

SOUTH WEST WALES INDUSTRIAL ARCHAEOLOGY SOCIETY

NEWSLETTER

CYLCHLYTHYR

CYMDEITHAS ARCHAEOLEG DIWYDIANNOL DE ORLLEWIN CYMRU

No. 21: March 1979

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

Price to non-members: 15p

#### FORTHCOMING EVENTS

THURSDAY

22 MARCH

Mr W.N. Jenkins: Pwll Du quarrying

(The industrial and general history of the Bishopston valley and Pwll Du. Mr Jenkins published an article on this subject in Gower XXVIII, 1977.)

THURSDAY

19 APRIL

Mr L.C. Ince: The Neath Abbey Ironworks

(Laurence Ince has studied the history of this important site extensively, as a result of which he has recently been awarded an M.Sc. by the University of Bath. He has published an article on the ironworks in Industrial Archaeology.)

Both the above meetings will be held in the Royal Institution of South Wales (Swansea Museum) and will start at 7.00 p.m.

SATURDAY

19 MAY

Dr Graham Humphrys will lead an excursion to Maesteg and the Llynfi valley. It will be an all-day trip, but with a fairly early return. Full details will follow later.

#### ANNUAL GENERAL MEETING

The Society's Annual General Meeting will be held in the Royal Institution on

**TUESDAY, APRIL 3RD, 7.00 P.M.**

The agenda will be the same as in previous years, and copies will be available at the meeting. Any member who wants an advance copy is asked to send a stamped and addressed envelope to Paul Reynolds. Please send nominations for the various officers and committee posts to Idris Roberts, and also advise him if there is any matter which you wish to raise at the meeting.

After the formal business of the meeting there will be an opportunity for members to show any slides of IA or local history interest that they may wish to bring along. It is to be hoped that many members will take this opportunity of sharing their slides with other members. Alternatively, if you would prefer to show post-cards or photographs, tables will be made available at which these can be spread out.

It would be appreciated if you would inform either Hayden Holloway or Paul Reynolds if you intend to contribute in this way. This is so as to help us plan an interesting evening for you. Of course, there's nothing to stop you just turning up with some slides if you find that you are not able to give advance notice, but in any case,

PLEASE TRY TO COME!

OTHER ANNOUNCEMENTS

Bristol IA Conference

The 10th annual conference of western industrial archaeology societies is to be held at the Keynsham Leisure Centre (near Bristol) on Saturday, 24th March. As usual, the programme will consist of contributions from participating societies, and there will be static displays and a book stall. The fee is £2-50 per person, which includes buffet lunch, morning coffee and afternoon tea.

If you are thinking of coming, or would like more information, please contact Idris Roberts, Grove Cottage, Gloucester Place, Mumbles, Swansea (telephone 60330).

Railways and canals in the Peak District

Details have been received of two courses on these subjects to be held concurrently at the Peak National Park Study Centre, Castleton, near Sheffield, from Monday, 28th May to Friday, 1st June. Both consist of full or part-day field visits to relevant sites in the locality, combined with talks by enthusiasts in the evenings. The cost of the courses is not stated in the brochures received. Further details from Paul Reynolds (address on back page).

Any offers ?

Mr E.D.T. Williams (Maedygwydd, Poyston Cross, Haverfordwest SA62 4DU) has a book which he wishes to sell, and has written to ask whether members of our society might be interested. It is Examples of bridge and viaduct construction by William Davis Haskoll, 2nd ed. (Lockwood, 1867). He describes it as consisting of 46 plates, with upwards of 550 estimates and the practice of setting out works, and including some bridges and viaducts in south Wales. The cover is not in a very good condition, but it is said otherwise to be complete. If anyone is interested, please make a reasonable offer to Mr Williams.

Any information ?

Llanelli Borough Council is in the process of developing a country park within the former Royal Ordnance Factory complex at Pembrey. It is hoped to give the general public some idea of the working history of the area. If anyone has detailed knowledge of the factory, such as the exact nature of the processes involved, or sources of further information, the Borough Planning Officer would be glad to know about it. It is understood that the site was first developed in 1881 as Nobel's Dynamite Works, and was the site of the R.O.F. from 1914 until its closure in 1964.

Apparently, prior to the closure of the factory, there was a considerable amount of exhibition material used by the factory for demonstration purposes. This was removed and the Borough Council is anxious to trace its present whereabouts, since display material of this kind would be extremely useful in the proposed industrial museum.

If you have any information on these subjects, please contact the Borough Planning Officer, Mr D.C. Davies, 5 Goring Road, Llanelli (telephone 58181).

