

TAWE HERITAGE WATERFRONT

A SHORT HISTORY *of the*
HAFOD COPPERWORKS

1810-1924



THE TAWE HERITAGE WATERFRONT

BUILDING THE PAST INTO THE FUTURE

The Tawe Riverside Study area is arguably the 'crucible' of Swansea's industrial heritage. It is the equivalent of Coalbrookdale locally, and there is no comparable concentration of industrial heritage on the South Wales coastal plain. Whilst there are some large-scale features that are visible, much of the heritage is hidden and needs 'interpretation'. The bed of a former canal, copper slag block walling and even anonymous-looking land-forms, for example, have a story to tell.

To allow developments to celebrate this industrial heritage and to ensure a co-ordinated approach, a heritage strategy is being prepared to inform the process. This booklet is a key element in this strategy providing a succinct information package to inform both potential developers and visitors of the history of the Hafod Copperworks site.

THE WAY FORWARD

The Tawe Riverside Corridor Strategy has now been adopted as the regeneration policy for the area with a vision to:

“Develop a modern, attractive & vibrant riverside urban area, creating a place where people wish to live, work & visit, capitalising upon & celebrating the Tawe’s unique contribution to the Industrial Revolution”.

Implementation of this policy will see modern developments created, changes in land uses, increased accessibility, and greater use of the river as a recreation resource.

GLANNAU TREFTADAETH TAWE

YMGORFFORI'R GORFFENOL YN Y DYFODOL

Gellir dweud taw ardal Astudiaeth Glannau Afon Tawe yw 'aelwyd' treftadaeth ddiwydiannol Abertawe. Dyma ein fersiwn lleol ni o Coalbrookdale ac nid oes efallai ardal arall o dreftadaeth ddiwydiannol gyffelyb ar arfordir y de. Ar wahân i ambell nodwedd fawr sy'n weladwy, mae llawer o'r dreftadaeth wedi'i guddio ac angen ei 'ddechongli'. Mae gan wely'r hen gamlas, y waliau copr slag a hyd yn oed tiffurfiau anhysbys yr olwg, er enghraifft, hanes i'w adrodd.

I alluogi datblygiadau i ddathlu'r treftadaeth diwydiannol yma ac i gydlynu'r gwaith, mae strategaeth dreftadaeth yn cael ei pharatoi i gyfeirio'r broses. Mae'r llyfryn hwn yn elfen allweddol o'r strategaeth hon gan roi pecyn gwybodaeth cryno i hysbysu datblygwyr posib ac ymwelwyr am hanes safle Gweithfeydd Copr yr Hafod.

Y FFORDD YMLAEN

Rydym wedi mabwysiadu Strategaeth Glannau Afon Tawe bellach fel polisi adfywio'r ardal.

Ei nod fydd:

"Datblygu ardal fodern, deniadol a bywiog ar lan yr afon gan greu rhywle lle bydd pobl am fyw a gweithio ynddo ac ymweld ag e, gan ddathlu a manteisio ar gyfraniad unigryw afon Tawe tuag at y Chwyldro Diwydiannol".

Drwy roi'r polisi hwn ar waith, bydd datblygiadau modern yn cael eu creu, defnyddir tiroedd yn wahanol, bydd yn fwy hygyrch a bydd mwy yn defnyddio'r afon fel adnodd hamdden.

SWANSEA'S HERITAGE WATERFRONT

Swansea's river has been used for commercial purposes ever since the time of the Vikings. Invaders and those seeking to trade from the medieval period onward have used this river which is navigable for several miles upstream. In addition coal has been coming down the Tawe and leaving Swansea for ports on the south coast of England and Bristol since the middle ages. By the 18th century and the arrival of the first copperworks in 1717 (the Llangyfelach Works) the river had become an important conduit for the delivery of raw materials. By 1757 another four works had been added; the Cambrian Works 1720, White Rock 1737, Middle Bank 1755 and Upper Bank 1757. In addition the Swansea Canal was constructed in the period 1794-98 in order to facilitate bringing large volumes of coal down the valley to the copperworks and then shipping copper (in all its forms) out via the docks. It is no accident that when John Vivian (1750-1826) came to choose a location for his Hafod Copperworks (1810-1924) he shrewdly chose a site that was flanked on either side by these two conduits of water-borne transport.

In that period the Lower Swansea Valley had been converted into one vast resource centre being exploited almost on every level. Kilvey Hill was stripped of its trees for fuel, quarries were dug at every outcrop of Pennant sandstone for use as building material and coal pits sunk wherever it was feasible to extract the mineral more cheaply. If the Lower Swansea Valley was the beating heart of the Industrial Revolution in this part of Wales then the River Tawe and the Swansea Canal were two main arteries feeding it. Of these two features only the river remains intact; the empty bed of the canal can still be glimpsed at the Hafod Copperworks site – but only if you know where to look.

TREFTADAETH GLANNAU ABERTAWE

Defnyddiwyd yr afon yn Abertawe at ddibenion masnachol ers adeg y Llychlynwyr. Bu goresgynwyr a'r rheiny a geisiau fasnachu o'r oesoedd canol ymlaen yn defnyddio'r afon hon, y gellir mordwyo i fyny arni am sawl milltir. Ar ben hynny, mae glo wedi dod i lawr Afon Tawe a gadael Abertawe am Fryste a phorthladdoedd ar arfordir deheuol Lloegr ers yr oesoedd canol. Erbyn y 18fed ganrif a dyfodiad y gwaith copr cyntaf ym 1717 (gwaith Llangyfelach), roedd yr afon yn llwybr pwysig ar gyfer cludo deunyddiadau crai. Erbyn 1757, roedd pedwar gwaith arall yn bodoli; Gwaith Cambrian ym 1720, y Graig Wen ym 1737, Middle Bank ym 1755 ac Upper Bank ym 1757. Yn ogystal, adeiladwyd Camlas Abertawe yn y cyfnod 1794-98 er mwyn hwyluso dod â llwythi mawr o lo i lawr y cwm i'r gwaith copr ac yna allforio copr yn yr Hafod (1810-1924), bu John Vivian (1750-1826) yn ddigon craff i ddewis safle lle roedd y ddau lwybr cludiant dŵr hyn ar y naill ochr a'r llall iddo.

Yn y cyfnod hwnnw, trawsnewidiwyd Cwm Tawe Isaf yn un ganolfan adnoddau enfawr a gafodd ei hecsbloetio ar bron bob lefel. Dinoethwyd Mynydd Cilfai er mwyn defnyddio'r coed fel tanwydd; cloddiwyd chwareli ym mhob lle y daethpwyd o hyd i dywodfaen Pennant i'w ddefnyddio fel deunydd adeiladu, a chrëwyd pyllau glo ble bynnag yr oedd yn ymarferol cloddio'r mwyn yn rhad. Gyda Chwm Tawe Isaf yn galon brysur y Chwyldro Diwydiannol yn y rhan hon o Gymru, y ddwy brif wythien a'i bwydai oedd Afon Tawe a Chamlas Abertawe. O'r ddwy nodwedd hon, yr afon yn unig sy'n dal i fodoli; gellir gweld gwaelod gwag y gamlas o hyd ar safle Gwaith Copr yr Hafod – ond dim ond os ydych chi'n gwylbod ble i edrych.

1410



An imaginary reconstruction of Swansea in the medieval period

POPULATION FIGURES

1546	–	900
1550	–	1,000
1563	–	960
1631	–	1,390
1639	–	1,887
1670	–	1,733
1690	–	1,184
1707	–	1,792
1712-20	–	1,830
1801	–	10,117
1811	–	11,963

POPULATION FIGURES

1821 – **14,896**

1831 – **19,672**

1841 – **24,604**

1851 – **31,139**

1861 – **41,606**

1871 – **51,702**

1881 – **76,430**

1891 – **90,349**

1901 – **94,537**

1911 – **152,619**

1981 – **186,589**

1610



Saxton's map of Swansea and region

1737



Swansea before the age of canals and railways

**"Delightful Hafod, most serene abode!
Thou sweet retreat, fit mansion for a god!
Dame Nature, lavish of her gifts we see,
And Paradise again restored in thee."**

anonymous poet 1737



One hundred and
forty-three years
later...

**"Landore. A spot rich in the renown of its
metal and chemical works, but to the
casual visitor, ugly with all the ugliness of
grime, and dust, and mud, and smoke
and indescribable tastes and odours."**

S.C.Ganwell, District Guide

**"Delightful Hafod, most serene abode!
Thou sweet retreat, fit mansion for a god!
Dame Nature, lavish of her gifts we see,
And Paradise again restored in thee."**

bardd di-enw 1737



Cant pedwar deg a
thri o flynyddoedd
yn ddiweddarach...

**"Glandŵr. Ardal sy'n enwog iawn am ei
gweithfeydd metel a chemegol, ond i'r sawl
sy'n ymweld ar hap, lle hyll gyda holl
hagrwch baw, llwch, llaid, mwg, blasau ac
arogleuon na ellir mo'u disgrifio."**

S.C.Ganwell, Arweinlyfr i'r Ardal

1744



White Rock - the earliest known image of a Swansea Copperworks

1748



Swansea was importing copper by sea as early as the 1720's

COAL SHIPMENTS: MAJOR SOUTH WALES PORTS, 1780-1913

	1780	1799	1820	1840	1860	1880	1900	1913
	(thousand tons)				(million tons)			
Cardiff			85	166	1.92	5.86	17.52	24.58
Newport		18	175	490	0.82	1.89	3.98	6.14
Swansea	65	245	232	493	0.52	0.94	2.38	4.50
Llanelli		1	65	212	0.38	0.20	0.28	0.33
Neath					0.20	0.29	0.28	0.33

NAME OF WORKS AND METALS SMELTED

NAMES AND DATES OF FIRMS OPERATING THE WORKS

Landore or Llangyfelach Works (copper, lead, silver)	(a) Dr John Lane	1717 – 26
	(b) Robert Morris	1726 – 27
	(c) Morris Lockwood & Co.	1726 – 48
Cambrian Works (copper)	(a) James Griffiths & Co.	1720 – c. 1730
	(b) Richard Phillips	1730 – 35
	(c) Robert Morris	1735 – 45
White Rock (copper)	(a) White Rock Copper Co. alias John Hoblyn & Partners	1737 – *
	(b) Joseph Percival & Co.	1744 – 64
	(c) John Freeman Copper Co.	1764 – 1870/1
	(d) Williams, Foster & Co. and Vivian & Sons	c. 1871 – 74
	(e) Vivian & Sons	1874* – 1924
	(f) British Copper Manufacturers Ltd	1924 – 28
(silver and lead)		
(silver and lead)		
Middle Bank or Plas Canol (lead) (copper) (copper) (copper) (copper) (copper) (copper) (copper)	(a) Chauncey Townsend & Co.	1755 – 64
	(b) John Rotton & Co.	1765 – 9
	(c) George Pengree & Co.	1769 – 85*
	(d) The Stanley Co.	1787 – c.1804
	(e) (Owen) Williams and Grenfell	c. 1804 – c.1825/6
	(f) Pascoe Grenfell & Sons	1828 – 90
	(g) Pascoe Grenfell & Sons Ltd	1890 – 3
	(h) Williams Foster & Co. and Pascoe Grenfell & Co. Ltd	1893 – 1924
Upper Bank or Plas Uchaf (lead and spelter) (copper and lead) (copper) (copper) (copper) (yellow metal) (copper and spelter) (copper) (copper and spelter)	(a) Chauncey Townsend & John Smith	c. 1757 – *
	(b) Joseph Rotton & Co.	1777 – *
	(c) Parys Mine Co.	1782 – 1804
	(d) Williams & Grenfell	1804 – c.1825/6
	(e) Owen Williams	1828 – 33*
	(f) Muntz Patent Metal Co.	1838 – 42
	(g) Pascoe Grenfell & Sons Ltd	1850 – 90
	(h) Pascoe Grenfell & Sons Ltd	1890 – 92
	(i) Williams Foster & Co. and Pascoe Grenfell & Co. Ltd	1892 – 1924
	(j) British Copper Manufacturers Ltd	1924 – 8
	Hafod (copper, silver, gold)	Vivian & Sons
Morfa (copper) (copper) (copper) (copper)	(a) Williams Foster & Co.	1835 – 80
	(b) H.R. Merton & Co.	1880
	(c) Williams Foster & Co.	1880 – 93
	(d) Williams Foster & Co. and Pascoe Grenfell & Sons Ltd	1893 – 1924
Nant-rhyd-y-Vilias (copper and iron by re-smelting slags)	Messrs Bevan	1814 – before 1817

