



SOUTH WEST WALES INDUSTRIAL ARCHAEOLOGY SOCIETY  
NEWSLETTER CYLCHLYTHYR  
CYMDEITHAS ARCHAEOLEG DIWYDIANNOL DE ORLEWIN CYMRU

Newsletter 26, November 1980

Editorial Committee: F.G. Cowley, P.R. Reynolds, W.I. Roberts

Price to non-members: 15p

FORTHCOMING EVENTS

A reminder of the meetings to be held during the next few months. Full details appear on the SWWIAS programme card.

NOVEMBER 20

Mr R.O. Roberts

'Smelting of copper, lead and zinc in the Swansea region'

DECEMBER 18

Mr R.G. Keen

'The artist and tourist in industrial Wales'

JANUARY 15

Mr Ian Milne & Mr John Parkinson

'The Neath and Tennant Canals and their preservation'

FEBRUARY 19

Dr D.E. Painting

'Swansea's role in early photography'

17

OTHER EVENTS

DECEMBER

6-7

The Mumbles Railway Company is arranging a Mumbles Railway Show at St Phillip's Centre, Swansea (near the Quadrant bus station). It will feature a 4 ft. long model of the Mumbles electric car running on about 30 ft. of track. There will also be a model railway layout and items of local railway interest.

(N.B. More about the Mumbles Railway on page 2.)

It has been suggested by our member Barry Fagg, now living near Nottingham, that members might like to have a weekend in that part of the world next Spring or Summer. He has offered to arrange a programme to show us some of the sites of IA interest in the region. There probably would not be enough members able to make the journey to make it worth hiring a 'bus, but even if only a few were interested the idea ought to prove feasible: we could travel up in two or three private cars and share the cost of petrol which would make it fairly cheap. If anyone is interested, please contact Paul Reynolds and we will explore the idea further.

FINANCIAL MATTERS

1980 has been rather an anxious year for your committee so far as finance is concerned, although it looks now as though we will be able to last out to the end of the year without a major crisis overtaking us. The reason for this is that the Society's finances have been seriously depleted by the Scott's Pit project. Swansea City Council has been good enough to make a grant of £50 which will tide us over to the end of the year, and there is just the possibility of similar help from elsewhere. In the meantime, it would help if members were able to send in their 1981 subs. now without waiting for January 1 (£2-00 for full members, £1 reduced rate).

NOTES AND QUERIES

Genwen Colliery Engine House. We had hardly published the paragraph in our last issue about the possibility of preserving this engine house on the outskirts of Llanelli when it was announced that this would not be possible. The building had deteriorated too far for this to be an economic proposition.

Mumbles History Exhibition. One of our members, Gerald Gabb, writes "I am in the process of persuading Ostreme to mount a (fairly small) local history exhibition in August 1981 concerned with the history of the village of Mumbles and its environs (Langland, Caswell, Newton, Norton, Thistleboon, West Cross). I should like to concentrate on perhaps three main themes - possibly the railway, the oyster fishery and quarrying, but surround these with as much material of interest as possible, to provide a sort of seed bed for activity in the future. Thus I am interested in objects, documents, old books, photographs, postcards and people with an interest or an expertise." If anyone thinks that they are able to help, please get in touch with Gerald Gabb at 88c, Newton Road, Mumbles, Swansea.

Mumbles Railway. Ron Lawson, of the Mumbles Railway Co. Ltd., which is trying to restore part of this historic line, has submitted examples of the two latest postcards to be produced by his company. They are taken from the Brush Collection in the Leicestershire Records Office and show the electric cars under construction in the Brush works at Loughborough. There are now 20 black-and-white postcards of the Mumbles Railway in this series: they are well-produced and include some original views of the railway, which makes a refreshing change from the constant re-appearance of some old chestnuts.

Ron Lawson is looking for a few more views to complete the set. He is particularly interested in anything from the horse-drawn period, but not the well-known pictures from various local archives which have already been published frequently. He would also very much like to find an illustration of the eventful period of operation by both steam and horse traction of the rival companies at the same time.

