



SOUTH WEST WALES INDUSTRIAL ARCHAEOLOGY SOCIETY

NEWSLETTER

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Newsletter 29, November 1981

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

Price to non-members: 15p

FORTHCOMING EVENTS

- 17 DECEMBER Mr Cecil Lewis
THE WELSH PROCESS OF COPPER REFINING: REMINISCENCES
OF A COPPER REFINER
- 21 JANUARY Professor D. Betteridge
LUDWIG MOND AND THE RISE OF THE CHEMICAL INDUSTRY
- 18 FEBRUARY Mr W.J. Grant-Davidson
THE HISTORY OF POTTING IN SOUTH WALES: THE SOCIAL ASPECT

All meetings are held in the Royal Institution of South Wales (Swansea Museum) and commence at 7.00 p.m.

OBITUARY

The death has occurred, at the age of 86, of Mr Thomas Bryn Richard, engineer and architect, whose sketches have appeared in the Newsletter on a number of occasions.

Mr Richard, whose family were connected with the mining industry in the Swansea area from the early nineteenth century, retired in 1960 as Architect to the former Llwchwr U.D.C. After initially training as a mining engineer and surveyor, he served with the old Swansea R.D.C. and when it became the Llwchwr authority, he transferred to the new Council. He served there in various capacities and in 1948 took over the position of Architect. Mr Richard was a Fellow of the Institution of Structural Engineers and a former member of the Council of that Institution. He was also a Member of the Institution of Mining Engineers, the Institution of Registered Architects and the Institution of Highway Surveyors. Although born and brought up in Landore as a member of New Siloh Chapel, he lived for most of his life at West Cross and was a prominent member and a Deacon of Tabernacle Congregational Church, Mumbles. A keen historian, he cooperated closely with the late Mr N.L. Thomas on his History of Swansea Districts and Villages, and up to his death was still regularly being consulted upon the industrial archaeology of the Swansea area. He had a gift for sketching and his drawings of long-vanished industrial scenes now have an historical value.

Mr Richard is survived by his widow, Mrs Olwen Richard, his daughter, Mrs Joan Wright, and his son, Mr Tony Richard.

F.G.C.

WEAVERS MILL

The issue of Weaver's Mill has continued to rumble on throughout the summer, and looks set to become as much part of the Swansea scene as is the mill itself. At the time that this note was written (mid-October) nothing very definite had transpired, but it is becoming increasingly clear that the days of Weaver's Mill must now be numbered. There are three applications pending for the demolition of the building and the redevelopment of the site. One is from a rather mysterious firm in Surrey called Meldoak Ltd: they purchased the lease in June and are believed to be acting on behalf of some other organisation. Their plan is for a superstore, garden centre and DIY glory-hole. The second proposal is from the grocery chain, J. Sainsbury, who also want to build a store on the site and so enter the market in south-west Wales, an area from which so far they have been noticeably absent, to the despair of all the immigrant English housewives. The third proposal is from the Land Authority for Wales - and they too have a major retailing development in mind, surprisingly enough. The City Planning Committee has recommended the demolition of the building, but subject to three conditions:

- a suitable redevelopment scheme must be agreed on before demolition can start
- the Council must be satisfied with the redevelopment
- a complete record of the structure and history of the building should be made before demolition begins.

So far the only opposition has come from West Glamorgan County Council and the Victorian Society. The County Council's objection is based on their status as highway authority, since a major new development will inevitably lead to a big increase in traffic and potential congestion. They are not opposed to the demolition of Weaver's, but want to ensure that this aspect of redevelopment receives proper consideration. The only objection to demolition made on historical grounds has come from the Victorian Society, and their objections do not appear to have the full support of local members, some of whom are reported to have resigned over an earlier move when the Society successfully appealed to the Welsh Office to have the building listed. Now that it has been listed, the Welsh Office will have to give its consent to demolition, and a public enquiry is very probable. But it is unlikely that the Welsh Office will refuse permission, since local amenity societies and historical groups in Swansea have shown themselves unwilling to make an issue out of Weaver's, and arrangements can probably be made to satisfy West Glamorgan. However, one thing is certain: if, in the end, the building is to be demolished, it will prove a most difficult and expensive task because of its armoured-concrete construction and its position directly alongside one of the busiest roads in Swansea.

What we have in the case of Weaver's is a classic conflict of goods. The building is undoubtedly of historical importance, but equally clearly it is a remarkably unlovely building, especially in its present run-down condition. What the community has to decide is whether its historical importance outweighs the blight it casts on a prime site in the city centre and the visual affront it offers to inhabitants of Swansea and to visitors coming in on the main road from the east. Historical considerations must indeed receive full attention, but so too must the creation of an attractive environment for day-to-day living in the present, and it would only be an antiquarian dogmatist who insisted that historical considerations must always come first. Furthermore, to justify retention of Weaver's, one must also justify spending a large sum of money to make it secure, to improve its general surroundings, and to maintain it for the future - and whether, in the present financial climate, a convincing case could be made out is rather doubtful. One would also have to justify sterilising a large area of land rather than allowing it to be used for commercial purposes, and Swansea is not so prosperous a city that it can afford to thumb its nose at the chance of a major development that will bring trade and jobs to the area. The historical importance of the building seems to be adequately taken care of by the present proposals, which will ensure that historical information - which when all is said and done, is what really matters - will be safeguarded both in the form of a structural record and plans, and by making available specimens of the fabric for analysis and preservation.

