Association for Industrial Archaeology: South East Wales Conference 2003

These notes have been produced by members of the AIA and Oxford House Industrial History Society to accompany the visits arranged as part of the AIA 2003 Conference. The visits and their leaders are:

Saturday 6 September:
A  Rhondda
B  Newport
C  Merthyr Tydfil

Sunday 7 September:
D  Blaenavon
E  Melinrfrith, Nantgarw
F  Barry

Monday 8 September:
G  Cefn Cribwr & Tondu
Ga  Flat Holm
H  Blaenavon

Tuesday 9 September:
J  Cardiff Bay
K  Coastal Gwent

Wednesday 10 September:
L  Upper Taff Valley
M  Eastern Valleys

Thursday 11 September:
N  Rhymney Valley
P  Rhondda

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A Rhondda Heritage Park & Hetty Pit
Saturday 6 September 2003

RHONDAA HERITAGE PARK
Formerly Lewis Merthyr Colliery, sunk in the 1870s by W. T. Lewis, later Lord Merthyr, and closed in 1983. The main element in this historic site are the two winding-houses, with their large steam-engines, and their adjoining headgear. The structures include the two oldest headframes remaining in Wales, the two winding-houses, with an electric and a steam winder, complete pitheads, a lamproom and two fan houses. Situated between the two shafts are the Lamproom and Fanroom.
Built of pennant sandstone, both winding-houses have secondary brick-infilling on the north gables, facing the shafts, which replaced the original timber-framing, and cladding, of these gables. Trefor Shaft (Winding House dated 1878) ceased production in 1958 and Bertie Shaft (Winding and Compressor House dated 1890) ceased production in 1960. Situated between the two shafts is the Lamproom and Fanroom, also of rubble pennant sandstone and probably late nineteenth-century with, like many colliery structures, a corrugated-iron roof.
Prominent is the tall tapering yellow-brick chimney, on a square rusticated masonry plinth. Local pressure ensured the site was retained by the local authority as a Heritage Centre and it re-opened in its new guise in 1989. It concentrates on the social aspect of Rhondda’s coal mining heritage and receives some 55,000 visitors each year.

HETTY PIT WINDING ENGINE
John Calvert first started sinking what became Tymawr Colliery in 1848. The Hetty Shaft was sunk by the Great Western Colliery Company in 1875. The colliery was set on a narrow terrace between river, road, railway and the steep northern valley scarp so that the diagonal legs for the headframes rose from the engine houses at a very steep angle. The winding-cables rose from small openings in the engine house roofs near their north gables, rather than from the gable-walls themselves.
The most prominent surviving feature of the Great Western Colliery is the engine and fan house with its attached steel headframe. In situ is the 1875 horizontal winding engine by Barker and Cope of Kidsgrove, Staffordshire with. It has 36-inch cylinders and was heavily rebuilt in 1906, at which time it was alleged to be converted from flat rope. The 16-feet diameter winding drum wound from the 392 yard deep shaft. Work is in hand restoring the engine. The colliery closed 1983 and the site is now part of Rhondda Heritage Park, although not normally accessible yet.

En-route through Pontypridd note:

PONTYPRIDD VIADUCTS
Brunel’s 110 feet skew single-span stone arch of 1841 is the first crossing of the Rhondda by the single track Taff Vale Railway. Doubling took place from 1857 but with two-spans and a river pier immediately alongside. A second 7-arch double-track crossing was built in 1861-2 to replace a very sharp left curve into the Rhondda valley.

PONTYPRIDD RAILWAY STATION
1906-07 rebuild for Taff Vale Railway. A massive red-brick and glazed-tile island platform with bays, with heavy steel and wrought-iron details. In 1906 up to 200 trains per day passed through here. It was longest platform on the former Western Region of British Railways.

MJM
NEWPORT

Newport, the ‘Novo Burgo’ of Giraldis Cambensis was developed as a Norman settlement around the lowest bridging point of the Usk, two miles downstream from the Roman bridge at their garrison town of Isca Silurum. (Caerleon).

It had obtained Borough status by 1120, and, with its substantial castle, was for centuries an important trading port, with wharfage on the riverbank from the town bridge almost to the mouth of the Usk.

This has been demonstrated by the discovery in 2002 of a well-preserved trading boat of the period 1465-66. This 80 foot hull has been removed for conservation, and there is evidence that it traded with Spain and Portugal.

The town was described in 1801 by Coxe as a ‘long, narrow and straggling town’, and indeed this description fits the riverside areas to this day. Newport’s industrial significance was established in 1799 with the opening of the Monmouthshire Canal, linking it in two arms with Crumlin and Pontypool. In 1812 an end-on link was established at Pontypool with the Brecon and Abergavenny Canal, providing a through route to Brecon.

The opening of the Rumney Tramroad in 1826 completed the transport infrastructure, and Newport became the almost exclusive outlet for coal and iron products from the Ebbw and Afon Llwyd (Pontypool) valleys. It also shipped a substantial tonnage from the Rhymney Valley. Although eventually overtaken by Cardiff and Barry, the tonnage exported through Newport was the highest in South Wales for much of the 19th century.

A major problem with shipping through Newport is its tidal range, at 46 feet average, rising to 52 feet on the springs, the second highest in the world.

It was obvious that enclosed docks were needed, and the Town Dock, 1 mile downstream from the bridge (built 1842, was extended 1858, and filled in c.1930) was followed by Alexandra North (1875) and South (1893), at the mouth of the Usk, the latter two almost exclusively equipped for coal export (although there was a considerable import trade in timber, primarily pitwood.)

The entrance lock of the Alexandra South Dock was for some years the largest in the world. Two substantial buildings survive on the Town Dock site, the Baltic Oil Warehouse of c.1844, and the Maltings, alongside the entrance lock, of which the outline can still be seen.

Newport once had four railway stations, of which one – High Street – survives, containing elements in the platform buildings of Brunel’s design for the South Wales Railway (c.1852). To the SW is an unusual survivor – Brunel’s Carriage Shed – still in use as a stores – a ten-bay structure of local limestone. West of the station is Brunel’s tunnel with round, arch portal, alongside the later (1912) portal constructed when the tracks were quadrupled.

On Westgate Square is the former Westgate Hotel, scene of the rout of the Chartists in the riot of 1839.

The towns’ most prominent structure is its Transporter Bridge (F. Arnedin, 1902-06). This was built to provide access to industrial developments (notably, Lysaghts’ Orb Steelworks) on the east bank of the Usk, whilst allowing high-masted ships passage to the Town Dock.

Obsolete almost as soon as built, this elegant bridge is a remarkable survivor, and has been beautifully restored to full use in recent years. It is a strange irony that the town’s most famous landmark is also its most commercially useless! Upstream, George Street Bridge (1964 – Mott, Hay and Anderson) is the earliest cable-stayed cantilever bridge in Britain.

The town’s population (1996) was 136,000 and it achieved city status in 2001. The decline in coal exports started in the 1920’s, to nil after World War II. This has been replaced – for the time being – by steel and its associated industries, together with substantial developments in electronics, although the latter has also experienced major downturns in the last few years.

CRW
C Merthyr Tydfil, Cyfarthfa
Saturday 6 September 2003

Type of visit: Furnaces - helmets and lamps will be provided. Slightly uneven underfoot and involves walking through the blast-tunnel to see the construcional details.

N.B. An exhibition on the Crawshays and Merthyr Iron will be on display inside the Castle Museum.

Cyfarthfa Ironworks was originally sited upstream of the present location. Anthony Bacon of Whitehaven rented 4,000 acres of wooded land from Lord Talbot and Michael Richards and the first two furnaces appeared in 1765 and 1767. He also owned the Plymouth and Hirwaun works but died in 1786. As his two sons were minors, Plymouth was leased to Richard Hill, Hirwaun to Samuel Glover of Abercarn and Cyfarthfa to Richard Crawshay of Normanton.

Richard Crawshay 1739-1810, the son of a Yorkshire farmer, went to London aged 16. Selling his pony he worked in Bacon’s iron warehouse and became controller and shareholder. He was clearly recognised and became Bacon’s business partner with links to the East India Company and the King of Sardinia.

The 1786 move to Cyfarthfa was followed by huge growth helped by the opening of the Glamorganshire Canal. He was responsible for the introduction of Cort’s puddling process and other refinements and the works became the greatest in the world in the early 19th century. William Crawshay I, 1764-1834, Richard’s son was remote from Cyfarthfa at the George Yard premises in London and in turn appointed his eldest son William II 1788-1857 to the works in Merthyr. As ‘birds of a feather’ the pair did not get on. It was Wm. II who built the Castle in 1825. The previous abode was at the close-by Gwaelodygarth House. Overlooking the lake which was a works’ feeder pond and connected by underground tunnel to the E. workshops the building was intended to dominate. Robert Lugar designed the House to a strict budget. The locally quarried Pennant stone is intimidating. A terrace lies in front and following Council acquisition in 1909 the building is now part school and part museum and art gallery. The museum section has had heavy timber sash window frames replaced, much enhancing the external appearance, whilst its interior rooms have been tastefully decorated in contemporary style. (See Newman:Glamorgan).

Much of the technical progress came from Watkin George, a village carpenter. He was so skilled mechanically that he became a shareholder.

Wm. Crawshay II took full control at the death of his father in 1834 at a time when ordnance production was yielding to the rolling of railway lines and merchant bar. In 1836 two furnaces were built at the satellite of Ynysfach to complement the two George furnaces of 1801. These survive as does one blast-engine house of 1801. The masonry is of superb quality. Remarkably the masonry Cyfarthfa furnaces lived through the later steel-making phase of the site as they provided a platform for the charging bank of the free-standing iron-plate-bound furnaces associated with the Bessemer plant. Seven furnaces were extant in 1823. Six remain. Upstream of the furnaces lies Pontycanau, an iron version of a wooden bridge. Sanctioned in 1793 the dovetails and mortice and tenon techniques are of great interest. Two A-frames incorporate a king-post either side of the decked water-trough with tramroad chairs cast in. At first a high-level trough also existed running to the works on trellis supports. The wheelpit for the 50ft. blowing-engine wheel still exists.

In 1845 Wm. II retired and his son Robert Thompson Crawshay took over. From then onwards management quality weakened and the works’ reputation declined. To counter strikes it was closed in 1874. Robert Thompson Crawshay died in 1879 and re-opening took place under his three sons William Thompson, Robert Thompson and Richard Frederick. Conversion to steel making took place, the installations being finished in 1884.

1902 saw the share capital acquired by GKN (of the rival Dowlais!). Output ceased in 1910 to be followed by temporary re-opening making shell steel between 1915 and 1919.