Finally, he writes "There seem to be large gaps in the record, and one question I would like to see answered is why the line became derelict for a period of about 30 years, following the construction of a road from Swansea to Oystermouth. I can understand that competition from horse-drawn vehicles running on the new road killed off the passenger service on the tramway, but one would have thought that the minerals traffic for which the line was originally built, would not have been affected in the same way."

Comments, offers and enquiries, please, to Ron Lawson, 46 Eldon Road, Cheltenham, Glos. GL52 6TU.

ABERDULAIS

Interesting developments can probably be expected soon on the Aberdulais Forge site which is just off the A465 road near the Rock and Fountain Inn (SS 773 995). Negotiations have been going on for many months between the present owners of the site, Neath Borough Council, and the National Trust. There are still a few points to be resolved, but it looks as though the way will soon be clear for the National Trust to acquire a site of considerable importance in the history of metallurgy.

It was at Aberdulais in 1584 that Ulrich Frosse established his copper-smelting furnace. The process he used was an advanced one for its day and the site was deliberately chosen to keep it hidden from prying eyes. At the same time it was convenient for the local supplies of coal and near the River Neath up which the imported Cornish ores could be brought. It was close to the confluence of the Rivers Dulais and Neath, and the water of the former, flowing over the falls, provided the source of power for the works. Copper smelting finished at some date in the 17th century, and in 1667 an iron forge was established on the site. This seems to have survived until the end of the 18th century. By 1816 a corn mill appears to

have been using the site, since a water-colour by Thomas Hornor of that date shows a building more suitable for that purpose and a pair of water wheels.

Most of the buildings on the site today appear to belong to the 18th century, although Richard Keen, writing in the Newsletter of the National Trust in Wales, August 1980, believes that "excavations undertaken under the supervision of a suitably qualified and experienced archaeologist will, in all probability, reveal much about the early methods of copper smelting." He is advising the National Trust on the project and states that "the site can be claimed as one of major importance, as 16th century copper smelting sites are now rare." The main features are a weir above the falls that fed water into a sluice box, an enormous wheel pit, a chimney stack, ruined walls surrounding the boiler-house and engine-room, and a small twin-arched bridge over the Dulais (of which only one arch survives). Aberdulais House itself survived until a few years ago, but it was allowed to deteriorate so much that demolition was necessary. Limited clearance work has been undertaken by Neath Borough Council through the Youth Opportunities Programme, and traces have been found of rolling mill stands, reheating furnaces and water courses.

The National Trust estimates that it will cost at least £80,000 to develop the area as a tourist attraction. So far almost £40,000 has been raised or promised. Most of this has come from the Wales Tourist Board, the Welsh Office, the Countryside Commission and the Prince of Wales' Committee. It is hoped to attract up to 70,000 visitors in the first season, but before that many months' work will be needed to restore the site.

#### THE "CORN STORES" AT MAESTEG

The so-called "Corn Stores" at Maesteg (SS 849 915) is believed to have been originally the engine-house of the Llynfi Ironworks. It is a striking building, about 20 metres high, and built of large blocks of the local Pennant Sandstone. Until the early 1960s it was used as a hay store - hence its name - but after it had ceased to be used for this purpose it was allowed to deteriorate. When the SWWIAS visited Maesteg in May 1979 members found the interior full of débris and the roof almost completely missing. The walls were sound, though, and it looked as if the building could still serve a useful purpose if one could be found for it.

At that time the threat of demolition hung over the building, since Ogwr Borough Council wanted to clear the site to build a leisure centre. Objections were raised by a number of organisations, including the SWWIAS, and the Council has now had a change of heart. The Corn Stores will now be preserved and incorporated into the plans for the leisure centre which is still going ahead.

