



SOUTH WEST WALES INDUSTRIAL ARCHAEOLOGY SOCIETY

NEWSLETTER

CYLCHLYTHYR

CYMRITHAS ARCHAEOLEG DIWYDIANNOL DE ORLLEWIN CYMRU

No. 20: November 1978

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

Price to non-members: 10p

DAVID MORGAN REES, O.B.E., J.P.

By the death of Morgan Rees this Society has lost a good friend and adviser, as have all who value Wales's industrial heritage.

His intense patriotism, never dogmatically nationalistic, seemed to be channelled into an intense love of the many sites he recorded, publicised, and caused to be preserved.

He abhorred social injustice but this never clouded his historian's objectivity. As the son, and grandson of the Manse he approached his subject with a sympathetic grasp of human nature.

His warm, persuasive dynamism brought an understanding and appreciation of the relics of the past to a wide public. More tangibly, it resulted in the great development of the National Museum's Department of Industry that occurred during his Keepership, in the founding of the North Wales Quarry Museum and the National Industrial & Maritime Museum.

Many of his writings have become standard works, particularly Industrial Archaeology of Wales which is surely the essential basic text book of the subject.

His contribution to industrial archaeology was unique: we are all his debtors.

A.J.Y.R.

FORTHCOMING EVENTS

23 November Mr Peter Claughton
'Old industries in Pembrokeshire'

14 December Mr J.M. Davies
'The Mumbles train and other Swansea transport'

Both these meetings are to be held in the Royal Institution and will start at the usual time of 7.00 p.m. We revert to our usual day, a THURSDAY, in both cases.

Those who attended the last two lecture meetings which were held in conjunction with the Department of Extra-Mural Studies, will have been pleased to notice that they were not asked for an admission fee. This is because a new arrangement has been reached between the Department and the Society. The Department is obliged by its terms of reference to ask for a fee from those attending any events which it organises, but in future the Society will pay a block fee on behalf of its members to cover all the meetings held jointly each season. This leads to administrative convenience for the Department, and for the SWWIAS means that members will not have to pay for their meetings twice over - it might even lead to more of them turning up at meetings now they're FREE.

SWANSEA VALLEY HISTORICAL SOCIETY

The SWWIAS has a reciprocal arrangement with this society by which members of one may attend the meetings of the other. The SVHS meets in The Cross Community Centre, 1 High Street, Pontardawe at 7.15 p.m. Meetings specially likely to interest SWWIAS members are :-

- Wednesday 15 November. Mr Stephen Hughes: 'The industrial archaeology of the Swansea Canal'
Wednesday 20 December. Dr John Alban: 'The work of the Swansea City Archives Office'.
Wednesday 17 January. Dr Hywel Francis: 'History of the South Wales coalfield: the importance of tape recording'

Further details from the Hon. Secretary of the SVHS, Mr Steve Williams, 11 Thomas Street, Pontardawe.

Any SWWIAS member proposing to attend any of these meetings is asked to provide himself with proof of membership (e.g. this newsletter), since, in Steve Williams' words, "there are many hangers-on at Pontardawe".

PROFESSOR HUGH O'NEILL

The familiar figure of our former President is no longer to be seen in Swansea so frequently as was hitherto the case. Professor O'Neill has recently moved to Cwmbran and has therefore understandably resigned from the Committee, although we are glad to report that he remains a member of the Society. He was our President from 1971 to 1976 and since then, Vice-President. A former Professor of Metallurgy at University College of Swansea, he was conscious of the need to preserve some of the old equipment which was then rapidly being scrapped, and took an active part in the Historical Metallurgy Society, the Lower Swansea Valley Project and the Royal Institution of South Wales, of which he was elected President in 1963.

We wish him all happiness in his new home and hope that he will still find it possible to put in an appearance in the west from time to time.

NOTES AND NEWS

This Newsletter. Because this is our 20th issue, the Editor has decided to make it a double number to celebrate the fact. It is fortunate that our funds are in a position to allow him, wearing his other hat as Hon. Treasurer, to authorise the additional expenditure. An index to Newsletters 1-20 is also included, and back issues or photocopies can be provided at cost price plus postage.

University College, Cardiff's Department of Extra-Mural Studies produce an excellent newsletter concerning local history activities, literature and research in South Wales, especially the south-east. The editor is Mr Philip Riden, local history tutor in the department. Anyone who is at all interested in the subject is strongly recommended to ask to be put on the mailing list. It is quite free, and requests should be sent to Mr Riden at the Department of Extra-Mural Studies, University College, Cardiff, 38-40 Park Place, Cardiff CF1 3BB.

Kidwelly Tinplate Works. Plans to establish an industrial museum on the site of the former tinplate works received a set-back in July when Llanelli Borough Council was refused a grant by the E.E.C. towards the £40,000 needed for the project. The council is now considering the transfer of certain items of machinery to Pembrey Country Park which it is in the process of developing. Led by Mr W.H. Morris, further attempts are being made to ensure that the machinery remains on the site. It is reported that the local M.P., Mr Gwynfor Evans, is in support of these moves, and the assistance of the National Museum and the Royal Commission on Ancient and Historical Monuments is being sought. Among the machinery still on site are two large Foden engines dating from the 1870s, and considered by the Science Museum to be of national importance, and a horizontal engine of about 1895.