TWE
D Blaenavon - See Visit H

E Melingriffith, Nantgarw & Treforest
Sunday 7 September 2003

MELINGRIFFITH WATER PUMP
The purpose of this pump was to lift water 13 feet from the tailrace of Melingriffith Tinplate Works, to replenish the nearby Melingriffith Lock on the Glamorganshire Canal.
There is some dispute as to its origins. Watkin George of Cyfarthfa installed a pump in 1793, but John Rennie was asked to quote for a ‘fire engine’ c.1806. Evidence on site indicates that the existing structure is not the original, and recent expert opinion states that the water wheel is typical of Rennie’s design. This is borne out by the fact that the wheel originally had a cast iron shaft which failed – and Rennie’s very similar design on the Kennet and Avon Canal in 1811, has its water wheel split with a central axle support.
The pump worked in dry weather until c.1940, and became derelict from that date.
Technical specification is:
1) An undershot paddle wheel driving pistons in 2 cylinders through rocking beams and chains on a timber tower.
2) Paddle wheel 18 foot 6 inches diameter by 12 foot 6 inches wide, mounted on solid oak axle (now replaced by fabricated steel tube), with cast iron rims and spokes. Thirty paddle blades, 22 inches deep.
3) Pump mechanism: twin cylinders 32 inches bore, 5 feet stroke with fixed flap valves at bottom of stroke. Identical delivery valves in each piston. Cast iron connecting rods 18 foot 5 inches long, 4 x 5 inch section.
4) Tower and Beams: Frame of 1 foot by 1 foot, oak. 2 rocking beams of oak 17 inches x 14 inches, 22 feet long, with cast iron cappings.
5) Delivery: Water lifted 13 feet into a timber trough, the floor of which was 6 inches below nominal canal level, so that the pump was always primed.

Restoration:
This was carried out over 1974-1989 by Oxford House Industrial History Society and the Inland Waterways Association.
It involved:
1) Complete site clearance and excavation of tailrace, removing approx. 3,000 ton of rubble.
2) Reconstruction of the island wall supporting the outer wheel bearing.
3) Replacement of water wheel axle with the fabricated steel tube.
4) Reblading water wheel.
5) Replacement sluice and gates.
6) Building new ‘A’ frames.
7) Building new rocking beams.
8) Replacement of all iron work supporting cylinders, and of driving chains.

The pump was returned to the City of Cardiff, more or less complete, in 1989, and has since been neglected to the extent that it is once again seriously at risk. All attempts at co-operation have thus far failed, although a concerted effort for a final solution is now under way.
CRW

NANTGARW POTTERY
When the Derby man William Billingsley and his Worcester son-in-law, Samuel Walker, built their pottery, the village of Nantgarw already supported a population of colliers and canal boatmen. Edward Edmunds of Penrhos had been agent to the iron and tin-plate companies since before the coming of the canal and ran a carrying business from Nantgarw where he had his own boatyard and dock. Edmunds sub-leased the canal-side property to Billingsley in 1813 and the establishment of the pottery caused the canal company to build a warehouse opposite the works and lay a public wharf there for the convenience of the local corn mill too. A bridge crossed the canal at this spot carrying the main road running from Caerphilly to the Taff valley and onward to Llantrisant.
Billingsley and Walker’s intention was to manufacture soft pastel porcelain to rival the French Sevres article. They used the services of the decorator, Thomas Pardoe, who was also working for the Swansea pottery from his base at Bristol. With limited Quaker capital from William Weston Young and Lewis Weston Dillwyn of Swansea pottery the team struggled with their experiments for some years. Although they were successful in producing a very fine product, the amount of rejected output was substantial. The concern lasted only until 1820 when Billingsley and Walker were persuaded to move to work for Rose at Coalport. Thomas Pardoe continued at Nantgarw painting the unsold stock until his death in 1823. After this the works were reopened and managed by successive
generations of the Pardoes. They did not manufacture porcelain, however, but made rich brown earthenware and also clay pipes. It was the Pardoes who built the third kiln. The business finally closed in 1921 but the premises remained in the Pardoe family long enough for the last to witness the restoration of Nantgarw House and the china works museum to open on the site.

F Vale of Glamorgan Railway, Barry
Sunday 7 September 2003

The origins of this preservation scheme go back to 1977 with a group based at Cardiff Bute Road station, the former headquarters of the Taff Vale Railway. Work commenced to restore the station buildings and open a steam centre with the aim of operating trains alongside the branch towards the city centre. In 1988 ten locomotives were acquired from Woodham Brothers scrapyard at Barry. However, the scheme's ambitions did not coincide with those of the Cardiff Bay Development Corporation and a new site was found at Barry Island station, courtesy of the Vale of Glamorgan Borough Council and with financial assistance from the Welsh Development Agency. The renamed Vale of Glamorgan Railway Company moved totally to Barry Island by 1997, to a large new purpose built shed. The Barry Railway station building of 1896 was completely renovated for the Company's use and access to the island platform gained in 1999. Steam operations re-started at Barry in 1998 and a two mile run across the causeway is now available to Waterfront Station, near the former Hood Road Goods Depot. A major grant will enable to line to be extended to Barry Town and a new maintenance depot built at Hood Road. Future hopes include re-opening the harbour tunnel, closed in 1971, to gain access to the Pier Head so that, once again, trains may meet steamers plying across the Bristol Channel. [See Visit G for notes on Barry Docks.]

MJM
CEFN CRIBWR IRONWORKS
John Bedford, of Birmingham, built this single charcoal-fuelled furnace post 1771. A high-level charging ramp to the furnace with three calcining kilns and the ruins of the casting-house below. A later 1820s beam-engine house (all indoors) survives. At the high level three iron-ore calcining kilns remain. Bedford died in 1791 and thereafter the site was used only between 1826 and 1836, by William Bryant of Merthyr Tydfil. Partly as a result the ruins are one of the best remaining of a fairly complete set of buildings of a small, later eighteenth-century, ironworks. It is now in the care of Bridgend Borough Council.
To NW are CEFN CWSG COKE OVENS, remains of mid-19th century ironworks owned by Malins and Rawlinson and which closed in 1900.

TONDU IRONWORKS
Started about 1838 by Sir Robert Price, a Herefordshire MP with little experience of ironmaking specifically or industry generally, and his efforts ended in bankruptcy.
The works came into its own after 1854 takeover by John Brogden & Sons and a successful business based on coal and iron ensuing until a slump in the iron industry brought bankruptcy in 1878. The business was rescued in 1888 by Colonel North and, concentrating on coal, the business survived to be nationalised in 1947. Tondu became the West Wales HQ of the NCB.
The main products of the ironworks were rails and sheet iron. Price had built two stone blast furnaces but by 1892 North had replaced these with a taller steel furnace. Whist the furnaces have gone their foundations exist and have been excavated. They are now covered for protection but their location is marked by tiles. Up to three blowing engines were here.
Two furnaces and a forge plus one-hundred coke ovens were functioning at the peak, the last furnace until 1895. The stone-faced charging bank with a brick-lined lift shaft and a three-storey blast-engine house are now being conserved. Seven extant calcining kilns are on the charging bank with ranks of beehive coking ovens behind them (totalling one hundred plus). Worker's houses are in Park Terrace, with official's housing below. The present-day retirement home is considered to be the company shop.
The ironworks is a Scheduled Ancient Monument and in the care of Groundwork Bridgend & Neath Port Talbot.

Ga FLAT HOLM
Bristol Channel
Flat Holm is a 60 acre island, roughly 500 yards in diameter, located in the Bristol Channel, 5 miles from the coast of south Wales and part of the City and County of Cardiff, who are its owners. The island has a long an varied history, having been used by man since prehistoric times. It was farmed for some 800 years until 1942 and has been fortified twice, most recently during WW2.
The natural history is of great importance and the island is an SSSI. Amongst the notable features are coastal limestone grassland and cliff ledge habitats, and a colony of some 3,000 pairs of breeding Lesser Black-backed Gulls. Currently controlled grazing is provided by a flock of 12 highland/lowlawd cross sheep and 34 Soay sheep.
The lighthouse was erected by Bristol Merchants in 1737, as a coal burning light, becoming oil burning in 1820. Trinity House took over in 1823 and in 1866 a new lantern (which still survives in place along with the iron gallery) and new powerful optic were fitted, raising the height to the present 90 feet. Electrification came in 1969 and automation in 1988. There is also a substantial foghorn, no longer operating. The limekiln near the present farmhouse was in operation in 1790 when it was used for work on the light.
In 1866 the island was fortified with four gun batteries, equipped with nine rifled muzzle loading guns mounted on Moncrieff carriages. All four batteries survive and some of the gun barrels, or parts of them, but not, alas, the carriages. The extant barracks is dated 1869. During the Second World War anti-aircraft and anti-ship batteries were installed, serviced by a 60cm gauge railway, allegedly a captured
German feldbahn from the Great War. The line of the railway can be traced.

Fearful of cholera the Cardiff Port Authority erected a tented isolation hospital on the island in 1883 and by 1886 this had grown to ‘a shed capable of holding six beds’. A purpose built hospital for 16 patients was erected in 1896 and it is the remains of this, abandoned in 1937 that now survives.

In May 1897 Guglielmo Marconi transmitted the first radio message over water to the island from Lavernock Point, the nearest part of the mainland.

Since 1982 the island has been managed by the Flat Holm Project as a Local Nature Reserve and to encourage visitor access and education. There is a resident warden and regular trips in the Project’s own boat, the ‘Lewis Alexander’, are run from Barry. The Project is also supported by the Flat Holm Society.

BARRY DOCKS

The massive growth of the coal export trade led to much congestion at Cardiff, not aided by the monopoly held by the Taff Vale Railway and the Bute Docks. One result was the ambitious Barry Railway & Docks scheme of David Davies, of 1889-98. Two large dock were constructed by John Wolfe Barry; 3,400 feet by 1,100 feet (1889) and 3,338 feet by 400/600 feet (1898). Substantial hydraulic hoists, all now gone, loaded coal brought down by a network of Barry Railway lines reaching to the Rhondda, Rhymney and Ogwr. The peak of the coal exporting trade was reached at Barry in 1913, when over 11,000,000 tons of coal and coke passed through the port.

The port’s main business now comes from the area’s chemicals industry. Liquid bulks are handled for, among others, Dow Corning, European Vinyls Corporation (UK) Ltd and Dow Chemicals Ltd. Large areas of the dock area are now being redeveloped.

MJM

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**Key:**

1. Castle Rock Battery

**Plan of Flat Holm during the 1860’s fortification.**
Blaenavon’s Industrial Heritage

Blaenavon was created as a World Heritage site in 2000 because the ‘Blaenavon landscape constitutes an exceptional illustration in material form of the social and economic structure of 19th century industry’ and ‘The components of the Blaenavon industrial landscape together make up an outstanding and remarkably complete example of a 19th century industrial landscape’

Blaenavon lies on the very edge of the South Wales coalfield. Coal and ironstone both outcrop there. There are many examples to be found of early patchworking and early scourings or raceworkings. Iron was being made in the area around Blaenavon at the time of the Romans and probably before. One of the earliest recorded iron-mines in Wales was in the Elgham area of Blaenavon. It was mentioned as part of the possessions John de Hastings, the Lord of Abergavenny in 1325.

Iron ore was obtained from the area in the late 1580s for making iron wire at the Society Of The Mineral And Battery Works at Tintern. Ore was also extracted for the furnaces owned by the Hanbury family of Pontypool up until 1784.

In 1788 an ironworks was opened by three entrepreneurs from Staffordshire with three coke fuelled furnaces which started a tradition in ironmaking and ironworking which continues to this day. Part of the forge buildings constructed in the late 1850s and early 1860s at Forgeside now house a forge for making aerospace products.

In the early 1870s Blaenavon was the second largest coal producing company in South Wales after the Ebbw Vale Company. Blaenavon’s coalworkings were all based in the locality while Ebbw Vale’s collieries were spread over three valleys.

The early ironworks, a colliery and extensive remains of the industrial infrastructure are all still present as well as the town which grew up in the wake of the ironworks.

