

1556

# **SOUTH WALES CAVING CLUB**

## **Penwyllt Village Growth, Development and Decline**

by

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A dissertation submitted in  
candidature for the Diploma in  
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### Summary

The Forest Fawr, or Great Forest of Brecknock, was declared hunting preserve by Bernard de Newmarch. The land later passed into Royal ownership but an 1808 Act of Parliament (34 Geo. III, c75) enabled the Crown to sell its interest. The sale was finally enacted when an amended Act (55, Geo III, c190) received royal assent in 1815. The majority of the parcel was acquired by John Christie, a London indigo merchant

Sizable deposits of lime and silica were situated on the southern edge of this holding at Penwyllt. Christie and his successors sought a return on their investment by exploiting these reserves to service agriculture and industry. However there were two necessary criteria; a transport system and a neighbouring labour force. These dual requirements were developed between 1822 and 1940 thereby creating Penwyllt Village.

Industrial buildings, housing, dram roads and railways were initiated; some successful, others, more ambitious, failures.

Christie's tramroad, across seemingly impossible terrain, inspired later additions linking Penwyllt to the Swansea Valley iron industry via the Swansea Canal, although it rendered him bankrupt. The Neath and Brecon Railway was laid using parts of the route chosen by Christie's engineers 50 years previously and a station and goods facility were built at Penwyllt. Housing, initially to service the lime production, but later for the silica brickworks, was constructed. The culture of the Upper Swansea Valley was profoundly affected by worldwide worker recruitment.

The industrial developments at Penwyllt form the basis of this work but it is the story of those who shaped the community which predominates. 150 years of fortunes made and lost is illustrated through biographical sketches and information gleaned from a variety of sources to provide an insight into the lifestyle of the men and women who were Penwyllt Village.

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## Preface

This work is primarily intended to describe the development and subsequent decline of Penwyllt village from the enclosure of the Forest Fawr (Great Forest of Brecknock) to the present (1815 to 1991). However some measure of awareness of the fascinating history of this part of Breconshire, and indeed some appreciation of the changes which took place in society in general over the preceding years, will enable the reader to more fully appreciate the finer implications of the events which created Penwyllt.

I therefore make no apology for telescoping eight centuries of history into the opening chapters as a means of setting the scene for what followed. These years, which are only lightly explored, can be studied in much greater detail in a number of publications. Selected sources are listed in the bibliography.

Sadly, while much has been published concerning the fortunes and lifestyles of the gentry, entrepreneurs and prominent local families of the area little material is available to give an insight into the lives of more ordinary families but such sources as there are have been used to piece together a picture of the community which was Penwyllt.

# Penwyllt Village

## Growth, Development and Decline

### Introduction

The earliest evidence of human activity in the area which is now known as Penwyllt was unearthed by the discovery, in 1886, of bronze age implements found just below the surface of the ground on the mountain which overshadows the later 19th century settlement. The find consisted of 6 celts of various sizes, all ornamented to some degree and each having loops for thongs; 2 gouge like instruments, a chisel like tool, bronze moulds, a bronze annulus, which was thought to be the end of a spear, and a bronze blade. These are described by Theophilus Jones' <sup>1</sup> and he tells how at first there was some doubt about the authenticity of the find but that it was later verified by Colonel W. Ll. Morgan, R.E., of Swansea in Archaeologia Cambrensis in 1901. It appears that our forebearers found the Penwyllt mountain to be a suitable place to form encampments, perhaps using the limestone caves for shelter and protection.

There is little documented evidence of later inhabitants, although the area was well marked by small maenhirs on early ordnance maps and the Roman road, Sarn Helen, ran between the garrison towns of Neath and Carmarthen, passing within a few miles of the later settlement, making it likely that well worn tracks already existed across the mountain tops, high above the densely wooded valleys in which travelling was difficult and attack from wild animals and opposing factions easy.

However with the increase in permanent settlement and a consequent decrease in nomadic lifestyle the area became used only for grazing livestock and preparing lime for soil improvement, a practice as old as cultivation itself. <sup>3</sup>

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1. Theophilus Jones, The History of Breconshire, Glanusk Edition, (1930), p 97.
  3. Appendix 1

# Penwyllt Village - Growth, Development and Decline

## Chapter 1

### The Forest Fawr, Dedication to Enclosure

When Bernard de Newmarch marched from the borders of Wales, through the fertile Usk Valley and went on to conquer Breconshire for his king the future of the county was sealed. The Norman chieftain resolved that some 40,000 acres (10 sq. miles) would be dedicated as hunting forest and governed by forestal laws, <sup>1</sup> i.e. that it should be reserved for 'feris and cervis' <sup>2</sup> and that its use be restricted to those holding a pass signed by de Newmarch himself or his appointed forester. It became known as the Great Forest or Forest Fawr and to this day the area is thus identified although the ancient restrictions have long gone.

No early written definition of the boundaries of the Great Forest has been traced but in 1795 they were colourfully described in a report made to Crown Officers, based on information supplied by Mr Philip Morgan, who at that time collected the forest dues on behalf of the then Crown lessee, Sir Charles Morgan.

The description commences:

The Boundary of the Great Forest of Brecknock in the County of Brecknock begins at the spring of the river Usk (Blanewsc), situated on the North side of the Long Vann (Vann hyr), and following the course of the Usk is the boundary between the Counties of Carmarthen and Brecknock until it enters the Parish of Llywell in the County of Brecknock and thence to Abercray, where the River Cray falls into the Usk. Up the River Cray to Tygwynyn Cray, and thence in an Eastward direction to Clwyd-y-Cae Newydd, and thence to Nantddu and up Nantddu to its source, and along an old Watercourse southward to Cniwer, and up Cinewr to the Road leading from Ystradgynlais to Brecknock, thence Northwardly along an ancient Watercourse leading to Baillygwern Mill at Blaentrewerren, and down Trewerrin Brook to Senny River, and thence to the river Usk .....<sup>3</sup>

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1 John Lloyd, The Great Forest of Brecknock, (London, 1905).

2 Wild beast and deer. Lloyd adds a footnote explaining that some translators use wild beasts and stags instead.

3 Lloyd, p 1.

## Penwyllt Village - Growth, Development and Decline

Later, when George III's government sought the enclosure act, a formal survey was made which similarly, though less poetically, described the boundaries.

John Lloyd points out that whilst the Great Forest was nominally within the Lordship of Brecon Castle it had for many centuries been treated as a distinct property, being held by the crown long after the Brecon Lordship was dispersed.

The manor tenants had, from earliest times, been granted the rights of grazing livestock on the land and of obtaining lime from the forest quarries. (The importance of the latter is a recurring theme in the more modern history of Penwyllt and referred to more fully in later chapters). It is likely that the intrusive grazing was instrumental in wiping out the ferae and cervi which first attracted the attention of the hunting lords.

It is still possible to discern different cultural development patterns between the areas surrounding the Great Forest and those within it, which had been subject to manorial rule for many centuries. Settlement patterns, agricultural practices and customs all differ to a greater or lesser degree.

The Lordship of Brecon Castle, and by inference the stewardship of the Great Forest, had passed down through inheritance from de Newmarch to the Lord Henry, Duke of Buckingham by Richard III's early years. However in 1483 the Duke was attainted of treason and executed; the Great Forest was forfeit to the crown. The treason charge laid against Henry, Duke of Buckingham, was later reversed and the lands re-instated to Edward, his successor in title, but this Buckingham also fell foul of the monarchy and was executed in 1521 with the estate once more forfeit.

The Forest remained under royal control until 1617 when the agistment was granted to Sir Francis Bacon (and others) to be held in trust under a 99 year lease for the Prince of Wales. At the end of Henry VIII's reign and throughout the subsequent reigns of Edward VI, Mary and Elizabeth, the Crown were almost the sole owners of Breconshire County with holdings consisting of

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the forfeited lands of Buckingham and of the Earl of March in addition to priory lands claimed during the reformation.

In 1661 Charles II confirmed a letter patent which had been first issued in 1581 by Elizabeth I. It is a grant of the agistment of the Great Forest of Brecknock (and lands in Caernavon, Anglesy and Merioneth) to William Jones, gent., his executors etc.<sup>1</sup> The land is described as a

late parcel of the lands of Edward, late Duke of Buckingham attainted of high treason.

Contained in the grant were:

all and singular the profits<sup>q</sup> commodities, endowments, advantages and hereditaments whatsoever to the said agistment belonging and with the said forest...

but excepting:

all wild animals and fallow deer ... and the herbage and feeding of the said wild animals and fallow deer, as was at any time used and accostomed, also except all great trees, woods, underwoods, mines and quarries on the premises.

A proviso added that the said Rice Jones should

permit the tenants, residents and inhabitants of the Lordship of Brecon aforesaid and such other persons whomsoever from ancient times have usually been accustomed to have pascage, herbage and agistment in the Forest aforesaid to have and enjoy and take the same liberties in the future in such and like manner as hitherto and from ancient time it was accustomed.

Much of the Crown's control of the land was disposed of by the Stewart kings. In 1631 Charles I granted the agistment of the Breconshire holding to Sir William Russel, who in his turn sold it to Sir Thomas Morgan in 1639. The Morgan family, later the Earls of Tredegar, remained in control of the Great Forest from that time until enclosure. Lloyd makes the point that this

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<sup>1</sup> John Lloyd, Historical Memoranda of Breconshire, Vol. 1 (Brecon, 1903), p.59.

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hereditary tenancy resulted in a sense of ownership, not only by the incumbents but also by neighbours and tenants. Whilst appreciating that Lloyd's sources are impeccable, it should be noted that his opinions and source selection may have been influenced by subjectivity; nevertheless there is no doubt that some of the claims made by successive Morgans displeased those tenants who chose to remember that ultimate authority over the Great Forest belonged to the Crown. Several law suits were initiated, one in 1781, centred around the tenants rights to dig and burn lime. Reference is made to this right in later chapters as the principles are an intrinsic part of the Penwyllt story. It is true to say that the arguments surrounding such issues are so much a part of the culture of the people of the Great Forest that they even now are only shallowly buried beneath the surface, part legend and part resentment.

George III and his government finally completed Crown land disposal in Breconshire by the sale of the Great Forest retaining an interest only as trustee of 17,000 acres of commoners allotment. As a result of this sale settlement at Penwyllt was inevitable.

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## Chapter 2

### Events Instrumental in the Development of Penwyllt

Penwyllt lies adjacent to beds of limestone and silica rock which may have lain undisturbed for ever, with the exception of an occasional commoner digging lime to burn in his turf kiln for use as a soil improver. The knowledge that lime assisted in generous cropping had been passed down through generations. Primitive kilns have been excavated at Khafaje, Mesopotamia dating from circa 2450 B.C. However during the 19th century demand for the mineral increased as war and population growth placed increasing demand on food production.

Allied with this demand was an investment class of speculators which had been steadily growing since the 17th century when world exploration resulted in the foundation of new colonies and trading stations in hitherto undiscovered lands. This opening up of a new world presented opportunities for merchants to amass unprecedented wealth and, in pursuit of respectability and sound investment, they sought to buy land.

Meanwhile the heavy fines imposed by Cromwell on royalist landowners left many of the gentry so impoverished that they were required to sell their estates to pay the debt. Land acquisition and ownership became a business for the first time with self-made men able to purchase vast holdings with their new fortunes. Businessmen before all else, the new landowners sought means of improving land to increase productivity and profit.

Simultaneously the turmoil of the civil war settled; order returned with the restoration of the monarchy and scientific excellence became the vogue as the Royal Society was created.

During the late 17th and early 18th centuries organised manufacturing industry was established. Coal to fuel the fires of industry became increasingly sought after as technology advanced. The potential financial rewards of owning coal rich



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land in Wales had become another powerful incentive for investment by the merchant classes in a hitherto mainly agrarian society. <sup>1</sup>

During the 18th century parliament, anxious to protect British agricultural interests, passed a series of legislation restricting imports of grain to the country. This coincided with a succession of poor harvests, 1794 and 1795 being particularly bad years. Home corn production was thus already reduced and prices rose steeply with the effect that this basic commodity was beyond the reach of the poorer British worker. In peacetime the shortfall had been made up by imported grain from Europe but production there was also suffering as men left the land to fight the continual wars, which in turn increased demand to feed the vast armies. Sea-going trade was crippled by Napoleon's naval blockade, part of his strategy being to prevent grain from reaching the shores of Britain. The need to feed the British army exacerbated the shortage and real fear of a revolution in Britain engendered by starvation gripped the Government.

Britain was suffering from an acute shortage of agricultural labour. Farming was still a labour intensive industry with few mechanical aids having been developed. In 1804 Lord Hawesbury estimated that more than 10% of Britain's male population of military age were in the army or navy which left the workforce drastically reduced in number and made up of the old, the very young and the disabled. <sup>2</sup>

The inflated prices of domestically produced food offered the opportunity for landowners to make high profits to the extent that hitherto unproductive land would be a valuable asset if only the soil could be improved enough to raise healthy crops. Those who were able to produce reaped rich rewards and wished to experiment with ways of increasing production. It was a viable

- 1. Coal production (tons per annum) in Wales:

1560	20000	1690	200000
1790	800000	1910	50000000

2. J. Lowe, The Present State of England in Regard to Agriculture, Trade and Finance, (London, 1822), p 45..

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proposition to invest time and money in any new technique which might show good returns. The most important soil improver of the era was burnt limestone.