SMITH'S CANAL IN 1811

In 1812 Daniel Carless Webb published an account of his Four excursions to various parts of Great Britain in the years 1810 to 1812. His last journey was from London to Swansea, and one thing he took note of, on his arrival, was the Smith's Canal. His entry is of interest with regard to the way the canal was worked and the working conditions of the men:-

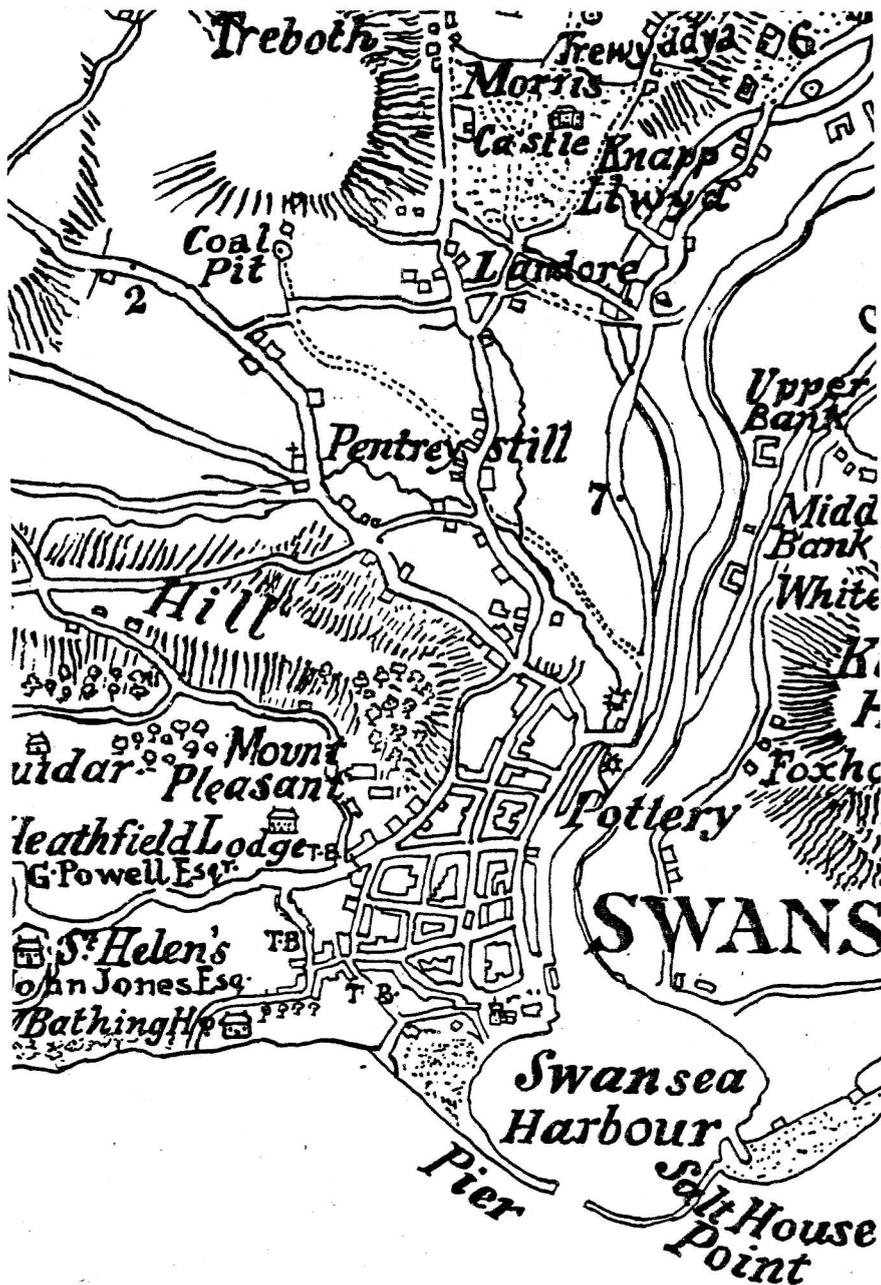
"A Mr. Smith is the owner of a mine in the neighbourhood, where coal is raised by steam-engine from a considerable depth. He is also sole proprietor of a canal from his coal-works to Swansea; the distance is about three miles. Two men will haul a barge from this pit, containing Two wey of coals, and empty it, for three shillings. At this laborious employ they will earn four shillings and six pence per diem..."

The book is in the library of the Royal Institution (Swansea Museum).