The history of the Llynfi Ironworks goes back to 1830 when a J.H. Allen of Neath took a lease of the Coegnant estate (which included what was to be the site of the ironworks) and established a zinc smelter. He saw the possibilities of the local resources of ironstone and succeeded in interesting a party of London capitalists in a venture. They formed themselves into the Cambrian Iron Company in 1837 when Allen sold his interests in the Coegnant estate to the company. In the following years the ironworks was built up: the first blast furnace was blown in 1839 and this was followed by three others by 1850. It is probably to this period that the "Corn Stores", in other words the engine-house, can be dated: both the historical context and the architectural style fit. In 1844 the company formed itself into a joint stock company known as the Llynfi Iron Co. Further expansion took place with the addition of a forge in 1845/46 and rolling mills, slit mills and rail mills between 1846 and 1855. Additional capital was injected in 1852, when the company became the Llynfi Vale Iron Co., and in 1866 when it changed its name to the Llynfi Coal & Iron Co. The insertion of "Coal" before "Iron" is significant, for by this time the iron-smelting industry at Maesteg was declining and the coal industry was gaining in importance in its own right, not just as an ancillary to the iron industry. In 1872 the Llynfi Company, along with the Maesteg Ironworks (founded in 1826 on the opposite side of the valley) were both taken over by Brogden of Tondy and reformed into the Llynfi, Tondy & Ogmere Coal and Iron Co. Ltd. After a short-lived boom

in the early 1870s the final decline set in. A receiver was appointed in 1878 and in 1886 iron production ceased at Maesteg. The assets of the company were sold in 1889 to a syndicate led by Colonel North which concentrated exclusively on coal mining.

There are a number of reasons why it was right that the Corn Stores should have been preserved, and Ogwr Council is to be congratulated on having been responsive to them. In the first place, it was because of the iron industry that Maesteg developed in the first place. There are now few material remains from this early and formative period of the town's history, and certainly none as impressive as this engine-house, which is, in any case, about the oldest large building in Maesteg. All the more reason, then, that any that have survived should be preserved to help the community retain a sense of its origins. The iron industry at Maesteg is unusual in that it was situated within the valleys rather than at the heads of the valleys at the outcrop, as was the case with the rest of the Welsh iron industry, and this is another reason for ensuring that some reminders of it are preserved. Even though the Llynfi Ironworks is not, so far as is known, associated closely with any figure of national importance, or with any major technological advance, nevertheless the engine-house deserves to be retained because it is typical of a class of building that was once common but is now becoming quite rare.

The Corn Stores is an attractive building, both in its overall appearance and in its detail, a good example of the craft of the stone-mason working with local materials. It is buildings such as this which help to create a sense of identity in a town and give it character: any community which allows all its old and distinctive buildings to be pulled down runs the risk of becoming completely insipid and uninteresting. Whenever possible, it is far better that such buildings should be reconditioned and adapted to a new use rather than be destroyed and replaced by dreary new development of the kind that can be found anywhere in the entire country.

Unfortunately it will not be possible to preserve Nant-y-Crynwydd, a very old farmhouse close to the engine-house. It was under a preservation order, but in such a state of dereliction that restoration was not feasible. Nevertheless it will be interesting to watch progress on the rehabilitation of the Corn Stores and to see how it fits in with the proposed leisure centre.

P.R.R.

#### CLOSURE OF THE HAFOD WORKS, SWANSEA

The closure of the Hafod works at the end of July marks an epoch in the history of Swansea, since it represents the end of Swansea's 263-year old association with copper. The first copper-smelting works in the Swansea Valley was established in 1717 near the site of what is now St Paul's church in Landore. The Hafod works was set up in 1810 by John Vivian, a Cornish industrialist, who had first experimented with smelting copper at Penclawdd. Later the firm diversified into other products: yellow metal was produced from 1842, gold from 1840, and silver, nickel and cobalt from the 1850s. The last copper was smelted in 1920-21, but by this time the works had entered the field of metal fabrication. Copper tubes were made, as well as boilers, fireboxes for locomotives and copper and brass sheets.