British Government resources were already drained by a century of expensive wars but finance was urgently needed to continue the struggle against Napoleon. Enclosure, which had been going on for centuries, was accelerated to an unprecedented level. Land which had previously been dismissed as unproductive was suddenly desirable. Much of this was common land where since time immemorial peasants and small farmers had been able to turn out their animals to graze to supplement to the family's food supply. Much of the Crown Land holdings throughout Britain had long since fallen into disuse, neglect rendering them useless for production without intensive investment in soil improvement. However, sale and enclosure of these holdings was seen as a means of raising much needed revenue to continue the struggle against Napoleon and replenish Government coffers exhausted by a century of wars. The Forest Fawr was one of the parcels of land.

While international and domestic affairs conspired to release the land on which the community of Penwyllt developed the reason d'etre for the development of this worker's village lies in the industrial developments taking place concurrently. During the early 18th century scattered iron forges and localised coal and copper industries had developed throughout South Wales, however poor communications, lack of investment and low demand for produce had restricted their growth.

The incessant wars ensured a climate for unprecedented development in the heavy metal industries, demand for cannon, ammunition and iron clad warships was insatiable and capital investment in these industries was attractive to the newly rich. One result of such investment was the opening of the Swansea Canal in 1798 which was designed to enable well documented but hitherto inaccessible ironstone, coal and limestone to be utilised. During the subsequent 50 years industry in the valley expanded at a great rate; iron works were developed or expanded at Abercrave, Ystalyfera and Ynyscedwin while later tinplate

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industries developed at Pontardawe, Gurnos, Trebanos, Clydach and Morriston. The limestone which had previously been used only as soil improver was now needed for a flux in the smelting process giving quarry owners a new marketplace for their product.

In 1817, during this period of industrial expansion, William Harry of the Swansea Valley patented a method of coating the vaulted brick roofs of smelting kilns with silica sand which fused to make a solid arch.<sup>1</sup> Three years later William Westo Young, invented the Dinas Silica Brick by binding silica with 1 of lime. In 1822 he founded the Dinas Silica Brick Company with the new manufacturing process. Demand for silica bricks grew in the late 19th century in response to the needs of the open hearth furnace and following the First World War they became the standard refractory for coke ovens with demand steadily increasing. Silica rock and the sand were easily quarried close to Penwyllt.

As these threads of social, agricultural and industrial change drew together so the development of the community of Penwyllt progressed. The story of the village is a brief one in terms of history but its growth and decline are an illustration of that time between 1812 and 1970 from which our post industrial society developed. The men who were central to the development of the industrial settlement are typical of an era when fortunes were made and lost almost overnight.

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1. Glamorgan History, Vol V, pp 61 -100.

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## Chapter 3

### The Sale of The Great Forest of Brecknock

The original Act for Inclosure of the Great Forest of Brecknock (34 Geo.III Cap.75) was passed in 1808 but<sup>1</sup> after much argument and discussion concerning commoners and tenants rights it was July 11 1815 before modified legislation received royal assent. Dispute did not end there; further legal battles followed and it was not until 1820 that the Crown Allotment was sold to John Stewart, London merchant, acting on the instruction of John Christie. Christie's final holding amounted to 13760 acres. <sup>1</sup> Archibald Christie, a cousin to John, had already acquired some 799 acres and mineral rights over 'five allotments' which adjoined his kinsman's land.

The various commissioner's reports and other correspondence are reproduced in great detail in Lloyd's account of the sale which began, after a number of false starts, in 1815 and took until 1823 to finalise. Appendix No 26 of the Commissioners' Report IV (Sales. Under Act, 55 George III, c, 190) of 1823 <sup>2</sup> details the following:

A.D. 1820		Acres	£
Feb 7	John Stewart, of London, Merchant	138760	15,000
	Archibald Christie, Esq., of London, Sale of the Crown Rights and Royalties over Five Allotments of Land	200	-
Feb 15	John Stewart, of London, Merchant, sale of Crown Rights to Tithes over the above 13760 acres	13760	1300
3			

Lloyd examines the implications of the share out in great detail, including the phenomenal expenses accrued by the Commissioners,

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1 The residue remaining after the remainder had been shared between tythe holders, commoners and the commissioners 'to defray their expenses'

2 P.R.O. E159/711

3 Lloyd's Great Forest of Brecknock p 89

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and quotes, in full, a document from South Wales Inrolments, 15 fo. 34 <sup>1</sup> which summarises the sale of the Great Forest. The following paragraph is perhaps the best clue as to why London merchants should have taken any interest in the sale of waste land in an obscure region of Wales:

And also for the sale to him, the said John Stewart, of all Coal, Lead ore, Metals, and other minerals, and all other Manorial and other rights, royalties, privileges, and interests of every description whatsoever of or belonging to his Majesty, his heirs or successors, in and over the said respective allotments, and in and over the whole of the said Great Forest of Brecknock, save only and except in and over the said several allotments containing together 1,786 acres, 2 roods, and 23 perches, his Majesty's rights over which have been purchased by the said Archibald Christie as aforesaid, and save also except in and over the said allotment piece or parcel of land commonly called Carne Gwynnen, containing by admeasurement 43 acres of thereabouts, His Majesty's rights over which have been so agreed to be sold to the said John Parton aforesaid. .... which said price or sum of £1330 of lawful money of Great Britain is to be paid by the said John Stewart into the Bank of England, and carried to the account of the public monies of the Commissioners of His Majesty's Woods, Forests, and Land Revenues ....., ... and thenceforth for ever the said John Stewart and his heirs or assigns shall be adjudged, deemed, and taken to be in actual seizen and possession of the said Tithes, Rights, Royalties, Herediments, and premises so by him purchased as aforesaid, ..... Given under their hand this 15<sup>th</sup> day of February, in the year of our Lord 1822. <sup>2</sup>

A receipt was issued by the Bank of England for the £1330 received from John Stewart on the 19 February 1822.

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<sup>1</sup> Great Forest of Brecknock p89.

<sup>2</sup> ibid, p 95.

Chapter 4

John Christie's Developments at Penwyllt

The connection between John Stewart and John Christie is unclear but it would seem that the former was acting on the latter's behalf. Nevertheless it was John Christie who shortly afterwards took possession of the Crown Allotment, amounting to one third of the original Forest. A vast landholding which was to change the history of the area and lead to the development of Penwyllt was acquired for the sum of £1330. The only land surrounding Penwyllt which was not in his possession was the commoners limestone quarry, denoted as No. 4 on the enclosure map. This was one only eight limestone workings designated as a public limestone quarries under the modified Inclosure Act and placed under trusteeship of the surveyors of roads. The allocation of these was a result of the long legal battles fought by the commoners.

Although based in London John Christie came from a successful Scottish family of presbyterians and had made his own fortune from the indigo trade.<sup>1</sup> As far as can be ascertained he had no previous connection with Wales whatsoever and quite what motivation such a man had for obtaining a vast tract of land in an area renowned for its poor communications remains a mystery and matter for speculation. As a businessman in an age of entrepreneurship it is likely he was aware of the industrial development taking place in the Swansea Valley, however it is generally supposed that his original purpose in acquiring his new estate was purely for agricultural development and social status. Whatever his original motivations within a few years his interests lay southward of Penwyllt for by the time of his bankruptcy in 1828 he owned 21 transport barges on the Swansea

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1. It is interesting that lime was used in the manufacture of indigo dye although no evidence has been found to show that he ever co-ordinated the two trades. It seems that Christie hoped to buy acceptability into a society which still regarded merchants as an inferior class. If this was so he realised his ambition, at least in part, for he was elected High Sheriff of Breconshire in 1822.

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Canal and all the necessary equipment to operate a wharf. It seems likely he was first tempted by possible mineral wealth derived from his new lands although it is equally feasible that he hoped to make financial gains from the coal boom which was happening in the Wales. Many fortunes were made (and some lost) in a similar manner during this period and there is evidence that he hoped to find rich coal seams under his new land and prospected for it. <sup>1</sup> . However initially he only considered the possibility of lime production for agricultural purposes.

Christie developed two model farms on the Forest Fawr, one at Glanusk and the other, which remains substantially unaltered today, at Cnewr. The latter was completed by 1821, illustrating something of the drive and energy which had made his earlier fortune. Cnewr was more than 5 kilometres from the limestone outcrop at Penwyllt but burnt lime was required to improve the land for cultivation. Only tracks connected the quarries to the farms and they would have been rutted in summer and near impassable quagmires in the winter rain. The routes had served the farmer collecting lime by the cart for small manorial farms of the Forest but for economic conditions and Christie's intended scale of agricultural improvement such transport was cumbersome, expensive and time consuming.

Christie was above all a man of his times. He invested his accumulated capital in a scheme which even now would overwhelm the most enterprising contemporary engineer. He planned a tram road which would link the quarries and kilns of Penwyllt to his landholdings and then continue on to serve the farms of the Usk Valley and Black Mountains thereby securing, he hoped, a profitable lime trade.

This early investment in Penwyllt was, no doubt, to sow the seeds of the further developments which took place there over the succeeding 150 years. A detailed description of Christie's tramroad is recorded in The Brecon Forest Tramroad

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<sup>1</sup> Stephen Hughes The Brecon Forest Tramroad,  
(Aberystwyth, 1990). p 19.



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The drams were wooden and horsedrawn so it was inevitable that there would be a smithy and a carpenters shop at Penwyllt although no evidence remains of these.

Christie also invested heavily in the building of new kilns the style of which had only been in use for half a century or so. Previously lime had been traditionally burnt in turf built clamp kilns using peat, timber or coal, if available, as a fuel; a method which was cumbersome, slow and uneconomical as the extraction from of the burnt lime meant the kiln's virtual destruction. The new 'draw kilns' were built of stone and designed for continuous production. Lime application however has always tended to be seasonal so it was also necessary to construct limesheds nearby for storage of the finished product. <sup>1</sup>

Related settlement at Penwyllt began with the building of Ty Mawr and the house which was later destined to become the Penwyllt Inn both built during Christie's period to house key workers.

The sheer quantity of lime to be burnt at Penwyllt required an abundant coal supply. After his initial disappointment with investigations in the locality Christie acquired ownership of collieries on the Drum Mountain and proceeded to link these to the Penwyllt kilns by extending the tramway southwards. It was a further logical step to link the coal mine to the Swansea canal and thus achieve the ultimate link with the port at Swansea.

It also seems fairly certain that unburnt limestone from the Penwyllt quarries was carried along Christie's tramroad for burning closer to the farms which used it, both out towards Sennybridge and down the Swansea Valley. Limesheds and kilns abounded along its length and some ruins still remain to be seen today as testimony to the lucrative trade which emanated from the quarries of Penwyllt. This practice lessened the

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<sup>1</sup> In 1825 the kilns produced 1836 tonnes of lime. The following year 2886 tonnes was produced. The kilns stood 8m high with one drawing hole and a capacity of 35.2m. Hughes p58 & fig 115.



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possibility of accidents, for burnt lime is a volatile substance, but increased the cost as raw limestone is considerably bulkier and heavier than burnt lime.

The relevance of the early tramroad to the story of Penwyllt lies in the importance of creating an improved transport system which, when completed, linked Penwyllt to the coal field, the agricultural hinterland and, through the Swansea Canal, to the industrial valley and the docks beyond. Penwyllt may never have existed as a thriving village had it not been for Christie's valiant efforts to provide the earliest of these links.

The building of the tramway was undertaken, according to John Lloyd, without the consent of the Commoners through whose allotted quarry the tramway ran. However, as Lloyd points out, it is doubtful if any opposition was raised at that time because, in an area of non existent communications such a work was of advantage to all. <sup>1</sup>The system was crude by today's standards but nevertheless advanced for the area and a triumph of engineering over terrain.

In 1827 the heavy investment required by Christie's dream rendered him bankrupt. His previous fortune had been dissipated and he lost his entire holding of the Crown Allotment. The Christie estate was claimed by his largest creditor, Joseph Claypon, a Lincolnshire banker, all the requirements for lime production and distribution were included. <sup>2</sup>

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<sup>1</sup> The Great Forest of Brecknock, p110.

<sup>2</sup> P.R.O. B 3/1091.

## Chapter 5

### The New Owners

Claypon and Garfit, bankers, foreclosed on Christie's £98,000 loan on 1 April 1827. Christie subsequently held a London sale of his assets, including the Crown estate, but the properties failed to meet the reserve. A Commission of Bankruptcy was issued on the 21 Dec 1827 <sup>1</sup> and an inventory of Christie Estate was finally completed by 3 June 1828. <sup>2</sup> Joseph Claypon reluctantly became the new owner of the Great Forest and most of tramroad on 10 Dec 1829. He did not have Christie's unbounded enthusiasm for the property and industry which he had acquired more by default than design. He leased most of his holding thus devolving responsibility while retaining an income from the estate.

Initially, while administrating Christie's holdings in receivership, the bankers leased the Brecon Forest Tramroad and other properties including the limekilns, limeshed, cottages, stables and 70 acres of land at Penwyllt to London timber merchants Thomas Arnott and Robert Mercer, who had other interests in the local area. They in turn issued a sub-lease on 12 August 1828 to a group of local businessmen, William Watkins, William Powell and David Jeffreys together with the Marquis of Campden who formed the Brecon Forest Tramroad Company. By 1830 Arnott and Mercer were themselves bankrupt. Mercer was described in the London Gazette, September 20 1831, as part of a partnership with:

Charles Ely and Benjamin Treacher, of Swansea in the County of Glamorgan, coal owners and merchants,... in insolvent circumstances and unable to meet their engagements with their creditors.

Thus the lease reverted direct from Claypon who appointed an agent, Charles Gabell, to manage the affairs at Penwyllt.