At a recent meeting of the Committee of the SWWIAS, it was agreed that our society should support Mr W.H. Morris's endeavours. So far this only involves moral support.

SCOTT'S PIT: A FURTHER REPORT

The Society has been actively engaged on the site for two years now: this reflects the amount of work involved in making a full investigation of what has turned out to be a much larger project than was originally anticipated.

A progress report was last given in Newsletter no. 17 (November 1977), and this went into some detail about the site which I will avoid repeating. For the benefit of new members, Scott's Pit is a former colliery site by the M4 in Birchgrove which has the remains of a well-preserved Cornish beam engine house, boiler house, furnace house, tunnels and shaft. It is a scheduled monument and the Inspectorate of Ancient and Historic Monuments is extending the protection of scheduling to all the structures newly found on the site by the Society.

This year we have uncovered most of what we believe was a Cornish "waggon" type boiler alongside the engine house, approximately 13 feet wide, a similar depth, and 36 feet long, although this will probably turn out to be 46 feet when digging is completed near the chimney. We were very happy with this, in that it was the type of boiler and layout that might have been expected, but unfortunately we also had to discover a long curving wall and platform on the motorway side of the engine house, and this might be a base for an older type, "haystack" boiler. Why there should have been two boilers at a colliery with such a short life, and one of those an old-fashioned type as well, has led us to question whether the original identification of the boiler house is really correct.

The inside of the engine house contained a cold well for cooling a condenser and this area was completely cleared to reveal the base of the original condenser and other apparatus. This was fully recorded and has now been covered up to prevent vandalism. The records can be interpreted to show what was actually in the well.

Drawings have been completed of the engine house, "boiler house" and a draft showing the layout of the site has been prepared. Anyone interested in seeing a copy should contact me. We were fortunate in having Mr Hayden Holloway back to make a full photographic record: his pictures will be a principal part of the final report.

As he promised, Dr Alan Griffiths' colleagues, Ron Storer and Tom Hall, from the NCB Mining Museum in Nottinghamshire paid a visit and left us with much to think about. Briefly, they were impressed by the size and standard of finish of the engine house and the investment which it involved. They too were puzzled by many factors, for instance, the short period of working and the absence of a spoil tip. They confirmed that the well-built shaft was for haulage and pumping, and that it was originally divided by a brattice. Before they left, having promised to return after further investigation, they pointed out the likely settling pond for the hot water and steam. It was fascinating being on site with two people with such a detailed knowledge of the working of similar colliery sites.

The Prince of Wales Committee has generously awarded the Society £40 to spend on its archaeological investigation. We are most grateful for this support.

In view of the size and duration of the investigation, the Society has made an application to the Manpower Services Commission for a Youth Opportunities Project on the site. It has been accepted and work should start in November. The Society is sponsoring the project which will provide employment for ten young people aged 16-19 and unemployed for six months or more as well as for three supervisors for a period of nine months, all paid for by the M.S.C. The object of the scheme is to complete the site investigation, restore the stonework by cleaning and pointing, and then landscape the site to make it safe and attractive. We will direct the work with the assistance of the Glamorgan/Gwent Archaeological Trust which has kindly come forward to help us.

Watch the press for a further statement on this subject!

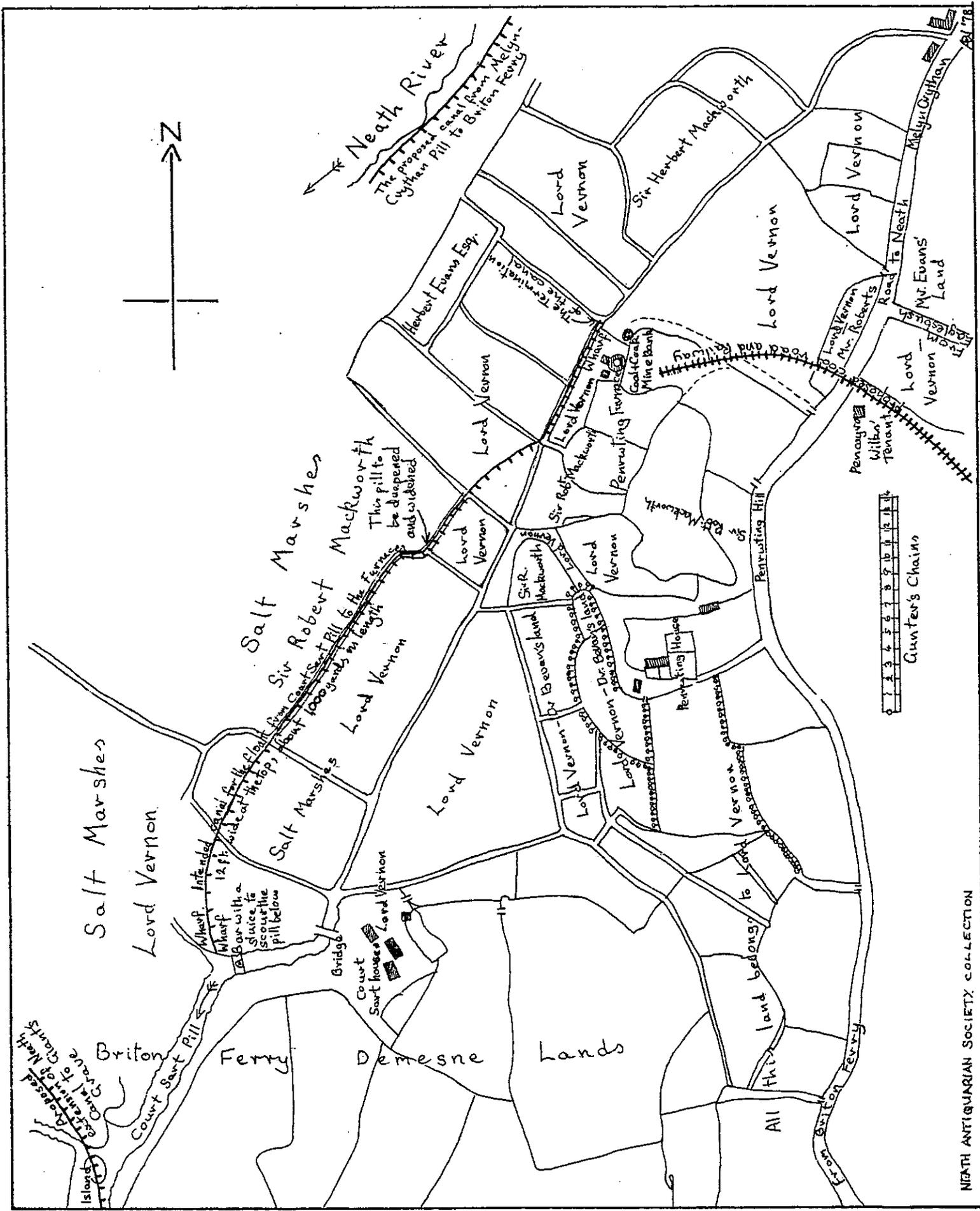
The M.S.C. project will require more work by society members, and Cliff Alden and Paul Reynolds have agreed to assist here. If anyone else feels able to become involved, please contact me. Of course, our monthly digs go on as usual and I want more support from you all in this respect to carry out the excavation and restoration work. Our programme of digs is as follows:-