* unknown or approximate date

ANFON GLO AR LONGAU: PRIF BORTHLADDOEDD DE CYMRU, 1780–1913

1780 1799 1820 1840 1860 1880 1900 1913

(mil o dunelli)

(miloedd o dunelli)

Caerdydd			85	166	1.92	5.86	17.52	24.58
Casnewydd		18	175	490	0.82	1.89	3.98	6.14
Abertawe	65	245	232	493	0.52	0.94	2.38	4.50
Llanelli		1	65	212	0.38	0.20	0.28	0.33
Neath					0.20	0.29	0.28	0.33

ENW'R GWEITHFEYDD A'R METELAU A DODDWDYD

ENWAU A DYDDIADAU'R CWMNIAU SY'N GWEITHREDU'R GWEITHFEYDD

Gweithfeydd Glandŵr Langyfelach (copr, plwm, arian)	(a) Dr John Lane (b) Robert Morris (c) Morris Lockwood a'i Gwmni	1717 – 26 1726 – 27 1726 – 48
Gweithfeydd Cambrian (copr)	(a) James Griffiths a'i Gwmni (b) Richard Phillips (c) Robert Morris	1720 – c.1730 1730 – 35 1735 – 45
Y Garreg Wen (copr)	(a) Cwmni Copr y Garreg Wen a elwir hefyd yn John Hoblyn a'i Barneriaid (b) Joseph Percival a'i Gwmni (c) Cwmni Copr John Freeman (d) Williams, Foster a'i Gwmni	1737 – * 1744 – 64 1764 – 1870/1
(arian a phlwm)	a Vivian a'i Feibion	c.1871 – 74
(arian a phlwm)	(e) Vivian a'i Feibion (f) Cynhyrchwyr Copr Prydain Cyf.	1874*– 1924 1924 – 28
Middle Bank neu Blas Canol (plwm) (copr) (copr) (copr) (copr) (copr) (copr) (copr)	(a) Chauncey Townsend a'i Gwmni (b) John Rotton a'i Gwmni (c) George Pengree a'i Gwmni (d) Cwmni Stanley (e) (Owen) Williams a Grenfell (f) Pascoe Grenfell a'i Feibion (g) Pascoe Grenfell a'i Feibion Cyf. (h) Williams Foster a'i Gwmni Cyf. a Pascoe Grenfell a'i Gwmni Cyf.	1755 – 64 1765 – 9 1769 – 85* 1787 – c.1804 c.1804 – c.1825/6 1828 – 90 1890 – 3 1893 – 1924
Upper Bank neu Blas Uchaf (plwm a sinc) (copr a phlwm) (copr) (copr) (copr) (metel melyn) (copr a sinc) (copr) (copr a sinc)	(a) Chauncey Townsend a John Smith (b) Joseph Rotton a'i Gwmni (c) Cwmni Glofa Parys (d) Williams a Grenfell (e) Owen Williams (f) Cwmni Metel Muntz Patent (g) Pascoe Grenfell a'i Feibion Cyf. (h) Pascoe Grenfell a'i Feibion Cyf. (i) Williams Foster a'i Gwmni Cyf. a Pascoe Grenfell a'i Gwmni Cyf. (j) Cynhyrchwyr Copr Prydain Cyf.	c.1757 – * 1777 – * 1782 – 1804 1804 – c.1825/6 1828 – 33* 1838 – 42 1850 – 90 1890 – 92 1892 – 1924 1924 – 8
Hafod (copr, arian, aur)	Vivian a'i Feibion	1810 – 1924
Morfa (copr) (copr) (copr) (copr)	(a) Williams Foster a'i Gwmni (b) H.R. Merton a'i Gwmni (c) Williams Foster a'i Gwmni (d) Williams Foster a'i Gwmni a Pascoe Grenfell a'i Feibion Cyf.	1835 – 80 1880 1880 – 93 1893 – 1924
Nant-rhyd-y-Vilias (copr a haearn trwy ail-doddi tomenni)	Meistri Bevan	1814 – cyn 1817

* unknown or approximate date

1771



Even by 1771 numerous copperworks were in place alongside the river

1792



A view from Kilvey Hill across what is now known as the Maritime Quarter

The Hafod Copper Works was founded in Swansea by John Vivian, in 1810, mainly for the purpose of smelting Cornish Copper Ore.

His second son, John Henry Vivian, who received a technical education at Freiburg, was put in charge. His eldest son, Henry Hussey Vivian (afterwards Lord Swansea) who also studied at Freiburg, succeeded his father in the management, the third son, Sir Arthur Pendarves Vivian, being put in charge of the Branch Copper Works at Port Talbot which was started in 1838, and which, later on, became the Yellow Metal Department. Since those days new branches have been gradually added, and at the present time, the concern is laid out with modern plant for the production and manufacture of all products of Copper, Lead and Zinc, as well as heavy chemicals.

Besides Copper in Bars, Ingots and Cathodes, the Company turns out Copper Sheets, Loco Plates up to 12 feet in width, Copper Tubes, Rods, Bolts, Circles, Sulphate of Copper, Yellow Metal Condenser Plates, Sheets and Circles, Brass Tubes, and Bolts, Naval Brass, Ferro Bronze, Lead Ingots, Sheets and Pipes, Spelter, Silver and Gold, Sulphuric Acid, Zinc Chloride, Superphosphate Fertilizers, and a very good building brick made from the clinker and pots at the Spelter Works.

The Company also has a modern fitting shop foundry. The electric power station was equipped with Uniflow Engines in 1910, the first of this type to be installed in this country, and since then five further engines of this type have been installed. The Lodge Electrical Fume Deposition System is in operation at the Lead Works. Admiralty work has been a speciality of the Port Talbot Branch and besides supplying the Condenser Tubes and Plates for all the chief battleships and cruisers, the Condenser Plates of some of the largest liners, such as the Mauretania, have been supplied.

The various works of the firm are situated on the banks of the River Tawe at Hafod, White Rock, Landore and Morriston and the Brass Works at Port Talbot.

Taken from the Institute of Metals autumn meeting held in Swansea in 1912:

The capital of Vivian and Sons

1810	£50,000
1813	£84,000
1831	£142,000
1868	£800,000
1887	£1,200,000
1914	£650,000

Cafodd Gweithfeydd Copr yr Hafod ei sefydlu yn Abertawe gan John Vivian ym 1810, yn bennaf er mwyn toddi mwynau copr o Gernyw.

Cafodd ei ail fab, John Henry Vivian, addysg dechnegol yn Freiburg, ac ef oedd yn gyfrifol am redeg y gweithfeydd. Astudiodd ei fab hynaf, Henry Hussey Vivian (Arglwydd Abertawe yn ddiweddarach) yn Freiburg hefyd ac ef oedd olynnydd ei dad fel rheolwr. Roedd ei drydydd mab, Syr Arthur Pendarves Vivian yn gyfrifol am Gangen o'r Gweithfeydd Copr Cangen ym Mhort Talbot a ddechreuodd yn 1838 ac a drodd, yn ddiweddarach, yn Adran Metel Melyn. Ers y dyddiau hynny mae canghennau newydd wedi cael eu hychwanegu'n raddol, ac ar hyn o bryd, mae'r gweithfeydd yn cynnwys peiriannau modern i gynhyrchu pob math o gynnyrch copr, plwm a sinc, yn ogystal â chemegau trwm.

Ar wahân i gopr mewn barau, ingotau a chathodau, mae'r Cwmni hefyd yn cynhyrchu dalennau copr, platiau loco hyd at 12 troedfedd ar led, tiwbiau, rodau, bolltau a chylchoedd copr, copr sylffad, platiau cyddwyso, dalennau a chylchoedd metel melyn, tiwbiau a bolltau pres, pres morwrol, efydd ferro, ingotau, dalennau a philbellau plwm, sinc, arian ac aur, asid sylffwrig, sinc clorid, gwrteithiau uwchffosffad a briciau adeiladu da a wnaed o'r rhysod a'r potiau yn y gweithfeydd sinc.

Mae ffowndri siop osod fodern gan y Cwmni hefyd. Rhoddwyd peiriannau 'uniflow' yn yr orsaf bŵer drydanol yn 1910, yr un cyntaf o'i fath i gael ei osod yn y wlad, ac ers hynny mae pum peiriant tebyg o'r fath wedi cael eu gosod. Mae gwaith System Dyddodiad Tarthau Trydanol 'Lodge' yn weithredol yn y gweithfeydd plwm. Mae gweithfeydd y Morlys wedi bod yn arbenigedd cangen Port Talbot ac ar wahân i gyflenwi Tiwbiau a Phlatiau Cyddwyso i'r holl longau rhyfel a'r criwserau, mae platiau cyddwyso rhai o'r llongau mwyaf, fel y Mauretania, wedi cael eu cyflenwi.

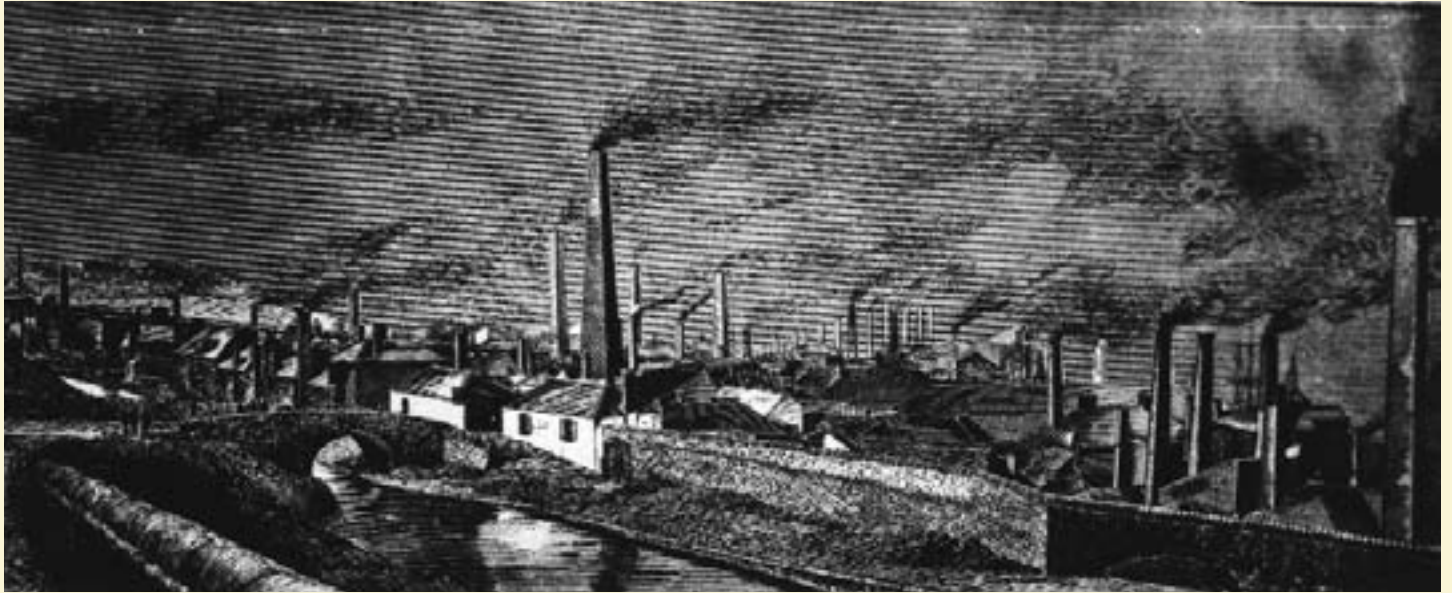
Lleolir y gweithfeydd amrywiol ar lannau'r Afon Tawe yn yr Hafod, y Garreg Wen, Glandŵr a Threforys a'r gweithfeydd pres ym Mhort Talbot.