In all this time there is no record of Claypon himself ever

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<sup>1</sup> P Reynolds, The Brecon Forest Tramroad, (Swansea, 1979). pp. 49-52.

<sup>2</sup> P.R.O. B3/1092

## Penwyllt Village - Growth, Development and Decline

having visited his new acquisition although his name appears on the 1837 Electors List (Glyntawe) as entry number 1043:

Claypon Joseph. Hampstead Middlesex. Freehold land  
Glanusk

Claypon, through his agent, was keen to assist in the development of iron works in the Swansea Valley as a means of exploiting the limestone resource at Penwyllt and using the capital Christie had invested in creating the Tramroad system.

A period of comparative national stability had reduced the pressure on food production causing a slackening of interest in soil improvement and a lessening of demand for agricultural lime. The Brecon Forest Tramroad was at this time being used to carry other goods as well as lime, using the Swansea Canal link with Swansea docks as a means of moving materials between Castell Du Wharf, Devynnock, and the Bristol Channel ports.

### Brecon Forest Tramroad.

**T**HE Public are respectfully informed, that good **BINDING COAL** will be delivered at **CASTELL DU WHARF**, near Devynnock, after the middle of the ensuing week; and **GOODS** of every sort will be carried to and from **SWANSEA** on moderate terms; and between **BRISTOL** and **BRECON** at reduced charges. Every attention will be paid to dispatch, safety, and regularity; and further arrangements will be announced in the next Cambrian.

POWELL and Co. Castell Du Wharf.

### The Cambrian August 23 1834

It was necessary to seek markets other than agriculture for limestone if the Penwyllt holdings were to be viable. There is no doubt that the burgeoning iron producing industries supplied that demand. The new hot blast iron smelting technique had been

## Penwyllt Village - Growth, Development and Decline

developed in 1836 by George Crane, <sup>1</sup> director of Ynyscedwin ironworks, and required large quantities of limestone. Christie's original tramway had connected his coal rich land on the Drim mountain with Penwyllt in order to carry coal for burning lime to the Penwyllt kilns.

Between 1832 and 1834 the tramroad had been extended southwards to Gurnos Wharf via Ynyscedwin ironworks enabling coal to be conveyed from the Drim to the works. When lime became important for the new hot blast method it was an easy matter to carry it down to Ynyscedwin from Penwyllt; the alternative would have been to ship it up the canal from Swansea docks.

Furnaces were constructed at Onllwyn colliery, built on land leased by Claypon to John Williams, of Monmouth, and John Jones. Later the Banwen ironworks, founded in 1845, was also dependant on Penwyllt limestone. <sup>2</sup> These works, and others which sprang up in Swansea Valley, used local coal and limestone carried on the Brecon Forest Tramroad from Penwyllt. Without the dual developments of the Swansea Canal and Christie's extended tramroad the industrialisation of the Swansea Valley may have followed a different pattern, been delayed until the coming of the railway or indeed may never have happened, for the transportation of goods in the early years of the 19th century was difficult, time consuming and expensive. As it was, between 1840 and 1850, furnaces in the Swansea Valley which were served by the Brecon Forest Tramroad increased from 3 to 22 in number.

The Tramroad was publicly hailed as a means of communication with the Welsh hinterland and the Cambrian expressed hopes for its potential. (See page 19).

So great was demand for lime that the new Penwyllt kilns which Christie had built circa 1825 became obsolete. Around 1840 these Twyn-y-Ffald kilns were replaced by kilns at Twyn Disgwydfa. <sup>3</sup>.

However the necessity for continual investment was again the

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1 Brycheinog, vol. xii (1966/7), p121

1 S. Hughs. The Brecon Forest Tramroad p 25

2 Ibid, p 196

## Penwyllt Village - Growth, Development and Decline

cause of bankruptcy when, in 1840, the Brecon Forest Tramroad Company was forcibly wound up. Claypon resumed direct control of the limeworks and tramway until 1857 when a lease on the Penwyllt quarries and BFT was granted to David Jeffries.

RAILROADS.—We hail with satisfaction every contemplation of improvement in inland communication, however remote the prospect; and we have no doubt that the Cambrian, London, and Gloucester Rail-road, noticed in our last number, would be a great good to the community. In the mean time we may congratulate ourselves on the immediate completion of a valuable communication now in actual progress. Our Swansea Canal reaches about 16 miles, to the confines of Breconshire, near Yniscedwin; to meet this, the Brecon Forest tram-road extends about 16 miles, beginning at Castell-du (nine miles from Brecon on the Milford mail-road), and ending at the Drim mountain, within about four miles of the termination of our canal. This space is now being filled up by a tram-road on a superior construction, calculated for loco-motion engines; and we understand it will certainly be opened in the ensuing spring. The immediate object of this tram-road is the conveyance of coal, timber, slates, and other sea-borne goods, into the western parts of Breconshire and eastern parts of Carmarthenshire; and of all kinds of agricultural produce, lime, limestone, pitwood, &c. in return, towards Swansea, and the intervening collieries, iron works, copper-works, and surrounding country. But when it is remarked, that the distance from Castell-du to Brecon, is only nine easy miles, and that the Hay tram-road reaches from Brecon to Hay and Kingston towards Hereford and Worcester, a great deal appears to be already accomplished towards a straight line of communication between Swansea and Birmingham, the importance of which will be justly appreciated by all who are acquainted with the immense trade and intercourse between these two places and the iron districts of South Wales. This spirited undertaking is under the superintendence of Mr. W. Brunton, whose talents as an engineer are too well known in this neighbourhood to admit a doubt of success.

The Cambrian September 7 1833

We are glad to find that the branch of tramroad connecting us, through our canal, with the heart of Breconshire and the eastern parts of Carmarthenshire, will be opened for traffic in three or four weeks' time. We have noticed this accommodation before, and are glad to find that the public will not be disappointed in the superior execution of the work. There is a gentle inclined plane of three quarters of a mile in length, worked by a fixed steam engine: the ascent is easier than some of our common roads; and there is a very ingenious contrivance for preventing accidents in the conveyance of passengers, gentlemen's carriages, and other valuable and fragile commodities, up and down the incline. Two large stages, on which the carriages ride, are attached to the rope: these stand horizontally; and in one of the axles is a loaded bolt, which, when going at a moderate rate slips up and down in turning round; but, when going beyond its given pace, is kept out by the centrifugal force, and at once locks the wheel: so that if the rope should break, the carriage will stop in 20 or 30 yards. All the rest of this new branch is quite level. The old road, too, is much improved; and arrangements are being made for the immediate and regular transit of good from Swansea to Castell-Du Wharf, near Trecastle; and thence to the surrounding country. We are also given to expect, that a public conveyance for passengers will soon be established. The proprietor of the tramroad has for many months run a light private omnibus along it, which a stout mountain pony takes at the rate of eight and ten miles an hour. By enabling us to meet the present Hereford coach at Castell-Du, this will save us about 40 miles in going to Birmingham, and take us to Liverpool in about a day and a half—all by public conveyance. We hope the trustees of our turnpike roads will not permit any obstacle to dispatch to remain in the unnecessary bill over Graig Arw, near Yniscedwin.

The Cambrian August 23 1834

Chapter 6

Development of the Limeworks

In 1859, following Claypon's death, the whole of the ownership of the Crown Allotment, including the tramroad, was sold to George Edwards of Bristol. Although much of this holding was soon disposed of (see below) Edwards obviously retained an interest for in a conveyance of 31 December 1872 6 acres of land, including the station, was transferred from Edwards to The Neath and Brecon Railway Company.<sup>1</sup> There is virtually no information readily available concerning George Edwards nor was there any substantial development of the settlement between 1859 and 1863 but from this time onwards the village of Penwyllt, as it is remembered, began to take shape. By 1863 the construction of the main Neath and Brecon Railway<sup>2</sup> was well underway, the main contractor being John Dickson. Tracts of land at Penwyllt, including parts of the tramroad, were acquired by the railway company for construction of the permanent way but John Dickson, on his own account, bought much of the remainder from George Edwards. His new holding included the limestone quarry which continued to be worked by James Dickson. It is assumed the latter was a relative in the light of later events.

John Dickson's involvement in the area did not stop either at Penwyllt or with the construction of the Neath and Brecon railway.

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1. Information concerning the conveyance supplied by Hobbs Properties Ltd

2. The construction and specifications of the Railway are covered in great detail in James Page's Forgotten Railways, Newton Abbot 1979.

3. The Omnibus Magazine The Official journal of The Omnibus Society. Vol. 27 No. 211. March 1966.

### Penwyllt Village - Growth, Development and Decline

He also agreed to purchase the more famous Oystermouth Railway, in Swansea, from the then owner George Byng Morris. An agreement to this sale was drawn up on 19 October 1864 followed by an indenture on 15 May 1865. The agreed price was £20,000.<sup>3</sup> Dickson's interest in acquiring the Oystermouth Railway is linked to his activities at the head of the Swansea Valley for he wished to build an extension to the Neath and Brecon Railway to reach Mumbles. We can only speculate as to his motivation but the relevance would seem to lie in the possibility of linking the lime production at Penwyllt with that which already existed in



## Penwyllt Village - Growth, Development and Decline

the South Gower and Oystermouth area where export facilities were already established. The purchase of the Oystermouth Railway was not completed at this time, although Dickson ensured his continuing interest by transferring bonds in both the Neath and Brecon and Angelsy Central railways to Morris. He still held this option at the time of his bankruptcy sale in 1875, which also included his properties at Penwyllt.

James Dickson and others executed a legally dubious manoeuvre whereby they bought most of John's holdings and later restored it to him, including the right to buy the Oystermouth Railway, and it was John Dickson who, in 1878, formed the Swansea and Mumbles Railway Company Ltd. <sup>1</sup>

The Penwyllt holdings are illustrated on the plan on page 22<sup>a</sup>, which is reproduced from The Great Forest of Brecknock <sup>2</sup>.

Whilst acting as contractor for the Neath and Brecon Railway John Dickson also purchased a farm in Sennybridge which lay adjacent to the terminus of the BFT. The farm land was well forested at the time and thus it provided timber for the sleepers used in construction. He built a sawmill on the land to prepare the wood and today the holding still operates as such.

Demand for limestone was ever increasing and James Dickson, as operator of the quarries, apparently had scant regard for the commoners rights in the adjacent quarry. He proceeded to work and it and even erected kilns and sidings on the commoners land. John Lloyd expresses surprise that these rights, possessed since time immemorial, had been disregarded for so long, in fact ever since Christie drove his tramway through the area thus designated. <sup>3</sup>

A writ was issued in the High Court by John Price and Watkin Joseph, surveyors of Ystradgynlais and Devynnock respectively, who were Crown appointed trustees of the commoners land, on behalf of the commoners concerned against James Dickson. The whole case is transcribed in The Great Forest of Brecknock p114.

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<sup>1</sup> Lee, The Swansea and Mumbles Railway

<sup>2</sup> The Great forest of Brecknock facing p 112

<sup>3</sup> Ibid p 113

<sup>4</sup> Ibid p.114



## Penwyllt Village - Growth, Development and Decline

The plaintiffs claims were:

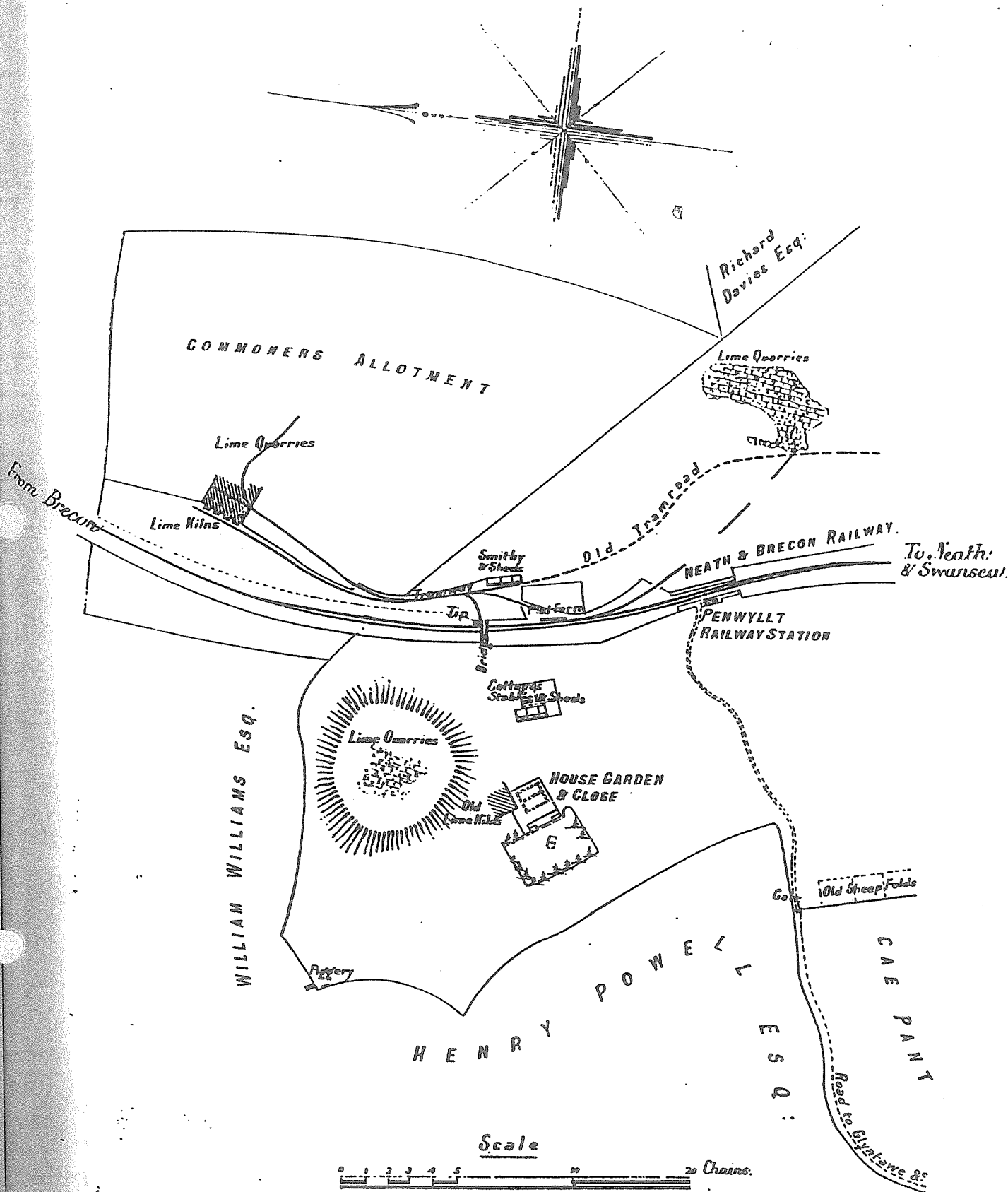
- 1 An Injunction restraining the Defendant, James Dickson, from continuing in possession of or encroaching upon any part of the Quarry premises, and Allotment marked No. 5 in the Plan annexed to the Award made in the month of June, 1819, in pursuance of the Act for the Inclosure of the Great Forest of Brecon.
- 2 An injunction restraining the Defendant, James Dickson, his servants, workmen, and agents, from digging or getting any limestone or any other minerals in, under, or out of any part of the said Quarry and premises.
- 3 That the Defendant, James Dickson, may be ordered to give up possession of such portion of the said Quarry and premises as was now held by him to the plaintiffs.....
- 4 That an account may be taken of all profits made the last six years by the defendant James Dickson, by his workings in the said Quarry, and that the defendant, James Dickson, may be ordered to pay the plaintiffs ..... the amount of such profits...<sup>1</sup>