The works were controlled between 1810 and 1920 by the powerful Vivian family who dominated Swansea's economic life during the 19th century. They were noted for their humane and paternalistic concern for their workers. They built cottages for them in the Hafod, many of which survive in the conservation area around Odo Street. They tried unsuccessfully to sink wells during the cholera epidemic and they were largely responsible for funding and building St John's church, Hafod and the Hafod school. Although the nonferrous metal industry was never labour-intensive, the Vivians' empire by 1886 employed no fewer than 3000 men. There were also a number of associated industries and collieries in the Swansea area as well as the smelting works.

In 1920 the reign of the Vivian family came to an end when the works were acquired by British Copper Manufacturers Ltd. ICI took over eight years later and eventually the works came under the control of Yorkshire Imperial Metals. On the closure of the works in 1980, 150 people were made redundant.

The monuments to what was once Swansea's most important industry remain. The buildings and a lot of the equipment used are still there for the time being at least. The works is a museum of industrial monuments and machinery of the recent and more distant past. The most impressive machine is the 32" cylinder Musgrave Uniflow steam engine installed in 1910 which operates a giant fly-wheel which turns the rolls. The rolling mill shed contains a steam hammer and air press and an assortment of all-metal trollies which must date from the last century. Of the buildings, the most impressive is the works canteen, an aisled hall whose roof is supported by ornamental cast iron pillars. The building is surmounted by the famous clock turret. There are also traces here and there of buildings which go back before 1850.

The Curator of Swansea Industrial and Maritime Museum, Mr John Bunt, says that he hopes that his Museum will be able to buy the Musgrave engine since it is the earliest surviving engine built by this firm which was based in Bolton. It is too large to move, so he suggests that the engine-house and other listed buildings (such as the canteen and the clock tower) might be used for a museum. He envisages an enthusiast group running the engine which could be used to power a pair of rollers. He hints at the possibility of a 50% grant towards this from the Science Museum, London.

Yorkshire Imperial Metals has recently deposited a number of documents relating to the Hafod works with Swansea City Archives, and a list of these has been compiled by the City Archivist, Dr John Alban. The bulk of the items are from the 20th century, but there are also earlier items, such as three contracts of employment or apprenticeship from 1811 and a tracing of a map of 1822 showing works in the Lower Swansea Valley. The deposit appears to be particularly rich in photographs: there are eight albums dating from 1938 to the 1960s, several hundred loose prints, and a 15-metre long film described as "mainly blank, with some over-exposed views of the interior of a works". One rather intriguing item is D.34/6/7, 'Experiencias da locomotiva 0102', dated 1924: perhaps loco 0102 was the Garrett, but why a report on it in Spanish?

F.G.C.

#### TO CAST A LONG SHADOW

The Town Planner did not like the Bell Tower,  
And neither did the architect  
Who advised the Council  
That it obstructed the natural light  
To the street nearby.  
His voice cracked as he told them  
That its structure was dangerous  
And its siting hazardous.

I liked the Bell Tower  
And its crumbling masonry.  
It had no bells of course,  
But it marked the centre of the little town for me,  
And I liked the shadows it made...  
On a hot dusty afternoon  
Its long shadows crept over the street  
And cooled my mind's heat.

Yes, I liked the long shadows it cast.

K.W. Brooks

ASTRO-METALLURGY: ASTRONOMICAL SIGNS FOR METALS

☉	Sun	Gold
☾	Moon	Silver
☿	Mercury	Mercury
♀	Venus	Copper
♂	Mars	Iron
♃	Jupiter	Tin
♄	Saturn	Lead

The accompanying list of signs used, as a kind of short-hand writing, for the various metals is reproduced from an account book in the Bristol Record Office, ref. no. 12171 (1), by kind permission of the Bristol City Archivist.

The account book (which covers the last four decades of the eighteenth century) has the gold-embossed inscription 'T Dymock Bristol 1758' on its cover, Thomas Dymock being one of the partners operating the White Rock Copper Works near Swansea from about this date onwards.

It seems that little use was made of these astronomical signs in documents relating to the important metal industries of this western part of the South Wales Coalfield. The Venus sign for copper, however, is included in the title of the upper Turner drawing of what is generally held to be the White Rock works in G. Grant Francis, The Smelting of Copper in the Swansea District (2nd ed., London and Manchester, 1881), facing p. 104. The same sign has enclosed the initials 'CDA' on the publications of the Copper Development Association during recent decades.