18 NOVEMBER

9 DECEMBER

13 JANUARY

10 FEBRUARY



You will see that the dates have been specially chosen so as not to clash with any major rugby fixture .

Finally a trip to Cornwall to look at the engine houses and meet the local experts must be arranged if we are going to make progress on interpreting Scott's Pit. Tentatively Hayden Holloway and myself are thinking of a date next Spring and we would like to hear from any interested members.

B.C.Fagg

AN EARLY PLAN OF THE PENRHIWTYN CANAL

Reproduced opposite is a reduced copy of an estate plan, 'Lands about Penrooting Furnace' of c. 1791. On it Lord Vernon's anonymous engineer outlined the intended course of the Penrhiwtyn Canal from Raby & Evans' Penrhiwtyn Furnace (SS 745 963) to an arm of Cwrt Sart Pill on the River Neath. The canal, built on this course, and the ironworks were both completed by 1792. The 1600 yards long canal was formed by linking existing reens on the saltings by two new cuts. The reens (widened to 12 feet and deepened where necessary) formed approximately 980 yards of the canal, and the new cuts formed about 620 yards. The canal was tidal, but a bay for a scouring sluice was made in the main pill.

The plan also shows the ends of an intended extension of the Neath Canal to Giant's Grave, Briton Ferry, a project which was abandoned in favour of cutting a junction canal in 1798 from Melincryddan Pill to the head of the Penrhiwtyn Canal, and extending that canal to Giant's Grave. It may also be inferred from the 1791 plan that the post-1798 Cwrt Sart branch of the Neath Canal was formed from part of a long reen north of Cwrt Sart farm.

The scale on the map refers to 'Gunter's chains': these are exactly the same length as a normal chain (22 yards) and are so-called after the inventor of the surveyor's chain.

This 1791 plan was found in the Eaglesbush Estate papers recently acquired by the Neath Antiquarian Society, and (although not reproduced) is discussed in 'Penrhiwtyn Ironworks and Eaglesbush Coal' in the forthcoming issue of the Transactions of the N.A.S. which is due in November. The present copy has been drawn by Peter Wakelin.