A full report of the ensuing proceedings was carried in the Brecon County Times on May 28, 1881. Dickson pleaded that he had a perfect right to erect kilns, quarry stone and burn lime on the allotment as his predecessors had done so, without payment or interruption, for more than 40 years. He also pleaded that John Christie had made his tramway across 'Twyndisgwylfa', as it was then called, using the quarries to raise limestone and burnt lime without payment to the Commoners as had subsequent owners and leasees including Claypon, Edwards and John Dickson. Furthermore the Neath and Brecon Railway had been built through the allotment without question. It was also claimed by Dicksons Q.C. that the action was not a bona fide one, but had been instigated by The Breconshire Coal Company,<sup>2</sup> rivals in trade, and that the plaintiffs were not accurately representing the opinions of the

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<sup>1</sup> Great Forest of Brecknock p 114

<sup>2</sup> This may have been sq. Kelly's Directory, 1895 includes, at Glyntawe, Breconshire Coal & Lime Co. Limited, p 27. See also page 26.



PENWYLLT.

Plan of Lot 4 offered for Sale by Auction in 1875.

## Penwyllt Village - Growth, Development and Decline

majority of farmers and inhabitants of the Great Forest. However the case went against him. A ruling was made that the defendant should give up possession of the quarry but the plaintiffs agreed to waive their claim for retrospective payment.

Dickson's apparent greed and the commoners sudden surge of interest are understandable, for lime trade was thriving. In 1864 Thomas Levi wrote of Penwyllt:

Thousands of tons of rock were carried down from this mountain, as lime, on the backs of horses, around the surrounding country and over the tramroad built by John Christie, from Waunclawdd to Ynysyrwylfa, near Defynog in 1825, and more is carried by engine since the railway between Brecon and Neath was completed.

He also gave credence to the historical importance of the commoners quarry in his description of Tafarn y Garreg, the inn in the valley below Penwyllt. He wrote:

This is the old resting place for travellers and for the carts of lime and coal on their way from the Cwm to the towns and districts of Brycheiniog.

Although Dickson presumably withdrew his workings on the Commoners Allotment the argument never really died. In 1886 the then quarry and tramway owners, Mr Jeffreys Powell and John Williams, commoners themselves, were accused of trespassing by working 30 yards inside the allotment border. Settlement was made by allowing the common rights but issuing an injunction against them for selling limestone from the common quarry. <sup>1</sup>

According to Lloyd this last ruling explains why the common quarry was historically little used by the commoners. The original settlement had made the working of the quarry uneconomical by forbidding limestone thus worked to be sold thereby denying the commoners the opportunity to offset the cost of production. Furthermore the 1818 Act also forbade working in partnership with owners of the limestone beds in the adjoining Crown Allotment. By 1895 the limeworks and quarries at Penwyllt were operated as The Penwyllt Lime and Limestone Company, the

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3 Great Forest of Brecknock, p 121

## Penwyllt Village - Growth, Development and Decline

proprietor and manager being John Atcherly Jebb of 12 Castle Street, Brecon. Jebb was an important enough contemporary figure to be featured in Contemporary Portraits, Men and Women of South Wales and Monmouthshire, and in The History of Breconshire, Glanusk Edition). The profile of Jebb on page 25 is drawn from these two works. Along with ownership of the works Jebb acquired extensive property holdings at Penwyllt. The 1910 listing of Duties on Land Values records him as owner of all of Powell Street (also known at this time as Penwyllt Cottages), including the Reading Room. One of the dwellings was let to Charles Jones, the station master, the others being occupied by families who may have worked either at the lime kilns and quarries, in the brick works or for the railway company. Publication of the 1901 census will no doubt reveal the answers. The original gross value of the holding was £1125 with rateable value of each being assessed at £3 8s.

In 1887 Jebb added Crynant Colliery to his industrial holdings, the obvious link being a ready supply of steam coal for his kilns. According to an engineers report submitted to his executors the colliery comprised 1750 acres and between 1900 and 1913 produced a gross trading profit of 1/1<sup>d</sup> a ton with potential output of 100,000 tons per annum. The colliery was affectionately known as 'Jebbs Colliery' until its closure in 1956. <sup>1</sup>

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1. Report by W Forster Brown & Rees, 22 June 1925, supplied by Cefn Coed Colliery Museum.

## Penwyllt Village - Growth, Development and Decline

### JEBB John Atcherly: Profile

Born in Shropshire in 1837 eldest son of Mr John Jebb, of The Cedars, Baschurch, near Shrewsbury and formerly of Ruyton Park, Salop. His mother was daughter to John Atcherley, Esq., Stanwardine, Salop, a direct descendant of Sir Roger Atcherley, Lord Mayor of London in 1494.

In 1853 he commenced his business career at Shrewsbury in the office of Sir George Finlay and in 1857 he was promoted to the management of the Leominster and Kington Railway. In 1860 he was appointed traffic manager of the Bahia and San Francisco Railway Brazils [sic] but returned to England in 1862 following an attack of yellow fever and was appointed District Agent for South Wales to the London and North Western Railway Company. In 1864 he was appointed General Management [sic] of Mid Wales Railway and moved to Brecon. He was instrumental in opening the railway from Brecon to Llandiloos. He purchased Tylerbont Limeworks and Quarries in 1866.

In 1877 he married Mary Henshaw, daughter of Mr F Henshaw, Stamford and granddaughter of William Spicer, Esq., of Barston Hall, Lincolnshire, niece of Alfred Hanshaw Esq., general manager of Brecon and Merthyr Railway and Alexander Docks, Newport. He acquired the lease of the limeworks and quarries at Penwyllt from Madame Patti in 1888. He was also director of Gurnos Anthracite Colliery, Ystradgynlais and Chairman of the Pump House Hotel Co., Llandindrod.

He was elected as a member Brecon Town Council in 1887 and to the Brecon School Board the following year. He was unanimously elected Mayor of Brecon in 1893 and re-elected in 1894 whilst becoming Chairman of Brecon Intermediate Schools and member of Breconshire County Council and subsequently Alderman of the borough. Whilst in that office he was instrumental in the acquisition of market places and tolls by the borough. In 1905, as High Sheriff of Breconshire, he promised £150 to County and Borough Library Scheme.

He served as churchwarden of St Mary's, Brecon, and chairman of the Tower restoration committee, also being a magistrate for the County and JP for Borough and is described as a sound churchman and thorough Conservative.

He died at his home, Watton Mount, (now the information office of the Brecon Beacons National Park) in February 1915 at the age of 78 and was buried in Brecon Cemetery where a massive granite monument was erected.

## Penwyllt Village - Growth, Development and Decline

Edwin Alfred Wright

Manager: Breconshire Coal and Lime Company Ltd.  
Wright, born at Clifton in 1839, moved to Brecon in 1858. He managed the Breconshire Coal and Lime Company Ltd. for 40 years in conjunction with his duties as manager of Brecon Gas Company Ltd. It is said: 'both of which companies his business ability did much to establish.' Certainly his ability was recognised for later he became director of the Brecon Gas Company and also of the Trustee Brecon Savings Bank.

He was elected to Brecon town council in 1879, becoming an alderman two years later and a Commissioner for Peace for the borough in 1882. While serving as mayor he did much to attract a visit to Brecon by the Herefordshire Agricultural Society who held a joint exhibition there with the old Breconshire Society.

It is interesting to note that he served the borough concurrently with Jebb even though the two appear to have been in commercial competition. <sup>1</sup>

In 1874 Madame Adelina Patti fell in love with and subsequently purchased Craig-y-Nos Castle which had been built in the Valley below Penwyllt some 30 years previously. As a result of the Married Women's Property Act the diva was unable to hold property in her right so the transaction was made by Nicolini who was destined to become her second husband. Following his death Patti remarried and the Baron Cederstrom became the nominated owner of the Castle and other land holdings which Patti and Nicolini had acquired. This package contained much of Penwyllt, including workers housing and the lime quarries. A 1901 sale document for Craig-y-nos Castle included amongst the package:

1 limestone quarry at Penwyllt let for 21 years from 1889 at £250.

Patti's influence on the community of Penwyllt was widespread. It was she who caused the rutted access lane to become a metalled road enabling her and her guests to be transported to and from the station by car. She used the facilities at the station so often that it was renamed Craig-y-Nos and a decorative waiting room was built for her private use.

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1. The History of Breconshire, Glanusk Edition, (1911, Brecknock).



Chapter 7

The Remaining Years of the Limeworks

Throughout the 20th century the quarries continued to be worked up until the late 1960s. Requirement for the product varied according to economic and social patterns but post war policy finally reduced the demand for burnt lime and the resource became sought after as an aggregate.

In the early 1930s, well within living memory of the many people who have recounted stories of their life at Penwyllt, Mr. Jenkins of Porthcawl purchased the working kilns, which he retained until 1935. He was apparently a poor business man who neglected to pay bills and, more importantly, he finally 'forgot' to pay his workers wages leaving behind a trail of hardship. However in the suddenness of his departure he left equipment on site. It is said, the people of Penwyllt had no qualms about 'confiscating' what was due to them. The receiver who wound up the business is said to have paid the men in asbestos.

Brothers John and David Morgan, who were born and worked much of their lives at Penwyllt, remember him coming into Penwyllt station by train soon after his hasty departure but, sensing the mood of the villagers, he refused to leave the comparative safety of his carriage.

From 1936 until their effective closure in 1959 the lime kilns were worked by Jim Morris and his family. Working conditions at a time when wages at the limeworks were 7/6d a day for an 8½ hour shift have been vividly described by ex-workers, in particular Jim Morris' nephew, Mr Ron Davies. .

Kindling a kiln, he stated, consists of lighting something similar to a domestic fire at the bottom of the kiln, using paper and sticks. Once this was established alternating layers of limestone and coal were added. At first this was shovelled in from the top but as the kiln filled the men who were loading it would get inside and stand on top of the layers in order to spread the load evenly. The coal and stone, tipped into the kiln

## Penwyllt Village - Growth, Development and Decline

from drams which ran around the top of the kiln on a circular track, were added in a proportion of 3 drams of stone to one of coal. This gave layers of 4-5" of coal and 18" of stone. Each dram contained 3cwt and each kiln, when fully loaded held about 50 tons of stone and 10 tons of coal and yielded approximately 15 tons of burnt lime each day. It was important to use the appropriate quality of coal which needed to be fast burning, giving a good heat, and would then die away without leaving debris to retain the heat. Such coal was obtained from Blaenant Colliery, in the Dulais Valley, from whence it was transported to Penwyllt by train.

The burnt lime was taken from the bottom of the kiln where it had been deposited by the firing process. This was done continually as it became ready enabling the kilns to be kept alight and more raw materials added to the top. From 1936 until 1938 lime was dug from the traditional quarries, as before, to supply the kilns. When quarrying reached the boundary of the Commoners Quarry operations were transferred to Cwm Dwr. People tell of a pool in that area which disappeared as the quarry was worked, either because it became filled with waste or leaked away.

The outbreak of war in 1939 and consequent increase in demand for domestically produced food renewed the agricultural importance of limestone. Burnt lime was again being considered an essential and economically produced soil improver. Limestone was also required in increased quantities by the iron and steel industries which were supplying machinery and weaponry to the armed forces.