Cymerwyd o gyfarfod hydref Sefydliad y Metalau yn Abertawe ym 1912:

Cyfalaf Vivian a'i Feibion

1810	£50,000
1813	£84,000
1831	£142,000
1868	£800,000
1887	£1,200,000
1914	£650,000

1810



Above The Hafod Copperworks in 1810



Far Left The same view in the 1970's



Left John Henry Vivian
1785-1855

The Hafod Copperworks before and after industrialisation

1811



The White Rock Copperworks - founded around 1737 and still active in 1929

NAME OF WORKS AND METALS SMELTED

NAMES AND DATES OF FIRMS OPERATING THE WORKS

Landore

(copper)	(a) Morris, Lockwood & Co.	1793	- *
	(b) The British Co.	1807/8	- c.1823
	(c) Daniell, Nevill & Co.	1823	- 7
	(d) Henry Bath & R.J. Nevill	1827	- 37
	(e) Williams Foster & Co. alias The British & Foreign Copper Co.	1840	- 76

Little Landore

(copper)	(a) Landore Arsenic & Copper Co.	1863	- *
	(b) Thomas Elford, Williams & Co. alias Landore Copper Co.	1880	- 92
	(c) Landore Copper Co. Ltd	1892	- 96

Rose

(copper)	(a) Fenton (alias Chacewater) & Co. ...	1780/1	- 97
	(b) Rose Copper Co.	1797	- c.1820
	(c) Grenfell, Williams & Fox	1823	- 9
	(d) Williams Foster & Co.	1829-50-	1878*

Birmingham or Ynys

(copper)	(a) The Birmingham Mining & Copper Co.	1793	- 1833
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Forest or Fforest

(copper)	(a) Morris, Lockwood & Co.	1746	- c.1793
(copper)	(b) Harford & Co. alias Bristol Brass Wire Co.	1793	- 1808
(crushing slags)	(c) N. Troughton	c.1820	
(copper)	(d) Osborne Benson & Co. alias Benson Logan & Co.	1833	- 41
(copper)	(e) Governor & Co. of	1890	- 3
(copper)	Copper Miners in England	1841	- 8
	(f) The Bank of England	1848	- 51
	(g) Messrs J.H. Vivian and Michael Williams	1851	- *

Landore

(silver)	L.H. Dillwyn & Co.	1853	- 5
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Llansamlet

(copper and arsenic)	Jennings & Co.	c.1866	- 7
	T.P. Richards & Co.	c.1867	- 82
	Llansamlet Smelting Co. Ltd	1882	- 1905

OTHER NON-SMELTING WORKS

Fforest (Battery) works

(copper rolling)	(a) Morris, Lockwood & Co.	1746*	- c.1793
(copper rolling)	(b) The London Co. (Morgan & Ward, Whitechapel)	1805	- 8

* unknown or approximate date



**ENW'R GWEITHFEYDD A'R
METELAU A DODDWYD**

**ENWAU A DYDDIADAU'R CWMNIAU
SY'N GWEITHREDU'R GWEITHFEYDD**

Glandŵr

(copr)	(a) Morris, Lockwood a'i Gwmni.....	1793	- *
	(b) Cwmni Prydain	1807/8	- c.1823
	(c) Daniell, Nevill a'i Gwmni	1823	- 7
	(d) Henry Bath a R.J. Nevill.....	1827	- 37
	(e) Williams Foster a'i Gwmni a elwir hefyd yn Gwmni Copr Prydain a Thramor	1840	- 76

Glandŵr Fach

(copr)	(a) Cwmni Arsenig a Chopr Glandŵr..	1863	- *
	(b) Thomas Elford, Williams a'i Gwmni a elwir hefyd yn Gwmni Copr Glandŵr	1880	- 92
	(c) Cwmni Copr Glandŵr Cyf.....	1892	- 96

Rose

(copr)	(a) Fenton (a elwir hefyd yn Chacewater) a'i Gwmni	1780/1	- 97
	(b) Cwmni Copr Rose.....	1797	- c.1820
	(c) Grenfell, Williams a Fox	1823	- 9
	(d) Williams Foster a'i Gwmni	1829-50	-1878*

Birmingham neu Ynys

(copr)	(a) Cwmni Cloddio a Chopr	1793	- 1833 Birmingham
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Forest neu Fforest

(copr)	(a) Morris, Lockwood a'i Gwmni.....	1746	- c.1793
(copr)	(b) Harford a'i Gwmni a elwir hefyd .. yn Gwmni Gwifren Pres Bryste.....	1793	- 1808
(malu tomenni sorod)	(c) N. Troughton	c.1820	
(copr)	(d) Osborne Benson a'i Gwmin a elwir.... hefyd yn Benson Logan a'i Gwmni	1833	- 41
(copr)	(e) Governor a Chwmni Cloddwyr	1890	- 3
(copr)	(f) Banc Lloegr	1841	- 8
	(g) Meistri J.H. Vivian a	1851	- *
	Michael Williams		

Glandŵr

(arian)	L.H. Dillwyn a'i Gwmni.....	1853	- 5
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Llansamlet

(copr ac arsenig)	Jennings a'i Gwmni	c.1866	- 7
	T.P. Richards a'i Gwmni.....	c.1867	- 82
	Cwmni Todd Llansamlet Cyf.	1882	- 1905

GWEITHFEYDD ERAILL

Gweithfeydd (Batri) Fforest

(rholio copr)			
(rholio copr)	(a) Morris, Lockwood a'i Gwmni	1746*	- c.1793
.....	(b) Cwmni Llundain	1805	- 8
	(Morgan a Ward, Whitechapel)		

* unknown or approximate date



1850



The Hafod Copperworks seen from the River Tawe by James Harris Snr.

1860



The Hafod Copperworks is on the left and the White Rock Copperworks is on the right

TRADE OF THE PORT OF SWANSEA, 1870-1938

(thousand tons)

Year	Imports	Exports	Total	Year	Imports	Exports	Total
1870	480	1,038	1,518	1913	1,097	6,134	7,231
1880	649	1,333	1,982	1922	1,308	5,010	6,318
1890	698	2,271	2,969	1930	1,472	5,423	6,895
1900	845	3,259	4,104	1938	1,104	4,407	5,511

NAME OF WORKS

NAMES AND DATES OF FIRMS OPERATING THE WORKS

Landore Siemens Steel Works	(a) Landore, Siemens Steel Co. Ltd.....	1869 – c.1888
Swansea Haematite Works	(b) Baldwins Ltd.	1902 – 45
Landore Steel Works	(c) Richard Thomas & Baldwins Ltd.	1945 to date
Landore Tinplate Works	Landore Tinplate Co.	1851 – 92
Cwmfelin Tinplate Works	(a) Messrs David Davies & Son	1858 – 68
	(b) Cwmfelin Tinplate Co.....	1883 – 96
	(c) The Swansea Tinplate Co.	1896 – 1905
	(d) Cwmfelin Steel & Tinplate Co. Ltd.	1905 – 18
	(e) Richard Thomas & Co. Ltd.	1918 – 45
	(f) Richard Thomas & Baldwins Ltd.	1945 – 6
Cwmbwrla Tinplate Works	(a) The Swansea Iron & Tinplate Co.	1863 – 70
	The Swansea Tinplate Co.	
	(b) E. Morewood & Co.	* – 1898
	(c) Richard Thomas & Co. Ltd.	1898 – 1941
Beaufort Tinplate Works	(a) Beaufort Tinplate Co.	1860 – 1904
	(b) Beaufort Works Ltd.....	1905 – 46
Morrison Midland Tinplate Works	(a) Messrs D. Glasbrook & Co. Morrison Tinplate Works	1872 – 99
	(b) Messrs D. Glasbrook Co. Midland Tinplate Works.....	1879 – 99
	(c) Morrison Tinplate Co. Ltd.	1899 – 1953
Upper Forest Works	(a) W. Hallam & Co. et al.....	1845 – 78
Worcester Works	(b) Llansamlet Tinplate Co.....	1869 – 78
Upper Forest & Worcester Works	(c) W. Williams & Co.....	1878 – 98
	(d) Upper Forest Works & Worcester Steel & Tinplate Works Ltd.	1898 – 1958
Duffryn Steel and Tinplate Works	(a) Daniel Edwards & Co.....	1874 – 95
	(b) W. H. Edwards & Co.	1895 – 1920
	(c) Duffryn Works Ltd.	1920 – 3
	(d) Richard Thomas & Co. Ltd.	1923 – 45
	(e) Richard Thomas & Baldwins Ltd.	1945 – 61
Aber Tinplate Works	(a) Foxhole Tinplate Co.	1880 – 1901
	(b) Aber Tinplate Works Ltd.	1901 – 18
	(c) Richard Thomas & Co. Ltd.	1918 – 46
Birchgrove, Steel & Tinplate Works	Richard Martin & Co.	1880 – 95

* unknown or approximate date

MASNACH PORTHLADD ABERTAWA, 1870-1938

(mil o dunelli)

Blwyddyn	Mewnforion	Allforion	Cyfanswm	Blwyddyn	Mewnforion	Allforion	Cyfanswm
1870	480	1,038	1,518	1913	1,097	6,134	7,231
1880	649	1,333	1,982	1922	1,308	5,010	6,318
1890	698	2,271	2,969	1930	1,472	5,423	6,895
1900	845	3,259	4,104	1938	1,104	4,407	5,511

ENW'R GWEITHFEYDD ENWAU A DYDDIADAU'R CWMNIAU SY'N GWEITHREDU'R GWEITHFEYDD

- Gweithfeydd Dur Siemens Glandŵr** (a) Glandŵr, Cwmni Dur Siemens Cyf. 1869 – c.1888
- Gweithfeydd Hematit Abertawe** (b) Baldwins Cyf. 1902 – 45
- Gweithfeydd Dur Glandŵr** (c) Richard Thomas & Baldwins Cyf. 1945 to date
- Gweithfeydd Tunplat Glandŵr** Cwmni Tunplat Glandŵr 1851 – 92
- Gweithfeydd Tunplat Cwmfelin** (a) Meistri David Davies a'i Fab 1858 – 68
 (b) Cwmni Tunplat Cwmfelin. 1883 – 96
 (c) Cwmni Tunplat Abertawe..... 1896 – 1905
 (d) Cwmni Dur a Thunplat Cwmfelin Cyf. 1905 – 18
 (e) Richard Thomas a'i Gwmni Cyf..... 1918 – 45
 (f) Richard Thomas & Baldwins Cyf. 1945 – 6
- Gweithfeydd Tunplat Cwmbwrla** (a) Cwmni Haearn a Thunplat Abertawe1. 1863 – 70
 Cwmni Tunplat Abertawe
 (b) E Morewood a'i Gwmni..... * – 1898
 (c) Richard Thomas a'i Gwmni Cyf..... 1898 – 1941
- Gweithfeydd Tunplat Beaufort** (a) Cwmni Tunplat Beaufort 1860 – 1904
 (b) Gweithfeydd Tunplat Beaufort. 1905 – 46
- Gweithfeydd Tunplat Treforys a Midland** (a) Meistri D. Glasbrook & Co. Gweithfeydd Tunplat Treforys 1872 – 99
 (b) Meistri D Glasbrook & Co. Gweithfeydd Tunplat Midland 1879 – 99
 (c) Cwmni Tunplat Treforys Cyf. 1899 – 1953
- Gweithfeydd Fforest Uchaf** (a) W. Hallam & Co. et al 1845 – 78
- Gweithfeydd Worcester** (b) Cwmni Tunplat Llansamlet..... 1869 – 78
- Gweithfeydd Fforest Uchaf a Worcester** (c) W Williams a'i Gwmni..... 1878 – 98
 (d) Gweithfeydd Dur a Thunplat Fforest Uchaf a Worcester Cyf. 1898 – 1958
- Gweithfeydd Dur a Thunplat ... Duffryn** (a) Daniel Edwards a'i Gwmni 1874 – 95
 (b) W. H. Edwards a'i Gwmni 1895 – 1920
 (c) Gweithfeydd Duffryn Cyf..... 1920 – 3
 (d) Richard Thomas a'i Gwmni Cyf..... 1923 – 45
 (e) Richard Thomas & Baldwins Cyf. 1945 – 61
- Gweithfeydd Tunplat Aber** (a) Cwmni Tunplat Foxhole 1880 – 1901
 (b) Gweithfeydd Tunplat Aber Cyf..... 1901 – 18
 (c) Richard Thomas a'i Gwmni Cyf..... 1918 – 46
- Gweithfeydd Tunplat a Dur ... Gellifedw** Richard Martin a'i Gwmni 1880 – 95