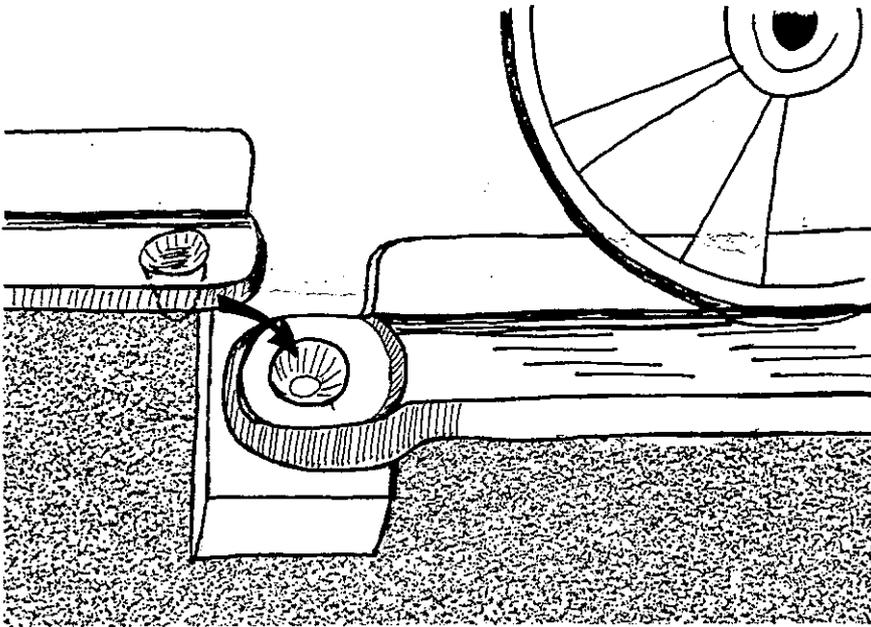
H.Green

(FAST) FOOD FOR THOUGHT

The prestigious journal, Industrial Archaeology Review, published by Oxford University Press for the Association of Industrial Archaeology, includes an article in its latest number (Summer 1978) entitled 'Hamburger stand: industrialization and the American fast-food phenomenon', which just goes to show how wide a field industrial archaeology covers nowadays. Meanwhile the SWWIAS is offering a prize for the best study of the IA of transport cafts on the A48 between Pyle and Cross Hands.

AN UNUSUAL TYPE OF TRAMPLATE

In 1826-27 the German engineers, Carl von Oeynhausen and Heinrich von Dechen, visited England and Wales to investigate the development of railways in this country. At Landore Colliery, near Swansea, they found a tramroad with an unusual type of



tramplate, or rail: "At one end of each rail there is a circular addition which projects $1\frac{1}{8}$ in., and in which there is a conical hole, the larger diameter of which is $2\frac{1}{4}$ in. On the other end of each rail there is a conical piece on the underside which fits into the hole in the next following rail. Through these pieces there is a hole through which a wooden peg is driven in order to fasten both rails to the wooden sleeper".

The principle is made clear in the sketch reproduced on this page.

When the S.W.W.I.A.S. began its investigations at Scott's Pit two years ago, one of the first objects to be found was an

entire tramplate cast to exactly the design described by Oeynhausen and Dechen. Since then another fragment of a similar type has been found at Scott's Pit, and two other examples have come to light from other sites. Mr Jim Lerwell has found two complete plates on the site of the Pentre Pit, not far from the Landore Colliery; and Mr Gordon Rattenbury has submitted details of a fragment incorporating part of the conical hole which was found on the incline leading up to Cribarth quarries from Abercrave.

The comparative dimensions of the various examples are given in the table following.

	<u>Landore</u>	<u>Pentre</u>	<u>Scott's</u>	<u>Cribarth</u>
Length - running surface	46"	48"	42"	?
" - overall	?	52"	46"	?
Thickness of tread	0.625"	0.75"	0.625"	0.5 - 1.5"
Width of tread	3"	3"	3.25"	4.5"
Height of flange	1.75"	2"	1.75"	?
Width of flange at top	0.25"	0.625"	0.375"	?
Conical hole - maximum diameter	2.25"	2.25"	2.25"	3"
Projection of engaging cup	1.125"	0.75"	0.625"	1"
Weight of plate	45lbs	56lbs	35lbs	?

It will be seen from the above dimensions that the Landore and Scott's plates are much the same size, the greater weight of the former accounted for by its extra length. The Pentre plates are stouter and longer and the Cribarth plates, so far as one can judge by fragmentary evidence, are larger still. A feature of the Pentre and Cribarth plates which does not appear on Scott's plate, and probably not on the Landore plates, is a lug cast on at the female end of the plate to give it greater stability: this has a total length of 5" on the Cribarth example and 4" on the Pentre one. A further feature of the Pentre plate is a strengthening rib, 36" long, on the underside which tapers off towards the male end.

Looking at the flange of these plates from the tread side, on the Cribarth fragment the female end is on the right, whilst on the Pentre and Scott's examples it is on the left. Were left- and right-handed plates cast for the appropriate side of the track? It seems unlikely: more probably it was a matter of indifference and left to the individual ironworks to choose which end was to have the recessed hole.

In view of the comparatively slight dimensions of Scott's plate, it is hardly surprising that the locomotive which very probably ran on the tramroad in 1819 broke up the track. In everything else connected with the pit Scott appears to have gone for the best: it is the more surprising, therefore, that he seems to have skimmed on the plates, especially if he was considering the use of a locomotive. However, it is not absolutely certain that these are the plates originally used by Scott, since plates of a more conventional pattern have also been found at Scott's Pit, but the trouble is that these are even lighter in weight (approx. 30lbs per yard).

Oeynhausen and Dechen refer to the Landore tramroad as being laid on wooden sleepers rather than on stone blocks. The same would almost certainly have been the case at Cribarth since the stone quarried there was rottenstone (decayed limestone used for polishing tinplate) which was totally unsuitable for making stone sleepers. For the Pentre and Scott's tramroads there is no evidence either way, but if it is assumed that Scott's tramroad was also laid on wooden sleepers, that would help to explain why no stone blocks have been found in its neighbourhood. True, there are a fair number of stone blocks with two holes in them to be found, but these must all date from the reconstruction of 1845 by the Swansea Vale Railway.