In 1940 official permission was at last given to break through the boundary which had protected the Commoners Quarry for over 100 years and over which many battles had been fought. Demand at this time was so great that former residents of Penwyllt remember five quarries working simultaneously and employing up to 10 workers in each quarry. One of these was known as Michaels Quarry and was on the approach to Penwyllt, close to the cattle grid. It opened in the 1940's specifically to supply fluxing stone to Gilbertson's Works in Pontardawe and was worked by a company from Ynysmeuwdy. The stone was taken from there by lorry



## Penwyllt Village - Growth, Development and Decline

to the sidings at Penwyllt where a special ramp was constructed so that it could be tipped straight into the waiting railway trucks and transported down the valley by train. The quarry continued to operate until 1959.

When peace came the government saw fit to continue to encourage self-sufficiency in food supply for many years. At first burnt lime continued to be used but, by the latter half of the 1940s, it was replaced by kibble lime. During this period the limeworks were under contract to Welsh Brecon Farmers and the product was distributed as far afield as the Elan Valley and Pembrokeshire. The Company owned its own lorry fleet and several spreaders, enabling them to apply the fertiliser to the land where required. Once in position the spreader was 'fed' by the smaller vehicles which at first were wooden bodied resulting in a potentially dangerous situation with lime, taken hot from the kilns, setting the body of the lorry on fire. All this was a far cry from the days, less than half a century before, when farmers left home at midnight by horse and cart to be first in the queue next morning at the kilns, or when they dashed to the kilns overnight in order to avoid the cost of road tolls.

By the early 1960s limestone was in demand as an aggregate for an unprecedented road building programme and the need for burnt lime decreased as chemical fertilisers were introduced. The quarries remained an important local supply of aggregate. In 1963 they were taken over by Hobbs (Quarries) -Ltd. who used the Penwyllt/Coelbren rail link for distribution. The Neath and Brecon Railway, later part of Great Western, had been closed by British Rail in 1960. As well as serving as a passenger link between the Midlands and Swansea it had been instrumental in the carriage of Penwyllt products for many years; bagged lime to farmers in mid-Wales, silica bricks to the industries of Swansea Valley and, all too often, transportation of men with industrial injuries to Swansea Hospital. Discussions resulted in Hobbs leasing the line and station solely for stone shipment. Hobbs intended to create a museum in the old station dedicated to Mdme Patti but it never materialised.

## Penwyllt Village - Growth, Development and Decline

Part of the company's quarrying was carried out in the former Commoners Quarry <sup>1</sup> and continues to be so by their successors, Wimpey Hobbs. An article in the Cambrian Caving Council Annual Report of 1976/7 <sup>2</sup> states:

At Penwyllt, Hobbs Quarries operate a large limestone quarry within the Commoners Allotment.

A further article in the 1977/8 Report <sup>3</sup> shows a plan and explains the Council's concern over potential damage to the unique cave system at Penwyllt. However planning permission for extension of the quarry has been negotiated in such a way that there is no immediate threat, i.e. the extension allowed is further surface area, avoiding greater depth. It seems this compromise was not reached without dispute between the two councils involved. On 8 January 1977 The Western Mail carried a report on their contradictory opinions.

The common rights to the quarry still exist but it is said they are traded for concrete blocks to make sheep folds on the hillsides around Penwyllt.

Modern machinery, such as is used in the Quarries still worked at Penwyllt, is able to literally move mountains; thus the scale of operations is much larger although fewer men are employed. Those whose livelihood depends on the limestone deposits at Penwyllt now travel to work by car and most of the limeworkers cottages have either fallen into disrepair or been demolished, but the kilns still stand as a testament to the years of Christie, Claypon, the Dicksons, Jebb and Morris.

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1 Commoners Allotment registered. unit no. CL63  
in Register of Common Land

2 Compiled by P.L. Smart and R. Smith. p45.

3 Further Developments at Penwyllt

# Penwyllt Village - Growth, Development and Decline

## Table of Ownership

### The Status of Penwyllt Limestone Quarries 1907-1920.

DATE	QUARRY NAME	Number Employed	
		INSIDE	OUTSIDE
1907		5	2
1907	Wern	10	-
1907	Penwyllt Central	-	-
1908	Wern	3	2
1908	Penwyllt Central	3	2
1913	Penwyllt 3 and 4	9	8
1913	Penwyllt 2	12	2
1916	Penwyllt 3 and 4	8	- *
1916	Penwyllt 2	-	- *
1920	Penwyllt 3 and 4	13	2 *
1920	Penwyllt 2	-	- *

#### Notes:

The first entry is managed by the Penwyllt Lime and Limestone company Ltd of 12 Castle Street, Brecon. (Manager Guy Dobell). The remainder are managed by the Penwyllt Dinas Silica Brick Company Ltd. (Manager T. Ellis).

The table was compiled from information in the List of Quarries supplied by the National Museum of Wales.

\* These entries are denoted in 1916 and 1920 as "not worked during year".

The Creation of the Brick Works

Although the lime industry certainly helped to create the village of Penwyllt the largest development of the settlement occurred when a silica brick manufacturing unit was established there. No records of the exact date of opening have been found or, indeed, any reference to who was the inspiration behind the project.

The works, with 3 kilns operating, appears for the first time on the 1895 O.S map but a more accurate estimate of the opening would place it in the second half of the 1870-80 decade. The Penwyllt population recorded at the 1871 census numbers 3 whereas by the 1881 enumeration no less than 166 bodies are recorded. The 1877 Valuation of Mines and Quarries in the County of Brecknock, Parish of Glyntawe, lists only Dickson's limestone quarry and Breconshire Coal and Lime Company's quarries at Penwyllt whereas in the 1879 Rating List a silica quarry in the ownership of the Abercrave Brick Company is identified. This last entry may prove to be the clue to the origins of the works.

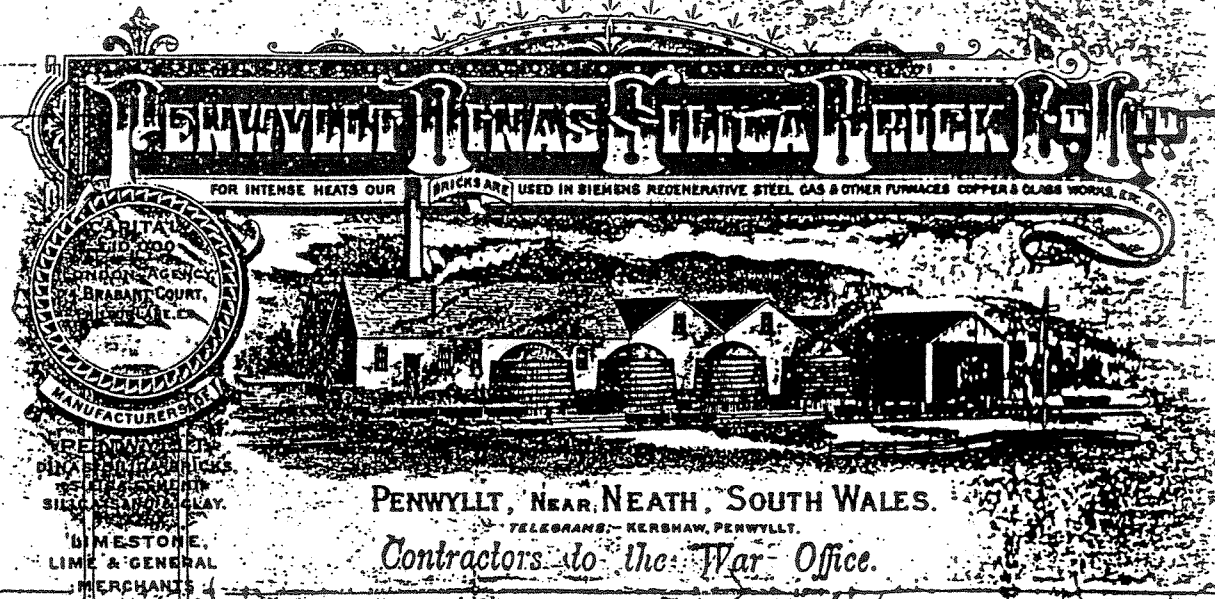
Nevertheless by 1895 the brickworks at Penwyllt were established and owned by Kershaw and Pole Limited, firebrick manufacturers, Penwyllt Dinas Silica Brick and Sand works <sup>1</sup>. On October 26 two years later they registered at the Royal Metal Exchange, Swansea<sup>2</sup> identifying themselves as trading in silica bricks and cement, sand, gannister and limestone under the company name of Penwyllt Dinas Silica Brick Co. Ltd. Kershaw is nominated as proprietor with Mr T Ellis as representative. It appears that brickmakers were members of the South Wales Association of Iron, Steel, Tinplate and Metal Merchants and thus bona fide members of the Swansea Metal Exchange. The Exchange report has further entries for the company under the group headings 'Limestone and Silica Sand and Gannister' and 'Firebricks' in the classified list of trades. The company established itself well enough by 1901 to have an engraved letterhead which details their operation. (p 34)

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1. Kellys Directory 1895

2. The Incorporated Swansea Exchange, Royal Metal Exchange Swansea Thirteenth Annual Report, 1916-7. WGA D/D X 177/15

## Penwyllt Village - Growth, Development and Decline

Kershaw remained at the helm for many years and people still remember how his popularity was acknowledged when left. A huge marquee was hired and erected in the station goods yard to cater for well wishers and workers who turned out to say goodbye.



May 3<sup>rd</sup> 1901

I have great pleasure in testifying to the high character of the lad John Morgan, who has been in our employ since he left school until quite recently. His conduct while with us was in every way satisfactory, and during the latter part of the time he had sole charge of a small Engine & Boiler with results highly creditable to a lad of his age. I have great confidence in recommending him for any similar position of trust.

PENWYLLT DINAS SILICA BRICK CO. LTD.

*P. J. Gervy*  
MANAGER.

# Penwyllt Village - Growth, Development and Decline

## Chapter 9

### The Stephens Years

According to a lease in the possession of Hobbs Holdings Ltd. a conveyance dated October 1 1926 was made between the Baron Cederstrom and Craig-y-nos Silica Brick Co. Ltd. although the Brick Company was not incorporated until 18 July 1928. This may hold a clue as to why the 1926 Kelly's Directory lists the Amalgamated Dinas Silica Brick Works Ltd. at Penwyllt, in this one edition rather than any of the other names which have been used over the years.

On November 14 1927 <sup>1</sup> the brickworks were officially acquired by Sir Alfred Stephens of Broomhill, Kidwelly; oral evidence suggests that Stephens was installed at Penwyllt by the time he was knighted in 1927, for people well remember the special train hired by the Company to take workers and their families to Weston-Super-Mer in celebration of the event. Stephens was already in possession of Kidwelly Brickworks, or rather his wife was nominal owner.

Competition in the silica brick market was fierce and there is some doubt as to whether Kershaw was co-operating with the cartel pricing on which the industry thrived. He was certainly a member of The Silica Association, of 2 Worcester Place, Swansea, which was instrumental in fixing the price of silica bricks. There is an insight into the methodology of this in a letter from its president, Alfred Stephens, urging Kershaw to co-operate which has been retained by the West Glamorgan Archive. <sup>2</sup>. It is fairly certain that the Craig-y-nos Silica Brick Company, referred to above, was set up by Stephens though whether as a serious threat to production or as a means of obtaining ownership of the silica quarries and/or the lease of the land on which the brickworks stood is unclear

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1 Agreement CYN Brick Company. Companies House, Archives.

2 W.G.A D/D X 177/9)



## Penwyllt Village - Growth, Development and Decline

The Memorandum of Association of the newly incorporated limited liability company, Craig-y-nos Silica Brick Company Ltd. define the company's objectives as being:

(a) To acquire and take over the properties and assets of (a) THE PENWYLLT DINAS SILICA BRICK COMPANY LIMITED, situate at Penwyllt, in the County of Brecon and (b) J. B. JENKINS & CO., situate at Neath, in the County of Glamorgan, which were recently acquired by Sir ALFRED STEPHENS from the PENWYLLT DINAS SILICA BRICK COMPANY, LIMITED, and AUBREY ISAAC ROTHWELL BUTLER and HUBERT OSWALD BUTLER respectively, and also ..... etc <sup>1</sup>

Further subsections of the Memorandum define the types of business which may be carried on by the new company including, among many others, the manufacturing and merchandising of silica bricks and cement, mining and quarrying of silica, stone, sand, limestone, fireclay, ironstone and coal, and locomotive, tram and canal carriage etc.

Quite when Butler acquired the works from Kershaw is uncertain although Kelly's 1920 Directory mentions neither man, only Mr T Ellis, in his position as manager; the same gentleman who was listed as representative in the Swansea Exchange entry of 1897. He is also the only contact identified on the Quarries List of the same year. <sup>2</sup> However Butler was presumably in his position long enough to have a newly built row of houses named for him.

In 1929, by special resolution the company name was changed from Craig-y-nos Silica Brick Co. Ltd to Craig-y-nos and Penwyllt Silica Brick Co Ltd. and a further resolution in 1933 gave the works another new identity, the Penwyllt Silica Brick Company Ltd.

The Craig-y-nos Silica Brick Co. Ltd. was presented for filing by Jordan and Sons Ltd, 116 Chancery Lane and Martin Rees Richards of Thomas Street, Lanelly, was the solicitor engaged in the formation of the company which was registered No. 232068. Initially there were two share holders each with one share: Sir Alfred Stephens, Broomhill, Kidwelly and Thomas White Thomas,

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<sup>1</sup> Archives. Companies House.

<sup>2</sup> Industrial and Maritime Museum, Cardiff



## Penwyllt Village - Growth, Development and Decline

Roselawn, Kidwelly who was works manager at Stephens existing brick company at Kidwelly. The directors consisted of Sir Alfred Stephens, chairman, Director of Refractories Industries (Silicosis) Compensation Fund (for which services he was knighted), who was a permanent director, and others who were to be determined in writing by a majority of subscribers, initially Lady Margaret Emily Stephens, Kilgetty, Director of Stephens Silica Brick Company Ltd. and Thomas White Thomas. The Company's registered office was at Kidwelly.