The situation would be different, of course, if a suitable alternative use could be found for Weaver's, but so far no feasible scheme has appeared. ACES (Action for the Care of the Environment in Swansea) is said to have made tentative suggestions which were never taken up officially, but it is probably fair to say that had ACES thought they really had a sound proposal they would have pushed it far harder than they appear to have done. As it is, ACES seem to be keeping their distance, along with all the other like-minded societies in Swansea that might be thought to have an interest in the preservation of Weaver's. The nature of the reinforced concrete construction, and the presence of silo openings combine to make adaptation to another purpose very difficult and probably very expensive. It just has to be accepted that Weaver's is a specialised construction built for a single specific purpose, and there is now no longer any call in Swansea for the function for which it was built. It has served its purpose, and now it has to go. Life must continue in the Swansea of the late 20th century, not in an all-embracing industrial museum.

P.R.R.

RECENT NEWS

Whitford Point Lighthouse. Whitford Point Lighthouse has been listed as a building of historical interest by the Ancient Monuments Commission. It was built in 1865. It stands, forty feet high on a finger of shingle jutting out from the north Gower coast, in an area littered with unexploded shells. It was built by the Llanelli Harbour and Burry Navigation Commissioners, the predecessors of the present owners, the Llanelli Harbour Trust. It has an ornate gallery running around its outside and is also noteworthy for its method of construction - cast-iron plates bolted together. It is the only cast-iron lighthouse in Britain regularly washed by the sea. It is at present leased to the Nature Conservancy Council. Because of the dangerous quicksands and unexploded shells those who wish to visit it should contact the Warden, Oxwich National Nature Reserve Centre. The lighthouse was last in service in 1921.

(Resumé of a report in the Western Mail, 24 July 1981.)

F.G.C.

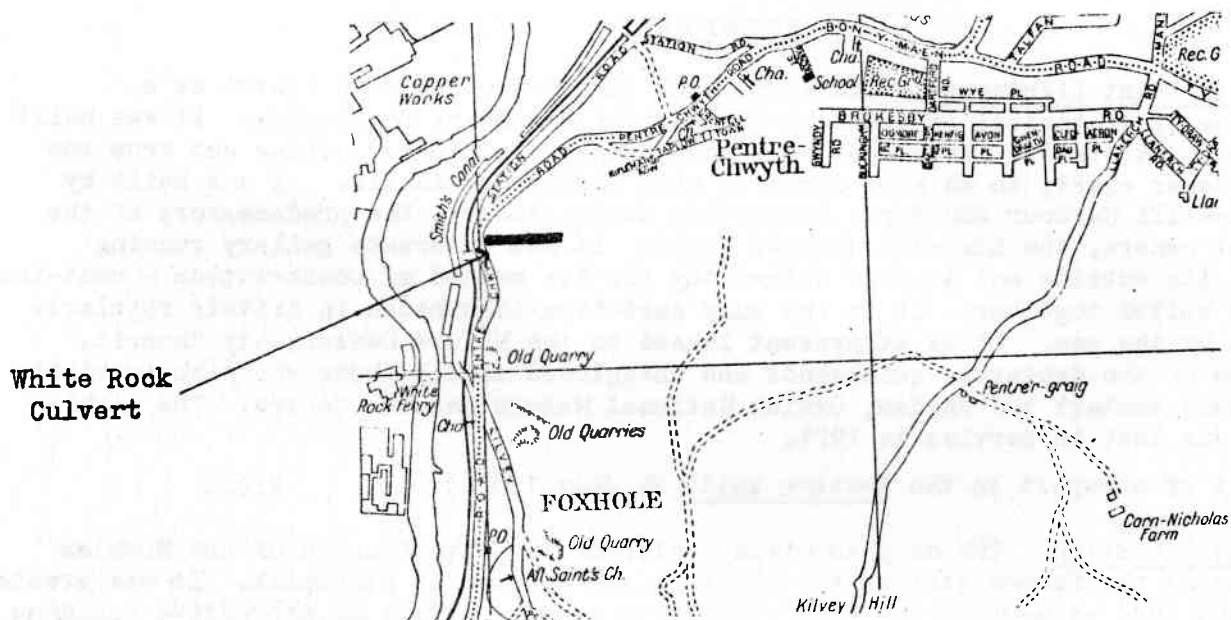
Blackpill Station. The only surviving relic of any significance of the Mumbles Railway is the former station and electric sub-station at Blackpill. It was erected in about 1928 as part of the electrification scheme, and is an attractive building with a classical portico over the platform and the name 'Blackpill' on a stone plaque at roof level. A full description appeared in SWWIAS Newsletter 11 (1975). Swansea City Council has recently put forward proposals for converting it into a restaurant and beer garden as part of its major landscaping scheme for the foreshore. Full details have yet to be worked out, but the Mumbles Railway Society is reported to be unhappy, since they claim that this will alter the character of the station. They want the Welsh Office to list the building. But would a sensitive (and that's the word) adaptation really be so undesirable? An hotel at York near the station has filled one of its bars with a fascinating collection of railwayana, and one could imagine something similar at Blackpill. A display of photographs and mementoes around the walls of a restaurant that was in regular use by a wide range of people would keep the memory of the Mumbles Railway green far more effectively than a vandalised and deteriorating shell ever could, and to have the exhibition in a former Mumbles Railway station would be even better.