Big Pit Colliery

Big Pit has become one of the most successful Industrial Museums in Britain. When it stopped producing coal in 1980 it was regarded as the oldest working pit in South Wales. Its unique attraction in South Wales is that visitors can still travel down the pit shaft and visit the underground workings. The pit is regarded as unusual because it has one large elliptical shaft in which the pit cages pass each other rather than the usual arrangement of two separate round ones. The large shaft, which eventually gave the pit its name, is 18ft by 13 ft in diameter and 293 ft deep. Visitors were told that the pit was originally known as Kearsley’s Pit, that it was sunk around 1860 and that the shape of the pit was changed to elliptical from a single round shaft when the pit was enlarged and sunk to a greater depth when production of coal increased sometime between 1860 and 1880. It is now generally accepted that the pit is older than was thought and was originally sunk as a balance pit in the late 1830s.

The view from colliery canteen encompasses much of Blaenavon’s industrial past.

The Ironworks

The ironworks at North Street contain some of the best remains of a late eighteenth century ironworks anywhere. In 1789, Thomas Hill of Dennis, Staffordshire, Thomas Hopkins and Benjamin Pratt took over the lease of approximately 12,000 acres of land including mineral rights from the Earl of Abergavenny. They commenced the building of three furnaces and a steam blowing engine and the first furnaces were working by the end of the year. Another furnace was added by 1804 and another was there by 1810. By 1812, the ironworks was one of the most productive in South Wales.

In 1836 the ironworks were sold to a new company which came to be dominated by the Kennard family. They had big plans for expansion. They wanted to move their ironworks to the Forgeside area of Blaenavon on the opposite side of the valley to where the old works stood. Continual financial problems meant that it was not until around 1860 that the forge was moved to Forge Side and it was not until 1868 that furnaces were built on the
new site. Forgeside then became the main centre for iron and steel manufacturing in Blaenavon on one compact site but the original works continued until at least 1901 and possibly up to 1906.
Sydney Gilchrist Thomas and his cousin Percy Carlyle Thomas, the chief chemist at Blaenavon, made what many would regard as the last great discovery in the iron & steel industry in the 19th century when they found out how to make basic steel at Blaenavon.

The Town
Blaenavon is almost certainly the best preserved example of a South Wales ironmaking town. For most of its existence, the town’s prosperity and growth was inextricably and directly linked to the fortunes of Blaenavon Company. The influence of the iron company is all pervasive. There were at least two company shops, a company farm with its accompanying fields, company hospital, managers house, what was effectively the company church, one of the first industrial schools in Wales and one of the best examples of a workman’s hall. The hall not only survives but is still in active use.
Although part of the town dates from the late 1780s, most of the town is representative of an early to mid-Victorian Welsh industrial community. Very little of the town between the ironworks in North Street and Charles Street Green was built after 1870. Most of it is still intact. There has been comparatively little subtraction or addition. Broad Street, the main shopping street, is almost as it was by the mid-1860s.
Many of the older buildings in the town survive as a reminder of what was a flourishing, vibrant and prosperous South Wales industrial community. There are very few other examples of South Wales industrial townships which retain such a high proportion of their original structure.

J A H Evans, Blaenavon, July 2003
CARDIFF DOCKS

Only the Queen Alexandra Dock (1907) and the Roath Dock (1887) are now in full commercial use, with the capacity to take ships of 35,000 DWT. Despite its origins as a coal port Cardiff is now a ‘clean’ port handling such goods as dry and liquid bulks - scrap metal and sand and petrol and fuel oils - timber and steel. There is a cold storage facility also.

Cardiff is a major port for steel, regularly exporting wire rod and reinforcing bar. Steel imports are received from all over the world, including coils and hollow sections.

A modest passenger terminal is used by the occasional cruise liner. The QA Dock has access to the sea outside of the Barrage.

CARDIFF BAY BARRAGE

Said to be one of the largest engineering projects in Europe at the end of the twentieth century, the barrage was designed as part of the creation of a new waterfront for Cardiff. With one of the greatest tidal ranges, 14m (45 feet), the Bay was inaccessible by water for up to 14 hours a day. Completed 1999 and resulting in a 5,000 acre freshwater lake from the impounded Taff and Ely rivers, it has ‘eliminated the effect of the tide’ - apparently an inhibitor to development. Measuring 1.1km (1,210 yards) in length, the new Bay has a waterfront of 8 miles, most of which is intended to be accessible.

PENARTH DOCK

Now enclosed within Cardiff Bay and the Barrage, Penarth Dock is much reduced in size and much smothered in modern development. For dock workers use a foot-tunnel connected the dock with quays on the other side of the Ely River but both ends of this, with their distinctive circular entrances, have now been destroyed. The outstanding survivals lie at the sea end of the port; the 1865 dock offices in dressed stone, the Marine Hotel and Custom house.

CARDIFF BAY WALK-ABOUT

Our walk commences at the Junction Dock that connected the Roath Basin with the now isolated Bute East Dock. Various maritime artefacts are close to the Dock and are to be found scattered artistically all over the Bay area.

ROATH BASIN (1874) is now merely used for ‘ceremonial’ purposes, visiting ships and the like, and in due course will be surrounded by modern developments. Access for vessels is from the Roath Dock.

HELWICK LIGHTSHIP

Built at Dartmouth in 1953 the Helwick LV14 saw service all round the British coast and was stationed at Helwick sands, off the Gower coast, when decommissioned in 1980. Purchased and restored in the 1990s, the ship has been in the Roath Basin since 1998 and is a Christian centre. Nearby is the Norwegian Church and the ‘Tube’.

PIERHEAD BUILDING

Erected in 1896 as dock offices for the Bute Dock Company, the magnificent Pierhead Building sits alongside the Oval Basin, its appearance enhanced considerably in comparison with the modern developments around. Note the fine terra-cotta panel on the west face. Now occupied by the National Assembly Government of Wales.

WEST DOCK BASIN

The former entrance basin to the Bute West Dock (1839) now filled in and decked as a public open space. Currently called the Roald Dahl Plasse, the former title of Oval Basin is more appropriate.

The massive stone walling, primarily granite and Radyr stone, at least is clear. The late Welsh Industrial & Maritime Museum was sited just to the west, where the Mermaid Quay commercial development presently sits. Nearby are a hydraulic accumulator station and several graving docks, and one of the former iron-framed transit sheds is now re-sited off the front, mounted on stilts, and occupied by a Turkish restaurant. Another is a craft centre on a traffic roundabout north of the Oval Basin.

MOUNTSTUART SQUARE

To the west of the pierhead is Mountstuart Square where shipping and coal companies had their offices. Much has been demolished but some of the old grandeur can be sensed. The centrepiece of the square is the Coal Exchange. A fine building constructed 1883-6, its trading floor remains. The Coal and Shipping Hall was rebuilt in 1911 and this magnificent hall, with its Corinthian columns, oak balcony and rich wood panelling, is now used for functions and broadcasts. In the entrance hall two lion statues support dials giving the tide times.

BUTE ROAD STATION

A listed three-storey stuccoed building with hipped roof. Built in 1843 as the headquarters of the Taff Vale Railway, the board room survives on the upper floors. It has had a number of uses, including housing galleries of the former WIMM but has recently been sold.
BUTE EAST DOCK
Now an isolated stretch of water over half a mile long that has lost its purpose. By 1859 45 acres of water were enclosed and fifteen coal staiths erected, allowing 1 million tons of coal a year to be handled at this dock alone. By 1890 there were 30 staiths, plus three ballast cranes and 22 hydraulic cranes. A link from the West Dock and Glamorganshire Canal was made to it and the Dock Feeder continues to run in en route to the Roath Basin. The only original building fronting the dock to survive is the Bute Warehouse. The basin and entrance to the dock has been filled in and a crane relocated cosmetically on the east side.

BUTE WAREHOUSE
At the head of the Bute East Dock, the 1861 warehouse is also known as the Bonded Warehouse. Stands on cast iron Doric columns. Now occupied by a firm of architects, it has gained a number of additions. The ‘warehouse’ accommodation surrounding the rest of the dock is modern and replaces the coal hoists and cranes.

LNWR WAREHOUSE
Currently known as the Hannover International Hotel this former railway warehouse of about 1900 retains many original features both internally and externally, including vaulted fireproof ceilings supported on cast iron columns.

SPILLER & BAKERS WAREHOUSE
Built in 1893 by a firm of corn and flour merchants as part of a complex of steam roller mills processing 100,000 tons of wheat a year. Unusual in its curving north face, which followed the line of a siding, it is now converted to flats.

OTHER WAREHOUSES
A few buildings survive of the former Bute West Dock. At its head are the Potato Warehouses and partway down Lloyd George Avenue (formerly Collingdon Road) is a former grain warehouse.

JUNCTION CANAL RAILWAY BRIDGE
The junction canal linked the Glamorganshire Canal with the Bute West dock being bridged by the canal towpath, Bute Road and the TVR Docks branch. The stone arched railway bridge survives. The junction canal allowed passage of timber and coal and patent fuel boats between canal and docks.

CARDIFF MALTINGS, EAST TYNDALL STREET
A little way from the main docks area this fine range of malting buildings originally dates from 1887 and is now in use as light industrial and commercial units. Security implications prevent us visiting inside the building.

BRAIN’S BREWERY
Established as the County Brewery in 1889 and taken over by Hancock’s in 1894. Subsequently became part of the Bass empire in 1968, trading as Welsh Brewers. Following the withdrawal of Bass from brewing on this site it was bought by Brains in 1999 and all production transferred here. Brains Old Brewery in St Mary Street, dating from 1713 and acquired by Brains in 1882 now being redeveloped as a retail site.

MJM
CORUS STEEL PLANT, LLANWERN
This plant was built on a Greenfield site between 1958 and 1961, comprising a fully integrated steel-making plant (2 blast furnaces), slabbing mill, hot and cold strip-mills, covering an area 3 miles by one mile.
Originally owned by Steel Company of Wales, then (nationalised) British Steel Corporation (denationalised 1980 under same name) finally the Anglo-Dutch Corporation, CORUS.
A political compromise in the 1950’s resulted in two plants (Llanwern and Ravenscraig) – both too small – being built. Ravenscraig disappeared in the 1980’s, leaving the UK with two major strip mills (Port Talbot and Llanwern) and excess capacity.
In the late 1980’s the revolutionary continuous casting process was introduced, and with the (nationalised) workforce cut from 15,000 to 3,000, the works became, almost certainly the most efficient in the world. However, the rundown of the UK motor industry and the import of white goods, reduced substantially the market for a steel strip, and in 2001 steel-making ceased, and the blast furnace complex was dismantled, leaving the strip-mill. (This now rolls ingots from Port Talbot or wherever – as far afield as Poland or China - it can purchase economically)
The current saviour on site is a highly efficient Zodiac Galvanizing Plant (the main object of this visit), which supplies the world’s highest quality galvanized strip, primarily for the motor industry both in the UK, Europe and Japan. For the time being, the survival of the strip-mill depends on the Zodiac plant.
Llanwern has always suffered from the lack of a deep-water unloading terminal, and all ore had to be transported 40 miles by rail from Port Talbot – another factor in the demise of steelmaking.
The construction of the original plant in a short time-scale was a remarkable (if costly) achievement. One largely forgotten feature (although well-remembered by Newport’s older inhabitants) was the raising of the entire wetland site by 5 feet. For more than two years, 40,000 ton of pit waste, ash and shale was transported by lorry daily through Newport (which then had only one river bridge) to the site from all over South Wales, changing the industrial landscape quite dramatically.
The longer term future of the Llanwern plant is, to say the least, uncertain.