* unknown or approximate date

1879



The extent of the Hafod Copperworks and the “Trevillian” workers settlement

1880



Swansea in the heyday of its maritime-industrial success

Number and Register Tonnage of Steam and Sailing Vessels entering Swansea Harbour each year, ending December 31st, from 1768 to 1921.

Year.	STEAM VESSELS.		SAILING VESSELS.		TOTALS OF STEAMERS AND SAILING VESSELS.	
	No.	Tons Reg.	No.	Tons Reg.	No.	Tons Reg.
1768					694 ..	30,631
1790					1,667 ..	74,928
1800					2,590 ..	154,264
1815					2,295 ..	153,943
1820	No separate record kept.				2,495 ..	156,971
1825					3,298 ..	206,989
1835					3,699 ..	237,418
1857					5,325 ..	537,068
1863					5,650 ..	655,247
1864					6,061 ..	742,868
1874 ..	974 ..	248,502 ..	4,222 ..	531,262 ..	5,196 ..	777,764
1876 ..	1,089 ..	293,450 ..	4,204 ..	467,124 ..	5,113 ..	760,574
1877 ..	1,274 ..	309,286 ..	3,703 ..	448,218 ..	4,977 ..	757,504
1878 ..	1,285 ..	305,780 ..	3,554 ..	415,216 ..	4,839 ..	720,996
1879 ..	1,246 ..	337,235 ..	3,649 ..	437,286 ..	4,895 ..	774,521
1880 ..	1,547 ..	424,175 ..	3,819 ..	483,248 ..	5,366 ..	907,423
1881 ..	1,573 ..	423,987 ..	3,667 ..	448,597 ..	5,240 ..	872,584
1882 ..	1,858 ..	604,371 ..	3,349 ..	437,622 ..	5,202 ..	1,041,993
1883 ..	2,165 ..	741,690 ..	3,030 ..	389,174 ..	5,195 ..	1,130,864
1884 ..	2,248 ..	836,405 ..	2,706 ..	343,006 ..	4,954 ..	1,179,411
1885 ..	2,344 ..	845,684 ..	2,634 ..	340,083 ..	4,978 ..	1,185,767
1886 ..	2,382 ..	872,793 ..	2,414 ..	303,521 ..	4,896 ..	1,176,314
1887 ..	2,360 ..	918,540 ..	2,419 ..	309,280 ..	4,779 ..	1,227,820
1888 ..	2,347 ..	952,040 ..	2,256 ..	306,255 ..	4,603 ..	1,258,295
1889 ..	2,399 ..	1,012,231 ..	2,342 ..	296,019 ..	4,741 ..	1,308,250
1890 ..	2,693 ..	1,204,928 ..	2,085 ..	294,601 ..	4,778 ..	1,499,529
1891 ..	2,632 ..	1,096,035 ..	1,824 ..	264,371 ..	4,456 ..	1,360,406
1892 ..	2,718 ..	1,223,015 ..	1,884 ..	262,028 ..	4,602 ..	1,485,043
1893 ..	2,770 ..	1,241,414 ..	1,876 ..	241,449 ..	4,646 ..	1,482,863
1894 ..	2,805 ..	1,357,429 ..	1,726 ..	253,856 ..	4,531 ..	1,611,285
1895 ..	2,840 ..	1,311,114 ..	1,642 ..	285,084 ..	4,482 ..	1,596,198
1896 ..	2,878 ..	1,388,188 ..	1,603 ..	244,603 ..	4,481 ..	1,632,791
1897 ..	3,032 ..	1,564,149 ..	1,546 ..	226,321 ..	4,578 ..	1,790,470
1898 ..	3,208 ..	1,636,436 ..	1,725 ..	236,416 ..	4,933 ..	1,872,852
1899 ..	3,437 ..	1,793,953 ..	1,655 ..	225,106 ..	5,092 ..	2,019,059
1900 ..	3,468 ..	1,860,962 ..	1,574 ..	187,040 ..	5,042 ..	2,048,002
1901 ..	3,413 ..	1,757,845 ..	1,556 ..	192,403 ..	4,969 ..	1,950,248
1902 ..	3,361 ..	1,811,258 ..	1,463 ..	185,309 ..	4,824 ..	1,996,567
1903 ..	3,395 ..	1,866,606 ..	1,335 ..	174,575 ..	4,730 ..	2,041,181
1904 ..	3,571 ..	1,987,544 ..	1,353 ..	191,647 ..	4,924 ..	2,179,191
1905 ..	3,711 ..	2,030,882 ..	1,300 ..	164,581 ..	5,011 ..	2,195,463
1906 ..	4,128 ..	2,378,506 ..	1,256 ..	154,004 ..	5,384 ..	2,532,510
1907 ..	4,355 ..	2,569,784 ..	1,192 ..	145,133 ..	5,547 ..	2,714,917
1908 ..	4,472 ..	2,640,764 ..	1,227 ..	127,104 ..	5,699 ..	2,767,868
1909 ..	4,499 ..	2,639,281 ..	1,200 ..	124,238 ..	5,699 ..	2,763,519
1910 ..	4,439 ..	2,631,264 ..	1,203 ..	145,545 ..	5,642 ..	2,776,809
1911 ..	4,520 ..	2,818,885 ..	1,138 ..	127,015 ..	5,658 ..	2,945,900
1912 ..	4,476 ..	2,849,248 ..	1,027 ..	139,454 ..	5,503 ..	2,988,702
1913 ..	4,777 ..	3,229,214 ..	1,055 ..	115,563 ..	5,832 ..	3,344,777
1914 ..	4,218 ..	2,877,619 ..	888 ..	128,764 ..	5,106 ..	3,006,383
1915 ..	4,411 ..	2,741,795 ..	1,135 ..	124,672 ..	5,596 ..	2,866,467
1916 ..	3,860 ..	2,315,208 ..	1,252 ..	129,744 ..	5,112 ..	2,444,952
1917 ..	3,187 ..	1,874,007 ..	897 ..	89,645 ..	4,084 ..	1,963,652
1918 ..	3,180 ..	1,774,669 ..	1,724 ..	140,985 ..	4,904 ..	1,915,654
1919 ..	4,610 ..	2,133,790 ..	1,223 ..	119,960 ..	5,833 ..	2,253,750
1920 ..	3,048 ..	2,102,946 ..	1,069 ..	124,412 ..	4,117 ..	2,227,358
1921 ..	2,682 ..	1,937,812 ..	344 ..	44,220 ..	3,026 ..	1,982,032

The year 1921 witnessed the total dislocation of all shipping particularly in that of coal in consequence of the general strike of miners throughout the country.



The Plate and Sheet Rolling Mills

1921



Hafod Copperworks interior showing a steam hammer used for hammering copper plates

1921



Hafod Copperworks view through works interior

NAME OF WORKS

NAMES AND DATES OF FIRMS OPERATING THE WORKS

Upper Bank or Plas Uchaf

(spelter).....	Pre-1924
(spelter).....	(a) British Copper Manufacturers Ltd. 1924 – 8
	(b) I.C.I. Ltd. 1928 – 30

Morrison Spelter Works on the site of the Birmingham Copper Works. In 1868 the works were extended to include the site of the former Forest Copper Works.

Messrs Vivian & Co. c.1841 – 1924

Swansea Vale

(spelter).....	(a) Swansea Vale Co. Ltd..... 1876 – 1924
	(b) National Smelting Co. Ltd. 1924 – 64
	(c) Imperial Smelting Corporation (N.S.C.) Ltd. 1964 to date

Villiers

(spelter).....	(a) Villiers Spelter Co. Ltd. 1873 – 1904
	(b) British Extraction Co. Ltd..... 1904 – c.1929

Glamorgan Works

(spelter).....	(a) Swansea Zinc Ore Co. *	1887
	(b) Anglo-French Mineral Co. Ltd	1887 – 96
	(c) Swansea Smelting Co. Ltd.	1897 – 1905
(treatment of zinc sludges)....	(d) Glamorgan Spelter Co. Ltd.....	1905 – 7

Cambrian

(spelter).....	(a) Evan John.....	1836
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Dillwyn

(spelter).....	(b) Dillwyn & Co. Ltd.	c.1858-1902
	(c) Dillwyn & Co. Ltd.	1902 – 26

THIS TABLE SHOWS THE INVESTED CAPITAL OF THE VIVIAN'S AND THE NATURE OF ITS DIVERSIFICATION

	1864	1869	1874	1879
	£	£	£	£
Copper			146,625	208,375
Copper Manufactured	677,800	310,000	160,750	91,500
Yellow metal	–	135,000	135,750	160,375
Silver	45,000	83,000	96,750	72,750
Spelter	20,000	37,500	80,000	92,250
Coal mines	35,000	102,457	144,081	164,500
Alkali Works	–	41,500	44,000	52,375
Gold	–	24,000	16,000	14,875
Hafod Foundry	–	12,500	9,375	6,250
Phosphate Works	–	40,000	73,750	78,125
Sulphuric acid	–	34,000	37,250	55,375
Zinc sheathing	–	8,000	1,450	750
Whiterock silver	–	–	216,500	79,250
Nails	–	–	14,500	18,750
Sulphate of copper	–	–	–	12,500
TOTALS	777,800	877,957	1,176,781	1,109,750

* unknown or approximate date

ENW'R GWEITHFEYDD

ENWAU A DYDDIADAU'R CWMNIAU SY'N GWEITHREDU'R GWEITHFEYDD

Upper Bank neu Blas Uchaf

(sinc).....
(sinc).....

Cyn-1924

(a) Cynhyrchwyr Copr Prydain Cyf. 1924 – 8
(b) I.C.I. Cyf. 1928 – 30

Gweithfeydd Sinc Treforys ar safle
Gweithfeydd Copr Birmingham. Yn
1868 estynnwyd y Gweithfeydd i
gynnwys safle cyn Weithfeydd Copr
Fforest.

Messrs Vivian a'i Gwmni.....c. 1841 – 1924

Bro Tawe

(sinc).....

(a) Cwmni Bro Tawe Cyf. 1876 – 1924
(b) Cwmni Toddi Cenedlaethol Cyf 1924 – 64
(c) Corfforaeth Toddi Imperial
(N.S.C.) Cyf. 1964 to date

Villiers

(sinc).....

(a) Cwmni Sinc Villiers Cyf. 1873 – 1904
(b) Cwmni Cloddio Prydain Cyf. 1904 – c.1929

Gweithfeydd Morgannwg

(sinc).....