Waddle Fans. Thanks to SWWIAS member Dave Richards, a large collection of drawings has been salvaged from the disused works in Llanelli formerly occupied by the Waddle Engineering Co. and deposited in the Library of the University College of Swansea. The name 'Waddle' is of course synonymous with colliery fans, and these drawings represent a cross-section of their products. There are fans of all sizes from 4 ft. diameter to 35 ft., and various details of fans. Unfortunately in many cases there is no indication as to which colliery a particular fan was supplied to, but the names that have survived show that many of them went to pits in south Wales, as might have been expected. Other areas represented are Nottinghamshire and Yorkshire. Readers might be interested to know that one of Waddles' fans still survives in situ if not in operation at Mountain Ash.

THE WHITE ROCK CULVERT AND A PROFIT OF 3,000 PER CENT

By R. O. Roberts

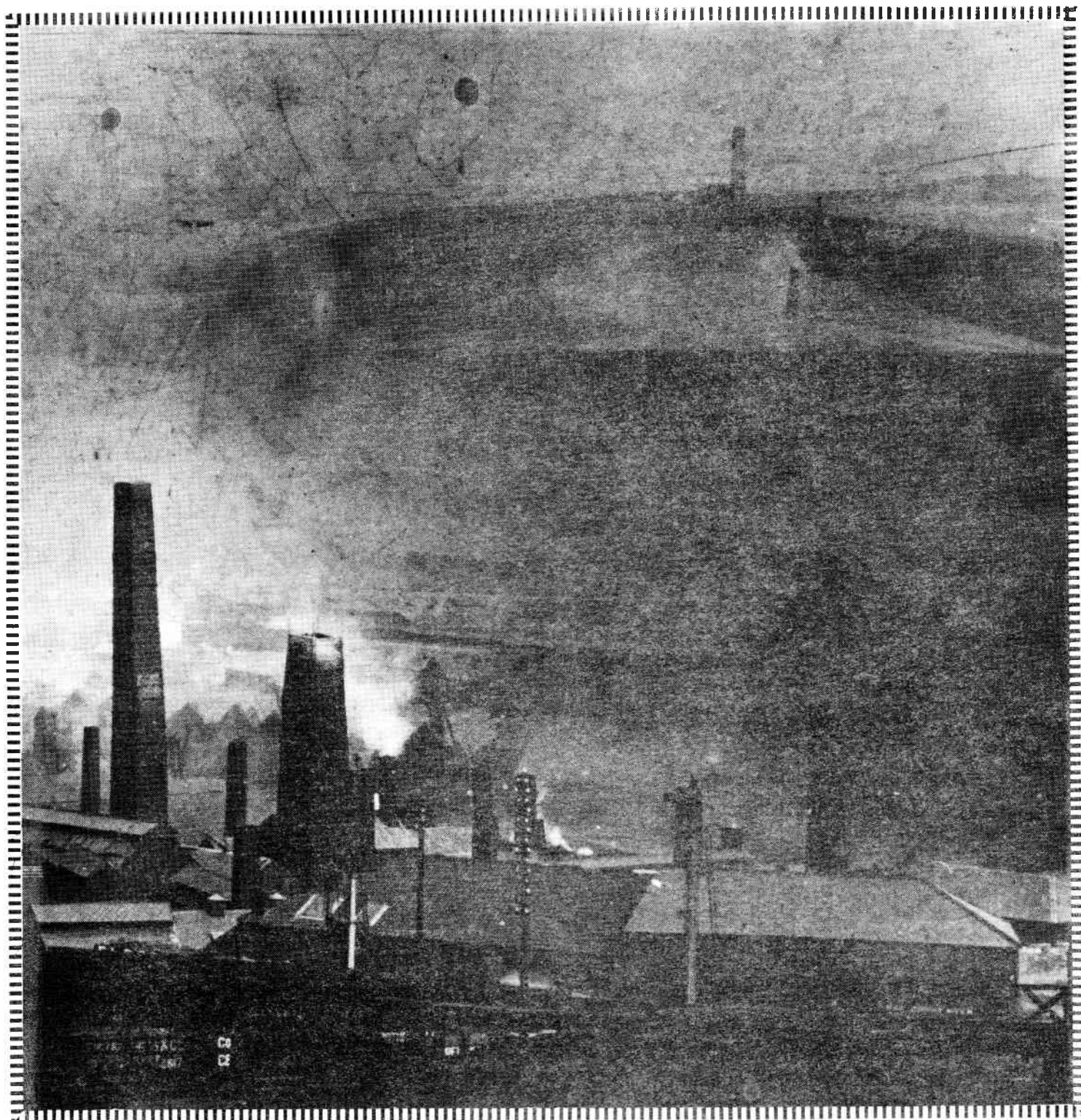
On the afternoon of Saturday 9 May 1981 some members of the Society, under the enthusiastic and well-informed leadership of Mr Cecil Lewis, visited the southern and western slopes of Kilvey Hill - and in particular the sites of two little-known culverts that carried fumes up the slopes. We first saw the remains of the flue and chimney which carried away 'Foul-smelling smoke' from the fuel works situated near the Midland Railway's Saint Thomas station: this flue is referred to in J. Percy's Metallurgy: Fuel... (1861), p. 339, which is quoted in G. Grant Francis, Copper Smelting in the Swansea District (2nd ed., 1881), p. 132. The other culvert visited was that of the White Rock lead works, which is the subject of this note. Members of the party were shown the clear remains of the cutting above the Pentrechwyth Road, opposite the lamp standard and the southern end of the railings. The location is shown in the accompanying plan:



It is not known when the culvert - which was a brick-built structure - was erected but it was probably after 1870 when Williams Foster & Co. and Vivian & Sons (and from 1874 the latter solely) took over the White Rock works from John Freeman Copper Co. and switched to the smelting of lead-silver ores. Mr Cecil Lewis remembers that there were two chimneys above the culvert. These are shown in a photograph mainly of the Hafod works, taken during the first five years or so of the present century and generously lent by Mr Harold E. Grenfell. It has kindly been copied for the Society by Mr W. Pring, and is reproduced on the following page. The culvert-chimneys can clearly be seen on the hill on the right-hand side.

The culvert in cross-section was square with a domed roof. It went up from the works, under the railway and Pentrechwyth Road, and then about 100 yards up to a platformed fume-catchment area approximately 1/4 mile square, sunk into the ground. At the upper eastern side of this area was the lower chimney (which was about 40 feet high). The catchment or condensing arrangement comprised a series of culverts, constructed on a grid-iron pattern, which impeded the movement of the fumes and allowed deposits to settle. A continuation of the culvert carried the remaining fumes up to the square stack (with its adjacent structure) at the crest of the hill.

The recovery of deposits from chimneys and flues was a long-established and profitable practice in non-ferrous metal smelting works. It may, for example, be of interest that T.P. Richards of 'Maes-yr-haf, Swansea' and others in 1882 sold



Kilvey Hill, c. 1905, showing the two chimneys which formed part
of the White Rock culvert. In the foreground is the Hafod Works.

property at Llansamlet which included 'furnace chimney products' (Llansamlet Smelting Co. Ltd. file, seen at the Companies Registration Office, Bush House, London). A summary account of the historical development of the recovery of metal from lead fume is given in Professor D.G. Tucker's paper on 'Fumes, flues, condensers and chimneys in lead smelting', Bulletin of the Historical Metallurgy Society, vol. 6, no. 2 (1972).

Especially in the earlier period of lead smelting at White Rock, hessian sacks were hung in sections of the culvert to trap the valuable dust. Later, electrically-operated klaxon horns were installed in the culvert, especially in the lower part where the deposition was greater; and the periodic vibration from the horns would cause the heavier particles of oxide to fall. Still later a more modern method, known as the Lodge-Cottrell process of reclamation from its devisers, Sir Oliver Lodge and Dr F.G. Cottrell, was introduced under the direction of the engineer, Mr Tom Hill, who had come from Manchester to work for Vivian & Sons at the lead works around 1910.

As for flues in other non-ferrous metal smelting establishments so in the case of the White Rock culvert, men were given the dirty and unpleasant job of 'cleaning' and recovering 'flue dust'. Hessian bags would be tapped and deposits from the brickwork would be collected. The work, for which a bonus was paid, was done annually during the stock-taking 'stop' week in August. The men covered themselves, including their faces, with rags and sacks; and they would work for a few hours and then play cards for the remainder of the working time. The recovered deposits, which contained silver and gold, were 'loaded into trams and taken back to the works for remelting' (T.H. Williams, 'The story of Middle Bank Works', MS written in 1951 and seen at the I.C.I. works office in Landore).

In 1924 the firm of Vivian & Sons merged into British Copper Manufacturers Ltd. which, two years later, was absorbed by I.C.I. Ltd. The lead-silver works at White Rock was closed and, seemingly in 1926, the bricks of the culvert were bought for £100. It appears that Mr Ernie Fisher, one-time goalkeeper for Swansea, was persuaded to put in a bid for the culvert by some men who met at the Ship Inn, Foxhole. They knew that the work of 'cleaning' the culvert had not been done very thoroughly, and that there were valuable residues hidden in various corners and crevices. Whatever their reward might have been for imparting the information, it is said that Mr Fisher made a profit of £3,000 from the recovery of the metal in the remaining deposits.

Another human, but in this case tragic, aspect of the story of the culvert is recorded as follows by T.H. Williams:

'I well remember a lad losing his life by Suffocation through falling into one of the culverts. He was playing around them on his way home from Kilvey School: he lived on the hill not far from the culverts. After that we boys were sternly warned to keep well away from them.'

('The story of Middle Bank Works' as cited above.)

For information about the White Rock culvert warm thanks are given to Dr E.B. Meyrick and to three gentlemen who worked in the non-ferrous metal works of the Lower Swansea Valley - Messrs H.E. Grenfell, Cecil Lewis and Thomas A.J. Phillips. It may be added that Dr D.G. Tucker, in the paper mentioned above, gives information about the lay-out and dimensions of lead-works flues and chimneys in various parts of England. In the case of our region, members of the Society will recall a visit, led by Mr Arthur Rees, about five years ago to the mile-long culvert of the Cwmavon Copper Works. This structure was built in the 1830s up to a 40 ft. stack which was a prominent feature on the summit of the hill above Cwmavon until the Second World War. Information about it is given in Martin Phillips, The Copper Industry in the Port Talbot District (Neath, 1935), pp.43-44 and in the same author's contribution in Trans. Aberafan and Margam Historical Society, vol. 6 (1933-4), pp. 91ff.