SUDBROOK AND THE SEVERN TUNNEL PUMPING STATION
The Severn Tunnel was built between 1873 and 1886, the contractor for most of that period and up to the opening, being Thomas Walker - It was the largest undersea tunnel in the world, until a century later, the Hokkaido tunnel in Japan. Walker an unusually enlightened man of his time built a model village on the edge of the Severn on the ancient site of Sudbrook. Almost all of this survives to the present day.
During construction, they hit, exactly on that site, the ‘Great Spring’, which at approximately 20 million gallons per day threatened the entire operation. After various attempts, and failures, to control the flow, a sump was sunk at Sudbrook, to below tunnel level (180 feet) to collect the water, and six Cornish Beam Engines (Harveys of Hayle) were located in a pumphouse above. Four were used, with two on standby. Statistics were: Bore 70 inches, stroke 10 foot, beam length 42 foot, weight 17 tons.
Two further pumps (one on the English side) were installed to deal with surface water. Also on site was a horizontally opposed twin-cylinder engine driving the ventilator fan. The steam system worked until 1963, when it was replaced with electric power and the steam installation was scrapped. However both Pumphouse and Fanhouse survive, and are easily viewable, although access on site seems virtually impossible for ‘health and safety’ etc. reasons.
Sudbrook village now comprises 9 terraces of housing built 1880-1889, including a terrace of 10 constructed 1882-1884 of concrete blocks – an extremely early example. There are six pairs of semi-detached ‘villas’ for the managers. Also surviving are the School, Post Office and Infirmary. As the pump and fan installation required at least 150 workers, they were virtually all housed on site.

SHIP-BUILDING SLIPWAYS
Immediately east of Sudbrook are the remains of shipbuilding slipways, which were used for small construction in the period c1870-1920.

BLACK ROCK
We take the coastal foot-path eastwards to Black Rock (3/4 mile). Here stood the ferry pier (vestiges remain) of the pre-Severn Tunnel, South Wales Railway link to Bristol.
The massive wooden pier was destroyed by fire in 1881. Black Rock Cottage (originally a Customs House) survives, but the large Ferry Hotel has been demolished in the past 30 years.
Also can be seen the railway cutting leading to the pier, which was for many years used as an overnight.
PORTSKERETT

PLANT SHEREW BUILDINGS AT AT SUDBROOK & 5 M. 4CHS. DEC 1884.

SCALE

PORTSKERETT PIER.
(WITH THE WORKS - SUDBROOK IN THE BACKGROUND)

LONDON: CHURCH & SONS, 1901.
stop for the Royal Train (with Royalty on board). CRW

CHEPSTOW
As a frontier plantation town of the late 11th century, Chepstow’s trade is a many-chaptered story. Gwenn having been granted to Wm. FitzOsborn the castle and Benedictine Priory were founded by him. As Earl of Hereford he received 40s/annum for boats sailing to the Forest of Dean. Henry II became King in 1154 and as his Queen was Eleanor of Aquitaine much wine came from Bordeaux, this movement being aided by the special privileges enjoyed by the Marcher Lords. 1170 saw Richard de Clare, Lord of Chepstow, conquer Ireland for the King and a fleet of boats fitted up in Newnham initiated the Irish trade which lasted until de Clare’s death. Much wine was moved to England (i.e. Bristol) and the avoidance of ‘prisage’ during Henry III’s minority started several centuries of shady dealings through Chepstow. The King’s 1223 expedition into Wales caused quantities of wine to travel up the Wye. By 1258 the Abbot’s main trade was wool but wine storage at Tintern for Monmouth Castle was also a large operation.

Then came trouble. In 1268 the Abbot’s large boat was plundered in the Wye by Bristolian Robert Aitken and in 1275 Edward I placed customs on wool and hides. Chepstow’s controlling headport became Bristol and the accounts of the latter indicate hides in number by 1292.

From 1270 to 1306 the builder of Tintern Abbey, Chepstow Castle and the Portwalls, one Roger Bigod. Lord of Chepstow, exported venison upsetting the King and resulting in Trellech, the iron-making centre, being destroyed. Another reprisal found the Parliament of Edward I attempting to send Bigod to Gascony at the same time as a writ was issued for the equipping of Gascony salt boats in Chepstow. Aquitaine merchants agreed terms but Chepstow continued at lower ‘prisage’.

The climate then changed. With the King and Bigod dead, it seemed that Chepstow had not survived Bigod’s era of ‘fiddles’. A 1311 Order from Edward II to provide one ship with men, armour and victuals for the Scottish wars was met with the reply – ‘only four ships belonged to the town three being wrecked near Tenby with the fourth having gone to Gascony and having not returned’. The looting of the castle and abscondion of the deputy-constable in 1312 did not help.

Leasing of the area (Striguil) to Hugh le Despenser in 1323 started a bright and active phase. Four boats of up to 100 tons existed by 1325 and wool was smuggled across the Wye for re-export. Any Chepstow boat avoided the King’s Road off Avonmouth. With the return of Queen Isabelle to Harwich accompanied by an army, Edward II plus le Despenser and the Chancellor fled W. to Chepstow. At the surrender of the castle Edward II sailed to Lundy, had to put into Cardiff due to storms and was caught and later killed in Berkeley Castle. Wool, hides, wines and wool-felts were handled in quantity at this time. A custom on cloth at all ports was placed in 1346. Thus wool and other goods were carried across the Wye to avoid English dues, with cloth traded from Bristol. This blossomed into cloth trade with Spain in Richard II’s reign and the ‘Marie’ of Chepstow also sailed back and fore to Lisbon. A different form of export in the shape of a 200-strong fleet forming John of Gaunt’s venture to Corunna for the throne of Spain in 1386 was recorded thus – ‘Bristol, Bruggewater, Chepstowe and Axminter provided boats’. Support was afforded one year later with Worcestershire and Gloucestershire wheat moving from Chepstow to Castile and at this time smuggling became a major problem with wine being unloaded for transfer to small boats bound for Bristol. Massive raids by Bristol Customs followed from 1392 on.

The early 15th century records Icelandic stockfish in and iron, timber, wheat, wine, butter, honey, malt and cloth out. The illegality here is realised through the ruling that all fish had to move via Bergen. (Denmark then ruled Norway and Norway owned Iceland. Iceland only finally escaped from Danish rule in WWII). Henry V and Henry VI forbade fish trafficking as ‘hooligans’ were beating-up Danish officials. Chepstow overcame this small obstacle by sailing round W. Ireland and ignoring the League. However 1850 saw decline after legalisation of the trade in 1434. The ejection of the English from Bordeaux in 1453 scarcely effected Chepstow as by 1461 the town was renamed for exporting wine to Bristol and undrinkable wine to Ireland.

Strongly-represented destinations of the period were Lisbon and Brittany. Salt had become important through the 14th and 15th centuries, originating from Bourgnue Bay, Oporto. Cadiz and Lisbon itself. Interestingly the Earl of Pembroke’s 1469 tomb at Tintern was paid for by 100 ton of salt. Still asserting Marcher rights Chepstow became even more important following a 1559 duty of 3s. per tun on all wine, even though the authority of the Lords Marcher had been abolished in 1536. Then after a spat involving the Steward of Chepstow and Queen Elizabeth I the Custom House came to be opened in 1573. Remarkably 12 ton and 10 ton vessels were taking timber to Egypt, whilst the products of Tintern wireworks were going out in exchange for wine, prunes, raisins, rosin and vinegar in addition to iron and train oil from Spain.
1565 was the year of the creation of the Society of Minerals and Battery Works. Mendip rivers were either obstructed by mills or too sluggish to power zinc production from the local calamine and so the brass industry set up on the Angiddy Brook and at Tintern. The latter of 1568 later specialised in wire for wool carding, that being sent from Chepstow to Gloucester, Bristol and London.

Surreality then took over as in 1573 Chepstow became part of the Port of Cardiff, the start of compliance involving the authorities taking up piracy and smuggling! Illegal immigrants from Portugal, falcons, handguns, crossbows and artillery were handled with the involvement and appearance of Moors from Algiers, Turks and denizens of the Barbary Coast.

Trade declined throughout the 17th century without Marcher privileges but 'breaking bulk' still paid off. Customs receipts were nil in 1641 but a huge smuggling trade in tobacco and pruens (sic) existed. The Civil Wars were a setback and by 1700 Ireland had become a main destination with movement of iron ore, slag, bar iron, nails and salt, this latter now being produced in Chepstow. Also of fascination are flows of glass, corks, barrel hoops and mill stones. Wire was travelling to Turkey, France and the Barbary States. Iron went to Newport, Gloucester, Bridgewater, Bristol and Carmarthen.

Redbrook Copperworks, with its Swedish links, operated as such for exactly a century from 1690, both ore and copper travelling through Chepstow. St Ives, Truro, Plymouth and Fowey were originating ports.

The process of removing weirs on the Wye to Monmouth (1697) then Hereford and Leominster was completed soon after 1727 and boosted Chepstow. A regular market boat to Bristol started running taking corn, timber, wool, cider and country produce with return laden with shop goods. This increased to two boats weekly through the 18th century. The following century recorded the following – grain to Bristol, oak bark down the Wye to Chepstow, cider from Hereford, corn from Monmouth, hoop from Llandogo, poles from Bigsweir and faggots from Brockweir for the baker’s ovens of Bristol. Chepstow’s first tannery in town was there in 1573 but much more business arose through the sending of oak bark to Dublin, Waterford, Wexford and Belfast.

May 1759 was the opening date of the drydock with a 500 ton capacity. Regarded as a cholera hazard in 1832 it became a tip and was filled in c1850.

John Wilkinson sent out 21 mile of pipes for Paris during 1787 – in reality cannon. Whilst Archdeacon Coxe wrote of 2,800 ton of shipping in 1792 a note otherwhere claimed 3,500 ton in 1799 from 1,200 vessels.

From the end of the 18th century onwards there was an immense growth in the movement of timber, in particular to Portsmouth, Deptford, Woolwich and Plymouth. This inevitably led to the Wye Valley becoming denuded and Baltic timber made an appearance from 1790 on. Subsequently the town noticeably changed its activities. A steam packet connected Bristol in 1822. Activities to be found in 1825 were shipbuilding, melting, and ropemaking in addition to cooperages and wine merchants. Some years later a bonding compound was provided, neighbouring Newport following as a timber bonding in 1832. Significantly with the locality bare of trees and with no coal the bobbin factory closed in 1886, although the Upper and Middle Rock shipyards were building vessels up to 600 ton by then. This meant that hemp, flax, pitch, tar, cables, handspikes, cordage, sailcloth and oars were necessary. The Upper site (Chapman’s) found itself split by Brunel’s SWR bridge. Edward Finch came to build that railway bridge and stayed in town. From 1879 he became involved with ships and the 1,525 ton ‘Rougemont’ for Cory Bros. arose in 1879. The arrival of the SWR did not help the town banks being set up and failing and the railway contractor Robert Banks’ flour mill floundering. Then in 1882 the Custom port of Chepstow met closure.