(a) Cwmni Mwyn Sinc Abertawe * – 1887
(b) Cwmni Mwynau Eingl-Ffrengig Cyf..... 1887 – 96
(c) Cwmni Toddi Abertawe Cyf..... 1897 – 1905
(d) Cwmni Sinc Morgannwg Cyf. 1905 – 7

(treatment of zinc sludges).....

Cambrian

(sinc).....

(a) Evan John..... 1836

Dillwyn

(sinc).....

(b) Dillwyn a'i Gwmni Cyf. c.1858–1902
(c) Dillwyn a'i Gwmni Cyf. 1902 – 26

MAE'R TABL HWN YN DANGOS Y CYFALAF A FUDDSODDODD TEULU VIVIAN AC AMRYWIAETH EI FEYSYDD

	1864	1869	1874	1879
	£	£	£	£
Copr			146,625	208,375
Copr a gynhyrchwyd	677,800	310,000	160,750	91,500
Metel melyn	–	135,000	135,750	160,375
Arian	45,000	83,000	96,750	72,750
Sinc	20,000	37,500	80,000	92,250
Pyllau glo	35,000	102,457	144,081	164,500
Gweithfeydd Alcali	–	41,500	44,000	52,375
Aur	–	24,000	16,000	14,875
Ffowndri Hafod	–	12,500	9,375	6,250
Gweithfeydd Ffosffad	–	40,000	73,750	78,125
Asid Sylffwrig	–	34,000	37,250	55,375
Gorchuddion sinc	–	8,000	1,450	750
Arian y Garreg Wen	–	–	216,500	79,250
Hoelion	–	–	14,500	18,750
Sylffad copr	–	–	–	12,500
CYFANSWM	777,800	877,957	1,176,781	1,109,750

* unknown or approximate date

1921



The Hafod-Morfa Copperworks at some point in the 1920's

SITE OF HAFOD COPPERWORKS

The original line of the Swansea Canal through the Hafod Copperworks site is represented here in blue

Swansea Museum Collection Centre
GRADE II LISTED BUILDING

Chimney Base not listed but worth conserving as surviving element of early 19th century Copperworks

The Canteen/Power House Building
GRADE II LISTED BUILDING

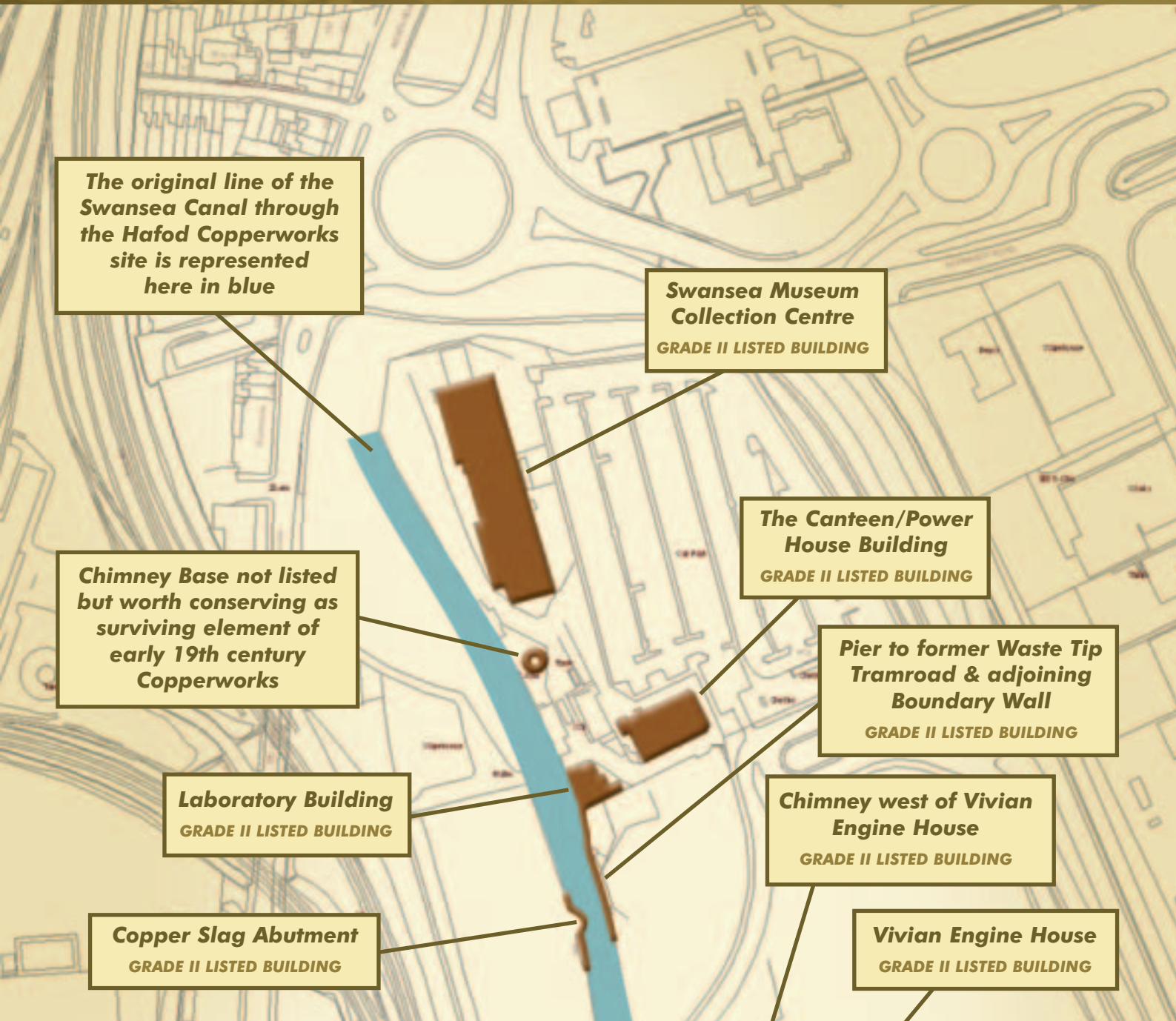
Pier to former Waste Tip Tramroad & adjoining Boundary Wall
GRADE II LISTED BUILDING

Laboratory Building
GRADE II LISTED BUILDING

Chimney west of Vivian Engine House
GRADE II LISTED BUILDING

Copper Slag Abutment
GRADE II LISTED BUILDING

Vivian Engine House
GRADE II LISTED BUILDING



Hafod Lime Kiln
GRADE II LISTED BUILDING

**Musgrove
Engine House**
GRADE II LISTED
BUILDING
ANCIENT
MONUMENT

**Boundary Wall of Hafod
Copperworks**
GRADE II LISTED BUILDING

**Hafod Copperworks
River Quay**
GRADE II LISTED BUILDING

**The original line of the
Swansea Canal through
the Hafod Copperworks
site is represented
here in blue**

**Trevivian/Vivianstown
early-mid Victorian
Worker Housing**
CONSERVATION AREA

**Former Vivian
Locomotive Shed**
GRADE II LISTED BUILDING

1940



The Hafod-Morfa works at some point in the inter-war period

MILESTONES

- 1820s-1850s** Temporary slump at the start of every decade.
- 1840s** Welshmen took smelting knowhow to the USA.
- 1850s** Smelting works opened in Australia.
- 1860s** Chile becomes leading ore exporter.
- 1870s** Welsh expertise taken to New South Wales.
- 1881-1882** French inventors make copper refining by Bessemer Converter possible – quickly taken full advantage of in United States. Vivians make use of process from 1885.
- 1880s** USA becomes leading ore exporter.
- 1880-1890** Peak of copper ore imports to Swansea, c. 70,000 tons p.a.
- 1900** Peak of semi refined copper imports to Swansea – c. 57,000 tons p.a.
- 1921** Refining of copper ended in Hafod and Morfa.
- 1924** Hafod and Morfa combined to become British Copper Manufacturers – works reorganised. Also owned White Rock lead works and Morryston spelter.
- 1926** B.C.M. taken over by I.C.I.
- 1929** Manufactured copper sheets, sheathing plates, rods, rivets, pans, yellow metal, spelter, lead piping and sheets, sulphuric acid, zinc chloride and superphosphates.
- Early 1930s** Made only copper, brass and alloy sheets and plates, forged copper bottoms, pans and locomotive fireboxes, lead pipes and sheet and zinc chloride.
- 1939-1945** 2,600 employed on Landore site covering about 130 acres.
- 1945** Disasterous collapse of Indian market.
- 1957** Landore site (Hafod and Morfa) taken over by Yorkshire Imperial Metals, a joint firm of I.C.I. and Yorkshire Metals.
- 1959** Only 359 employees.
- 1967** Closure of copper refinery, locomotive plate forge and zinc chloride plant – site reduced to 27 acres, with the rest sold to the City Council for tip clearance, an industrial estate and playing fields. Most manufacturing was done on the Hafod site, with only alloy casting and machining at Morfa.
- 1971** Only 170 employees, making only hot rolled plates and forgings in copper and copper alloys, 40% were exported. All high quality products to specifications to 0.01 inches.
- August 1980** Final closure of what had become Yorkshire Imperial Metals ended copper working at Swansea.

CERRIG MILLTIR

- 1820au-1850au** Gostyngiadau dros dro ar ddechrau pob degawd
- 1840au** Cymry yn mynd â gwybodaeth yngl ŷn â thoddi i UDA
- 1850au** Gweithfeydd toddi yn agor yn Awstralia
- 1860au** Chile yn troi'n brif gynhyrchydd mwynau
- 1870au** Arbenigedd y Cymry yn mynd i New South Wales
- 1881-1882** Dyfeiswyr o Ffrainc yn gwneud puro copr trwy Drawsnewidydd Bessemer yn bosib – yr Unol Daleithiau yn manteisio ar hyn yn gyflym. Vivians yn defnyddio'r broses o 1855.
- 1880au** U.D.A. yn dod yn brif gynhyrchydd mwynau
- 1880-1890** Uchafbwynt mewnforion mwyn copr i Abertawe, tua 70,000 tonnall y flwyddyn
- 1900** Uchafbwynt mewnforion copr wedi'u puro'n rhannol i Abertawe – tua 57,000 tonnall y flwyddyn
- 1921** Puro copr yn dod i ben yn Hafod a Morfa.
- 1924** Hafod a Morfa yn cyfuno i ffurfio Cynhyrchwyr Copr Prydain – ad-drefnwyd y gweithfeydd. Hefyd yn berchen ar weithfeydd plwm y Garreg Wen a sinc Treforys.
- 1926** I.C.I. yn cymryd drosodd B.C.M.
- 1929** Dalennau copr a gynhyrchwyd, platiau gorchuddio, rodiau, gwth-hoelion, paniau, metel melyn, sinc, pibellau a dalennau plwm, asid sylffwrig, clorid sinc ac uwchffosfadau.
- 1930au cynnar** Gwneud dalennau a phlatiau copr, pres ac aloi yn unig, gwaelodion copr gyredig, paniau a blychau tân locomotif, pibellau plwm a chlorid dalen a sinc
- 1939-1945** 2,600 yn cael eu cyflogi ar safle Glandŵr gan gwmpasu 130 erw
- 1945** Cwymp trychinebus marchnad India
- 1957** Safle Glandŵr (Hafod a Morfa) yn cael ei gymryd drosodd gan Yorkshire Imperial Metals, cwmni ar y cyd I.C.I. a Yorkshire Metals.
- 1959** Dim ond 359 o weithwyr.
- 1967** Cau'r burfa gopr, gefail plât locomotif a ffatri sinc clorid – lleihau'r safle i 27 erw a'r gweddill yn cael ei werthu i Gyngor y Ddinas ar gyfer clirio'r tomenni, ystad ddiwydiannol a meysydd chwarae. Gwnaed y rhan fwyaf o'r gwaith cynhyrchu ar safle yr Hafod, gyda dim ond castio aloi a pheiriannau yn y Morfa.
- 1971** Dim ond 170 o weithwyr, yn gwneud platiau poeth wedi'u rholio a gofaniadau mewn copr ac aloion copr. Cafodd 40% eu hallforio. Cynnyrch o ansawdd uchel i fanylebau 0.01 modfedd.
- Awst 1980** Gwaith copr yn dod i ben yn Abertawe gyda chau Yorkshire Imperial Metals.