G.F. Gabb

PENTRE COLLIERY: A SHORT HISTORY

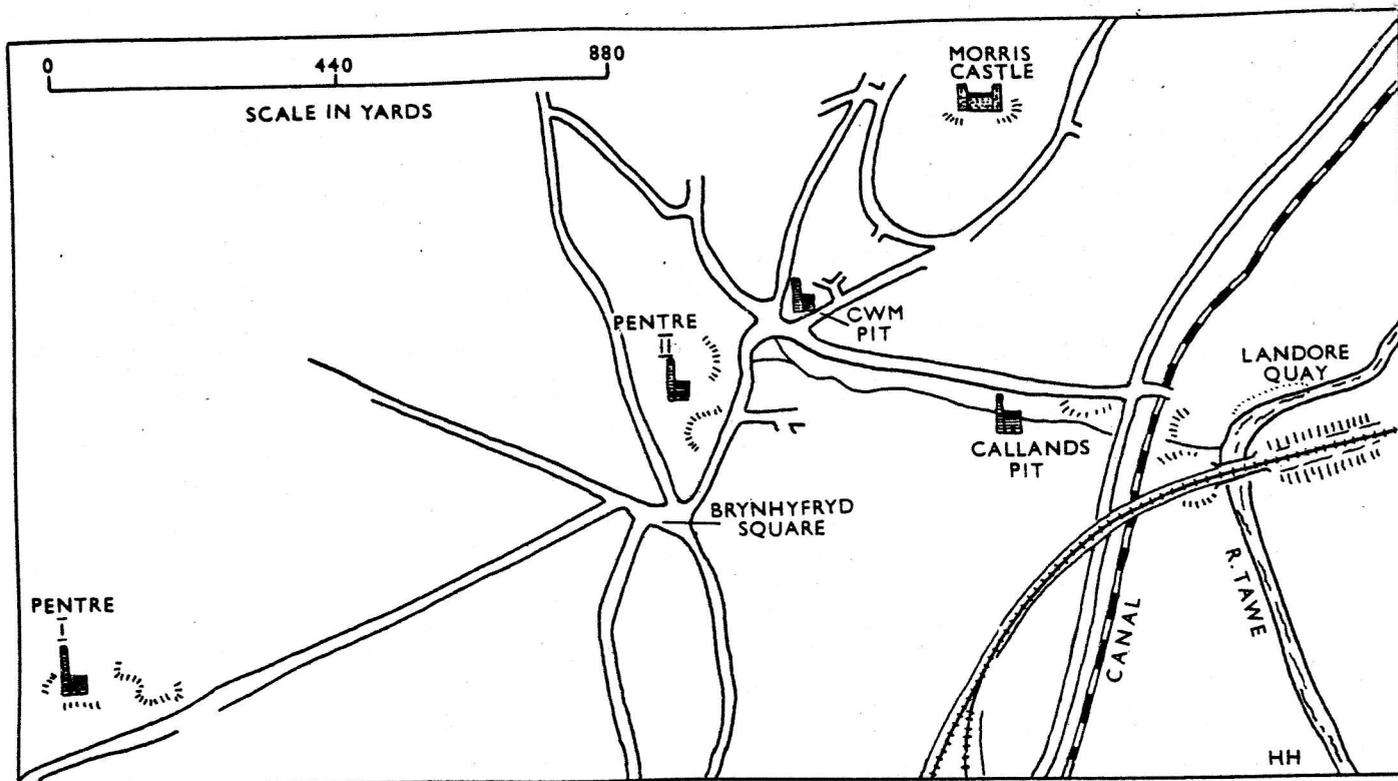
Last year the site of the Pentre pit which overlooks the Landore playing fields was landscaped and the last remaining traces of what must have been the longest continuously operated colliery in the Swansea district were obliterated. The Brynhyfryd, Treboeth, Landore and Plasmarl areas have been mined so intensively and for such a long period that it is extremely difficult to establish an exact chronology for the various undertakings and in some cases to differentiate one undertaking from another. This is particularly true for the eighteenth century when deep mining for coal in this area began. It is proposed in this article to attempt to chronicle the major known facts about the history of the Pentre colliery in the hope that it will be an aid to those engaged in field work and local studies and a stimulus to further research into the mining history of the area.



The Pentre colliery began its history at a site about half a mile to the south-west of the later site. It operated at least as early as 1745 when it was owned by Thomas Price, the squire-coalowner of Penlle'r-gaer. On his death in 1768 the colliery passed to his son, Gruffydd Price, but was found to be 'unworkable without a fire or steam engine'. An atmospheric engine probably of Savery/Newcomen type was accordingly erected in the same year. Gruffydd Price worked the colliery until December 1787 when production was averaging 10,457 tons a year in addition to coal sold at the pithead. At his death the fire engine and other machinery was valued at £1,200. For a number of years, however, the colliery had been running at a loss and in January 1788 Gruffydd Price sub-let it to Thomas Lockwood and John Morris, copper smelters. They found the coal exhausted and were forced to sink much deeper two of the pits begun by Price, to erect another engine and 'to make two new tunnels or stone drifts for the purpose of getting at the remaining coal on or under the said lands'. Over the next seven years production rose to an annual average of 16,394 tons (A.H. John, The Industrial Development of

The Swansea area showing the original site of the Pentre colliery (Yates, 1799).

South Wales, 1750-1850, Cardiff, 1950, pp. 36-37). A record of the costs of the improvements between January 1788 and November 1795 shows that £1,583, 17s. 1d. had been spent on waggonways and a wharf; £1,686 13s. 3d. on pits and drifts; £59 17s. 0d. on repairing an old level; and £1,253 9s. 8d. on erecting an engine - a total of £4,583 17s. 0d. (University College of Swansea Library, Morris MS, small notebook).