WW1 became a time of expansion (see Gazetteer) but the National Shipyards were too late to aid the conflict and Fairfield’s successful use of some of the shipyard area is the remaining engineering legacy incorporating a proud bridge-building record.

TWE
The A470N will be taken from Cardiff. Leaving this at Merthyr over the spectacular 1984 concrete bridge crossing the Glamorganshire Canal and the Taff the ironmaster Anthony Hill's Pantrebach House will be passed R and then the 1948 Hoover factory L to reach Abercanaid. The ground hereabouts is extensively mined. An enigmatic settlement, crowded by four collieries one of which was privately owned and three owned by two different iron companies. The builder of the village is unknown.

At Upper Abercanaid are the remains of Crawshay's Glyndyrys pumping pit, the sump for the Crawshay mineral take to the N. Sunk in 1839 and 447ft. deep. A double-acting Cornish engine lifted into the canal. Quay Row is early miners' and colliers' housing situate at a boat loading point. Three other ranks are Canal Side, Graig Cottages and Pond Row, this latter a survivor of the two level 'house over house' arrangement. 1849 introduced the start of Cyfarthfa deep mining at Gethin and at Upper Gethin with its incline down to the canal. At Abercanaid itself the Plymouth manager's house, at one time lived in by the future Lord Merthyr accompanies the early Llwynrheos house for the Plymouth engineer.

Ynysfach Ironworks has a four-storey 'Crawshay style' engine-house in sandstone with limestone quoins, arch-headings and string-course. Internal wooden beams were supported by iron castings in the walls and the flywheel axle holdings in wrought iron exist at lower ground-floor level. The four furnaces are truncated with later retaining walls between them.

A forge site by 1769, Watkin George designed the two 53ft. tall 1801 furnaces with a 100ft. stack for the beam blowing-engine boilers together with calcining kilns, coke ovens and cast house. Two more furnaces added in 1836 with a second engine-house plus boiler and stack and cast houses. The output of pig was then greater than Cyfarthfa which was a water-powered works. A tramroad ran to Chapel Row and the Canal wharf. In 1841 a separate branch line crossed to the TVR and the private Gethin Railway ran S to the Castle pit on the southern boundary of the Crawshay mineral take. Closed in 1874, the first engine-house is the one which stands.

The close-by 'Three Horseshoes' public house was the centre of the Chartist meetings in Merthyr. Chapel Row was Crawshay built in 1825 for skilled workmen. The adjoining chapel was earlier and became a carpenter's shop and warehouse at different times. Coffins and wooden limbs were specialities. Joseph Parry the composer was born here in 1841. The canal basin was close to the head, opening 1792 and the re-located iron bridge is a Plymouth casting.

Williamstown closer to the Castle dates from 1838 being built for puddlers and rollermen. A ground floor kitchen and pantry with a dormitory room were under two sleeping rooms upstairs. The so-called 'Glamorgan' stairways were in the common wall between cottages.

Graven tollhouse lies behind the row and replaced Pandy Farm tollhouse and is certainly pre-1825. The pike was built in 1771, now the road to Brecon.

Pandy Farm never was a mill but farmed for the works. There is an adjacent barn and hay was ricked below the farm and above the ironworks. The clock tower was added in 1856. The Brecon & Merthyr Railway Merthyr branch was completed by August 1868, a year when Brecon to Newport services over the line S from Pontsticill commenced. From Rhydycar Junction at Merthyr on the by-then mixed gauge Vale of Neath route, the Crawshay presence forced the line to run NW on the W bank of the Taff. To reach Pontsticill the Taff Fawr was spanned by Cefn viaduct and the Taff Fechan by Pontsarn viaduct. Cefn Viaduct is 770ft. long, climbing northwards at 1:50 on a curve. It has 15 arches each 39ft. 6in. and 115ft. high. In 1866 Thomas Savin the well-known contractor was managing the B&MR but failed financially. Two years in Chancery did not prevent completion of this fine limestone viaduct with its brick inverts. On the downstream side a carved block spells Savin & Ward. Immediately below is the intake of Tai Mawr leat and Cyfarthfa's hot-blast slag tip on the Taff W bank.

Pontsarn viaduct is straight rising at 1:50 and like Cefn built for double track (never carried). Of huge limestone blocks it is 455ft. long and 92ft. high its seven arches springing off a colossal rock abutment at the S end.

Of the four ironworks in Merthyr the Dowlais site was the least convenient. However by a blend of shrewd organisation and technical expertise from such as Peter Onions and William Menelaus it was the most successful of the four rivals.

In 1748 Herbert Lord Viscount Windsor leased land at Dowlais for a mine, coal and stone and lime kilns. All was in 1757 transferred to a Thomas Lewis of Llanishen and nine others and they built the first furnace. Prominent in its running were Lewis and Isaac Wilkinson of...
Denbighshire. **John Guest** of Broseley joined Wilkinson in 1763 seeking a Plymouth lease but instead found his way to Dowlais. Staggeringly he was manager by 1767. The workforce was ex-Staffordshire. Guest, a full partner by 1782, retired in 1786 and died in 1787. It was his son Thomas Guest who oversaw the true expansion at Dowlais. The 1798 installation of the first Boulton and Watt double-acting blast engine in Wales was due to him. He abandoned the proposed canal branch with its 400ft. rise and substituted a tramroad to the canal, rack equipped in its steam days. He, with others from Penydarren and Plymouth Ironworks, pushed for the Merthyr Tramroad as far as Navigation, now Abercynon, by-passing the Glamorganshire Canal and it was he who employed George Overton for the construction. 1807 witnessed the works’ takeover by the son Josiah John Guest when the father died. His son Ivor in turn gave his name to the new works of 1839. An important event was the Bute re-leasing in 1848, at a time of ill ease for Josiah John. This spawned intense modernisation with the rise of the brilliant engineer Wm. Menelaus to become manager in 1856. Under Peter Onions Bessemer steel was produced that year. Acid Bessemer and open hearth methods existed by 1880 using Spanish ores which encouraged Iberian immigration. The fresh era commenced with the opening in 1896 of the deep coalpit at Abercynon and the creation from 1888 on of ‘Dowlais-on-Sea’ at East Moors, Cardiff. WWI apart Dowlais declined and indeed became nationally symbolic during the Great Depression.

For comparison **Plymouth, Pentrebach and Duffryn Ironworks and Forges** grew from an initial lease of 1763 to John Guest and Isaac Wilkinson who swiftly disposed to Anthony Bacon. Bacon in turn passed the lease to brother-in-law Richard Hill who lacked capital but acquired wealthy partners by 1803. An extant water feeder from Merthyr town was built and Anthony Hill was sole manager by 1826, Richard being concerned with selling. Anthony built the house and was a great experimenter. The highest quality Merthyr iron came from here and was used for the cabling of Brunel’s ‘Great Eastern’. Anthony died 1862 the company being sold to Fothergill, Hankey and Bateman. Stopped 1882.

**Penydarren Ironworks** started with a lease to Francis Homfray who arrived in 1782. The lease allowed only iron mining, not coal, and water supply was difficult. Despite this the company grew in reputation. Of the three sons Jeremiah Thomas and Samuel, the latter erected Penydarren House. Jeremiah left to join with developments at Ebbw Vale whilst Samuel left in 1813 when William Foreman took over. During 1854 Win. Foreman the senior partner died and the works closed five years later. Purchased by Fothergill and Hankey who did nothing further.

**Dowlais Stables** block is the oldest extant building in the town having stood since 1820. Of two storeys and 21 bays the first floor housed a school for boys and later girls also, with 200 horses accommodated on the ground floor. After the riots of 1831 was used as barracks.

**‘Yankee Blower’ Engine House** This monumental brick building of 1909 is the sole remaining building of the works. It measures 174ft. by 50ft. and contained three vertical compound condensing engines with Corliss valve gear and sophisticated Southwark valves for air. Based upon the German ‘Pohlig’ system the furnaces were fully mechanically charged and automatic, the first in Britain. There were two, 80ft. high and 20ft. at the bosh and nine Cowper stoves with electric travelling cranes and an electric pig breaker at the casting floor.

**The Guest Memorial Hall** opened in 1863 as a tribute to Sir Josiah John Guest (1785-1852). Of classical design its architect was Sir Charles Barry of Houses of Parliament fame. It was a Library and Reading Room. A ‘town’ Library still stands, of Arts and Crafts style, but sadly Barry’s hugely Gothic Dowlais School built through Lady Charlotte Guest in 1853 and at which that capable polymath taught has been demolished. Remember that not so distant Rhymney Ironworks commissioned Philip Hardwick of Euston Arch fame for the strict minimalist classicism of St. David’s Church 1840-41.

**St. John’s Church** from 1827, reb. 1881/93, was founded by Guest. Himself a Wesleyan business forces nevertheless caused a church to be raised - in a town which at various times had 147 inns and hotels.

TWE
The Monmouthshire Eastern Valley is the eastern extremity of the South Wales coalfield, and, at its northern end, of the ironstone belt. Urbanised for most of its length, the main settlements are Pontypool at the southern end, and Blaenavon, some further 8 miles further north. Between are the mainly 19th century industrial settlements of Pontnewynydd, Abersychan, Talywain, Varteg and Cwmavon.

**Pontypool**

Iron has been worked in Pontypool since Roman times, the ore being carried by pack-mule from the Blaenavon area. Indeed, one source of raw material for the late medieval furnace-operators was the scoriae, or spoil-tips from the Roman operations. The first significant development was the acquisition, in 1570, of a small existing ironworks by Richard Hanbury, a London goldsmith (i.e. merchant banker). He already owned a wireworks at Tintern, in the Wye Valley, and wanted his own source of Osmund iron. The Hanbury ironworks prospered under succeeding generations, expanding their land holdings throughout the valley and beyond (the family are still the premier landowners in the area). They were great technical innovators, and c.1700, John Hanbury opened the world's first water-powered rolling mill.

This gave a cheap, high quality, and consistent source of blackplate iron, which in turn led to the tinplate industry, in which South Wales held virtually a world monopoly in the 18th and 19th centuries.

A by-product in the period 1730 – 1820, was Pontypool Japanware, the application of heat-treated lacquer to blackplate and tinplate for decorative purposes.

There were extensive coal workings in the area (all closed by the 1980’s).

The Hanbury iron and coal undertakings survived for almost 300 years, when c.1860, having been overtaken by larger, more modern operations, they were taken over by the Ebbw Vale Iron and Coal Company.

With the closure of the heavy industries by the late 20th century, Pontypool has been sidelines by its bigger neighbour, Cwmbran, and is still looking for a new role.

**Mamhilad; Du Pont Synthetic Fibre Plant**

This extensive factory complex, dominated by its large brick, steel and glass spinning tower, was built in 1947 by British Nylon Spinners Ltd. (a joint venture between ICI and Courtaulds) to produce nylon fibre and carry out research into man-made fibres. It was fully taken over by ICI in 1962, and the large research facility transferred to Harrogate, leaving an area now devoted to other commercial uses. Now owned by Du Pont, it is merely a production facility.

**Pontymoile Basin**

This marks the end-on connection between the Monmouthshire Canal and the Brecon and Abergavenny Canal (joined in 1812). It comprises a stop-lock for toll-collection, a bridge, and toll collectors/wharf masters cottage.