1963



Aberdyberthi Street dominated by the vast Hafod Copperworks waste tip

THE HAFOD COPPERWORKS 1810-1924

The Hafod Copperworks was located between the Swansea Canal on one side and a bend in the River Tawe on the other. It was laid out by John Vivian with expansion in mind from the very outset. In its day it was one of the largest and most up to date industrial enterprises in Europe and by the 1840s Vivian & Sons were the largest exporters of finished copper in the UK.

Over the course of the 19th century the Vivians' also built an entire settlement for their employees called "Trevivian" or "Vivianstown" and which we now call the "Hafod". A works school built in 1846; a church and numerous terraces of housing can all still be seen. The survival of "Trevivian" is remarkable and constitutes a complete copperworkers' township of the Victorian period.

By 1823 the Swansea Valley's various copperworks (together with coal and shipping interests) supported 10,000 out of an entire population of approximately 15,000. Swansea was indeed "Copperopolis". By 1886 Vivian & Sons employed three thousand people, one thousand of them at the Hafod. The Hafod Works produced copper in bars, ingots, sheets, tube, rod, bolts, circles, sulphate of copper, yellow metal and condenser plates. It also produced naval brass, ferro bronze, lead ingots, spelter, silver, gold, sulphuric acid, zinc chloride and superphosphate fertilisers. To the south of the Hafod Works and on the same side of the river, existed a string of industrial enterprises all owned by the Vivian family which included the Hafod Phosphate Works, Hafod Foundry, Hafod Forge and the Hafod Isaf (Isha) Nickel & Cobalt Works. An excellent coloured Ordnance Survey map dated 1879 shows the Hafod Works and immediate surroundings in some detail and is available from the Archive Service at County Hall. Other works belonging to the Vivians' could be

found at Landore, Morriston and White Rock. The latter was founded in 1737 and smelted copper under various owners until 1871 when the Vivian's took it over to smelt silver and lead until 1924.

The Morfa Copperworks was started in 1834 immediately next door to the Hafod Works with only a high stone wall between the two works to divide them. Legend has it that workers at Morfa were instructed not to talk to the Hafod workers for fear of giving away trade secrets. Prior to this in 1828 work had begun on building the steam-powered rolling mill that would eventually become the Swansea Museum Collections Centre we see today. Morfa was operated by Williams Foster & Co. from 1835-80. Between 1880-93 it was operated by Williams Foster & Co. and between 1893-1924 by Williams Foster & Co. Ltd and Pascoe Grenfell & Co. Ltd. After 1894 family interest in the Hafod Copperworks dwindled and in 1924 the firm was absorbed into the adjacent Morfa complex. The latter was the largest non-ferrous metal smelter in the world by the mid-19th century. British Copper Manufacturers owned the combined works until 1928, when they were taken over by ICI, although the refining of copper had ended around 1924. The site was taken over by Yorkshire Imperial Metals, an amalgamation of I.C.I and Yorkshire Metals in 1957, the two works worked as one until closure in August 1980.

The value of preserving historic features is equally important in social terms. Highlighting the historic environment of an area can encourage an appreciation and respect for the modern environment.

The differences and similarities of waterfront activities over time can be highlighted and continuities and changes of use understood.

In maintaining a connection with the past, a deep-rooted sense of place can be engendered, which will enhance the experiences of those working in, living in and visiting those waterfront locations.

Mae gwerth cadw nodweddion hanesyddol yr un mor bwysig o safbwynt cymdeithasol. Gall amlygu amgylchedd hanesyddol ardal hybu gwerthfawrogi a pharchu'r amgylchedd cyfoes. Mae modd amlygu nodweddion tebyg ac annhebyg gweithgareddau ar y glannau dros amser a deall newidiadau a'r nodweddion sy'n parhau. Wrth gadw cysylltiad â'r gorffennol, mae modd meithrin ymdeimlad dwfn o le a fydd yn gwella profiadau pawb sy'n gweithio, yn byw ac yn ymweld â'r lleoliadau hynny ar y glannau.

GWEITHFEYDD COPR YR HAFOD 1810 - 1924

Safai Gweithfeydd Copr yr Hafod rhwng Camlas Abertawe ar y naill law a thro yn Afon Tawe ar y llaw arall. Fe'i cynlluniwyd gan John Vivian gan adael lle i ehangu o'r cychwyn cyntaf. Yn ei ddydd roedd yn un o'r mentrau diwydiannol mwyaf ei faint a mwyaf cyfoes yn Ewrop ac erbyn yr 1840au, Vivian a'i Feibion oedd allforwyr copr gorffenedig mwyaf y DU.

Yn ystod y 19eg ganrif, adeiladodd y teulu Vivian hefyd anheddiad cyfan ar gyfer eu gweithwyr o'r enw "Trevivian" neu "Vivianstown", yr ydym bellach yn ei alw "Yr Hafod". Adeiladwyd ysgol i'r gwaith ym 1846; gellir gweld eglwys a therasau niferus o dai o hyd. Mae goroesiad "Trevivian" yn rhyfeddol am ei bod yn dref gweithwyr copr gyfan o'r cyfnod Fictoraidd.

Erbyn 1823, roedd gweithfeydd copr amrywiol Cwm Tawe (ynghyd â busnesau glo a llongau) yn cynnal 10,000 o'r boblogaeth gyfan o ryw 15,000. Roedd Abertawe yn wir yn "Copperopolis". Erbyn 1886 roedd Vivian a'i Feibion yn cyflogi tair mil o bobl, mil ohonynt yn yr Hafod. Cynhyrchai Gwaith yr Hafod gopr mewn bariau, ingotiau, dalenni, tiwbiau, rodiau, bolltiau, cylchoedd, sylffad copr, metel melyn a phlatiau cyddwyso. Cynhyrchai hefyd bres i'r llynges, fferobres, ingotiau plwm, sbelter, arian, aur, asid sylffwrig, clorid sinc a gwrtaith uwchffosfad. I'r de i Waith yr Hafod ac ar yr un ochr i'r afon roedd cyfres o fentrau diwydiannol a oedd i gyd dan berchnogaeth y teulu Vivian, gan gynnwys Gwaith Ffosfad yr Hafod, Ffowndri'r Hafod, Gefail yr Hafod a Gwaith Nicel a Chobalt yr Hafod Isaf (Isha). Mae map Arolwg Ordnans lliw ardderchog o 1879 yn dangos Gweithfeydd yr Hafod a'r cylch mewn cryn fanylder ac mae ar gael gan y Gwasanaeth Archifau yn Neuadd y Sir. Gellid dod o hyd i weithfeydd eraill dan berchnogaeth y

teulu Vivian yng Nglandŵr, Treforys a'r Graig Wen. Sefydlwyd yr olaf o'r rhain ym 1737 ac fe fu'n smeltio copr dan amrywiaeth o berchnogion tan 1871 pan gafodd ei gymryd drosodd gan y teulu Vivian i smeltio arian a phlwm tan 1924.

Sefydlwyd Gwaith Copr y Morfa ym 1834 yn union drws nesaf i Weithfeydd yr Hafod, gyda wal gerrig uchel yn unig rhwng y ddau waith i'w gwahanu. Dywedir bod gweithwyr y Morfa wedi cael gorchymyn i beidio â siarad â gweithwyr yr Hafod rhag ofn iddynt ddatgelu cyfrinachau masnachol. Cyn hyn ym 1828 roedd gwaith wedi dechrau ar adeiladu'r felin rollo ager a fyddai, yn y pen draw, yn dod yn Ganolfan Casgliadau Amgueddfa Abertawe a welwn heddiw. Gweithredwyd Morfa gan Williams Foster & Co o 1835 i 1880. Rhwng 1880 a 1893 fe'i gweithredwyd gan Williams Foster & Co a rhwng 1893 a 1924 gan Williams Foster & Co. Cyf a Pascoe Grenfell & Co. Cyf. Ar ôl 1894 lleihaodd diddordeb y teulu yng Ngweithfeydd Copr yr Hafod ac ym 1924 daeth y cwmni'n rhan o waith cyfagos y Morfa. Hwnnw oedd smeltiwr metel anfferrus mwyaf y byd erbyn canol y 19eg ganrif. British Copper Manufacturers oedd perchennog y gwaith cyfunedig tan 1928 pan gymerodd ICI drosodd, ond roedd y gwaith puro copr wedi dod i ben tua 1924. Cymerwyd y safle drosodd gan Yorkshire Imperial Metals, cyfuniad o I.C.I. a Yorkshire Metals ym 1957, a gweithiodd y ddau waith fel un tan iddynt gau ym mis Awst 1980.

2007



The Swansea Museum Collection Centre Building

◀ THE MUSEUM STORES

This impressive building can be found at the northern end of the Hafod and Morfa Copperworks site. This large structure was a former rolling mill for the Morfa Copperworks and was built around 1828 by Williams Foster and Co. of Cornwall. When in industrial use it was a rolling plant for converting copper ingots into bars and plate. Smelting is thought to have started in 1835. This is arguably the most important building on the whole site and is constructed mostly from rubble sandstone with brick infilling. The roof is a modern addition. The east elevation has stone walls at either end which are the remains of the original building of 1828.

THE CANTEEN BUILDING ▶

This structure was built in the late 19th century and is sited immediately in front of the Laboratory Building. Despite its name it was originally the Power House to the Morfa Copperworks before becoming a canteen. Made from stone it has the remains of an imposing clock tower that was louvered with clock faces and a weathervane. It had an attractive interior comprised of cast-iron structural members with reeded cast-iron columns and capitals. This reeding is a convex moulding designed to make the column appear as if it is comprised of multiple branch-like elements. In its last incarnation as a canteen it was essentially one large open-plan space for eating in. It once possessed a wide slate roof but this was lost to fire a few years ago. This is a Grade II Listed Building.

◀ STORFEYDD YR AMGUEDDFA

Gallwch ddod o hyd i'r adeilad trawiadol hwn ym mhen gogleddol safle Gweithfeydd Copr yr Hafod a'r Morfa. Roedd yr adeiledd mawr hwn yn felin rolïo gynt i Weithfeydd Copr y Morfa. Sefydlwyd y Gweithfeydd Copr ym 1828 gan Williams Foster & Co. o Gernyw. Yn ystod ei fywyd diwydiannol, roedd yn waith rholïo i droi ingotiau copr yn farrau a phlatiau. Gellid dadlau mai hwn yw'r adeilad pwysicaf ar y safle cyfan, ac fe'i adeiladwyd yn bennaf o dywodfaen rwbel a mewnlennwadau bric. Mae'r to yn ychwanegiad modern. Mae gan y gweddlun dwyreiniol walïau o waith maen ym mhob pen sy'n weddillion yr adeilad gwreiddiol o 1828.