The Agreement made between Sir Alfred Stephens and the Craig-y-Nos Brick Company included properties, stock in trade, fixed and loose plant, machinery, engines, locomotives, tramway, railways and sidings, railway waggons, sheds, stables, horses, fixtures and fittings. The Schedule gives particular insight into the state of land ownership at Penwyllt at this time:

A 1901 lease granted by R M McTurk (Cnewr) for 66 years from 25 March 1902 at £80 for quarries, sandpits, beds of silica sand and limestone.

A 1914 lease granted from Adelina Patti for 99 years from 25 December 1913 at 1/- for water rights and land of 10000 square feet at Penwyllt excepting coal, ironstone etc.

A 1915 first lease from Adelina Patti for 99 years from 25 December 1913 for 896 square feet of land at Penwyllt adjoining the above.

An 1898 lease granted by Rees Davies for 60 years from 25 December to Gwilym Davies; Daniel Davies; John Davies; Richard Lewis Davies; Howell Davies; and Charles Samuel Kershaw giving them the liberty to dig and get limestone in part of the Crown Allotment at Penwyllt or Wern amounting to 2256 acres.

An 1898 lease from Rees Davies, Gwilym Davies, Daniel Davies, John Davies, Richard Lewis Davies, and Howell Davies for 60 Years from 15 December 1897 for land formerly part of the Brecon Forest Tramroad at Penwyllt with liberty to erect kilns, rail roads, tramroads, and other roads, workshops and offices for the business of lime or limestone manufacture.

An 1886 sublease to Kershaw and Edwin Charles Pole and Ernest Challen Clark granting them the right to dig clay and silica but not limestone and other materials.

As far as can be ascertained the works at this time consisted of 8 Kilns with 3 ton grinding rollers.

## Penwyllt Village - Growth, Development and Decline

Only one kiln was fully fired up at a time, the others being at the heating or cooling stage. Each kiln had the capacity to fire 35,000 bricks at a maximum temperature of 1720<sup>0</sup>c. The inner walls were constructed of Penwyllt bricks and the outer skin was clay with the two being held together by steel bands.

It is unlikely that Stephens intended to achieve any substantial production at the Penwyllt works being content, in the main to safeguard his Kidwelly operation by ensuring lack of competition. At its height the works had employed 130 people with 2 waggons of bricks a day being shipped out by rail and going to places as diverse as York, The London Gas company and overseas. Some were sold more locally and it is said that the works supplied Gilbertsons, Pontardawe, and Baldwins steel works, although documentary evidence of this has been elusive.

By the late 1940's technology had advanced and silica bricks were becoming less sought after. The Penwyllt works were closed and such workers as were inclined to do so transferred to Kidwelly along with the moulds which for over 50 years had turned out silica bricks clearly stamped 'PENWYLLT'. Customers who were still purchasing Penwyllt silica bricks had to find new suppliers.

This was quite a change from the war years when it is recalled 250 men and women were employed at the works as well as a substantial number of prisoners of war, bought in by train on a daily basis. It was they who taught the young lads of the village to make an electric motor of cocoa tins and wire. This skill was passed on through the generations and many a Penwyllt lad has driven his Meccano model using the same primitive technique.

Strange to think that in the harsh winter of 1947 men struggled to haul secondhand machinery bought from Pyle, including a ball mill, drier and elevators, up to Penwyllt to erect the new works which were in fact never opened!

The Company, however, remained extant. The Stephens family retained interest in the land at Penwyllt with the nominated managing directors being Lady Margaret Emily Stephens, (widow of Sir Alfred who died 28 November 1938), Thomas White Thomas,

Magaret Esme Priscilla Farr-Davies and Doris Helena Stewart, Alltyradyn, Llanysul (both nee Stephens). Company capital was reduced in 1945, by a resolution passed 27 March, from £30000 to £13500 and all arrears of dividends on the issued preference shares, prior to 30 September 1944 were cancelled. By 4 November 1947 the directors included Catherine Aubrey Stephens, of The Burlington Hotel, Eastbourne; Violet Mary Semmence of Killeney Old Green Lane, Camberley and Dorothy Kathleen Burniston (both nee Stephens) of The Gables Station Road, Cockett, Swansea, all were also directors of Stephens S B Co Ltd.

The first filed annual account at Companies House is for 1967 when the quoted principal activity is the sale of silica bricks and the net profit £295 after tax. The balance sheet included:

Freehold property of the Cederstrom Estate:  
Value £3599  
Land, Buildings and Cottages  
Value £2797  
(As valued by F L Stewart on 12 December 1944.)

The 1971 notes on the returned accounts show a mortgage loan to Hobbs (Quarries) Holdings Ltd. repayable by equal instalments over 10 years.

On the 26 september 1979 a notification of transfer of the company address to Centre City Tower. 7 Hill Street, Birmingham B5 4UU is annotated :

The principal activity of the company was the sale of silica bricks to June 1972. Thereafter an investment company.

The company continued to trade with various changes of directors until its liquidation on 25 March 1980. In 1982 the remaining interests were sold including the lime quarries and mineral rights under 2000 acres of The Great Forest. <sup>1</sup>

1. 1969 (Wimpy Hobbs conveyance). PSBC Ltd. held land at Penwyllt;

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## Chapter 10

### Operations at the Brickworks

The components of Silica bricks were all found in close proximity to Penwyllt - silica sand, silica rock and limestone. Coal to fuel the kilns was carried up to the works by the predecessor of Christie's tramroad, the railway, but the other materials continued to be transported the comparatively short distance from the quarries to the works by tramway. Locomotive power varied according to the topography.

The three main parts of the works were the kilns, the moulding sheds, the drying room and the 'mixing pan'. Silica sand, silica quartzite and lime were all bought by dram to be tipped into the ball mill crusher, in reality a huge crusher and mixing machine with rotating arms attached to a vertical shaft. Once thoroughly processed the resultant clay was barrowed to the moulders who formed the bricks which were then taken by the boys to the drying sheds. Wooden wheelbarrows were used to move the 'set' bricks to the kilns where the firing lasted up to three weeks.

In the moulding sheds the moulders reigned supreme. They apparently considered themselves prima donnas. Their task seemed simple enough being - to bring down the overhead mould onto the clay which had been ready positioned in a pre-shaped form cast from iron. However to make a perfect brick just the right amount of pressure was needed and only experience taught this.

The moulders, who were paid piece rate, each had 'a boy' who carried the moulds away to the drying room. Although conditions were unpleasant they were continually harried to work faster because a slow bearer cost the skilled man money. One man who vividly remembered his short time as a bearer tells how, in 1913, he left school at 13 to find work at Penwyllt even though he was not legally allowed to finish until his 14th birthday. He described the agony of climbing the hill from Abercrave Church to Penwyllt still tired from the previous days toil and speaks of the heat in the drying room floor - so hot that the studs fell out of boots and so all the boys changed to clogs on arrival at work. He carried two soft clay brick forms at a time from the

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moulder across to the drying room where fires burnt continually beneath the floor. In the ruin of the drying room at Penwyllt today it is still possible to make out the channels under the floor where the fires were lit and imagine the heat which rose through the concrete.

During the 8 a.m. to 5 p.m. day he and his three colleagues moved many thousands of bricks before stumbling back down the hill too exhausted to do more than wash and fall into bed. These comings and goings at the works were marked by the hooter, for few people possessed clocks of their own. It was intended that the sound would be heard by all who were due at work and indeed it was a regular interlude for Patti's servants at Craig-y-nos castle in the Valley below in 1915. There is a persistent tale of a wise old horse working the tramroad which ran from the silica beds to the brickworks who, when the hooter sounded for the end of the day's work, refused to go any further and often left the men to pull the drams the remainder of the way!

The motivation for work by the boys was three shiny half-crowns in pay each week. One recalls the pride of taking home his first wage and kneeling on the kitchen floor to roll them one at a time to his mother. However the labourers' wage averaged £2 a week (at a time when colliers earned £3).

At its height the brickworks employed 4 men in the quarry working with picks and shovels, two in the ball mill crusher, 3 moulders each with two boys and two firemen to tend the kilns as well as labourers, the carpenter, blacksmith and loaders. In living memory two shifts were worked, 7.30 to 4.30 and 5 p.m. to 7 a.m.

There is no standard shape for the silica brick, each purpose requiring its own shape, so the carpenter who made the original templates for casting the moulds had his own workshop within the works and was kept very active. Even so the chippy, as he was known, was also responsible for repairs to the Company houses in the village.

After drying out the bricks were taken to the kiln for hardening. Too much heat too soon on wet clay would have weakened the brick and, for the same reason, the heat in the kiln needed to be built

## Penwyllt Village - Growth, Development and Decline

up gradually. (Appendix 4). When sufficient bricks were in place the kiln was lit and the temperature built up over a week, retained at heat for a week, then left to reduce for a further week with the bricks still in place.

The finished bricks were loaded onto the goods train which linked Birmingham and Swansea via Penwyllt. Many were used in the South Wales furnaces but others were taken to the industrial areas of England or carried to Swansea Docks for export worldwide, in particular Egypt and Argentina. The goods train drew into Penwyllt at 7.30pm and came back through on its way to Birmingham at 3.45am, many people tell how they marked time by its passing.

The works attracted labour from all over the country but especially from Shropshire and Scotland. When industrial action was threatened it was not unusual for the workforce to be reminded of the vast pool of labour available and willing to take their places, especially during the bleak years of the 1930s.

It was not only workers who were attracted to the kilns. The warmth also attracted the tramps who used the railway line as a route from Rhydder to Pontardawe via Brecon. On many a night there would be three or four tramps huddled into the works. Apparently they caused no trouble and were largely ignored although the village women boasted they were never sent on their way without at least a cup of tea, no matter how stringent a lifestyle the households were living at the time. One itinerant who did not move on was Jack Ball, a legendary figure who slept in the works stores and passed his days as an employed bricklayer for the company

The silica beds were a way removed from the works but many types of transport were used to bring down the raw materials dependent on the gradient involved and the state of technological expertise. (See page 54). The mineral rights to the silica quarry was vested in the leasee of the Stump. Certainly the Misses Wagge and Evans who managed the inn around the 1940s are reputed to have benefited from royalties paid by Sir Alfred Stephens, but ultimate ownership remained ultimately with Cnewr Estates. <sup>1</sup>



## Penwyllt Village - Growth, Development and Decline

The quarries were governed by government regulations and in 1895 it was T Ellis who signed the Special Rules documentation relating to the quarry known as Penwyllt Silica.<sup>2</sup>

In the process of quarrying silica stone two grades were obtained. The better stone went direct to the brickworks while the inferior stone, or spar, was sent away for roadmaking or to the Sheffield steelworks.

W. L. Meredith in his paper delivered to the Royal Institute at Swansea, The Geology of Penwyllt, quotes Mr Kershaw as having told him that:

...it is supposed the celebrated old Swansea china wares were manufactured from the finest grained of these same rocks.

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1 Most of the descriptions of operation of the brickworks and the tales which surround it have been collected from those who lived and worked at Penwyllt.

2 List of Quarries 1907-1920, National Museum of Wales.



# Penwyllt Village - Growth, Development and Decline

## Chapter 11

### Development of the Settlement

In less than a century Penwyllt grew from Christie's token attempts at providing workers housing into the thriving community which is still fondly remembered by former residents. Where before enclosure there had been only wilderness a self-supporting population was soon established whose work, recreation and interests all were centred on this bleak hillside.

John Christie built his new kilns beside those of the commoners and developed lime quarrying into an industry but both he and his immediate successors drew the majority of their labour from the surrounding farms and the valley villages. Certainly 1841 census returns show quarrymen resident in Glyntawe, Yniswen and the Garth but only two households are recorded at Penwyllt. These have no specified addresses, indicating that the community was tiny. The wage earners are merely classified as labourers. Likewise parish records up to 1841 show only two references to Penwyllt; in 1840 the three children of one of these Penwyllt homes were baptised at Callwen Church and Mary Williams, a Penwyllt farm servant, is recorded as marrying Benjamin Price, a farmer of Maes Eglwys, in 1847.

By 1851 Penwyllt had grown to four households, one being that of the same Benjamin and Mary Price, who obviously chose to settle there following their marriage. Ben was working as a coal haulier, perhaps employed at the Drim workings. The two Griffiths families referred to on the 1841 census were still in residence and Daniel Griffiths' wife was identified as originating from Carmarthen which was quite a distance away in times when roads were poor and transport limited to the horse! The two eldest sons of the second Griffiths household were employed as quarrymen; the first sign that the limeworks and settlement were interrelated. Also living at Penwyllt and working at the quarry was William Llewellyn, son of Gladys, a widow of 59.

Lack of substantiated evidence of dwelling houses at Penwyllt continues throughout the 1850 and 1860 periods. Occasional baptisms, burials and marriages involve a Penwyllt address but

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the pattern shows no growth, neither do such entries as there are in the 1861 census returns. The only interesting development of the period is the appearance of Penwyllt Huts on the burial register in two entries dated 1864 and 1866. The surnames, Kinedy and Bennett respectively, indicate that the families were not local while the reference to 'huts' may refer to a navy settlement. Certainly navvies were used to construct the Neath and Brecon Railway but these deaths were two years before the enabling act was passed. However there is no trace of Penwyllt Huts in the 1871 census thus the settlement was either a temporary one or it was later given a more becoming title. Renaming was an all too common an occurrence at Penwyllt to allow for accurate assessment of the early period, however it is more or less certain that the Penwyllt Cottages, registered for the first time on 1871 census records, were later renamed Patti Row. The two households thus identified are those of Alexander McIntyre, a farmer from Ayreshire, and John Cassey, a railway inspector, from Scotland. Another cottage was uninhabited.