The northern side of the basin is the entry to a canal arm running northwards 3 miles to Pontnewynydd. This was closed as uneconomical (too many locks) in 1853, and the Monmouthshire Railway Co., which by now owned what had become the Mon and Brecon Canal, built their line up the eastern Valley over it (locks were exposed and photographed in the 1970’s during road-widening).

Beneath the canal run twin tramroad tunnels, which connected Hanbury’s ‘town forge’ with his rolling mill, and latterly with the Phoenix Tinplate Works.

150m. east of the Basin is an impressive high level aqueduct over the Afon Llwyd.

**Lower and Upper Race, Pontypool**

As the name suggests, extensive race workings or ‘hushing’. This is an entirely man-made landscape from which coal, iron, and fireclay were extracted from the 1700’s onwards. More or less in the centre of the site was Blaendare Colliery (closed 1970’s), and a clay level, worked until 1960’s, from which OHIHS has acquired a wooden-bodied tram.

At the top of the site is Cwm Lickey Pond, a water-pound which supplied through a series of leats, the water balance pit which preceded the Glyn Pits of 1845.

**Hafordyrnys Slimes Thickener (or Washery)**

The last remaining building of a new colliery development 1954-59, a concrete cylinder set on short legs and roofed with a domed concrete cap. Enormous sums of money were sunk into an ambitious but abortive effort to sink shafts off levels driven into both sides of the valley, connected by a bridge. The failure occurred primarily because of geological faults.

The original complex was a complete modernist
colliery, of German design and 'Festival of Britain' style.

**NAVIGATION COLLIERY, CRUMLIN**
Although closed in 1967, the buildings remain as the best-preserved colliery complex in South Wales. Built in 1911 for Partridge Jones and Co., all of red brick with yellow brick pilasters. Complex includes 2 winding houses, fan house, stack and workshops. The colliery had a brief but intensive burst of activity following the closure of Crumlin Viaduct (closed 1964, demolished 1968) when it was able to mine the area beneath the viaduct, which had until then been out of bounds.

Behind the colliery buildings can be seen the steep incline of Mark Phillips’ Tramroad, built in the 1790’s to provide an outlet for coal from levels in the Trinant area, to the Monmouthshire Canal Co’s basin at Crumlin. This stood almost opposite the colliery, beneath the new road.

**ABUTMENTS, CRUMLIN VIADUCT**
On both sides of the valley can be seen the last vestiges of Crumlin Viaduct (1837-1968), the massive stone abutments at each end.
The viaduct, a magnificent structure of cast and wrought iron, carried the Newport Abergavenny and Hereford Railway (Taff Vale Extension), 204 feet above the river Ebbw. It had seven main spans each of 150 feet and three subsidiary spans over a minor valley on the west side.

**TALYWAIN**
The extensive derelict area to the west of the LNWR/MRC embankment, locally known as 'The British', is the site of the British Ironworks (1827 – 1883). It is probably the only ironworks specifically built to the design of a notable architect, Decimus Burton.

There were four furnaces, of which the bases survive, with the coke and calcining ovens. The roofless office building survives, together with the beam engine house from the ironworks colliery (1845), and its stack base. On the hillsde, ½ mile west, stands Elizabeth Row, a preserved terrace of ironworkers’ cottages, the last survivor of at least five terraces; behind Elizabeth Row lie the fragmentary remains of a c.1820 balance winding head gear – a monument to a disastrous attempt at conservation by the local authority in the 1980’s.

The ironworks site is approached through a large 50-yard long arch beneath the MRC embankment of 1879. This embankment provided (in GWR days) an end-on link with the southbound LNWR, whose yellow brick goods-shed survives alongside.

1 mile to the NW of the British site is a substantial earth and stone faced dam, containing a reservoir for the works.

**VARTEG HILL INCLINE**
This spectacular incline was used from 1853 to c.1880, to lower 10-ton coal trucks from Varteg Hill Colliery to the MRC line at Cwmafon; it became redundant with the opening of the LNWR line.

At the foot of the incline can be seen: -

**FORGE ROW, CWMAVON**

**CWMAVON HOUSE**
Built for the forge master of Varteg Forge c.1830, a handsome Georgian house, white, under a hipped roof.

**BREWERY**
Built for the Westlakes Brewery of Blaenavon in 1900, now a plastics factory which has recently been well restored externally by the present owners.

**BLAENAVON**
This is the subject of a separate visit, so the notes are brief.

Iron was being mined in the 16th century on the east of the Blorenge (east of Blaenavon), by the Hanburys of Pontypool.

In 1788, Thomas Hill (of Staffordshire) leased 12,000 acres of mountain top for mineral extraction, and with his partners built the ironworks which still stands today, together with some of the workers cottages.

Of particular note is the bank of five blast furnaces and the water-balance tower for movement of materials between upper and lower levels.

Significant buildings in the town are: -

St Peters Church (1805), with its cast iron font, erected by Thomas Hill and his manager Samuel Hopkins.

The school, the first ‘ironworks school’ in Wales, built 1816. Now derelict, but funds are in place for full restoration.

The huge Workmens Institute (1893-4). ½ mile west of the town centre is the later settlement of Forgeside (developed 1838-1861) which gradually took over from the original ironworks – the latter closing completely in 1904. Big Pit, developed out of early 19th century
workings and with a haulage shaft sunk in 1860, is now the Coal Mining Museum of the National Museum of Wales.

GARDDYRUS FORGE
Established in 1816 with puddling furnaces to refine Blaenavon iron, together with a rolling mill. It closed in 1860, although in 1840-50 there was a community of some 450.
The site straddles the Hills (Pwlldu) Tramroad, by which iron was brought across from Blaenavon (via Pwlldu Tunnel), and thence down a steep incline to Llanfoist Wharf on the Brecon and Abergavenny Canal.
The site was excavated c. 1970, but little now remains except for the footings of some workers' houses, and two dry reservoirs.

GOVILON WHARF (BRECON AND ABERGAVENNY CANAL)
The main building on the wharf is Baileys Iron Wharehouse, built in 1821 to service the tramroad from Nantyglo Ironworks (after 1813, the B&A connected with the Monmouthshire Canal to provide a through-route to Newport). This tramroad reached the canal 2 miles nearer Newport than the earlier Clydach Tramroad to Gilwern Wharf.
It was connected with a short branch of the Llanvihangel tramroad (ultimately running to Hereford), which ran up the north side of the canal from Llanfoist.
There are limekilns built into the canal bank south of the wharf. The north end of the wharf is spanned by a stone/brick-lined skew bridge of the LNWR (1862).
When walking along the towpath to Llanfoist, note that the parapet of the roving bridge is made of tramroad sleepers. Also note the stop-locks, to guard against the results of a washout, of which a serious one occurred c.1960. (Although this canal runs through the hills in classic contour fashion, it is said to have the largest unlocked stretch, 26 miles, in Britain.)

LLANFOIST WHARF
Wharf and wharfsmasters house, built by Hills of Blaenavon Ironworks c.1817-1819. (They also built the winding hole, without permission.) South of the wharf is an aqueduct, beneath which runs a parish road from the Blorenge to Llanfoist, and a stream. The wharf is fed by a very steep half-mile incline carrying Hills tramroad from its contour route around the Blorenge. The incline was balance-worked with chains.
An overbridge (still standing) carried Hills tramroad down a further incline to link with the Llanvihangel Tramroad at Llanfoist.

In Llanfoist churchyard (below the canal) is buried Crawshaw Bailey, co-owner of Nantyglo Ironworks.
Note: 'B&AC.CO' incised into stone steps leading from the wharf to Llanfoist.

GOYTRRE WHARF
The most southerly significant wharf on the Brecon and Abergavenny Canal (which terminated at its end-on connection with the Monmouthshire at Pontymoile).
The section of canal from Gilwern, south to Pontymoile was constructed 1809-12 by Wm. Crossley, and the wharf and buildings are contemporary. At this point the canal is embanked across the entrance of a shallow valley, through which runs a substantial aqueduct. Running off the canal is a loading dock, below which is a bank of three lime-kilns, charged directly from the barges. The main purpose of the aqueduct is to allow the transport of lime from the kilns, beneath the canal, to the agricultural hinterland around Usk.
Alongside the aqueduct is a one up, one down cottage, which served as the wharfsmasters office and the limeburners accommodation.
At the entrance to the site is a substantial manager's house, part of which is now a shop serving the large marina and canalside moorings which have been built in recent years.

PONTYPOOL PARK GATES
Returning to Pontymoile Basin, we pass Pontypool Park Gates, the entrance to the Hanbury family seat (now a school and public park).
The wrought iron gates are early 18th century, with later vine-leaf decorated pillars by Thos. Deakin of Blaenavon, 1830.
The gates were a gift to John Hanbury by Sarah Churchill, first Duchess of Marlborough, as a token of thanks for acting as executor to the estate of her husband, John Churchill, Duke of Marlborough.
CRW
N Rhymney Valley, Tredegar and Sirhowy
Thursday 11 September 2003

Transport in the Rhymney Valley
The Rumney tramroad ran from Pier Corner, Bassaleg, where it made a junction with the Monmouthshire Canal Company’s tramroad and the Park Mile Tramroad from Newport, to the south side of Rumney, a distance of 21 miles. The Act of Parliament was passed in 1825 and the line opened in 1828. Its route keeps to the eastern side of the valley. Fed up with the poor state of the tramroad and lack of any intention by the proprietors to modernise and convert the tramroad into a proper railway, the Rhymney Iron Company supported the Rhymney Railway Act, passed 1853. This railway ran down the west side of the valley, first joining the Taff Vale Railway near Llancaiaich but then extended further down the valley to join the Taff Vale via the Penrhos cutting at Walnut Tree, Taffs Well (1858). With the completion of the Caerphilly tunnel in 1871, the Rhymney Railway had its independent line from Rhymney to Cardiff, still open today. The Rumney tramroad became the Brecon and Merthyr Railway, which closed in 1962, except for the lower part to Bedwas Colliery (1985), and Machen Quarry (still open for ballast trains).

Llanbradach Colliery
You will see this former colliery on your left as we bypass Llanbradach. The colliery was opened in 1894, on a steeply sloping site alongside the Rhymney Railway. Closed in 1961, a fine range of colliery buildings remain (listed, grade 2) in secondary industrial uses, engineering, car dismantling, vehicle workshops and timber products.

Penallta Colliery
This was the largest colliery in South Wales, constructed by the Powell Duffryn Company, engineer George Hann. It was unusual in that it was the first to be built with one large engine hall, 390 ft x 70 ft, containing the winding engines for both shafts, air compressors, ventilation engine and fan, etc. Originally steam powered, the colliery was electrified in the 1960s. The workshops, 266 ft x 45 ft, stores, lamp room, baths and office buildings remain. Coal recovery is being carried out prior to development of the site and buildings for housing, etc. by the Phoenix Trust.

Hengoed Viaduct
This stone viaduct of fifteen arches, 850 ft long, built to the design of Charles Liddell to carry the Newport, Abergavenny & Hereford Railway across the valley, was completed in 1857. The viaduct is now part of a cycle way. A 19th century flannel mill stands beneath it (no machinery).