As might be expected, these tramplates can all probably be dated to the first three decades of the 19th century. In the case of Scott's tramroad, it is known that construction commenced in 1816, and in 1819 E. Frere of the Clydach ironworks (near Abergavenny) was pressing for payment for tramplates supplied to Scott. Assuming that the example found at Scott's Pit does belong to the original batch - which is by no means certain - it can be dated to 1816-19. The Cribarth tramroad was opened in 1798, but whether the present fragment dates from then cannot be said. The Pentre system was converted to an edge railway in 1830 (The Cambrian, 5 June 1830) and therefore the plates must be earlier than that. All that can be said of Landore is that the interlocking plates were in use in 1826-27.

It would be interesting to know at which ironworks these plates were manufactured. In view of their restricted provenance from the Swansea area, it might well be a works in Swansea or the Swansea Valley. The evidence that Scott's plates were cast by Frere of Clydach (Abergavenny) is firm, but what is not established is whether the plates supplied by Frere belong to the overlapping type discussed in this note, or the more conventional type also found at Scott's Pit. It could well be that the latter were the ones supplied by Frere, and that the former came from a local ironworks at a later date as replacements for broken plates.

Examples are also known of edge railways where a similar system was in use: a chair was cast onto the end of each rail, and these overlap to interlock the rails. This appears to have been fairly widespread. However, no further examples of tramplates of this kind appear to be known from outside the Swansea region. It would be much appreciated if any reader knowing of such plates, either entire or fragmentary, would inform the author of this note.

P.R.R.

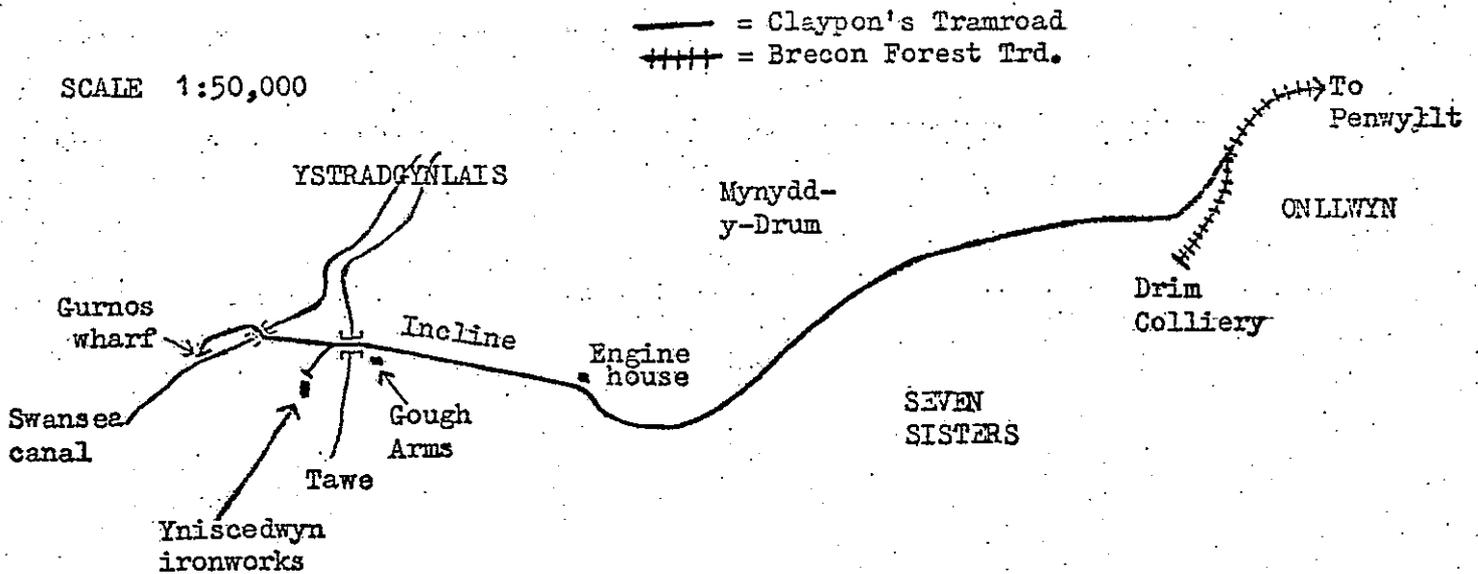
BETJEMANIA

"John Betjeman had preceded me (to Australia) the year before my second visit and was, as he always is, deeply popular. There had recently been a railway station at Orange, but the line had been closed down and the station demolished. He insisted on visiting the derelict station and was loud in his praise of the corrugated iron of the former waiting room which lay there scattered on the ground. "The curve of that iron," he said. "Did you ever see anything so beautiful?"

(From Christopher Hollis, The Seven Ages (London, 1974), p.97.)

CLAYPON'S TRAMROAD

(Notes originally compiled for a field trip of the SWWIAS, June 1978)



Why Claypon ? The tramroad takes its name from Joseph Claypon, a Lincolnshire banker, who had it built. His interest in this district came about in the following way. In 1820 a London merchant, John Christie, acquired the Crown Allotment of the Great Forest of Brecon which was being offered for sale by the Crown, and which lay between the Swansea and Usk valleys. Christie developed the area with great vigour by quarrying limestone at Penwyllt and, in order to obtain a supply of coal for the limekilns and to sell, he took a lease on the Drim Colliery at Onllwyn. It was to link the colliery to Penwyllt and the northern terminus at Sennybridge that he built the Brecon Forest Tramroad. He was under-capitalised and got deeply in debt, Claypon being his principal creditor. In 1827 Claypon foreclosed and all Christie's assets eventually passed to him. Shortly afterwards he built the tramroad which now bears his name as a link between the original B.F.T. and the Swansea Canal.