BUCKLEY BRICKS

By A. J. Y. Richards

In the course of our visit to Penclawdd in July a block of engineering brick, some 8" x 12" x 12", was remarked upon. It was inscribed "Ashton Buckley Flintshire".

This firm was founded in 1841 by Richard Ashton of Liverpool, who acquired the lease of an existing brickworks at the corner of Church Road and Knowle Lane Ends, Buckley. Their clay hole extended to the east and backed onto the "Buckley Fire Clay Fault". Their product was not actual firebricks, but bricks and blocks for structural use in hostile environments, being noted for their strength, resistance to elevated and variable temperatures, to abrasion and to chemical attack. They were widely used in chemical and smelting works and for tunnel and chimney linings.

When Richard Ashton acquired the business, Buckley products were already widely known, as Jonathan Catheral, who set up the firebrick business in 1757, travelled widely, including to south Wales, promoting his wares. Indeed, prior to this Buckley had been well known for other pottery products and Jonathan Catheral's grandfather was certainly in the business some twenty years before. By the end of the 1770s there were fourteen establishments in the district making tiles, bricks, flower pots, mugs, etc. Indeed, owing to the wide variety of clays available on site anything which could be made from fired clay was made in Buckley, including tramway rails.

However, Mr Ashton did not long remain in the business, for in 1867 he leased it to the Prince brothers, who were Liverpool brick makers. They in turn, took in as partners John Gregory and Thomas Kenyon who owned other brickworks as well as collieries. Ashtons was taken over by Wm. Hancock & Co. in the early years of this century and ceased manufacture at about the beginning of the first World War.

The block that we saw must have come from the latter part of the firm's existence as it is likely that the suffix "Flintshire" would not have been used much before the end of the last century and Aston's name was used as a trade mark right up until the firm ceased trading.

Being isolated by marshy ground, transport problems forced Buckley into the tramway era at an early date, the first several wooden waggonways to the Dee estuary being laid in 1740. However, these various tramways were primarily for the collieries and the brick industry did not get really satisfactory transport until the Buckley Railway to Connahs Quay docks was opened in 1861. In 1864 the Wrexham, Mold & Connahs Quay Railway connected the village to the national railway network.

Obviously the more bizarre products were for strictly local use and the pottery and tiles were not of outstanding quality and did not travel well. However, Buckley fire and engineering bricks were extremely widely used. Indeed, in 1979 one was found in a derelict sugar cane factory in Florida. The commons and facing bricks produced in the district were of excellent quality and were used in various parts of north Wales. However, almost as soon as good rail transport was available, the nearby Ruabon Brickworks were getting into their stride flooding the market with an attractive and competitive product, so Buckley building bricks never sold widely.

The whole industry has virtually ceased in the last decade.

References

- A.H. Dodd, The Industrial Revolution in north Wales, Cardiff (1933).
- M.J.T.Lewis, Early wooden railways, London (1970).
- J. Bentley, Various articles in the Buckley Society Magazine, vols. 1 and 3, and other writings.

COAL MINING IN LLANSAMLET PARISH

By B. C. Fagg

(Part 2)

Llansamlet Colliery in the Nineteenth Century

The draft 1 in. O.S. map of 1813 gives a view of the Llansamlet area at that date. The first road across the valley floor, now the A48, opened to a new bridge at Morriston in 1798, is shown, along with Townsend's waggonway and Smith's Canal cutting south past Pwll Mawr "coal works" with its substantial buildings and cottages. The waggonway is shown running past the copper works, down to Foxhole and the coal wharfs, and then down almost to Swansea harbour. This was a crescent-shaped bowl to the east of the Tawe. The only other coal pits marked in the area are Llanwern, south of Bonymaen, and Cwm, at Winchwen, which suggests that early maps cannot be relied upon to show all existing collieries.

The state of Llansamlet colliery at the beginning of the 19th century was described by its co-owner, Henry Smith, to a committee of the House of Commons in 1810 (22). He says that his grandfather, Chauncy Townsend, invested his whole fortune in the colliery, making it one of the largest then existing. John Smith, his father, put a further £54,000 into it and bought out his partners for £6,000, with little or no return. "The profits on the colliery had by no means reduced the capital on that advance and it is only to the future prospects of working that colliery..." Like most colliery owners, Smith is saying that the risk is high, the return low, and that no sensible investor would do it. He goes on to describe the "two fire engines, I believe of the largest dimensions which are made. There is also a small fire engine for the purpose of drawing water, and one for the raising of coal from a deep pit and a very expensive water engine for raising the coal from another pit"(Pwll Mawr?) "and there is a canal." Plans are also described for expansion, encouraged by the demands of industry arising out of the French wars. These include extensions of workings in the 6 ft. seam through the deepening of the Church Pit, and extensions to the Round Pit in the 5 ft. seam.