Elliot Winding Engine, New Tredegar
New Tredegar is situated at the narrowest point in the Rhymney Valley, developed from the 1850s around several small collieries, such as Brithdir on west side, White Rose on the east side, and the Tredegar pits of Thomas Powell to the north along the Rumney tramroad. This last pit was damaged by a landslip in 1905 and again in 1930, when the colliery closed. What was then the Brecon and Merthyr Railway to Rhymney was also closed above New Tredegar. Thomas Powell’s works, after his death, were the nucleus of the Powell Duffryn Company (managing director Sir George Elliot), which built Elliot’s colliery at the south end of the community, operating between 1883 and 1967. The east pit winding engine house, built 1891, still stands, and contains the preserved Thornwell and Warham (Burton-on-Trent) twin cylinder winding engine, compounded in 1910. The shaft was 550 yards deep, and the engine wound 3 ton of coal in 42 seconds. On Guy Fawkes Day 1891 the pumps were overwhelmed and the pit flooded, water rising up the shaft. The cage was replaced by two large rectangular self-emptying buckets, and for a month the engine wound water, 40 winds per hour, day and night, to help drain the pit. An external concrete-walled exhibition gallery has been added unsympathetically on the east side.

Pontlottyn
You will pass the modestly classical police station, dated 1915, and the adjoining police court buildings, dated 1923, on your left as you enter Pontlottyn. The viaduct, 350 ft long and of 10 arches, carries the Rhymney Railway in to Rhymney station. No public houses were allowed by the landowner of this development and to circumvent this, the Railway inn was built under the viaduct, on railway land, alongside the road to Rhymney. It was demolished a few years ago.

Rhymney
Rhymney was a town built for the ironworks. The wide main street extends for over a half-mile and is still bordered by many of the original terraced rows of housing. At the north end stands the church of St David and at the south end, facing the ironworks, were the residences around the Lawn provided by the company for their directors, manager and surgeon.

Newtown, Drenewydd
This was to be a model village for the workmen employed at Union ironworks, but was not completed. Built on the initiative of Richard Johnson, who was appointed manager in 1804, there are three rows of houses built in a Palladian style, the centre ones of three storeys. The community had its own church and school. When the Marquis of Bute became involved in the ironworks, it acquired the name Butetown, hence the name of the public house opened in one of the houses, the Windsor Arms. A museum has been opened in one of the houses.

The Upper Rhymney Furnace, and the founding of the Rhymney Iron Company
Thomas Williams, Richard Cunningham and others built a furnace, which was tapped for the first time on 23 June 1801. In between the furnace and the manager’s house, formerly known as Rhymney House but now an hotel, was a row of workmen’s houses. The roof of the manager’s house (listed, grade 2) is supported on prefabricated iron trusses and joists. Richard Crawshay, his son-in-law Benjamin Hall, and Watkin George of Cyfarthfa, engineer, joined the partnership in 1804, forming the Union Iron Company, and began to build new furnaces over a mile to the south, on the east bank of the Rhymney River, to be known as the Union Ironworks. Cunningham was dismissed as manager and left the partnership, accused of fraudulent practice, and was replaced by Richard Johnson, Richard Crawshay’s father-in-law, as manager. Crawshay died in 1810 and Hall became sole owner of the works. The works was offered for sale in 1824 and was bought by brothers Joseph and Crawshay Bailey. They obtained an Act of Parliament to construct the Rumney tramroad from the ironworks to Newport down the east side of the valley. Although the sale was overturned by a decision of the Chancery Court, they built their tramroad.

The Marquis of Bute, after settling a dispute with the Dowlais Iron Company and other squatters concerning encroachment on his mineral property, granted a lease in 1825 to William Foreman (‘Billy Ready money’), Thomas Foreman and Thomas Johnson, who erected an ironworks on the west bank of the river, opposite the Union Ironworks, built in an Egyptian style (the Egyptian Furnaces). In 1831 the river was diverted, deepened and culverted to prevent flooding, which allowed a fourth furnace to be built. The river work was carried out by a Scotsman, Andrew Buchan. He gave his mainly Irish labourers notes to present at a shop at Twyn Carno, which he later purchased and run as a truck shop, although these had been outlawed by the Reform Act of 1831. Proposed in 1835 and cemented by a deed of partnership dated 1837, the two ironworks amalgamated as the Rhymney Iron Company. Andrew Buchan became manager of the iron company’s shop in 1839, and the Twyn Carno shop became the company’s upper shop, managed in 1841 by 20-year-old John Price with the aid of 5 young assistants.

Rhymney, St David’s Church
The Rhymney Iron Company felt morally bound to build and endow a church in Rhymney, opposed in principle by one small shareholder, and obtained an Act of Parliament to carry out the work. The church was erected 1840-43 to a design by Philip Hardwick, architect of the Euston Arch, and said to be the last neo-classical church built in Wales. The church has barrel vaulted cellars, galleries, and an altar at the west end. The stained glass east window was a gift of Andrew Buchan in memory of his wife. By his will, Buchan left money to add five bells to that in the tower. The first person to be buried in the new graveyard was the young daughter of the works surgeon, Lewis Redwood.

Farmers’ Arms
The lunchtime stop was the Brewery Tap of the Rhymney brewery. The walls are covered with many photographs of the brewery and its employees, the landlord formerly being one of them. In 1839, the Rhymney Iron Company built a brewery and asked Andrew Buchan to manage it. By 1856, they owned 29 public houses. In 1929, the Powell Duffryn company who had taken over the Rhymney Iron Company, decided that they did not wish to own a brewery and Andrew Buchan’s Rhymney Brewery, Limited was formed. It came under the Whitbread umbrella in 1966 and closed in 1978. The site is now occupied by a Lidl store.

The Terrace
The Rhymney Iron Company built the Terrace for their senior officials. The most senior managers occupied the larger houses at each end.

Tramroads
The Rumney tramroad terminated nearly a mile south of the Rhymney Ironworks, From here, all iron, ore, coal and all other goods were carried on Rhymney Iron Company tramroads. When the Brecon and Merthyr Railway took over the Rumney tramroad and converted it to a railway, their passenger station was sited at that point. The Bryn Oer tramroad brought coal and iron ore to the ironworks, where it joined one of the iron company’s tramroads. This passed behind the Terrace and then through a cut-and-cover tunnel under the Lawn. The north portal has gone and the
tunnel blocked, but the south portal can be seen, partly hidden by bushes and undergrowth. Another tramroad in front of the Terrace connected the brewery to the company shop.

The Lawn
The Rhyymney Iron Company built three houses on a 20 acre enclosure. They faced south towards the ironworks. The one to the west was built to accommodate directors of the company on their infrequent visits from London. It was sold by the Powell Duffryn Company in 1924 and became Rhyymney Grammar School, but is now a Welsh language primary school. The centre one was occupied by the works manager. The third house was occupied by the works surgeon and later became the vicarage.

Rhyymney Iron Company Offices
The Rhyymney Iron Company was at its peak in 1875, when it employed over 5,000 people in the ironworks, mines, pits and brickworks. The ironworks were closed in 1890 and the company concentrated on the production of sale coal. New offices were built in 1913.

The Company Shop
This large general store was a spacious building, standing in its own grounds, The shop was in the front. Behind were the stores, bakery, slaughter house and dwelling house. The truck system was abolished by the Reform Act of 1831, although the iron masters continued it in a refined legal form. Andrew Buchan was appointed the first manager on 31 December 1836, his agreement entitling him to 25% of the profits, guaranteed to be £200 p.a. In 1841 the shop was occupied by Andrew Buchan and his wife, 9 clerks (including his son), a baker, a butcher, a shopman, and 5 servants. Buchan died in 1870. He was succeeded by his son for a short time, and then by William Pritchard, who had joined the company in 1846 as boy of 14 years of age. William Pritchard was followed by D. B. Jones, father of Thomas Jones, cabinet secretary to 6 prime ministers, and grandfather of Irene White. In 1885 it ceased to act as a Company truck shop, and closed in 1911. One of the Pritchards was the last brewer when the brewery closed in 1978.

The Lawn Lodge
In Powell Duffryn days, the colliers were paid in the single-storey building at the rear of the lodge house (listed, grade 2).

Idris Davies
The last house on the left before the fire station as we leave Rhymney town was the home of the poet Idris Davies, who wrote 'The Bells of Rhymney', later put to music by Pete Seeger and sung by The Byrds.

Oh what can you give me? Say the sad bells of Rhymney
Is there hope for the future? Say the brown bells of Merthyr.
Who made the mine owner? Say the black bells of Rhondda.
And who robbed the miner? Cry the grim bells of Blaina.
They will plunder will-nilly, Say the bells of Caerphilly.
They have fangs, they have teeth! Shout the loud bells of Neath.
To the south things are sullen, Say the pink bells of Brecon.
Even God is uneasy, Say the moist bells of Swansea.
Put the vandals in court! Say the bells of Newport.
All would be well if - if - if - , Say the green bells of Cardiff.
Why so worried sisters, why? Sang the silver bells of Wye.

Cefn Golau
This is the hill separating the Rhymney and Tredegar. The cholera epidemic of 1832 caused fear and panic, and the people of Tredegar decided that the dead had to be buried well outside of the town. The hilltop, Cefn Golau, was chosen as the site for the cemetery, and was used again in the 1849 epidemic. Although the modern cemetery adjoins the cholera cemetery, it is said that some people still have a fear of visiting the site.

Tredegar Clock
Some of the citizens of Tredegar thought that the circle and town would be enhanced by the erection of the clock tower, a 72 ft high cast iron pillar and column. It was cast by Charles Jordan of Newport, with an inscription that appears to says it all: 'Presented to the town of Tredegar from the proceeds of a bazaar, promoted by Mrs R. P. Davies. Erected 1858'. Mrs Davies, the wife of Richard Powell Davies, manager of the Tredegar Ironworks, died before the bazaar took place, which raised only a small part of the cost. Her husband donated £400, and the remainder of the £1,000 needed was raised by public subscription.

Sirhowy Ironworks
These furnaces dates from 1778, when Thomas Atkinson, William Barrow and others obtained mineral leases from the Burgh and Morgan estates to most of the land around, and the right to build
furnaces. In 1794 Mathew Monkhouse and Richard Fothergill joined Barrow in a new partnership, and a second furnace was built. Big changes followed, with a sub-lease of part of the mineral ground to Harford and Co of Ebbw Vale (1799), the negotiations for a new lease with Charles Morgan of Tredegar to allow the Tredegar furnaces and ironworks to be built (1800), and the obtaining of an Act of Parliament for the construction of the Sirhowy tramroad (1802) to Newport brought big changes. Closed 1886.

TJ
P Rhondda and Tower Colliery

Type of visit: Coach tour of Rhondda valley then a foot tour of the colliery which is dirty and not a tourist site. Steps and ladderways to be negotiated.
Special requirements; Overalls with helmets and robust footwear are mandatory. Warm top.

The Rhondda valleys exemplify late development purely for coal production, with no previous iron-making as the two river sources do not cut back through the Northern Outcrop. Until the late 1700s there was ample wood fuel for the scant agricultural population and subsequent exploitation was slow. It should be remembered that the coal measures lie deep at the centre of the basin and their existence had to be proven. There was no geological knowledge, no road and no local labour. Only in 1855 at Cwm-Saebren was the now world-famous steam coal first raised.

It is convenient to regard growth in three periods.