History

- Purpose:** To carry limestone from Penwyllt to Yniscedwyn Ironworks and to link the Swansea Canal to the Brecon Forest Tramroad.
- Route:** Drim Colliery - Mynydd-y-Drum incline - Gurnos wharf.
- Engineer:** John Brunton (1812-1899), and later his brother Robert.
- Construction dates:** Work started in autumn 1832. Line opened 13 October 1834.
- Labour force:** 500 men, all local, monoglot Welsh. Wages bill of £400 a fortnight.
- Track:** Stone blocks with L-shaped tramplates, 36" long, 50lbs per yard in weight. 3' 6" gauge.
- Motive power:** Horses on the level, steam winding engine on the incline. During construction there was talk of using 'loco-motion engines', and the tramroad was engineered with this in mind rather than just horse power. The idea of a locomotive was again raised in 1840 but almost certainly was never put into effect.
- Later history:** Remained in use until about 1860. Part of it from Gurnos wharf to the foot of the incline were incorporated into the Swansea Vale Railway. The rest fell into disuse when the Neath & Brecon Railway was opened.

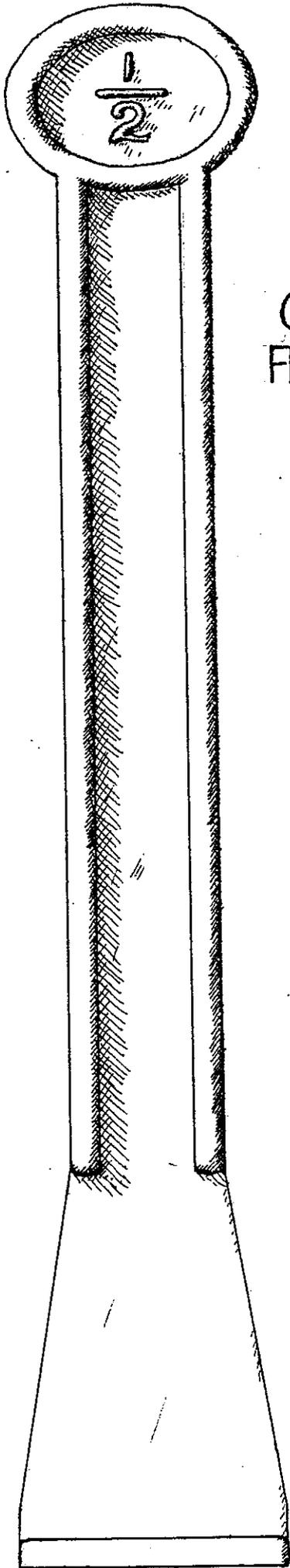
Features

The tramroad was engineered to a far higher standard than was customary for horse-worked tramroads. This reflects that the railway age had arrived by 1832 and that there was the possibility of using steam locomotives rather than horses.

Points of significance are listed on page 10.

FRONT ELEVATION

SIDE ELEVATION

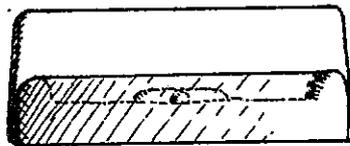


CAST IRON HALF-MILE POST
FROM CLAYTON'S TRAMROAD
BRECKNOCKSHIRE

c. 1834

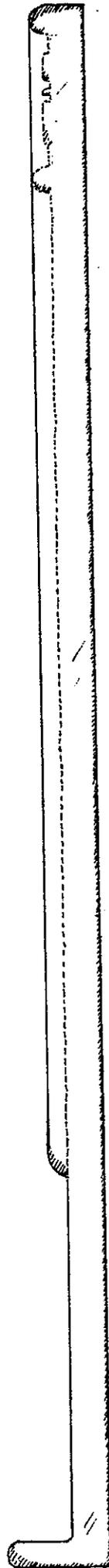
© PETER WAKELIN 1978

SCALE- 1:4



PLAN

FROM GRID REF.-SN 811096 (APPROX)



Earthworks: cuttings and embankments are used to maintain a straight, level line.

Stone sleeper blocks survive in many places.

The horse path - ballast between the blocks to provide a sure footing for the horses - can be seen, especially on the embanked sections.

Turnouts, marked by a double set of blocks in some places, are former passing places.

Mileposts of cast iron were provided at every quarter mile. Two of these are known to have survived. One, a post, is now in the National Museum of Wales, and the other, a $\frac{1}{2}$ post, not in such a good state of repair is in the hands of a member of the SWWIAS who is attempting to clean it up with a view to presenting it to a local museum (see illustration on preceding page).

The incline from the top of Mynydd-y-Drum to the Swansea Valley was one mile long. The engine house and its reservoir remain at the top. There is an attractive under-bridge near the bottom. It cost 9d per ton to use the incline in Claypon's days.

P.R.R.

RECENT LITERATURE

E.G. BOWEN. John Hughes (Yuzovka), 1814-1889. Univ. of Wales pr., 1978. £1-00.

John Hughes was a Merthyr boy who made good in a spectacular way. He learnt his trade in Cyfarthfa works and Ebbw Vale, and then branched out on his own at Newport. It was in 1869 that he established the New Russia Company with the encouragement of the Imperial Government to exploit the coal and iron resources of the Donetz area in southern Russia, thus beginning "the first phase in the country's stupendous industrial development.