Principal pits and other features in the Landore/Brynhyfryd/Treboeth area

The colliery with its new deep sinkings and other improvements had already begun to attract the tourist. In 1791 E.D. Clarke hired an open chaise at Swansea and drove to the mine. His observations were recorded in his Tour published in 1793:

"The entrance is vaulted, and perfectly level, and continues so for about one hundred yards, when our guides made us turn off to the right, to a sort of staircase, which they call the horse-road. By this we descended to the depth of eighty fathoms, and came to a spacious area, where the miners were sending up the coal in baskets, through a shaft, to the vaulted level we had just quitted. It is there put into carts, with friction wheels, and drawn by oxen to the mouth of the mine... We did not proceed more than half a mile under ground; but were sufficiently fatigued with the excursion. If a person has spirit and strength sufficient to explore the whole of this mine, he would have above three miles to walk in these gloomy abodes..."

About ten years later another tourist, the Rev. J. Evans, visited the mine and left his impressions of it in his Tour published in 1804:

"The whole hill is full of coal, and is obtained by what miners term open audits, i.e. horizontal shafts driven into the hill, which form levels for draining the work, as well as ways for the delivery of the coal. These are within some vertical shafts, beneath these levels, and whimsies have given way to a more philosophical and expeditious machine, the improved steam engine of Bolton (sic) and Watt. One of these audits, which we traced about a mile in length, admits low waggons, holding a chaldron each, which running on an iron railway, one horse with ease delivers at the quay."

Exactly when the new pit at Pentre II was sunk near Brynhyfryd square has not been firmly established. A plan in the Badminton collection of manuscripts in the National Library of Wales (Badminton MS. 1454, Group II) shows that pits had already been sunk on the sites of the later Pentre and Cwm pits as early as 1736 but the plan shows them being worked by windlasses. They had probably been abandoned before the end of the eighteenth century. According to the Brynhyfryd antiquarian, the late Llewellyn Llewellyn, Pentre II was sunk in 1807 (report of a lecture in Cambria Daily Leader, 31 January 1916) and its first manager was Mr. John Jeremiah, grandfather of Mr. William Jeremiah, 'the well-known Brynhyfryd tradesman'. Mr. Llewellyn may well have been correct since there are several pieces of evidence which suggest that the new

pit had been sunk some time in the first quarter of the nineteenth century. In 1811, for example, an advertisement in The Cambrian (13 April - 11 May 1811) gave notice that Pentre (I) was to be sold by auction and described it as 'a capital colliery... extending under 400 acres of good, free-burning bituminous coal, in two veins of six and three feet, which have been fully proved; with the engines, erections, machinery, and powers sufficient for the working and raising of 50,000 chaldrons annually, with rail-roads to the shipping places...' In December 1823 The Cambrian refers to a new vein of coal being struck at 'the old Pentre colliery once so celebrated for superior coal'. The 'old' may of course only refer to the age of the colliery and not indicate that a new pit had been sunk elsewhere. But two further pieces of evidence seem to suggest that the new pit had been sunk by this time, on the site of Pentre II near Brynhyfryd square. The Cambrian of 5 June 1830 described the opening of 'an improved railway and self-acting inclined plane, of nearly half a mile in length, connecting the Pentre colliery, the property of the Landore Colliery Company with the Swansea Canal. 'The plane', continues the report, 'is much flatter than anything before seen in this part of the country, being at an inclination of only about two inches in a yard; it is remarkable for having in its length two curves, somewhat in the shape of a letter S, which the engineer thought necessary to adopt to avoid a deep ravine on one side and a hill on the other'. (For a full transcript, see the note by Mr. Paul Reynolds in SWWIAS Newsletter 6, February 1974.) It should be noted that the distance from Pentre II to the canal is just short of half a mile whereas the distance from Pentre I to the canal would have been about one mile. Furthermore only a tramway coming from Pentre II to the canal would have formed an S shape, the 'deep ravine' being the land falling away east and north-east to Cwm Level Road and into the channel of the Nant-rhyd-y-filiast and the 'hill' being the land on which the present Upper Siloh Road is built. The tramway from Pentre II to the canal is marked on the Llangyfelach Tithe map of 1838 and the plot on which Pentre II was sunk is referred to in the schedule as a coal yard, owned by Calvert Richard Jones and occupied by William Lewis.

There were a number of fatal accidents at the colliery in the first half of the nineteenth century. In January 1816 two men were killed and five burned by a fire damp explosion and in December of the same year two men were drowned (The Cambrian, 6 January 1816, 20 December 1816). In November 1838 two men were killed and one severely injured through refusing to use a safety lamp and in July 1840 three were killed and seven severely injured by an explosion when they incautiously took the cases off their safety lamps to have more light when they struck into an old working where gas had accumulated (R.L.Galloway, Annals of coal mining (London, 1904), vol. 2, pp.108-9).