ADEILAD Y FFREUTUR ▶

Codwyd yr adeiledd hwn yn rhan ddiweddar y 19eg ganrif ac fe'i lleolir yn union o flaen Adeilad y Labordy. Er gwaethaf ei enw, dyna oedd Pwerdy Gweithfeydd Copr y Morfa'n wreiddiol cyn iddo droi'n ffreutur. Wedi'i adeiladu o waith maen, mae adfeilion tŵr cloc amlwg arno, oedd â lwfrau, wynebau cloc a cheiliog gwynt. Roedd ganddo rannau mewnlol deniadol a oedd yn cynnwys darnau adeileddol haearn bwrw gyda cholofnau a chapanau gwrymiog. Mae'r cyrswaith hwn yn fowldin amgrwm sydd â'r nod o beri i'r golofn edrych fel ei bod yn cynnwys nifer o elfennau canghennog. Yn ei ffurf ddiwethaf, sef ffreutur, roedd yn un man bwyta cynllun agored mawr, i bob pwrpas. Ar un adeg roedd ganddo do llechi eang, ond collwyd hwn mewn tân rai blynyddoedd yn ôl. Mae hwn yn Adeilad Rhestredig Gradd II.

2007



The former Morfa Copperworks Canteen / Power House building

2007



The Laboratory Building

PIER TO FORMER WASTE TIP ►

This feature can be found on the east side of the former Swansea Canal to the copper slag abutment. It is a tall column or pier made from rubble sandstone with copper slag blocks to the quoins (corners). The purpose of this pier was to help support a works tram road high above the Swansea Canal. This tram road conveyed slag away from the copperworks to a tip to the west. A structural feature, it was built into a boundary wall of the Swansea Canal at some point in the middle of the 19th century. The boundary wall it is part of stretches for sixty metres and is also constructed of rubble stone (that's stone used in a wholly or partly rough state) and copper slag. It too is a Grade II Listed feature. This wall extended as far north as the boundary between the Hafod and Morfa works at the Morfa Laboratory Building. Between this point and the pier can be seen a wide arch picked out in yellow brick, this was the entrance to one of the canal docks.

◀ THE LABORATORY BUILDING

This Grade II Listed Building was originally part of the Morfa Copperworks and access to it was gained via a bridge over the Swansea Canal. It was built in the middle of the 19th century and was probably used as an 'Assay Office' in which to test the quality of copper ore coming into the works. Of the surviving buildings on the site this is architecturally the most ornate with many classical features.

PIER YR HEN DOMEN SBWRIEL ►

Gallwch ddod o hyd i'r nodwedd hon ar ochr ddwyreiniol hen Gamlas Abertawe gerllaw'r ategwaith sorod copr. Mae'n golofn neu bier tal a luniwyd o dywodfaen rwbel gyda blociau sorod copr ar y congilfeini (corneli). Diben y pier hwn oedd helpu i gynnal ffordd dramiau'r gwaith yn uchel uwchben Camlas Abertawe. Cludodd y ffordd dramiau hon slag i ffwrdd o'r gweithfeydd copr i domen i'r gorllewin. Fel nodwedd adeileddol, fe'i hymgorfforwyd yn wal derfyn camlas Abertawe rywbryd yng nghanol y 19eg ganrif. Mae'r wal derfyn y mae'n rhan ohoni'n ymestyn am chwe deg metr ac mae wedi'i hadeiladu o rwbel cerrig (sef cerrig a ddefnyddir mewn cyflwr cyfan gwbl neu rannol arw) a sorod copr. Mae hon hefyd yn nodwedd restredig Gradd II. Estynnai'r wal hon mor bell i'r gogledd â'r ffin rhwng gweithfeydd yr Hafod a gweithfeydd y Morfa wrth adeilad Labordy'r Morfa. Rhwng y pwynt hwn a'r pier, gwelir bwa llydan mewn brics melyn, sy'n fynedfa i un o ddociau'r gamlas.

◀ ADEILAD Y LABORDY

Yn wreiddiol roedd yr Adeilad Rhestredig Gradd II hwn yn rhan o Weithfeydd Copr y Morfa, a chaed mynediad iddo ar hyd pont dros Gamlas Abertawe. Fe'i adeiladwyd yng nghanol y 19eg ganrif ac mae'n debygol iddo gael ei ddefnyddio fel 'Swyddfa Brofi' i brofi ansawdd y mwyn copr a oedd yn dod i mewn i'r gwaith. O'r adeiladau sy'n goroesi ar y safle, dyma'r un mwyaf addurnedig o safbwynt pensaernïol am ei fod yn cynnwys llawer o nodweddion clasurol.



The Pier to the former waste tip tramroad is built into a boundary wall

2007



The Copper Slag Abutment

◀ COPPER SLAG ABUTMENT

This can be found near the centre of the former Hafod Copperworks site on the west bank of the former Swansea Canal. It is a high wall made of copper slag and once supported a works tram road for carrying slag waste over the Swansea Canal. It also functioned as a retaining wall holding back a slag tip to the west. This wall dates from the mid-19th century and was constructed from cast copper slag blocks made as a by-product of the copper-making process. The wall was made a Grade II Listed structure precisely because it was...“probably the most impressive surviving example of copper slag construction in Wales”.

THE LIME KILN ▶

Standing to one side of the road exiting the Park & Ride facility and on what was the west bank of the Swansea Canal is the last of 54 limekilns that once stood alongside that canal. It dates from the mid-19th century and is a tapering stone rubble structure 5.8 metres square. It used to have a charging ramp made from copper slag to its west elevation and part of its north elevation. This enabled lime to be pushed up it in wagons and emptied in from the top of the kiln. Unlike many other kilns at this time the lime produced from this kiln was used for building and not agricultural purposes. The limestone used in this kiln came to the Hafod Copperworks via the Oystermouth Railway and Swansea Canal from Mumbles. The anthracite also used came by canal from the upper Swansea Valley. It is a Grade II listed Building.

◀ ATEGWAITH SOROD COPR

Gallwch ddod o hyd i hwn ger canol safle hen Weithfeydd Copr yr Hafod ar lan orllewinol hen Gamlas Abertawe. Mae'n wal uchel a adeiladwyd o sorod copr a oedd ar un adeg yn cynnal ffordd tramiau'r gwaith i gludo gwastraff sorod dros Gamlas Abertawe. Roedd hefyd yn wal gynnal i ddal tomen sorod yn ôl i'r gorllewin . Mae'r wal hon yn dyddio o ganol y 19eg ganrif ac fe'i hadeiladwyd o flociau sorod copr bwrw a oedd yn is-gynnyrch y broses cynhyrchu copr. Gwnaed y wal yn adeiledd rhestredig Gradd II oherwydd... "ei fod yn debygol mai dyma'r enghraifft fwyaf trawiadol o adeiladwaith sorod copr sy'n goroesi yng Nghymru".

YR ODYN GALCH ▶

Yn sefyll ar un ochr o'r ffordd sy'n dod allan o'r cyfleuster Parcio a Theithio ac ar yr hyn a oedd yn lan orllewinol Camlas Abertawe mae'r odyn galch olaf o'r 54 a safai wrth ochr y gamlas honno ar un adeg. Mae'n dyddio o ganol y 19eg ganrif ac mae'n adeiledd cerrig rwbel pigfain gydag arwynebedd o 5.8 metr sgwâr. Roedd ganddi ar un adeg ramp llenwi a adeiladwyd o sorod copr ar ei hochr orllewinol a rhan o'i hochr ogleddol. Roedd hyn yn golygu bod modd i galch gael ei wthio i fyny ar hyd-ddi mewn wagenni a'i arllwys i mewn o ben yr odyn. Roedd yr odyn hon yn wahanol i lawer o odynnau eraill y cyfnod oherwydd i'r calch a gynhyrchid ynddi gael ei ddefnyddio at ddibenion adeiladu, nid rhai amaethyddol. Deuai'r garreg galch a ddefnyddid yn yr odyn hon i Weithfeydd Copr yr Hafod o'r Mwmbwls ar Reilffordd Ystumllwynarth a Chamlas Abertawe. Deuai'r glo carreg a ddefnyddid ar y Gamlas hefyd o Gwm Tawe uchaf. Mae'n adeilad rhestredig Gradd II.



The Hafod Limekiln

2007



Line of former Swansea Canal to the right of this wall

CHIMNEY TO THE WEST OF THE VIVIAN ENGINE HOUSE ►

This tall, tapering chimney stack is constructed of red brick and rests on an octagonal plinth with a corbelled head and a circular shaft. Its shaft has numerous iron bands and a corbelled ring at its neck. A corbel is a projecting block or brick supporting something above. It is a Grade II listed structure and was listed because of its group value along with the other buildings and structures of the former Hafod and Morfa Copperworks. It can be found on the slope to the west of the Vivian Engine House and east of the former Swansea Canal.

◀ BOUNDARY WALL OF THE HAFOD COPPERWORKS

This high wall dates from around the time the copperworks was established in 1810 and is 80 metres long and made of copper slag, sandstone and brick. It is on what used to be the east bank of the Swansea Canal which was built in 1794-8. The Canal ran right through the works and was the principal transport artery for carrying coal to the furnaces. This wall has been successively raised at periods throughout the 19th century. Two blocked archways can still be seen that supported the wall where the canal dock entrances passed through.

SIMNAI I'R GORLLEWIN O

BEIRIANDY VIVIAN ►

Mae'r simnai dal hon sy'n culhau tua'r gwddf wedi'i gwneud o friciau coch ac mae'n gorffwys ar blinth wythochrog. Mae ganddi ben corbelaidd a siafft gron. Mae'r siafft yn cynnwys sawl band haearn a chylch corbelaidd am ei gwddf. Blociau neu friciau bargodol sy'n cynnal rhywbeth uwchben yw corbel. Cafodd yr adeiledd Gradd II hwn ei gofrestru oherwydd ei werth ar y cyd gyda'r adeiladau a'r strwythurau eraill yn hen Weithfeydd Copr Hafod a Morfa. Mae i'w weld ar y llethr i'r gorllewin o Beiriandy Vivian ac i'r dwyrain o hen Gamlas Abertawe.

◀ WAL DERFYN GWEITHFEYDD COPR YR HAFOD

Mae'r wal uchel hon yn dyddio o adeg sefydlu'r gwaoth copr ym 1810. Mae'n 80 metr o hyd ac mae wedi cael ei adeiladu o gopr, slag, tywodfaen a briciau. Mae'n sefyll ar yr hyn a oedd yn arfer bod yn lan ddwyreiniol Camlas Abertawe, a gafodd ei hadeiladu ym 1794-8. Rhedai'r gamlas yn syth drwy'r gwaith a dyna oedd y prif ffordd o gludo glo i'r ffwrneisiau. Mae'r wal hon wedi cael ei chodi sawl tro yn ystod y 19eg ganrif. Gellir gweld dwy fynedfa fwaog o hyd a oedd yn cynnal y wal lle'r âi'r mynedfeydd i ddociau camlas drwyddi.



Chimney to the west of the Vivian Engine House

2007



The Musgrave Engine House (left) and the Vivian Engine House (right) as they look today

THE MUSGRAVE ENGINE HOUSE ►

Behind the palisade of security fencing is an engine house containing a Musgrave Uniflow Steam engine. The building and the engine date from 1910 and used rope drives to power a series of nearby rolling mills. Musgrave engines were, in their day, considered the highest expression of the steam boiler maker's art. It is a rare example of a surviving steam engine in situ and the only one of a Musgrave in Wales. It is a listed building and the Musgrave steam engine was in use as late as 1980, although has suffered serious vandal damage since.

◀ THE VIVIAN ENGINE HOUSE

Located on the west bank of the river, it is immediately adjacent to the Musgrave Engine House that superseded it. This structure was built between 1860-62 and was substantially enlarged in 1900. It housed a steam engine that powered nearby copper rolling mills. This engine house is made from dressed sandstone, snecked rubble (courses of stone broken by smaller stones) and grey bricks manufactured at the copperworks itself. It is a Grade II Listed Building.