Hughes ruled the town of Yuzovka which was named after him autocratically, and conditions sound reminiscent of Merthyr at its worst. Professor Bowen stresses the role of skilled Welsh workmen in the development of the town and its industry. Their new home would appear to have agreed with them, for they seem to have mingled in with the local population imperceptibly.

The story is taken right up to the present day, the town now being known as Donetsk and having a population of 879,000. There are a number of illustrations and maps. The text is bilingual, Welsh on the left and English on the right, which means that the book is only half as big as it looks. It represents a readable and useful account of a Welshman who ended up farther east than most.

AFAN UCHAF, vol. 1, 1978

This is the first volume of the journal of the Cymmer Afan and District Historical Society. The Editor outlines his plans for future issues, and it would appear that there is already plenty of material in hand for at least two further issues, a fact which should please local historians in Afan and elsewhere.

The current issue contains four articles, of which two concern industrial history. Clive Smith describes 'The railway history of the upper Afan valley, 1856-1971', and while he does not add very much to what is already known, his article provides a fair summary of the events and is well illustrated with a number of photographs. There is a good plan of Cymmer station and a map of railways in the Afan valley, although the latter contains a number of omissions.

'Farmsteads and drift mines' by Jack Watts is a short note on a few local collieries. The other two articles, both by Roger Lee Brown, give accounts of the history of Gyfylchi chapel, used by the Methodists between 1776 and 1826, and of the Jenkins family of Corrwg Fechan.

The text has been duplicated on both sides of paper which is a little too thin for this purpose, resulting in a noticeable see-through, but the illustrations have been well printed from half-tone blocks on coated paper. Altogether the journal has a neat appearance, bearing in mind the considerable difficulties involved in producing a short-run journal to be sold at a reasonable price.

(Available from: The Revd R.L. Brown, The Rectory, Cymmer Afan, Port Talbot.
Price: 85p plus 20p postage.)

S.W.W.I.A.S. NEWSLETTER 1-20: INDEX

Reference is to issue and page number; thus "10/6" represents page 6 of issue no.10. Society announcements, forthcoming events etc. are not included.