Accidents of this kind were commonplace in the coalfields of England and Wales at this time and prompted Parliament to legislate on safety in mines. One clause in the Mines Regulation and Inspection Act of 1860 made compulsory the observance of certain general safety rules in the operation of coal mines. The title page of the General and Special Rules to be observed by the owner, agent and workmen of the Swansea collieries of Messrs. Vivian and Sons is reproduced here. By this date (1863) the Vivians, to ensure a coal supply for their Hafod Copperworks had become proprietors of the pits at Pentre, Mynydd Newydd, Cwm Level, Calland's, Pentrefelen and Cathelid. Arthur Pendarves Vivian

**SWANSEA COLLIERIES.**

Penrhiwfaelen, Cwm Level, Mynydd Newydd,  
Pentre, and Cathelid Collieries.

**General and Special Rules**

TO BE OBSERVED BY

**THE OWNER & AGENT.**

AND ALL

Enginemen, Stokers, Banksmen, Breaksmen, Hitchers, Overmen, Deputies, and other Workmen

EMPLOYED IN

**THE COAL MINES & COLLIERIES.**

OF THE

**MESSRS. VIVIAN AND SONS.**

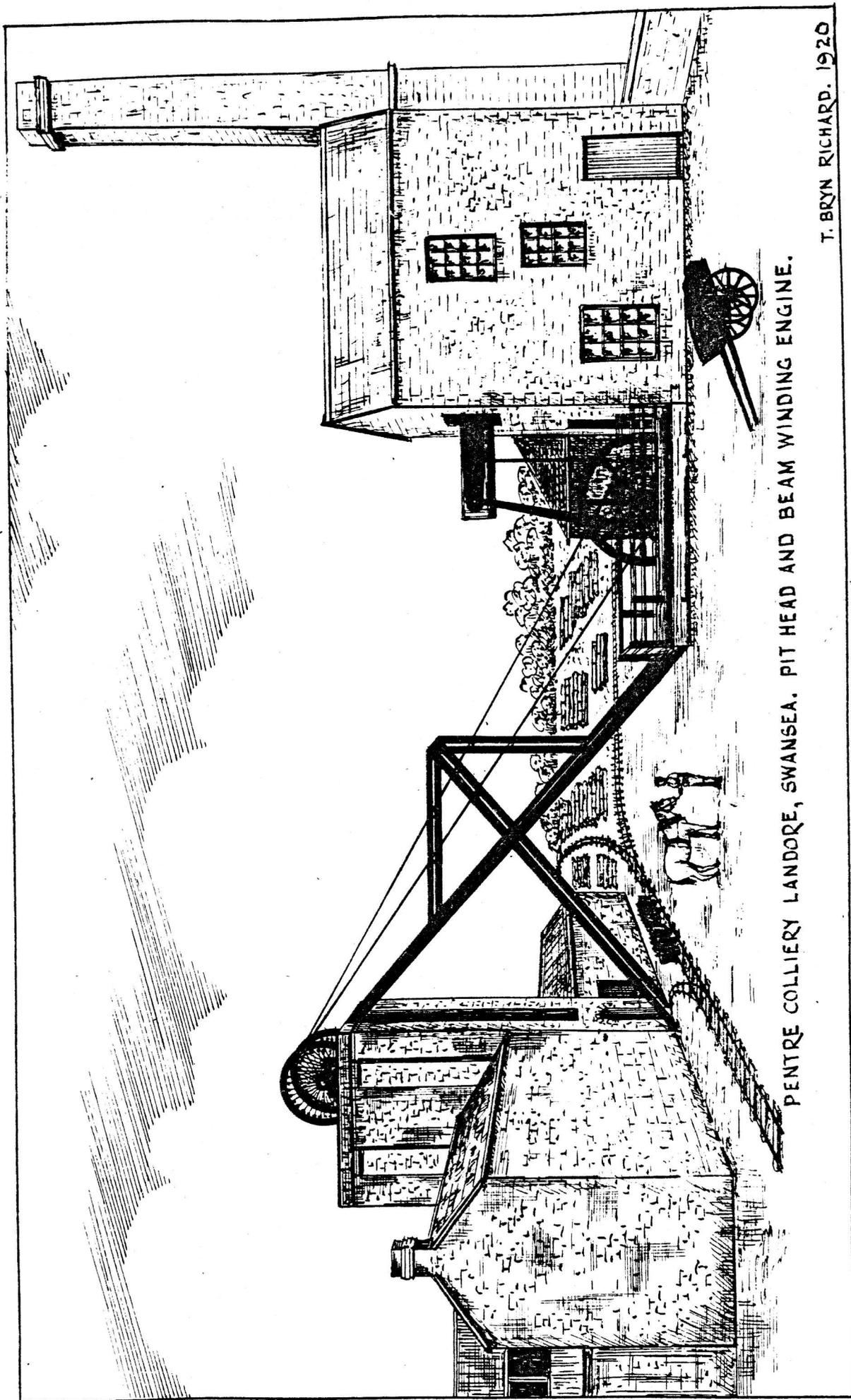
(As required by the 23rd & 24th Vics., c. 151, s. 10.)