It is unlikely that serious expansion took place before 1811/12 when Charles Smith surrendered his lease on the Morgans' land, just before his death. This left the Llansamlet colliery, with Pwll Mawr, Six Pit and other pits on the Mansel estate to be run by Henry Smith as trustee for Charles Smith's son, then aged 9. In February 1812 Lt.Col. Morgan advertised in The Cambrian what appears from the description to be the mineral rights on the Gwernllwynchwyth estate, asking for applications to be sent to his agent at Birchgrove, Mr Morgan Morgan (23). The lease was taken on 21 September 1813 by Evans, Chatterton & Co., and then assigned to Gabriel Tahourdin, a partner in John Scott's legal practice in London, on 29 September 1815. He in turn assigned it to Scott who surrendered it and took out a new lease for 32 years from 2 September 1816. However, on 19 June 1817 The Cambrian again advertised the sale of half of Cwm farm and colliery, Llansamlet, for the remainder of the term of 35 years from 21 September 1813. "Use of free waggonway" and "valuable coal mines" featured in the description. These were almost certainly Round and Cwm pits. We cannot be more specific about the outcome but it looks as though Scott was trying to raise capital to finance a new sinking and the deepening of Church pit. He certainly retained Church pit, for he used the name in his company's title - the Old Church Pit Colliery Co.

We know little of the activities of Scott and his company. No payments to the Duke of Beaufort for coal shipped over the bar at Swansea are recorded until 1819, but it is likely that Scott turned his attention to improvements in about 1817 and brought new funds into the undertaking. In that year he is recorded as having made application to the Exchequer Loan Commissioners for a loan of £3,500 "to support a colliery at Llansamlet". At first this was turned down on the grounds that he did not need a loan "to keep the concern on its present footing", but in September 1817 another application for "Church Pit Colliery" was successful on condition that the loan was repayed within three years and was granted "upon

Mr Scott's own bond and the other collateral securities tendered by him." Unfortunately for Scott, these proved unsatisfactory, so William Thompson of Wokingham, and Andrew Ewbank, of Grosvenor Square, London, were called upon to act as bondsmen (24). Scott's debt to the Commissioners was still outstanding in September 1824. In 1825 he initially defaulted in repayment, and only under threat of court action did he pay. He was finally cleared of debt by the following year. We also know that in 1821 and in 1826 the workers he employed and the rating authority both had to appeal to the courts for settlement of outstanding accounts. By 1828 Scott had assigned his interest in the undertaking to the Swansea banking house of Walters, Voss & Walters, which then eventually passed to Charles Henry Smith (25). The tramroad also became his property.

There is one major project which there is evidence of Scott undertaking, and this is the sinking of the pit named after him near Gwernllwynchwyth House. It is shown on the first edition of the 1 in. O.S. map of 1830, together with the impressive "railroad" (in fact a tramroad) which he built via Round Pit, following the general line of Townsend's waggonway, to Foxhole. The map omits any reference to Church Pit, Pwll Mawr, Pentre Engine Fach and Pentre Fawr.

Scott's pit was a substantial development consistent with the aim of creating a new Church pit to exploit the deeper reserves which had been proved but were so far undeveloped in this part of the coalfield. Investigations by the SWWIAS show that the pit consisted of a well-built Cornish engine-house, a large stone-lined shaft, and a 50 in. cylinder beam engine. The steam was initially provided by an old-fashioned haystack boiler, but this was later replaced with a Cornish boiler. The pit was obviously intended both for pumping and for raising coal.

The reason for investing heavily in Scott's pit can be seen from the geology of the area and the workings in 1808. In the area between the two faults, Gardners and Bethel, the seam was largely worked out, and to continue mining a new shaft would have had to be sunk to a greater depth to work the 4 ft. seam in conjunction with Gwern pit. This was a proven seam at an acceptable depth of 528 ft, and the 5 ft and 6 ft seams could also be worked from it. There was every reason to suppose that given an adequate pumping engine the new pit could repeat the success of Church pit. It may be that a new pit called the New Church Pit Colliery Company was set up to finance this working.

Samuel Williams refers to the sinking of the pit being carried out by Thomas Dafydd of Bonymaen and Robert Mills of Newcastle upon Tyne, and states that a John Jones of Pentredwr was killed during the sinking. Both he and Herbert Gregory, who was a direct descendant of the Morgan family, describe Scott's Pit as having problems in coping with the amount of water involved (26). He refers to the pumps as having been insufficient, although this may refer to an early working on the site to prove the vein. This, together with fatal accidents arising from the difficult conditions which included extensive roof falls, is said to have characterised the pit's operations, and to have led to its early closure in 1838. There is certainly evidence that the pit was disused in 1846 from the Tithe Map. However, it may have been re-opened later as Williams refers to Round pit, probably meaning Gwern pit, being used to bring up coal, leaving Scott's pit to provide pumping and ventilation (27).

There is conflicting evidence as regards the importance and role of Scott's pit. In about 1835 Charles Henry Smith was seeking to extend Scott's railroad up the Swansea valley to the Graigola colliery in which he had an interest. The plan for this line shows Pwll Mawr colliery and the engine at Church Pit with a siding to the proposed railway. The interesting feature is that the line sweeps round in a crescent in front of Gwernllwynchwyth, the home of Smith, and up the valley, with a separate spur to Scott's pit which is marked "Engine". If this pit was only pumping, then why did its proprietor design a special siding for it? The plan of the Swansea Valley Railway of 1846 shows no line to either Church Pit or Scott's Pit, and only the remains of Scott's tramroad leading to what is described as "rubbish bank" and "open ground", owned by C.H. Smith and John Hall, with no reference to a colliery. This supports the evidence of the Tithe Map. However, it would appear that Scott's pit did continue to be used, and this

is referred to later, following the major changes which took place at Church Pit. In 1828 Scott sold his share of the company to C.H. Smith and it might well have been that Church pit was included in the sale. The need to modernise the pit led to the sinking of new shafts, subsequently known as Charles Pit.