The railway had opened in 1866 bringing with it John and James Dickson, an opportunity for prosperity, growth at Penwyllt and many workers from other areas.

During the subsequent decade Penwyllt underwent a period of rapid expansion. The 1881 census lists a population of 67, half of them under 16 years old, in 12 homes. The Penwyllt Inn appears for the first time as does Penwyllt Row, later to be renamed Powell Street. Listed occupations show the diversity of the community with lime burners, lime hauliers, quarrymen, lime weighers, rottenstone miners, railway employees, general labourers, domestic servants and a licensed victualler. This population included immigrant workers from Llangadog, Gloucester and Sussex.

The founding of the brickworks ensured the continuing development of the village, a young community from which 4 marriages, 28 baptisms and 11 burials were registered between 1892 and 1901. Expansion continued throughout the following decade with the new Kershaw Terrace and Brickyard Row being constructed. They were built to house brickworks labour and the first was named for the

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owner, the other for its construction material - surplus bricks left over from the building of the Crai Reservoir.

By 1889 a good deal of Penwyllt was owned by Adele Maria Govanna Guilis Patti, Baroness Cederstrom, more commonly known as Madame Adelina Patti. Since buying Craig-y-Nos Castle in 1874 she had used Penwyllt Station on a regular basis for her comings and goings. She made extensive land and property purchases and, following her death in 1919, her widower, Baron Cederstrom, sold much of his inherited local holdings including the following:

All those lands and quarries known as Penwyllt quarries together with nine cottages known as 1-8 and number 10 Powell Street and a Reading Room or Mission Hall (forming part of Number 9 Powell Street) and the disused Lime kilns stables smithy and other buildings erected and all Rights of the Vendor in the rails trams and weighbridge at present on the said Land....together with any common rights over the Commoners Allotment appurtenant thereto ..

Later sales of other parcels refer to other agreements of the same period; one made 25 August 1927 between Baron Cederstrom and Ystradgynlais Rural District Council enabling them to construct and maintain a public footpath across the land on payment of 6d per annum and another allowing Morgan Morgan sole grazing rights on the property.

Sale document details also give an insight into the tenancy agreements of Powell Street. Rents for numbers 1-8 were 3/9d, number 10 was 12/6d and ground rent of 5/- p.a. was payable on the Billiard Room. Existing rights on use of the Reading Room/Mission Hall were protected as a condition of the sale. The buyers were the Craig-y-Nos Silica Brick Company who paid £2750.

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1. Abstract of the Title of Penwyllt Silica Brick Company to 1-10 Powell Street, Penwyllt in the Parish of Glyntawe, in the County of Brecon, 1959 including the Official Search Certificate in H. M. Land Registry, Number 232300/1929, Copy in a private collection.

# Penwyllt Village - Growth, Development and Decline

## Chapter 12

### The Community

There is no escaping the fact that Penwyllt can be a bleak and inhospitable place but there is no doubt that the community was generally happy and thought itself somewhat privileged. In order to comprehend this philosophy it is necessary to understand the alternatives the period had to offer.

Heavy industrialisation had polluted much of the region and being centred in the valleys, where space was at a premium, smog, dust, fumes and overcrowding were normal living conditions for the working class. On the traditional farms improving life expectancy with larger surviving families meant land inheritance was by no means certain and the smaller units certainly could not provide a living for every grown child. It was in this climate that the community of Penwyllt developed. The Village's industrial expansion meant work was available to the majority, housing was newly built, if basic, and there was room for gardens large enough to provide for self sufficiency in basic foodstuff. In addition the air on the hillside was clear; the smoke from the works was carried away by fresh breezes. Taken in this context it is possible to begin to understand the affection with which the village is well remembered both during time which is within living memory and even that of antecedents. Tales of the preceding years have been handed down by word of mouth. It is from both these sources that the following sketch of the community is made.

However memory plays many games and while one source claims that electricity was installed as early as 1937 another categorically maintains that domestic oil lamps were used until 1948/9. Nevertheless it is a proven fact that there was never any street lighting on the unmade tracks which ran between the houses, railway and works.

High on this hilltop severe weather in the winter months is a common occurrence. Ex-villagers well remember being isolated by winter snowfalls, some so severe that the men walked all the way

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down to Pen-y-Cae using the hedgetops as paths because the road was filled to that level with snow.

A major source of supplementary income during the leaner years was the lodger. The practice of accommodating the itinerant workforce was encouraged by both the managers and the authorities who were hard pressed to keep pace with housing an expanding labourforce in South Wales. Lodgers also helped to eke out a housewife's budget and so single men were welcomed into homes already overcrowded with expanding families. In many of the two or three bedroomed terrace houses up to ten children lived in apparent harmony with their parents and a lodger. Interestingly procedure ensured that the paying guest always had the privilege of sitting at table alone for his meals, never expected to endure the chatter of children or be privy to the daily family chit chat. The weekend must have been a relief to all as most lodgers caught the 12 o'clock train from Penwyllt station on Saturdays to return to their homes for the formality of a family Sunday. However by 1922 authorities were becoming concerned about this practice and greater household prosperity was breeding a reluctance in women to cope with the extra work involved. The subject was researched for in the Ministry of Health in 1920 and the Report of the South Wales Regional Survey Committee<sup>1</sup> states that the incoming population of workers

...have been lodged for the most part in the cottages of married miners. Not infrequently three or four or more lodgers are crowded into the same house. Apart from the injury to public health and possibly to public morals occasioned by the crowding of lodgers into small cottages an enormous increase in the labour of women is entailed. During recent years .... a greater reluctance to take in lodgers has been manifested, and in some instances colliery companies owning houses were obliged to beg or compel their tenants to accomodate one or more single men.

Whilst this report specifically refers to the coal mining areas there is no reason to doubt that the practice equally applied to the brick and lime works labour at Penwyllt.

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1. U.C.S (WHT 172 MIN) p 65.

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Although these young men no doubt enjoyed the pleasure of their mother's weekend cooking they also ate well, if basically, during the week. The menu at the Penwyllt homes generally consisted of traditional Welsh foods with bacon, cheese, milk, eggs, broth and cawl forming the staple diet. Much of this was home produced; most households reared a pig and kept chickens, at least until the war years when even feeding pigs became difficult and the practice was abandoned. Vegetables were also generally home grown; only during June did most villagers resort to buying potatoes as the climate high on the mountain dictated a late growing season. The outlines of the sizeable garden plots can still be seen amongst the ruin of the terraces and one optimistic resident laid out strawberry beds and managed to produce a crop. In many ways the Penwyllt housewife's lot was easier time than her urban counterpart who was unable to supplement the diet with home grown fresh vegetables.

The 'Stump', as the Penwyllt Inn was generally known, was the social centre for many of the men. In fact the consumption of ale had as much, if not more, to do with a thirst created in the fierce heat of the brickworks than it had to do with the inn providing a focal point. Women, however, were not welcome at the public house even though it was owned and run by two of their kind. Instead social outlet for the ladies was in the form of the weekly whist drives organised to raise funds for the Rovers the Penwyllt football team which gained something of a regional reputation by providing potential league players. The team were provided with a field between the Stump and the station by Craig-y-nos home farm and were trained at one period by Mr Smith, one of the missionaries appointed to Penwyllt.

Alternative entertainment was provided by concerts held in the mission. These affairs were famous throughout the Upper Swansea Valley, being staged by villagers anxious to display their musical and dramatic talents. Mrs Lewis, who often accompanied performers on the piano, is remembered with affection. Sometimes a couple of violins were bought in to help the music along while the young people devised sketches as their contribution. The



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audience arrived from all around the area on foot, horseback or by train.

The first radio owned in Penwyllt was homemade and was such a remarkable event that the villagers crowded into the lucky house to take a turn with the earphones. Later, as radios became more common, the batteries would often be taken carefully by train to Neath to be recharged, although some residents managed to do this at the brickworks using the facilities designed to ensure power supply there.

Another popular meeting place for the men of the village was the billiard hall. In reality this was little more than a tin shack, which stood a little apart from the residential terraces of Powell Street, Brick and Butlers Row but was nevertheless an important recreational facility.

In the early days of settlement at Penwyllt the doctor, when he was called, came from Abercrave, by gig. Later his was one of the few cars to attempt the narrow, unmade road which wound its way up from the Valley. It was Madame Patti who caused the road to be widened so that her own splendid car could come and go to and from the station without damage. At one time the village supported two resident midwives, Mrs Morgan and Mrs Boucher. The latter had 13 children of her own but was still called on to attend births and to lay out the dead.

On Saturday afternoons many of the women made a shopping trips by train to Neath but even so the village was quite well served for everyday supplies. At various periods of its history meat deliveries were made by The Gwyn Arms, which once doubled as a slaughterhouse/butcher and tavern, and by Mr Jeffries of Coelbren who made the journey by train. Various traders in Abercrave and Ystradgynlais journeyed up to Penwyllt with other victuals including J Powell, W Edwards, Abercrave Emporium, which also made bread deliveries every other day by horse and cart. Milk was bought up daily from the Rhongur farm in churns.

Certainly by 1936 household coal was in ready supply to the villagers through Mr. Jim Morris, who was running the limeworks.



## Penwyllt Village - Growth, Development and Decline

His nephew well remembers leading the horse and cart round the village delivering coal to the houses.

The Post Office stores at Penwyllt kept a basic supply of groceries, although the one proprietress is not always remembered with affection. Tales of her 'carefulness' abound such as the story of a hard boiled egg, unused from her lodgers tea table, being included amongst five 'fresh' ones to make up the  $\frac{1}{2}$  dozen.

According to Kelly's directories Mr George Plamer was postmaster in 1895 and at that time there was incoming mail at 9.18 a.m. and outgoing mail at 6.35 p.m. Postal orders were issued but not paid. In 1920 the post office had been taken over by John Lewis.

One of the first houses to be inhabited in the Penwyllt area was Penfoel which was probably part of a farm. One former resident who lived at Penfoel for a while (circa 1920) especially recalls the well which was situated close to the house and which was so deep that ice cold water was drawn from it in summer and winter alike. This well doubled as a natural refrigerator and butter, placed in a metal box inside the cavity, kept fresh from the day it was made until it was used.

There was no road access to this house so all supplies had to be carried across rough terrain for some couple of miles by Ned - a donkey. At this time people employed by the brickworks were entitled to subsidised coal but it had to be fetched from the railway sidings by the household themselves. Ned really came into his own for, once saddled up and instructed 'Go and get the coal for mum', he made his own way to the station where the men loaded him and sent him back. However, with the perversity of his species, he would only carry out his task if he was in the mood, otherwise he would sit and refuse to budge. In any case Ned knew his limits which was two loads a day, nothing ever induced him to make a third journey!

Penfoel was a good example of Penwyllt self-sufficiency and designed for the purpose. As well as two small bedrooms and a kitchen and there was an integral dairy so the family were able to keep two cows and a nanny goat of their own who were fed by

### Penwyllt Village - Growth, Development and Decline

the grandfather rising at 4 am on summers' mornings, before the heat of the day, to cut hay and bring it home in sacks.

The same resident illustrates the seemingly continual movement which went on around the Penwyllt settlement for with her family she later moved to 3 Powell Street and then to Butlers Terrace where she lived until she married. After the wedding she lived with her husband in number 10 Powell Street, known as the big house as it had 2 extra bedrooms above the mission which was on the ground floor. Like the rest of the row the house was owned by the Brickworks.

The mission at Penwyllt was founded by The Church of England Navvies Society and its creation coincided with the building of the railway. However, even after the navvies had moved on the mission remained a cornerstone of the village, providing adult and children's education as well as religious succour. It always remained a Church of England establishment although the area was generally non-conformist in order to provide appropriate worship for the workers from Shropshire and Scotland. In later years the missionaries, like Mr Smith who trained the footballers, were part time and they were provided with light work in the brickworks in addition to their religious duties.

As well as the Wednesday evening service the mission housed a regular Sunday School which all village children attended. Many of these now feel they were sent more to be out of the way for a couple of hours than for the good of their souls! Perhaps this is so given the crowded conditions many families shared.

## Penwyllt Village - Growth, Development and Decline

### Chapter 13

#### Industrial Hazards

Penwyllt, like many other industrial communities of the era, was all too familiar with industrial accidents, often resulting in premature death.

Several former inhabitants remember one of the Potter family losing his arm when it was crushed by trucks in the brickworks. Rumour says the same arm is buried in Callwen Churchyard but this is treated with scepticism by others! However there is no doubt about the poignancy of the epitaph on one headstone which wonders who could have foreseen that when the boy buried within went off to work that morning he would never return. It is said that as the lad squatted close to the kiln to eat his lunch with his colleagues he joked about what would happen if the wall collapsed on them. Within seconds it did just that. As far as the limeworks were concerned it was often felt to be necessary for efficient working that men filling the kilns should stand within them. Frequently the clinkers, which were forming a 'shelf' to support the stoker, gave way without warning and dropped a considerable distance towards the seat of the fire. The unfortunate worker had to climb out up the hot kiln side resulting in unpleasant burns to the hands and body.

A further threat to health and safety around the kilns was the noxious fumes given off from the burning lime and coal. These were particularly dangerous to men inside the body of the kiln itself. Once overcome recovery was a slow process which could take several hours and did not begin until the affected man was carried away to breathe fresh air.