SWANSEA:

HERBERT JONES, PRINTER AND BOOKBINDER, OXFORD-ST.

1863.



PENTRE COLLIERY LANDORE, SWANSEA. PIT HEAD AND BEAM WINDING ENGINE.

T. BRYN RICHARD. 1920

visited the first five of these pits in 1868 and has left short technical accounts of his visits in a Coal Account Book now preserved in the Glamorgan Record Office at Cardiff (MS. D/D GC/6A). The report on Pentre is particularly interesting and deserves to be quoted in full:

"The Pentre Pit is sunk down 72 fathoms on to the 6 foot to win a large bit of ground in this vein which has not been touched beside what can be gouged out of the old workings. A drift has been driven in the 3 ft. vein still lower down in the measures, which is to serve as the watercourse and drain of this colliery and at our boundary this drift has only been lately opened out again, but it is an old drift made by the old people but filled up like a gob with rubbish, not open probably for a century and the rubbish now forms a solid concrete mass like (?), though not so hard as if entrenched (?). This colliery will probably have to be ventilated by driving Mynydd Newydd down to 6 ft. (now only sunk to the 5 ft.), a depth of 76 fathoms between these two veins. The winding engine on the top of the pit is a head motion instead of the usual parallel motion carried out by rods. The main drift of the colliery will be driven through many upthrow and downthrow faults going north, and will work the 6 ft. vein below to the solid, in the same ground in which Cwm Level has already worked the 5 ft. above. For this reason we went there next to see the nature of this ground."

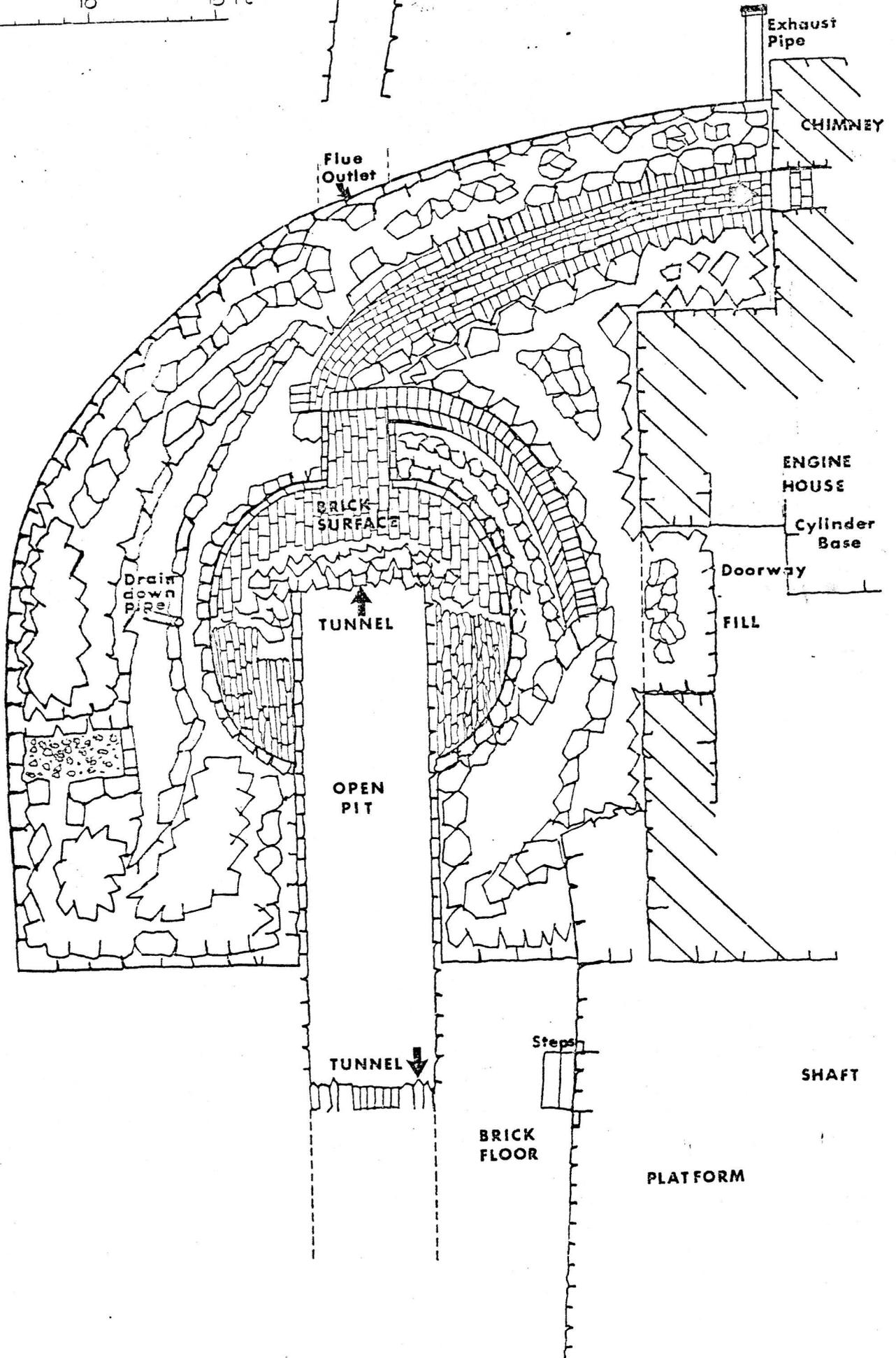
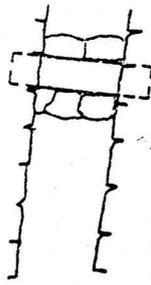
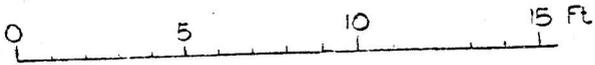
In the last quarter of the nineteenth century the technical problems hinted at in this report were causing serious difficulties. In 1888 there were 277 men working the 3 feet and two feet seams at the Pentre, but in 1894 mining was abandoned until a new sinking had been made to lower seams. In the remaining years of the century the total workforce numbered less than 100 - usually about 50 below ground and 20 to 30 surface workers. Mining was again discontinued in 1904 but the pit was re-opened in 1910 by Trevor Glasbrook Richard and his associates. World War I and the post-war boom gave a new but short lease of life even to a colliery like the Pentre whose working had been bedevilled by geological faults and flood water, The South Wales Coal Annual of 1925 records the Pentre Collieries and Brickworks Ltd. as employing 350 persons in that year, but the end was near. The immediate cause of the closure was the abandonment of pumping at Calland's Pit. Calland's lay about 450 yards east of Pentre (see map). It first operated as a coal pit in the early nineteenth century but acquired its engine house and magnificent Cornish beam engine in 1858. Thereafter it acted as a sump for the neighbouring coal mines. When it stopped pumping the fate of the coal mines of the lower Swansea valley was sealed. Pentre was the first victim of the flood water and was officially closed on 23 March 1926.

