near the Iron Bridge.

Timber propping has been used in this replica to shore up the side of the adit, and there are cast-iron plate rails along which trucks loaded with minerals would have been pushed out, probably by children. There were no foot-rids for coal in this particular part of the Gorge since the coal seams are some 600ft below the surface, but there were several clay mines of this type.



Wooden Headgear and ventilation furnace

From Mossey Green, Ketley Bank, Telford. Date uncertain. Re-erected 1971.



The wooden headgear was removed from a mine at Mossey Green near Oakengates, and is of a type once common in the Coalbrookdale Coalfield. A pulley wheel was placed between the two central upright timbers, and a rope ran across it to a winding drum.

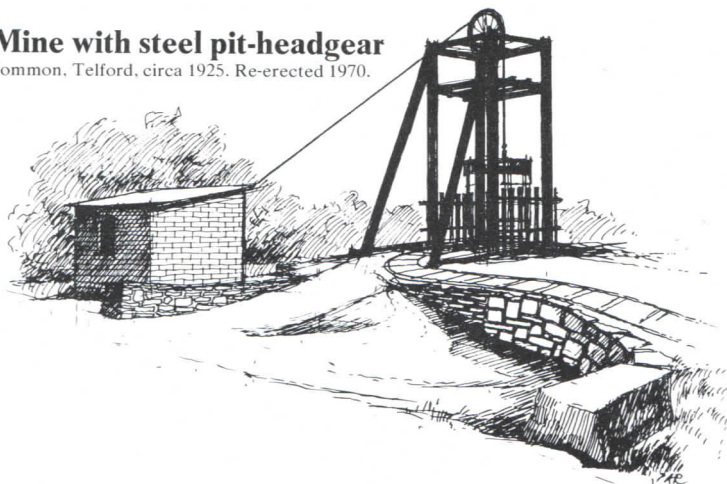
Horses were originally used to work the winding drum, but this headstock was last used with a

petrol-driven winding engine. Many pits in the district were wound by a 'whimsey', a small beam engine which rotated a winding drum on which a 'rattle chain' was wound. Such wrought-iron chains were first used in the place of ropes in the Coalbrookdale Coalfield, and a length of three-link chain may be seen along the track. The first man to link three parallel chains with wooden keys was Benjamin Edge, whose chainworks adjoined this Museum.

Ventilation in mines is obtained by using two shafts, one for the intake of fresh air, and the other for the drawing up of stale air from the workings. Electric fans are used to circulate air in modern mines, but the small mines of the eighteenth and nineteenth centuries relied on “natural air-coursing”, which was sometimes aided by a small brick-built furnace positioned at the top of the upcast shaft to create a convection current.

Fireclay Mine with steel pit-headgear

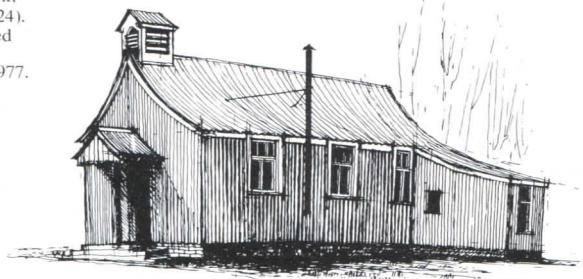
From Lawley Common, Telford, circa 1925. Re-erected 1970.



This iron headgear is typical of that found at small mines in the early years of the twentieth century. It was originally equipped with a steam engine to operate the winding drum, but later had an electric winder, with which it is still equipped. Below the headgear a dozen or so miners would have been working between 50 and 150 feet below the surface. Minerals at these depths are now normally recovered by open cast workings.

St. Chad's Mission Church

From Lodge Bank,
Telford (SJ 721124).
Built 1888. Moved
to Museum and
re-constructed 1977.



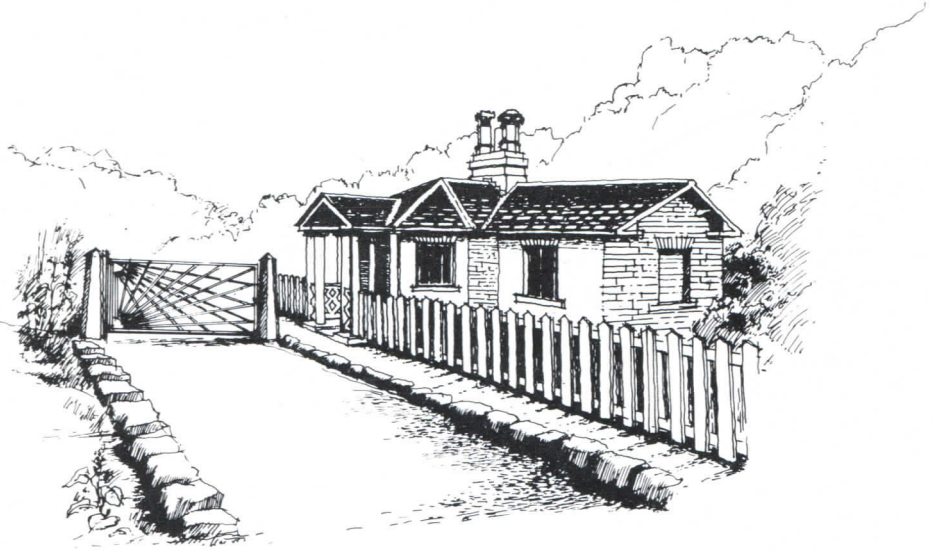
St. Chad's Mission Church was erected at Lodge Bank to serve the scattered mining population who lived around Granville Colliery. Like many Anglican mission churches of the period it was timber-framed with corrugated cladding. It was widely believed in the Church of England that members of the working class, whose lack of smart Sunday clothing would deter them from attending a conventional church, could be attracted to worship in unostentatious buildings of this sort. An advertisement in the “Year book of the Church of England” in 1889 referred to iron mission churches “tasteful in design, economical, durable, can be taken down, removed and re-erected at a small cost”.