In this period there is evidence that Church pit could no longer cope with the increasing demands placed upon it to drain the workings of much of the Llansamlet area and provide adequate haulage facilities (28). Therefore, in about 1821, sinking began of new shafts to the proven 6 ft. seam. Fortunately we have a good record of the sinking of Charles pit, provided by William Kirkhouse's 'Llansamlet colliery job book' (29) which covers the period 1819-1826. This is a record of work carried out and the cost involved, such as would be kept by any well-organised company, and fortunately it is not just a set of figures, but provides valuable insight into a part of the colliery's operations.

On 6 July 1821 an entry refers to "Double pit account" and refers to the sinking of Charles pit, including an "allowance of ale given for sinking the Pit when the pit was marked out... £6." On 3 August a separate account has now been opened for Charles pit and entries include "for fixing windes on the Pit", presumably a windlass arrangement similar to that found over a well, "for draining water from the pit on Sundays"; "for drawing part of the water from Church Engine Pit"; and "for driving the horse engine", which means that a horse used to haul men and materials up the shaft using the windlass arrangement. There is an interesting reference to "continuing the 6 pit level towards the (Charles) pit" which can be seen on the map of 1873 and was a continuation of a level from Pwll Mawr.

The next entry is 31 May 1822, Church Engine Pit Account, "for the sinking Church Engine Pit", which is confusing because it already had this, and therefore it is likely to refer to the deepening of the shaft. In July 1822 an "allowance of ale for filling voal and repairing old engine pit" was made: this refers to Pwll Mawr showing it to be still in use. Another entry, "for working in the Church Engine Pit and removing the whim to Charles Pit" suggests that they were different shafts. Progress continues with entries such as "For sinking the Engine pit and taking the small pumps up and putting down the 12' pumps instead" (October 1822) or "whim horses still at Charles Pit". There are also many entries for tools produced by the colliery smiths. Another entry, on 4 July 1823, under the Church Engine Pit heading, reads "for cutting a place for a cistern and a ring around the pit for the convey of water into it and fixing the second tier of pumps in the engine pit". This refers to additional pumps positioned in the shaft.

On 6 August 1824 payment is recorded for "driving from engine pit to Charles Pit" with only drifters, no sinkers, being paid. But by the following August there is mention of further sinking of Charles pit which seems to continue down through the 5 ft. seam which was then being worked. 5 May 1826 is the last reference to Charles pit and the Church Engine pit. Williams confirms the sinking as taking place in about 1825, and adds that the first manager was Evan Daniel, followed by Robert Mills. Charles pit, therefore, had three shafts which are shown on the plan of 1876 - the "old engine pit", the "ladder pit" (for miners to enter the pit), and the pumping shaft.

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22. H. Smith, evidence in the Report from the Petition of the Owners of Collieries in South Wales, H.C. 1810 (344) IV, 151.
23. The Cambrian, 29 February 1812
24. H.C. 1826, XIX, 371ff.
25. P.R. Reynolds, 'Scott's tramroad, Llansamlet', Journal of the Railway & Canal Historical Society, 26 (1980), 85-95.
26. South Wales Evening Post, 23 October 1964 (one of a series of articles on the area).
27. W.S. Williams, Hanes a hynafiaethau Llansamlet (Dolgellau, 1908)
28. 'Gwernllwynchwith Colliery Lands of November 10th, 1808', map in Briton Ferry Estate papers, Glamorgan R.O.
29. W. Kirkhouse, 'Llansamlet Colliery Job Book', Swansea Central Library, MC 1046

(TO BE CONTINUED)

(Reproduced from The Gentleman's Magazine, vol.56 (1786), p. 803.)

"Extract of a Letter from Morriston, in Glamorganshire, Sept.2.

"At five o'clock on Monday morning, Aug.14, when the colliers came to their work at Mess. Lockwood, Morris, and Co.'s Colliery, at Landore, a dreadful explosion took place, the particulars of which are as follow: The work having been at rest from the preceding Saturday, a quantity of inflammable air had collected in the main street, by a current of air having blown into it from some hand-streets, as they are termed, being bye-streets leading into other parts of the work. It has been usual with the workmen, from time to time, to set fire to this inflammable air, as they find it collect by little and little, which causes an explosion that dissipates it; and the same has been hitherto found the best method of preventing its collection in any great quantity.

"There had been no dangerous collection of inflammable air in this work for three years before, when another explosion happened, by which four men lost their lives. This gave the men confidence, and they had not taken the usual precaution of firing the inflammable air after a Sunday's rest (it collecting in greater quantities when the work has been at rest), by an ingenious contrivance, sometimes in use with them, of setting fire to it whilst they keep themselves at a distance of 80 or 100 yards, by a line fixed to the supporters of the work, to which line is suspended a board that has a candle placed at the top and is capable of being drawn along the line by another line that is doubled over the roller. At this time, one William Young, a young man, about 21 years of age, who had been working there for 12 years, going at the head of a gang of other colliers, with a candle at the end of a rod, about six feet long, meaning to explode the inflammable air, and little conscious of the quantity that was collected, set fire to the same, when instantly an explosion took place, as loud, or louder, than the heaviest discharge of artillery.