In the following generation the decaying engine houses of Pentre and Calland's pits and the inclined plane with its abandoned trams became an unofficial adventure playground for local children. The evidences of industry have only very slowly been removed. The site of the Cwm pit was levelled and the Roman Catholic church of Saint Peter built on it in 1927. The stack of the Pentre pit was brought down in the 1950s and the inclined plane levelled to form the Landore playing fields in the 1960s. The remaining buildings of the Pentre pit were levelled and the area landscaped last year. Now all that remains of an industry which began in the Middle Ages is the roofless, half-buried shell of the engine house of Calland's pit. It is worth re-excavating and preserving.

I am indebted to a number of people for material incorporated into this article: to Mr W.C. Rogers, Mr J.M. Davies, Mr Paul Reynolds and Mr N.L. Thomas. I owe special debts of gratitude to Mr Hayden Holloway who drew the second map and to Mr T. Bryn Richard who kindly allowed me to reproduce his fine drawing of the Pentre pit in 1920. This may be compared with Mr Richard's slightly later drawing reproduced in Mr N.L. Thomas, The story of Swansea's districts and villages (Swansea, 1967). Mr Richard began his career as a mining surveyor at the Pentre pit and later became architect to the Llŵchwr Rural District Council. It is hoped to feature another two of his drawings in future issues of the Newsletter and give a fuller biographical notice of the artist.

F.G. Cowley

# HAYSTACK BOILER



SCOTT'S PIT: RECENT PROGRESS

We are now in the fifth month of the Manpower Services Commission scheme using unemployed people to carry out the excavation, conservation and landscaping of the site. The team, under Mr E. Phillips, is working very well, although the bad weather has delayed work, particularly on pointing. The site already looks very attractive and one can envisage it as part of Heol Las Park, which is the long-term proposal and the reason for the City Council deciding to acquire it. This will, of course, also ensure its long-term preservation.

A major discovery on site has been the base of a Newcomen or "haystack" boiler on the south (or M4) side of the engine house. (See plan opposite.) This find has been confirmed by Mr Richard Keen and Mr Douglas Hague, and investigations are being made as to how it operated. It appears to have supported a large boiler with a circular base of about 13 ft. diameter, and it has a tunnel underneath connected in some way to the shaft, which is as large as the original tunnel to the furnace house. Despite excavation of the furnace house, there is no evidence to confirm this yet, and its structure and relationship to the tunnel and pit remain a puzzle.

Space will not allow me to expand on other finds, but if members would come along to the Society digs they could help explore the remaining features. I am afraid that I remain rather disappointed at the lack of support from the membership for this activity, and hope that you will be able to make at least one of the following dates:

MARCH 10

APRIL 28

MAY 12

JUNE 23

B.C. Fagg

INDUSTRIAL ARCHAEOLOGY TRAILS

A few years ago the Society, in conjunction with Swansea City Planning Department, produced a couple of trails on the IA of the Lower Swansea Valley and Morriston. In the past year a small group of members have been working on further trails of a similar nature and it is hoped that they will start to appear fairly soon. As with the previous trails, the information and writing has been the responsibility of the Society, and the City Council will have them printed and distributed.