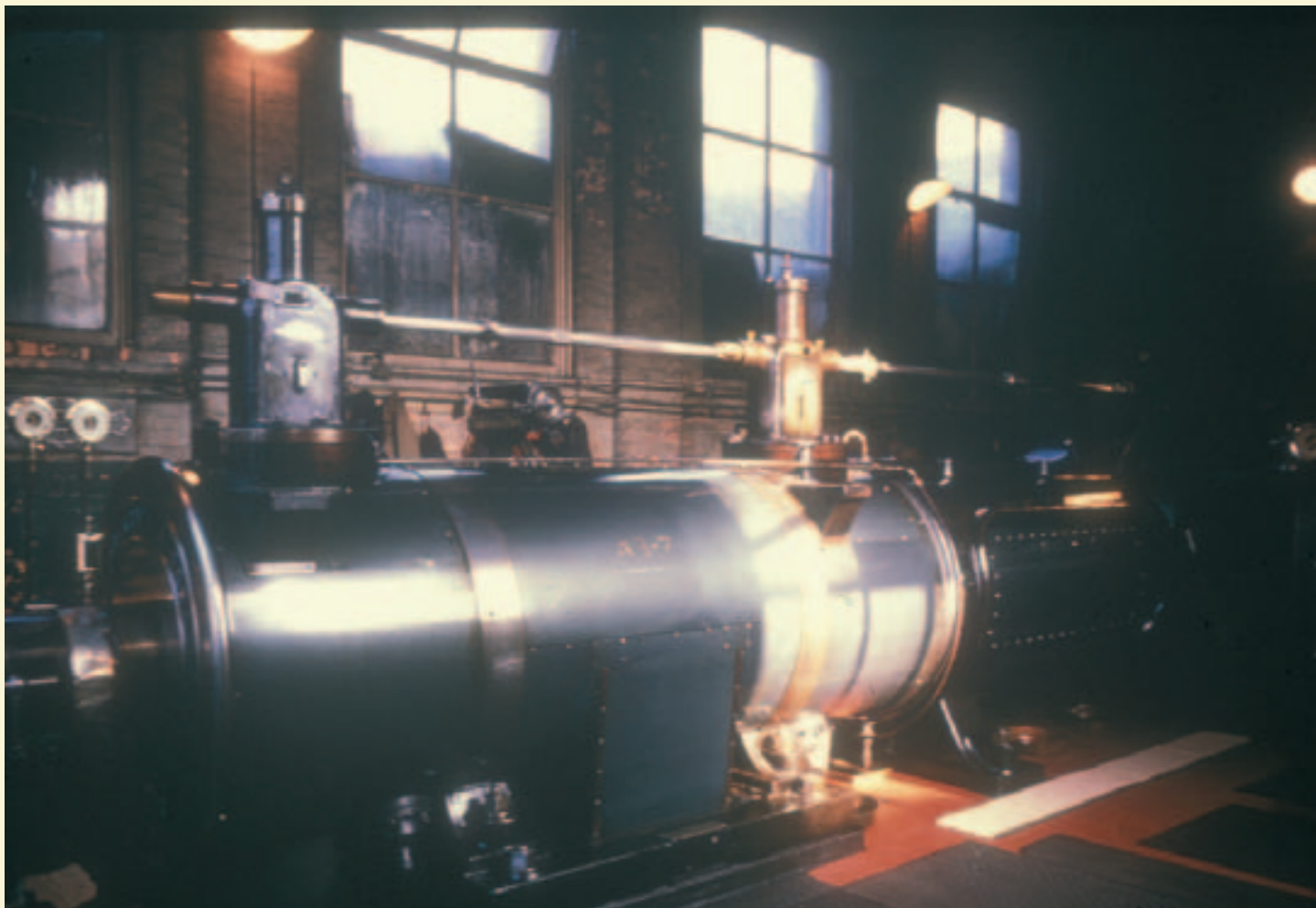
PEIRIANDY MUSGRAVE ►

Y tu ôl i'r ffensys diogeledd mae peiriandy sy'n cynnwys peiriant ager Musgrave Uniflow. Mae'r adeilad a'r peiriant yn dyddio o 1910 ac roeddent yn defnyddio gyriannau rhaff i gyflenwi pŵer i gyfres o felinau rholio gerllaw. Yn eu dydd, ystyrid peiriannau Musgrave fel mynegiant uchaf crefft y cynhyrchydd boeleri ager. Mae'n enghraifft brin o beiriant ager sy'n goroesi ac sy'n dal yn ei le a dyma'r unig enghraifft o beiriant Musgrave yng Nghymru. Mae'n adeilad rhestredig ac roedd y peiriant ager Musgrave yn cael ei ddefnyddio mor ddiweddar â 1980, ond mae wedi dioddef yn ddifrifol o ganlyniad i ddifrod gan fandaliaid ers hynny.

◀ PEIRIANDY VIVIAN

Wedi'i leoli ar lan orllewinol yr afon, mae'n uniongyrchol yn ymyl Peiriandy Musgrave a'i disodlodd. Adeiladwyd yr adeiledd hwn ym 1860-62 ac fe'i ehangwyd yn sylweddol ym 1900. Roedd yn cynnwys peiriant ager a gyflenwai bŵer i felinau rholio copr gerllaw. Mae'r peiriandy hwn wedi'i adeiladu o dywodfaen nadd, rwbwl llanw (rhesi o gerrig wedi'u gwahanu gan gerrig llai) a brics llwyd sydd a gynhyrchwyd yn y gwaith copr ei hun. Mae'n adeilad rhestredig Gradd II.

1970



The interior of the Musgrave Engine House during the 1970's

2007



The Hafod Copperworks river quay looking south towards the city centre

THE VIVIAN LOCOMOTIVE SHED ►

This building was erected around 1910 to house the first standard gauge Garrett locomotive in Britain. The latter was used to move materials around the Hafod works site. It is a narrow single-storey building one bay deep by nine bays long. It was constructed from crushed slag and is light-grey in colour. Unfortunately this material is crumbling away. Picked out in glazed white brick on the river façade can be seen "V & S Ltd N° 1 Shed" It is a Grade II Listed Building.

◀ HAFOD COPPERWORKS, RIVER QUAY

Located on the west bank of the river it stretches from the cluster of engine houses towards the Vivian Locomotive Shed. It is composed of dressed sandstone with flat stone copings. There is a notch cut into it which allowed vessels to pull back from the rivers current and there is another before a raised stop at the southern end of the quay. This feature has been classified as a listed feature (Grade II) and it is an early industrial quay and probably dates from 1810. In its day, sailing vessels would have unloaded copper ore at it and copper goods would have left from it.

SIED LOCOMOTIFAU VIVIAN ►

Codwyd yr adeilad hwn tua 1910 i gynnwys locomotif Garrett lled safonol cyntaf Prydain. Fe'i defnyddid i gludo deunyddiau o gwmpas safle gweithfeydd yr Hafod. Adeilad un llawr cul ydyw gyda lled o un cilfach a hyd o naw cilfach. Fe'i lluniwyd o sorod wedi'i falu ac mae o liw llwyd golau. Yn anffodus mae'r deunydd hwn yn mynd yn ddarnau. Gellir gweld "V & S Ltd No 1 Shed" wedi'i ddangos mewn briciau gwyn gwydrog ar y ffasâd sy'n wynebu'r afon. Mae'n Adeilad Rhestredig Gradd II.

◀ CEI'R AFON, GWEITHFEYDD COPR YR HAFOD

Wedi'i leoli ar lan orllewinol yr afon, mae'n ymestyn o'r clwstwr o beiriandai tuag at Sied Locomotifau Vivian. Fe'i lluniwyd o dywodfaen nadd gyda chopin meini gwastad. Mae bwlch ynddo a ganiatâi i fadau dynnu'n ôl o gerrynt yr afon ac mae un arall cyn atalfa wedi'i chodi ym mhen deheuol y cei. Dosbarthwyd y nodwedd hon fel nodwedd restredig (Gradd II) ac mae'n gei diwydiannol cynnar sy'n dyddio o 1810 yn ôl pob tebyg. Yn ei ddydd byddai badau wedi dadlwytho mwyn copr yno a byddai nwyddau copr wedi cael eu cludo oddi yno.

2007



The Vivian Locomotive Shed

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LLYFRYDDIAETH

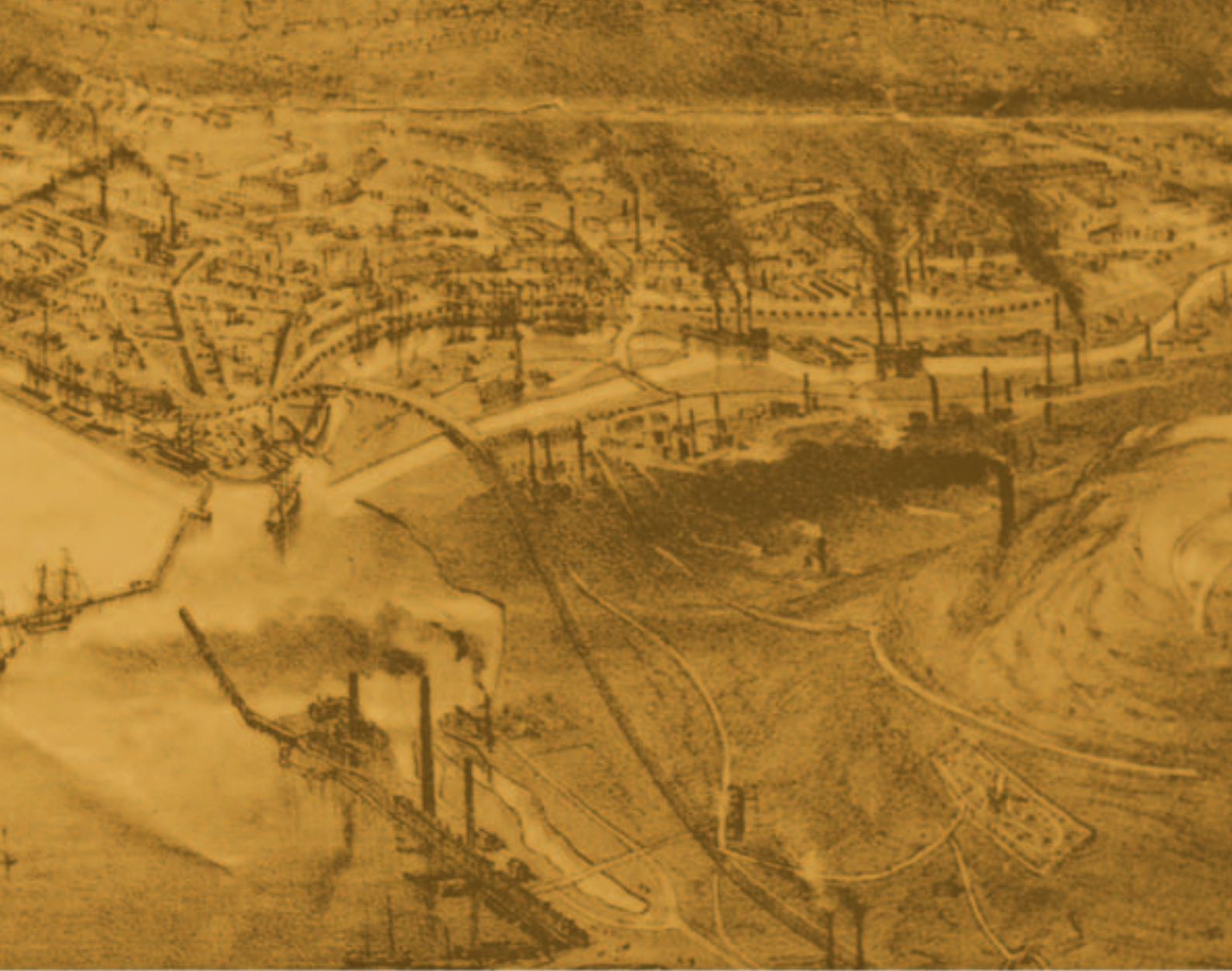
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*View from the bed of the
former Swansea Canal*



Swansea in 1880 was one of the great ports of the Victorian world



Llywodraeth Cynulliad Cymru
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