"The gang consisted of Will. Young, aged 21, and Edw. Williams, aged 45; these were both killed; they were going hand in hand, and were found so, dead. The next pair of workmen (as it is usual to go in pairs, at small distances, to communicate light, in cases where the preceding lights have been extinguished by the inflammable air) were Wm. Williams, 55, and David John, 54, at about five yards distance; the first of these was killed, the next had his thigh broke, and is now likely to recover. The next were at about the same distance, Morgan Grey, aged 32, and Morgan Harry, 31, both killed. The next, at the like distance, were Jenkin David, 49, and Jenkin Jenkin, 35; the first had only his collar-bone broke, and both were a little burnt, but are now recovered, and the latter has been able already to return to his work. Thomas John was within three yards of the last pair; he was only a little burnt, and is recovered. The unfortunate men who lost their lives have left four widows and seven children.

"David John relates, that he had his thigh broke by two of the men who were killed being blown against him. After the explosion, all lights being out, this poor man endeavouring to crawl away, actually got about 12 yards farther into the work, through mistake of the way. One Thomas Richards, a cousin of Morgan Grey, as soon as he heard of the accident, which was about 20 minutes after, ran into the street where the men were killed, and fetched his cousin out. Directly after, Mr. James Grey (superintendent of the work), with others, went in and fetched out the poor man who had his thigh broke. The inflammable air had been sufficiently dissipated to leave it no longer dangerous; but several complained afterwards of sickness for three or four days, by reason of what they had inhaled of it."

RECENT LITERATURE

P.R. REYNOLDS The Brecon Forest Tramroad

It would be hard to undervalue Paul Reynolds' enterprise in writing and publishing this very reasonably priced volume on the Brecon Forest Tramroad.

The prehistory of railways is a field of great potential and the Brecon Forest Tramroad is a line that has much to tell us with its wealth of surviving documentary evidence and impressive archaeological remains in a staggeringly impressive setting. The challenge of building an early (1822-25) railway across the Brecon Beacons to serve a sparsely populated rural community obviously attracted the flair of the charismatic John Christie. Unfortunately for him but fortunately for us, he crashed financially among a welter of legal paperwork. Paul Reynolds has produced a startlingly clear insight into the legal manoeuvrings of mortgagees, landowners, merchants and their respective agents. The history of the line went on through a tortuous maze (here succinctly disentangled) of lessees and others to become an important element in the feasibility and success of the large anthracite-fuelled ironworks that burgeoned in its hinterland after the successful conclusion of George Crane's and David Thomas's significant experiments at Ynyscedwyn in 1838.

The backgrounds of the individuals involved in this integrated agricultural, industrial and transport enterprise are summarised appropriately and the physical results of the outpouring of their entrepreneurial energies are examined in great detail. The stock and operation of the early railway can be and is reconstructed. Even contemporary views and comments on the railway are set in a context of the author's highly knowledgeable comprehension of the merits or otherwise of this railway in its chronological and regional setting.

The prose is everywhere readable and to conclude matters we are taken on an easily followed tour of this 24 miles + long tramroad. Readers are recommended to obtain this remarkable 142 page illustrated study from Paul Reynolds at 12 Beaconsfield Way, Sketty, SWANSEA, West Glamorgan SA2 9JR at the exceptional price of £2-40 (+25p. p. & p.) in the hope that it will spur Paul on to further outstanding readable studies of the highest academic standard in other related areas of such importance to industrial history.

Steve Hughes, Royal Commission on Ancient and
Historical Monuments in Wales.

GLAMORGAN HISTORIAN Vol.12; ed. Roy Denning

Sadly this is to be the last volume of Glamorgan Historian to appear. Apparently it has fallen victim to increasing costs and it can now no longer be published at a price which will command sufficient sales to make it an economic venture. It means that now, so far as Glamorgan as a whole is concerned, there is nothing apart from the erudite Morgannwg. There are of course plenty of journals and newsletters produced by local groups, but they are just that - local. One of the factors that helps local history books to sell is local patriotism, the ability of readers to visualise the places and sympathise with the people described. Perhaps Glamorgan is too large and made up of too many self-contained communities for its people to have the sense of belonging to a single unit.

A number of articles appear in this final volume which have a bearing on local industrial history, and so far as the SWWIAS and Swansea are concerned, pride of place must go to R.O. Roberts' 'The White Rock Copper and Brass Works, near Swansea, 1736-1806'. This article traces the history of the works in its first 70 years, from the initial lease of 1736. What makes it particularly valuable is that it uses manuscript material in Bristol Archives Office and elsewhere to shed new light on the early years of an establishment which has never really been described in detail.

Also of interest are articles by Joanna Martin on 'Landed estates in Glamorgan, c. 1660-1760', and Stephen K. Jones' 'A link with the past: the history of the Newbridge works of Brown Lenox & Co., Pontypridd'. There is also, of course, the usual selection of other articles on the social and political history of the county.

(Published by Stewart Williams, Buttrills Road, Barry, South Glam. £7-95.) P.R.R.

Published for the South West Wales Industrial Archaeology Society by P.R. Reynolds, 12 Beaconsfield Way, Sketty, Swansea SA2 9JR.