R.O. Roberts

THE END OF THE KILVEY STACK

"One very familiar feature of the Swansea landscape has been silently swept away, and nobody seems to have marked its removal. We refer to the old chimney stack near the top of Kilvey Hill. Time was, and not long ago either, when it gave forth its column of smoke by day and its column of fire by night, and served in a most admirable, though of course totally undesigned manner, as an infallible weather vane, effective in the darkness as in the light, and never sticking fast, as some vanes do until they are lubricated. The stack was built by the old Warlich Patent Fuel Company, from whose works below the hill, on the river's brink, there was an underground flue or culvert. These works having long since come to a standstill, the stack was useless, and as it was left unrepaired, the blustrous winds of winter played havoc with its topmost brick tiers. Its final destruction was brought about by means of some blasting fuse which Mr Councillor Cody entrusted to one of his workmen, and the work was effected without accident. Now that the chimney, which was highly suggestive of subterranean fire, has been removed from the face of the earth, no doubt that part of Kilvey Hill will soon be covered with cottages, as is the case with the lower slopes to the northward. We understand that the land in question is held by the firm of Vivian & Sons and Mr Michael Williams, the millionaire proprietor of the Morfa works."

(From The Cambrian 24 August 1883. The Warlich works was set up in about 1847, just a little way of north of the old St Thomas station, nearly opposite the Toyota garage.)

RECENT LITERATURE

GLAMORGAN COUNTY HISTORY. Vol. 5: Industrial Glamorgan from 1700-1970. Edited by the late Arthur H. John and Glanmor Williams (Cardiff, 1980). £35-00

Volume 4 of this standard history was briefly reviewed in Newsletter 9, 1975. The present volume deals with the period with which our society is particularly concerned and covers the ground in twelve chapters. The late Professor A.H. John contributes an opening introductory chapter on the period 1700 to 1750 which is of special importance because it makes extensive use of the Jersey Estate archives which were destroyed by fire in the 1940s. Society member and former Chairman, Mr R.O. Roberts has written the chapters on the history of the non-ferrous metal industries since 1750 and on banking and financial organisation down to 1914 (II and VIII). Mr Colin Baber has made a major contribution to the volume, writing on the subsidiary industries, 1760-1914 (V); with Trevor Boyns on the supply of labour (VII); with Trevor Boyns and Denis Thomas on the iron, steel and tinplate industries (III); with Denis Thomas on the Glamorgan economy, 1914-45; and with Jeffrey Dessant on economic development since 1945 (XI and XII). John Williams writes on the coal industry; John Davies on agriculture in an industrial environment; Harold Pollins on the development of transport; and Robin Craig on the ports and shipping (IV, VI, IX and X).

The maps at the end of the volume are well-organised and drawn and the editor and his contributors have been particularly happy in their selection of prints, watercolours and photographs to illustrate the text. It is good to see among these a reproduction of John Warwick Smith's watercolour of the Forest Copper Works. The view is from the north looking down river and is the reverse of the view of the copper works reproduced in Grant Francis's book.

Professor Glanmor Williams is to be thanked and congratulated for seeing this major work of prolonged research through the press and the publishers for a fine piece of book production.

F.G.C.

P.R. Reynolds. 'Scott's tramroad, Llansamlet', Journal of the Railway and Canal Historical Society, 26,3,1980.

Our Treasurer's article in the current number of the RCHS Journal deserves more than passing mention for a number of reasons. It updates his previous article 'Captain Scott's locomotive' which appeared in Gower, 27 (1976); it provides additional information about Scott's Pit, Llansamlet which was restored by our society and officially opened by the Mayor of Swansea earlier this year; and it provides further grounds for believing that a steam locomotive built by George Stephenson was operating for a time, probably between 1819 and 1821, on the tramroad which John Scott constructed between Llansamlet and Foxhole, Swansea. The article is a fine, careful piece of research and lends added weight to the points made by our President, Professor F. Llewellyn-Jones in his recent address to the society: that there was a close liaison between railway engineers working in south Wales and those in England, and that south Wales played a more important part in the early history of steam locomotion than is generally realised.