The first of the trails to appear will be on the coal mining industry and its remains in the Llansamlet/Birchgrove area. It is hoped that this will be ready next month. It will be followed in due course by further trails on the Cwmbwrla/Fforestfach area, the Penclawdd/Gowerton area, the Hafod, Brynhyfryd/Llangyfelach, the Clyne Valley, Kflvey Hill and Saint Thomas, and Oystermouth (although not necessarily in this order). It is expected that the price will be in the region of 20p per trail.

ANNUAL SUBSCRIPTIONS

Subscriptions for 1979 have been coming in well, but there are still a number which appear to be outstanding. If you are still in arrears, please let the Hon. Treasurer, Paul Reynolds, have your remittance as soon as possible. The rates are £1-50 a year, or 75p for full-time students and OAPs.

150 YEARS AGO

"THOMAS BOWEN, late Iron Founder  
Quay, Swansea

Begs to return his sincere thanks to his Friends and the Public for favours already received, and respectfully to inform them that he has disposed of all his STOCK and BUSINESS to the OSTRICH FOUNDRY, STRAND, SWANSEA, conducted by W. Wilkes, where castings of every description are supplied on the shortest notice, the superior quality of which must ensure a continuation of public patronage.

T.B. takes leave to inform his Friends, that he has resumed his former business of SURVEYOR And BUILDER in general..."

(The Cambrian 17 January 1829)

RECENT LITERATURE

NEATH ANTIQUARIAN SOCIETY. Transactions, 1978

The previous volume of the Neath Antiquarians' transactions proved to be most successful and rapidly sold out. The latest volume also deserves to be equally popular, since it includes a wealth of interest on the history of Neath and its district, some of the articles in particular marking a positive step forward in establishing an accurate historical record of the town. Among these are three articles, all with a bearing on industrial history, in which Harry Green uses the original documentary evidence to investigate and correct the existing record. They are 'Penrhiwtyn ironworks and Eaglesbush coal', 'Melincryddan copperworks and village' and 'Briton Ferry ironworks: a myth destroyed'. The important role played by the Quakers in developing the industries of Neath and Swansea is described by George Eaton, and Gerald Gabb looks at early operations on the Vale of Neath Railway. There are many other contributions besides these. The volume is strongly recommended and represents good value at £1-50, although in order to allow this low price to be possible some economies have had to be made in production which are most noticeable in the reproduction of the illustrations.

(Obtainable from: Mr George Eaton, 7 Cimla Road, Neath. £1-50, post free.)

GOWER, vol. XXIX, 1978

This issue is regrettably somewhat slimmer than we have become used to in recent years, and a different printing process has been used for the first time, although the effects of the latter change are barely noticeable. Three articles in particular in this issue have a bearing on local industrial history. In 'A temporary extension of the Oystermouth Railway', Gerald Gabb presents evidence to show that this line was briefly extended in its early years from Oystermouth to the limestone quarries at Southend. The furor surrounding the introduction of building bye-laws to Swansea in 1859-60 is described by Franke Claybrooke's 'Swansea houses - the first building byelaws'. Thirdly, the development of the Lower Lliw and Blaennant Ddu reservoirs forms the subject of 'Swansea's early water supply' by Gordon R. Howe. In addition there is the usual selection of interesting articles on all aspects of Gower.

(Available from bookshops or Swansea Museum. £1-00.)

LLWCHWR SOCIETY MAGAZINE, vol. IV, 1978

The latest issue of this duplicated magazine contains the usual assortment of short articles on the history of Gorseinon, Gowerton and Loughor. Griff Edwards recounts some 'Tales of old Elba' and Tom Massey and W.E. Minchinton offer 'The history of the bus transport industry in the Gorseinon area'. Also included are articles on church history, education, geology and natives of the area who have distinguished themselves in various ways.

WALES TOURIST BOARD. Wales: a glimpse of the past

This attractive little book is sub-titled "A tourist's guide to industrial trails, slate quarries, mines, mills..." and this, with the addition of bridges, railways and canals explains its purpose very well. Interesting industrial sites and trails throughout Wales are described and illustrated, and a surprising amount of information about each locality is fitted in for the size of the book. This historical information may not be accurate in every respect, but the book seems to serve its primary purpose very well, to indicate the principal areas and sites of IA interest for the visitor. Swansea is well represented with Scott's Pit and the Lower Swansea Valley Trail, and there are interesting sections on Aberdare, Merthyr, the Rhondda and several areas of Gwent. The book is well designed and printed and sells at a modest enough price. Subject to the above caution about its reliability, it ought to form a useful guide when planning one's holidays or days out.

(Published by the Wales Tourist Board, Cardiff, and available from bookshops. 50p.)