Shelton Tollhouse and Telford Road

Tollhouse: From Shelton, Shrewsbury (SJ 465136). 1829-30. Re-erected 1973.
Roadway: Reconstruction 1973.

The Shelton Tollhouse was erected in 1829-30 according to specifications laid down by Thomas Telford, as part of his scheme to improve the road between Holyhead and London. It is similar to about half a dozen other tollhouses erected at the same period on the road between Shrewsbury and the Menai Bridge.

Telford believed that it was essential to provide good houses for tollkeepers so that honest men could be attracted to the work, and this two-bedroom building represents what was regarded as very good housing for working people in 1829. The pig-sty and privy are in the original specifications.



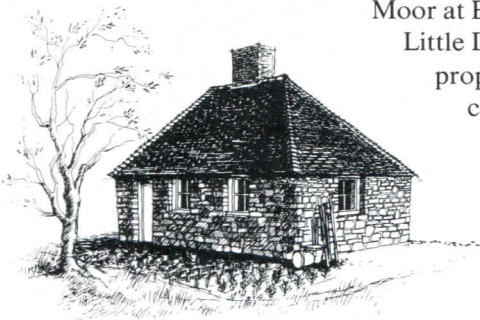
Many turnpike trusts were established in the eighteenth century to collect tolls from travellers and to devote the proceeds to improving the roads, but the income they could expect rarely enabled them to carry out major alterations. The Holyhead Road Commission was set up in 1815 to improve communications between London and Dublin, and four years later it was enabled by further legislation to take over complete control of the road between Shrewsbury and the Menai Straits from the six turnpike trusts which had formerly administered it. Under the direction of Thomas Telford this became the best road in Europe at the time, and its mileposts, tollhouses, footpaths and tollgates were all rigorously standardised.

Near to the tollhouse stands a milestone, one of 105 of the same pattern installed between Shrewsbury and Holyhead in 1828 at a cost of £5 each.

The road leading past the tollhouse is built according to the principles recommended by Telford. It has a flat foundation of large stones laid on edge. On this a cambered surface of stones of less than 2½ in. diameter is formed, and small chippings are spread evenly over the surface.

Squatter Cottage

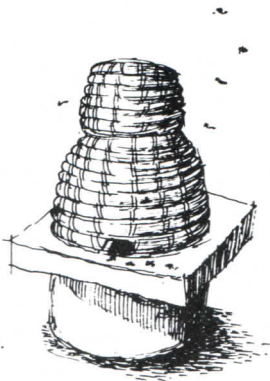
From Burroughs Bank, Little Dawley, Telford (SJ 675056).
Built in the 1840s. Moved to Museum and reconstructed 1978.



This cottage was erected on a tract of land called the Green Moor at Burroughs Bank in the township of Little Dawley in the 1840s. Only a small proportion of those who worked in the collieries and ironworks of the Coalbrookdale Coalfield were accommodated in the long rows of houses owned by the great ironmasters, like those which still stand at Carpenters Row, Coalbrookdale, or Pool View, Horsehay.

Many other workers lived in settlements which originated when squatters built their own cottages on common or waste land, often with the approval of the Lord of the Manor, who would not charge them rent, but could impose an annual fine for encroachment. There were many such cottages in the manor of Little Dawley which belonged to the Earls of Craven. This particular cottage was built on a colliery waste tip, and was surrounded by other waste tips from clay, coal and iron ore mines. It was sometimes called a 'barrack house', a name commonly given to single storey houses in the district, although usually to those built in long terraces.

The cottage, reconstructed in its original form after archaeological study, is a single-storey building enclosing an area 20ft x 12ft. The walls are built of a local sandstone found in outcrops, and also brought to the surface during the sinking of pit shafts. The roof was formed of ash and birch timber wallplates, tie-beam and rafters, with the bark still adhering in many places. At an early date the cottage consisted of two rooms. An additional room and wash house were added later, but are not included in the reconstruction. A collier, his wife and five children were living in the cottage in 1851. Ten years later the same couple were in residence with seven children aged between twenty-four and five years of age. Members of the same family lived there until the 1930s, and the cottage was occupied until early 1977.



Published by the Ironbridge Gorge Museum Trust, 1978.
Text by Barrie Trinder.
Designed by Robin Wade Design Associates
Illustrations by Pat Read.
Printed by Printex Press Limited, Telford, Salop.