PERIOD I
A doubtful report claims a 1790 level opened by Dr. Richard Griffiths at Gyfeillon, denied by him 20 years later! Nevertheless 1809 saw Griffiths and Jeremiah Homfray open the Hafod level. They built both a tramroad to Newbridge (now Pontypridd) crossing the Taff at Machine Bridge and the Doctor’s Canal onward into the 1798 Glamorganshire Canal. This era was characterised by inefficient levels and shallow pits producing bituminous coals and the No.3 Rhondda seam was important. ‘Sale’ coals were for steam engines and town grates, London becoming a major receiver. Small-scale workings crept up valley from Hafod to Ynyshir to Tonypandy, these not then being settlements.

The first integrated business as such was created by Walter Coffin (1785-1867). He was the second son of a wealthy Bridgend tanner, his father having bought farms in Rhondda. From 1809 onwards he, the son, sank the first pits at Dinas, following this by 1811 with his eponymous tram road to Gyfeillon. To complement these efforts he marketed his bituminous output at home and abroad. The sinking of Dinas Middle in 1832 and Gelliælog in 1845 were ventures into the unknown but led to huge success. His 1841 employment figure of 301 men and 113 boys was exceptional, all other works being insignificant by comparison.

PERIOD II The Taff Vale Railway arrives
1841 o. Pontypridd to Eirw: 1849 o. Dinas to Ynyshir; 1856 o. Ynyshir to Treherbert. Prospectors followed the TVR up valley. Cymmer Colliery was reached by 1850 and Treherbert in 1856. In contrast with the preceding iron industry many Welsh entrepreneurs came onto the stage. George Insole (d.1850), from Worcester, founded a family of Cardiff shippers. 1832 saw him taking over Maesmawr in the Taff valley to satisfy the Irish demand, using Bristol capital. (Here is a recapitulation - Bristol commerce was formerly prominent in supporting S Wales iron growth). The scheme produced low output and low quality so he moved to Rhondda through the 1847 sinking of No.1 Cymmer pit to the No.3 Rhondda coals.

John Calvert was a Yorkshire contractor involved with constructing the Llandaff to Merthyr section of the TVR. Seizing his chance a lease was taken on Gelliælog or Newbridge Colliery. Three years labour found the No.3 Rhondda horizon at 147 yards. This gave birth to coke ovens in 1851, supplying the GWR which worked the colliery from 1851.

Welsh enterprise then truly took over. From Ynys-iddu Monmouth David Thomas (1815-80) and John Thomas (1821-88) sank at Hafod. Mordecai Jones, a Brecon solicitor and Isaac Williams, a Merthyr shopkeeper invested as also did the notable Leonard Hadley. The latter was a Caerleon flour-miller. His monies went into firstly Troedyrhw colliery, followed by Tynewydd in the Rhondda Fach near Porth. This pit was taken on by James Thomas, a Bedwelly farmer’s son plus one Cope, a Cardiff docker, and an Aberdare grocer named John Lewis.
This period ends with pioneering shafts away from the main valleys, typified in 1845 by the Cardiff docker (sic) William Perch at Cwm Clydach. The renowned rope-worked incline down to the TVR was his creation.

**PERIOD III The steam coal era**

Despite the presence of Scwyd-y-Rhondda level on an 1833 map, being just below the source of the Rhondda Fawr, the upper valleys were still unexplored by mid century. A reminder is necessary as there the presence of coals at depth was not known and when proven were expensive to reach due to increasing depth. A degree of boldness was required.

Impetus came in due time from Her Majesty’s Navy. Embryonic trials had occurred in an old level at Cwmsaebren, close to Tynwydd. The remarkable No.4 Rhondda steam coal was found, which eventually spawned the global bunkering network succouring (mostly British-owned) steamships, a black-golden time which crumbled from the time of WWI.

Steam sinkings were slow to follow as the market had to develop. Eventual Admiralty tests favoured the Aberdare (Cynon) valley above all others, this being a long-established area due to the demands of iron-making. However Archibald Hood came from Ayrshire in 1880 to start the Glamorgan Colliery, known as the Scotch, at Llwynypia. 1864-84 saw demand rising, prices increasing and a time of mobile capital. This conjunction led to the enormous combines. Examples were Ty-draw at Blaen-y-cwm, Tynwydd at Treherbert, Fernhill at Blaenrhondda, the Cambrian at Clydach Vale, Naval at Tonypandy and Ocean at Treorchy and Ton-Pentre. This latter was the child of David Davies of Llandinam and his five Welsh partners.

This opening-up of the full valley length was facilitated by the complete absence of any mineral leases for earlier ironworks. The 1875 creation of the Sanitary Boards found their by-laws with their minimum housing standards becoming a form of guideline for house-builders. This in turn leading to the well-known rows of uniform terraces.

W. T. Lewis, to become Lord Merthyr, was mineral agent for Lord Bute, becoming so at 27 years of age. In 1869 he was appointed manager of the Bute Merthyr Associated Colliery, his first experience. His name lives on at the Lewis-Merthyr Colliery, now Rhondda Heritage Centre.

One other significant move was into the upper Rhondda Fawr. Ebenezer Lewis owned the geographically adjacent Bwlifa Dare pit in the Aberdare valley. Following a hunch he and Thomas Joseph, also from the same valley, proved steam coals at 147 yards at Tydraw Colliery and the gates were drawn back - the United National at Wattstown resulting.

A form of final-fling produces some interesting stories of difficulty. In 1869, at the head of the Rhondda Fawr, another Welsh team formed by George Locket, Herbert Kirkhouse and Rees Jones of Aberdare with James Marychurch of Cardiff created Blaenrhondda Colliery. Their shaft was a mere 200 yards W. of Ebenezer Lewis at Fernhill. Things did not go well and two years later all was sold to Yorkshiremen, the shaft completion being in 1872. Interestingly Watkinsons of Buckley Collieries, Denbighshire, bought the pit whilst the nearby North Dunraven Fernhill, also on the same estate, expanded to four shafts by creating North Dunraven No.3 and No.4 in 1869-72 and five through Fernhill No.5 in 1920. No.5 was never used and shafts at two collieries shared two pit names, all on top of each other.

Finally mention must be made of the Bertie, Trefor and Hafod Pits sunk to the steam coal 1888-81. These mighty pits worked seven seams at between 330 yards and 463 yards. Comparable were the deep workings at Cwmparc/Treorchy, the Parc (1865) and Dare (1880). These are singled out as demonstrating massive output for many decades after heartbreak and desperation during sinking.

**TOWER COLLIERY**

This colliery is famous for being the last deep pit in Wales and for the long and arduous struggle by the workforce to invest their own money (£8,000 each) in buying the installation from British Coal. Set in an amazing mining landscape of at least three centuries, from outcrop workings to colossal open-cast its position on the Northern Crop with views northwards to the New Red Sandstone skyline tells a powerful story of man and geology. The pit is 139 years old in 2003 and is so named
after a defensive tower of three storeys built by Francis Crawshay on the common above. Two cannon were installed in the tower.

Re-opened under the workforce in 1994 and led by the Chairman Tyrone O’Sullivan, c.75% of present output loads onto two merry-go-round trains (Mon-Fri) and one on Saturdays serving Aberthaw power station. This is ‘duff’ produced by volatile blending. Anthracite marketed in the form of large and small Nuts, Beans and Grains is sold to a range of customers, the consistent quality being a strong selling-point.

The upcast shaft at Tower No.4 SN 941047 is 600m in depth with the bituminous No.3 Rhondda seam at 180m and the previously-worked steam coal seams successively downwards from 412m. Current work is producing anthracite using retreat-mining in an area known as V49 some 1,400m from the two W. lateral roadways and in turn 6,500m from shaft bottom. On surface this is almost at the site of Glyncorrwg Colliery at SS 888998! The seam now worked is the combined Seven foot/Five foot. In 1982 the close-by Rhigos colliery workings caused the Nine Foot seam to be lost through flooding after a break through.

Sunk 1941-44 the shaft has a steel lattice headframe and a small Powell Duffryn brick-built winding house. Both are listed.

In 1964 Tower was linked underground to Fernhill Colliery in the Rhondda Fach and in 1986 to Maerdy Colliery in the Rhondda Fach with all coal coming out at Tower.

The washery and spoil bank lie E. of the shaft coal arriving through the 1958-59 driven New No.3 drift at SN 941047 involving another 1,100m of conveyor. This is the downcast for No.4.

Prior to cyclonic washing density is increased by adding magnetite to the water. For smaller sizes flotation is used and is fine-tuned to ensure that a customer receives exactly the same fuel at each order. A surface conveyor some 1,400m long links the washery with the merry-go-round loading point.

The winder is of great interest a liquid-resistor controlling the d.c. motor. The braking system and the control system had until recently similar ones in Ghana and in Cuba, the former being recently scrapped. Huge quantities of methane are dealt with by 15 pumps of three varieties with some of the gas being used on site by Hyder plc to generate electricity using six reciprocating engines. These are not accessible on visits as they do not belong to the colliery.

Historically Tower Colliery No.1 Drift was at SN 948048 at the site of Crawshay’s Goitre Machine Colliery. Driven 1864 with a return drift plus an upcast shaft by 1870. This was shared with Bute Pit was 265ft.x15inch and was furnace ventilated until 1891. Tower Colliery No.2 Drift (the Nine Foot) lay just to the W. of No.1 and was put in 1894 for steam coals only. The Old No.3 Drift (Pant Glas) at SN 940048 was a downcast drift for No.4 post 1944 and prior to that linked down to No.2.

ABERDARE.

Drive-through. Stop only if time allows.

The town is an ancient settlement with a 12th century church. Population increased by 2½ times between 1801 and 1831, though it remained small, in an iron-making period which ended in 1875. The old streets of Hirwaun, Trecynon, Llwytgoed, Gadlys, and Abernant date from this time. Ironworks existed at Hirwaun, Llwytgoed, Gadlys, Abernant and Aberaman with an extremely early example at Cwmaman.

The 1840s witnessed the steam coal boom and the Aberdare valley became the leading producer, with a population increase from 7,000 to 40,000 between 1840 and 1855. Output then doubled by 1880, but by 1884 the Rhondda valleys were already raising a greater quantity of steam coal. As written previously, by comparison the Rhondda steam coals were difficult to locate. In the Aberdare region housing at Cwmdare, Cwmaman, Foundrytown, Aberaman and Abercwmboi is from this period. The greatest input of people came from rural Cardiganshire.

The broad-gauge Vale of Neath Railway had arrived in the Aberdare valley in 1853, forty years after the Aberdare Canal down to Abercynon. The Aberdare Railway, promoted by ironwork’s interest, was narrow-gauge and opened in 1856, eventually being leased to the TVR. A huge network of tramroads had also been created, all this being in place whilst the adjacent Rhondda could show no transport system at all for the majority of its length.

Indeed the streets of Hirwaun follow the tramroads rather than allowing for the needs
of the town and its inhabitants.
Positioned on a wide valley head plateau
Aberdare town has urban pretensions and in
some ways has reverted to a market centre with
a fan-shaped hinterland. Swansea (W) or
Cardiff/Penarth (S) was a shipping option and
the narrow-gauge extension of the VNR to
Pontypool Road, which ran over Quaker’s Yard,
Treharris, Hengoed, and Crumlin viaducts
allowed Aberdare coal to reach many markets.
Famous indeed are the ‘Jellicoe Specials’ to
Thurso to supply the Grand Fleet and numerous
English Railway Companies received
locomotive coal from here. The first train to run
through the new Severn Tunnel was of Aberdare
steam coal and the GWR had a class of 2-6-0
locomotives known as ‘Aberdares’.

TWE