Blaenafon 10/4
Brunel, I.K. 6/2-3
Buses 11/8, 12/6

CANALS 9/6, 17/6

Neath & Tennant Canals Pres.Soc.
8/3, 9/6, 11/4-5, 18/6

Neath Canal narrow boat rescue 1/3,
2/2, 16/2

Penrhiwtyn Canal 20/4-5

Smith's Canal 11/5

Swansea Canal, Ynysmeudwy 3/3, 6/2

COAL MINING 13/8, 18/5

Abersychan 15/3

Blaenant Coll., Crynant 9/4, 15/2, 19/4

Cwm-nant-llwyd 6/2

Fatalities (18th cent.) 12/5

Scott's Pit 5/2, 12/4, 14/4-6, 15/4-5,
17/5-6, 20/3

Seven Sisters (1875) 9/4

Talyclun Coll., Hendy 11/2-3

Underground trams 5/3

Welsh Miners' Museum 2/3-4

COPPER SMELTING

Hafod 11/5, 19/5

Neath Abbey 1/6

Penclawdd 5/3-5

Cwmafan 14/2-3

HOUSING 18/5

Concrete cottages 13/4

Hafod G.I.A., Swansea 15/2

Morris Castle 1/4-5, 11/5

Swansea 10/5

Hughes, John (Yuzovka) 17/3-4, 20/10

IRON AND STEEL INDUSTRIES

Blaenafon 10/4

Elba Steelworks, Gowerton 4/3-6

Llandyfan forges 7/7

Medieval furnace, Swansea 14/2

Merthyr Tydfil 13/3, 13/8, 18/5, 19/6

Neath Abbey 1/6, 7/4-5, 13/7, 15/3,
18/5

Sidney ironworks 12/6

Siemens Laboratory 10/3, 11/5, 12/3

Ynisedwyn 1/7, 9/3, 16/2, 19/4

Ironwork, street 13/7, 16/4

Letter boxes 16/3

Llanelli 14/3

Loughor zinc works 2/4, 8/2, 9/3

Lower Lliw Dam 16/5-6

Lower Swansea Valley 1/8, 9/2, 10/1
11/3, 11/5-6, 18/5

Merthyr Tydfil 13/3, 13/8, 19/6

METALLIFEROUS MINES 3/5, 10/6, 11/8

Bishopston (silver & lead) 16/5

Casara (lead) 19/3

Dolaucothi (gold) 2/6

Morrison old market 12/4

MUSEUMS

Swansea Maritime & Industrial 8/2, 15/7, 18/6

Trostre Tinplate 2/1-2

Welsh Miners' 2/3-4

Woollen Industry 14/2

Oral history in Swansea 11/6-7

Penwyllt 11/2

RAILWAYS

Brunel in west Wales 6/2-3

Burry Port & Gwendraeth Valley 16/6

Cwmgors 6/4-6

Forth Bridge 15/3

G.W.R. roll of honour, Exeter 14/1

Gwili Railway 10/3

Hafod viaduct 19/3

Landore viaduct 19/4

Llanelli R. 17/3, 18/5

"Margaret" (loco.) 8/5

Mumbles R. 2/6, 11/3-4, 15/5, 15/8, 17/2, 19/1

Neath General station 9/3, 10/2-3, 12/2-3,
13/4, 14/2

Neath, Pontardawe & Brynamman R. 6/4-6, 7/3

Railway coaches in Pembrokeshire 19/5

Railway sheepdogs 16/4

Swansea Vale R. 5/6

Swansea Wind Street station 13/5, 15/2

SHIPPING

Barque for sale (1875) 9/4

Vessel launched at Neath Abbey (1876) 13/7

H.M.S. "Warrior" 5/3

Whitford Point lighthouse 3/5

STATIONARY STEAM ENGINES 3/2

Crynant 9/4, 13/2, 19/4

Elba steelworks 4/3-6

STREET TRAMWAYS

Constitution Hill, Swansea 16/2

Mumbles R. See Railways

Struvé, W.P. 18/3-4

TINPLATE

Carmarthen 16/6

Kidwelly 2/2-3, 8/5, 10/4, 19/4, 20/2

Llanelli 9/6

Traction engines 3/6

TRAMROADS AND MINERAL RAILWAYS 9/6, 20/6-7

Abersychan 15/3

Claypon's 20/8-10

Clyndu 13/6-7

Cwmllynfell 8/5

Hafod tip 19/5

Pentre Pit 6/3

Penydarren 3/4-5, 10/6

Townsend's Waggonway 19/6

Underground trams 5/3

Wind-powered schemes 17/2-3

Weaver's Mill 12/3, 15/2

LITERATURE - Books reviewed

Bick, D.E. The old metal mines of mid Wales, 11/8
Bowden, D.G. Swansea old and new 8/6
Bowen, E.G. John Hughes 20/10
Bracegirdle, B. Archaeology of the industrial revolution 5/6
Brewster, D.E. Motor buses Wales 12/6
Buchanan, R.A. Industrial archaeology 2/5

Cossons, N. BP book of IA 11/8
Crossley, D.W. Sidney ironworks 12/6

Douglas, R.W. History of glassmaking 2/6

Eaton, G. From castle to civic centre 10/6
Evans, C. Blaencwmdulais 19/6
Evans, T. Tin workers 9/6

Fawcett, J. Future of the past 15/6-7

Gladwin, D.D. Canals of the Welsh valleys & their tramroads 9/6

Harry, W. 66 years with traction engines 3/6
Hilton, J.K. Lower Swansea Valley Project 1/8
Hughes, P. Industrial Wales in art 11/8
Humphrys, G. Excursion notes 14/6

Jenkins, E. Neath and district 7/6-7
Jones, G.D.B. Roman gold mines 2/6

Lewis, M.J.T. Steam on the Penydarren 10/6
Lowe, J.B. Welsh industrial workers' housing 18/5

Pannell, J. Techniques of IA 1/8

Raistrick, A. Industrial archaeology 1/8, 5/6
Rees, D.M. The IA of Wales 9/6
Richards, S. Rhondda & Swansea Bay R. 16/6

Swansea City Council. LSV fact sheet 18/5

Thomas, B. Days of old 11/8
Thomas, B. Good old days 6/6
Thomas, W.G. Welsh coal mines 13/8
Toms, D. Faraday in Wales 1/9

Van Laun J. The pattern of past industry in the national park 13/8

Williams, G. Glamorgan County History 9/5
Williams, H. History of the church in Dowlais 19/6
Williams, S. Vintage buses & trams 11/8
Wright, I.L. Canals in Wales 17/6

LITERATURE - Articles in journals

Bowen, R.E. Burry Port & Gwendraeth Valley Railway 16/6
Buchanan, R.A. Industrial heritage 8/6

Evans, M.C.S. Llandyfan forges 7/7

Gabb, G.F. Driving an iron road through the hills 18/5

Holmes, G.M. South Wales coal industry 18/5

Ince, L. Neath Abbey ironworks 18/5

James, T. Carmarthen tinplate works 16/6

Osborne, B.S. Patching, scouring & commoners 18/5

Phillips, J.R.A. The earliest passenger carrying vehicle? 2/6

Rees, D.M. Agweddu ar archaeoleg diwydiannol 2/6, 3/5 / 3/5
Rees, D.M. The metalliferous mines of Wales
Rees, D.M. Some aspects of IA in Wales 1/9
Reynolds, P.R. Chauncy Townsend's waggonway 19/6

Sands, J.B. Broad gauge on the Swansea Vale Railway 5/6

Thomas, J.D.H. Industrialization of a Glamorgan parish 12/6, 14/6
Thomas, W.G. IA...in the upper Tawe and Twrch valleys 2/6 / 1/9
Thomas, W.G. Preservation of industrial relics
Tucker, M. Lead mines of southeast Wales 10/6

LITERATURE - Journals noticed

Afan Uchaf 20/10
Aqueduct 9/6, 18/6
Glamorgan Historian 6/7, 12/6
Gower 3/5, 6/7, 12/6, 15/8, 18/6
Llchwyr Society Magazine 12/6, 15/8
Merthyr Historian 13/8, 19/6
Neath Antiquarian Soc. Transactions 18/6
Port Talbot Historical Soc. Transactions 2/6, 18/6
South East Wales IA Society Journal 13/8

(N.B. In order to save space it has proved necessary to abbreviate the titles of some books and articles.)