F.G.C.

J. Lowe. 'The Blaenavon Iron and Coal Company, 1836-1864: a Victorian joint-stock venture', Bulletin of the Board of Celtic Studies, 28,4, 1980, 631-644.

Primarily concerned with the Blaenavon Company as a business undertaking rather than with technological history or industrial archaeology, this article brings together some of the source material for the company and considers the effect on its fortunes of the directors' backgrounds and experience, the availability of capital, and the need for innovation in a changing industry.

## RECENT LITERATURE (cont.)

R.R. Toomey. 'Vivian and Sons, 1809-1924: a study of the firm in the copper and related industries' (Ph.D. Thesis, University College of Swansea.) 1979.

This recently accepted thesis describes the growth and decline of Vivian & Sons, and analyses the major influences on that process. By 1820 the firm had become a leading smelting house and was able to integrate vertically into copper manufacture (c.1820-1850) and diversify into the production of other nonferrous metals, chemicals and coal (c. 1840-1880). Stagnation set in the later nineteenth century and in 1924 the firm was merged into British Copper Manufacturers Ltd. Dr Toomey claims that growth can be identified with three entrepreneurial decisions - John Vivian's decision to enter the growth industry of copper smelting, John Henry Vivian's vertical integration in copper manufacture, and diversification under Henry Hussey Vivian. Likewise the author believes that the later decline can be attributed to a lack of entrepreneurial skills in the later generations of the Vivian family.

S.R. Hughes, 'The Swansea Canal: navigation and water supplier', Industrial Archaeology Review, 4,1,1979/80, 51-69.

The Swansea Canal was unusual in that it served both as a navigation and as a source of water power for works in the valley. The fact that a majority of shares were held by local tradesmen and gentry rather than by outside capitalists may in part explain this state of affairs, since it was in their interest to encourage the growth of industry in the valley, and one of the basic necessities of any new undertaking was a cheap and readily available source of water power. This carefully researched and meticulously documented article will obviously prove itself to be of value in any research into the industrial development of the Swansea Valley. It makes us look forward all the more to the forthcoming report on the Canal by the R.C.A.H.M., a good part of which is based on the work of Stephen Hughes.

J. Lowe & J. Gross. 'The Triangle, Pentrebach, Merthyr Tydfil', Industrial Archaeology, 15,2,1980, 146-156.

The Triangle was demolished in December 1977 amidst national protest at the loss of this interesting piece of history. Interest focussed on the unusual layout but the authors of this article are concerned to show that the Triangle was significant as an example of a high standard early Victorian industrial settlement. The history of the site is examined, and its date of construction put in the 1840s. The authors describe the houses and layout and come to the conclusion that the triangular plan was largely accidental. The article includes plans and photographs.

### From coal and steam to forests green: the Afan valley and Lliw upland drive

These are the first two leaflets of a series which is to be produced by West Glamorgan Planning Department. The intention is to describe various walks or drives in the county in a compact format. Both include a map and a number of line illustrations, and the overall impression is quite pleasing. The Afan Valley leaflet describes the industrial remains of the valley from Cwmavon up to Blaengwynfi, including the tributary valleys of Tonmawr, Abercregan and Glyncoerrwg. The Lliw Upland drive does not contain so much of IA interest and is primarily concerned with the Baran and Gellionen chapels and antiquities in the area. Both are available from West Glamorgan Planning Department, 12 Orchard Street, Swansea or the Afan Argoed Centre at 10p each plus postage.

J.G. Morgan, 'History of the local tinsplate industry and some of its pioneers', Newsletter of the Swansea Valley Historical Society, 9, 1980, 1-4.

Dr Morgan looks at the early history of tinsplate manufacture in general and at the works in Pontardawe built by William Parsons in 1835 which were sold to William Gilbertson in 1881.