Digging for stone was equally hazardous and at least one quarryman met with untimely death early in this century. He made the error of attempting to move spilt stone from in front of a full dram but failed to clear the track in time with the result that the dram contents tipped onto him, effectively crushing his

## Penwyllt Village - Growth, Development and Decline

The same man's son came close to losing his life some years before when he was placing explosives in the quarry along with his father. The black powder ignited and exploded before its due time engulfing both men in flames. The older, more experienced man rolled on the grass to douse the flames but the younger ran around in fear of his life. All his clothes burnt from him leaving only socks and muffler. It was not thought he would survive and for many days his life was in the balance. However the young man lived to marry and sired seven children.

These were not the only men to suffer. Fatal premature explosions happened all too often but on one fateful occasion it was not industry but celebration which tragically curtailed a life. It was customary for wedding celebrations to be saluted by cannon fire as the couple made their way down the hillside to Callwen Chapel of Ease. In 1880 this horseplay ended the life of John Potter, aged 24, when the cannon backfired as he was firing it.

In so remote a settlement accidents were always made more tragic by the delay in transporting sufferers to hospital. Calling an ambulance was never a practical alternative to laying the patient on the station platform ready for the next train out. It is easy to imagine the additional suffering incurred by the delay.

Silica itself is an inherently dangerous substance to work with. (See appendix 4). It is perhaps ironic the Sir Alfred Stephens was presented with his knighthood for his work on Silicosis Committees. The Adelina Patti, as Craig-y-Nôs Castle became after Patti's death, was founded for T.B. rehabilitation but by the mid 1930s it was silicosis patients who occupied many of the beds for it is an established fact that of all the pneumoconoses silicosis was responsible for the largest numbers succumbing to the disease which was frequently allied with tuberculosis. <sup>1</sup> Such was the pattern of life and death at Penwyllt, but many those who survived the rigours of the industries survived to comparative old age.

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<sup>1</sup> The Disease of Occupations p973

# Penwyllt Village - Growth, Development and Decline

## Chapter 14

### Transport In and Around the Village

Penwyllt was well served by trains from the time of the coming of the railway but from about 1930 until 1960 there was also a 20 minute bus service from Pen-y-cae on which three companies competed for custom. However these vehicles also carried miners coming off shift at Abercrave, before the days of pithead baths, and so travel on them was not popular because of coal dust left on the seats.

Thus it was to the railway that the inhabitants turned and it is fortunate that so remote a settlement should have been so well served by train. From 1903 there were 3 daily services between Brecon and Neath stopping at Penwyllt station. Access to Swansea was easily made by changing lines at Coelbren junction.

More fascinating perhaps was the mixture of systems used in and around Penwyllt to transport the stone from the quarries to the works. The remote silica quarries always presented a problem as the gradient rose 535 feet in a distance of two and a quarter miles which made it unsuitable for many methods of transport. Indeed for many years the rottenstone miners had used sled like carriers which were manually hauled across the uneven ground and a similar method was used for many years as means of moving beer barrels from the station to the 'Stump'. However, useful as such transport may have been for the movement of small quantities of goods it was too cumbersome for the scale of operations demanded by the brickworks. At first a 4' 8" mountain railway zig-zagged up the mountainside motivated by a mixture of steam and horse power. This soon proved too slow and expensive and Mr Alfred Lewis, a consulting engineer from Merthyr Tydfil was called in to determine a more suitable method.

The system which Mr Lewis finally devised was the subject of a paper in the Colliery Guardian where it is fully described. Briefly explained the transport consisted of a 2'3" light tramway with tractive effort supplied by endless cable to Kerr Stuart

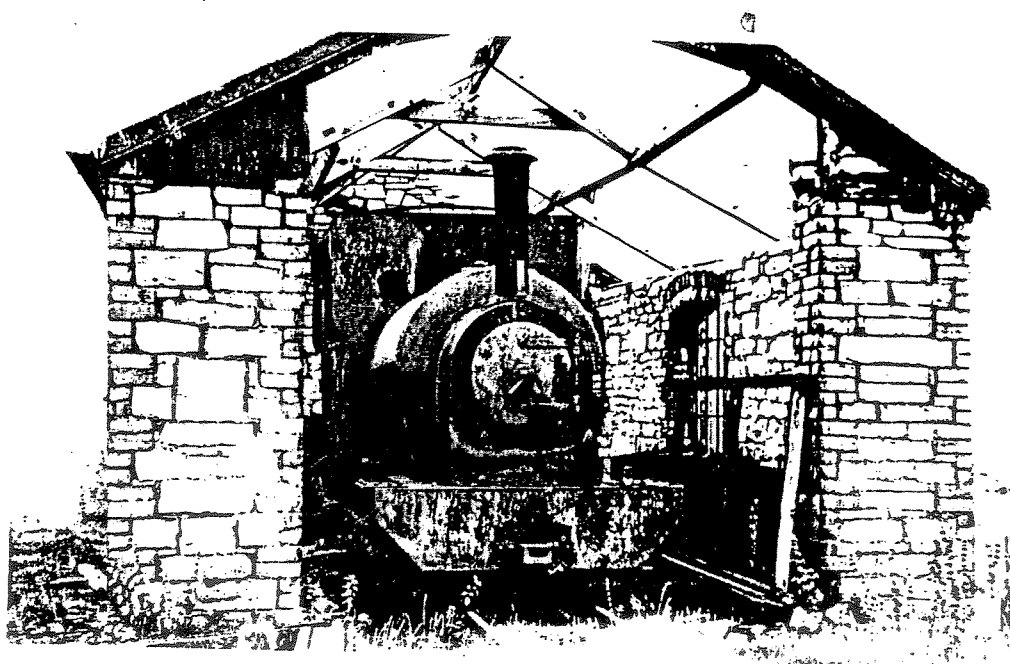
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1 Colliery Guardian June 20 1903

## Penwyllt Village - Growth, Development and Decline

gripper cars on each train. An interesting complexity of the system was that it was divided into halves by an elaborate clutch and gear box arrangement made by Heywood and Bridge of Manchester to allow independent working of the silica quarry. It is inferred, though not stated, that the whole arrangement was powered by a central steam engine. In 1929/30 the system was replaced by an electric winding drum arrangement from the Central quarry to the brickworks with the motor housed up at the Central quarry fed from a generator in the works itself by overhead copper cables. There was a later attempt to dispense with electricity and replace the system by a counterbalance which would allow the descending full dram to draw up the empties but the invention failed.

Once over the steep gradient normal steam locomotive power was used to pull the drams out to the quarries. The engines were housed in their own sheds which were fully fitted with inspection bays and a water column. One such locomotive was named Emily, reputedly after Kershaw's daughter. The locomotive dramroad remained in place for many years alongside the electric winding gear.





# Penwyllt Village - Growth, Development and Decline

## Chapter 15

### Schooling

Such a young community required certain basic amenities, not least schooling for its children. It was in answer to the pressure of numbers on the existing school at Pencae that Glyntawe school was opened in 1899. The children of Penwyllt made the formidable journey from their homes down over the 'Tasg', no more than a track, each morning and returned at the close of afternoon lessons from the age of 5 years and in all weathers. Although the school was new it was nevertheless beset by problems as the following extracts from the school managers minute book prove: 1

25 April 1908 A resolution was put forward to the District Committee as follows:

We as managers most earnestly beg to draw your attention to the very bad state of the drinking water supply to the above school which is at present running along the surface about 100 yards passing close to a farm yard and sewerage from the cow sheds etc. is running direct to the stream which causes the water to be unfit for drinking.

23 December 1916

.....a stove be fixed in the upper Class room where the heat has been under 40 deg. on many occasions lately which is injurious to the children's health while in the other room its very little better. .

In addition there were numerous worries expressed concerning flooding especially after 1911. On 8 May that year it was noted that

the road was flooded to the extent that the headmaster was obliged to carry planks and lay them in a position so as to secure safety for the children from the flood to go home. .

A Commemoration Brochure <sup>1</sup> published for the school's centenary in 1949 also recalls the tribulations of flooding including the effects of a cloud burst on 21 July 1907 which considerably damaged Cwm Byfre House which stood in close proximity to the school. The same document records the spasmodic attendance of

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1. Glyntawe School Records. Powys Archives.



## Penwyllt Village - Growth, Development and Decline

pupils in the early years especially during the winter months. Those who did present themselves were often wet and in the early years were either sent back home or to nearby houses to dry out, otherwise they were kept close to the class fire to air their clothes. Subsequently a drying cloakroom was provided and later still pupils from outlying districts, such as Penwyllt were given transport to and, even later, from school. Although the Centenary Brochure makes no mention of the fact ex-pupils speak of steaming mugs of hot chocolate provided to cheer wet pupils.

Records relating to attendance at Glyntawe school mirror population trends at Penwyllt. The remainder of the catchment consisted of a reasonably static society from agricultural roots. At its peak, in 1915, the school had 69 pupils followed by a steady decline until the mid 1920s when a slow increase resulted in a 1937 pre-war figure of 58 children. Throughout the war and in the post war years attendances showed a steady decline with only 22 pupils left in 1959.

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1. 1899-1949 Glyntawe School, Commemoration  
Brochure, Private Collection.

# Penwyllt Village - Growth, Development and Decline

## Chapter 17

### The Potter Dynasty

The opportunity of employment at Penwyllt attracted workers from other areas and the arrival of 'strangers' in a community as remote as the Upper Swansea Valley had a profound and lasting cultural effect. The verity of this and its influence up to the present can be marked by the integration of one such 'dynasty'.

The Potter family are an ideal selection because, unusually for a working class family of this era, some information concerning their early settlement is available and their many descendants who remain in the area are familiar with the family story. Through the Potters it is possible to glimpse the lifestyles of many of the whole population, revealing 100+ years of social development patterns, family size, occupational choices, religious commitment, industrial hazard, love, laughter and death - all too often in the form of infant mortality.

David Potter, founder of the Glyntawe Potters, arrived from Sussex prior to the 1851 census in which he is registered as a 22 year old warrener. <sup>1</sup> He was resident at Cefn Cul which is described by Rev. J Jones-Davies <sup>2</sup> as being

a well built house, 1125 feet above sea level, in one of the bleakest spots in Breconshire, ... situated on the eastern slope of the ridge of that name, which flanks the A4067 road from Tafarn y Garreg to Bwlch Bryn-rhudd (Crai) and which looks down on the Twyni river below.

The household consisting of David himself, 26 year old John Thomas Blazey, who described himself as an agent from Norfolk, and 18 year old Susan Farrow, a house servant was befriended by the Morgans of Y Deri. It was their oldest daughter, Rachel, whom David married in Callwen church on March 17 1856. <sup>3</sup>

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1 Fashionable ladies wore rabbit fur so the creatures were farmed and the ridges which formed their artificial warrens can still be seen at Nant Rhywdon opposite Cefn-Cul.

2 Museum News (Brecon Museum), The Rev J. Jones-Davies.

3 Parish Register.

## Penwyllt Village - Growth, Development and Decline

Throughout her life she was known as, Rahel, sometimes shortened to Rae, or Rhyl as Blazey referred to her in his later letters to David. At the time of their marriage Rachel was living at Blaen-Twyni and David, by now a labourer, at the Tafarn-y-Garreg.

The parish baptism register bears witness to the fruitfulness of the union but David's own diary <sup>1</sup> records the first births in detail.

William Potter the son of David Potter was Born on December 3 1856 at 10 minutes past six in the morning:

John Potter was Bornd on October 23 1858 at Callwen 8 o'clock in the evening;

Thomas Potter was Bornd February 17 1861 at 11 o'clock in the morning

Although the surviving element of David's diary ends with the entry of the third son the baptism register at Callwen reveals that the Potters had 5 sons, the last being born in 1865, followed by the equivalent number of daughters at two to three year intervals between 1867 and 1880 by which time Rachel was 42.

As was common at this time not all the Potter children survived their infancy, Jane the fourth daughter survived only to 13 months of age and David, the fourth son died in 1864 at 9 months old. He was one of four children buried at Callwen between April and November of that year. David, the father, lived to the age of 60 and was buried at Callwen on January 2 1892 and Rachel survived him by 15 years and was buried on December 11 1907.

Although the founder of the Valley Potter family arrived to work as a warrener his companion, Blazey, left when such work became scarce. However the new activity at Penwyllt encouraged David to stay in the area and over his lifetime he most certainly worked for the Neath and Brecon Railway, as his own diary and surviving correspondence with his mother testifies. By the time their last daughter was baptised the family had moved to Penwyllt. It was

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<sup>1</sup> The diary and surviving letters exchanged between David and Blazey, and David's mother are preserved at Brecon Museum.

### Penwyllt Village - Growth, Development and Decline

the second generation Glyntawe Potters who reaped the full benefit of Penwyllt industry. Examples abound for instance William, the first son, who by the 1891 census was the 24 years and registered as a lime burner at number 1, Penwyllt. When he died in 1929, aged 72, he still lived in the community at number 3 Powell Street. David's son Daniel followed the same trade and daughter Mary Jane was married to a Penwyllt signalman.

Thus the family settled both in Penwyllt and in the surrounding area, some marrying into established local families, others choosing partners from amongst the many itinerant workers who made a home in the village. There is no doubt that they became central to the community for the Potter family's renditions at the Penwyllt concerts are legendary. David Potter's granddaughter clearly remembers her grandfather opening many of the concerts with his singing.

Most of the few remaining inhabitants of the former settlement are interlinked with the successors of the warrener from Sussex as are many a family now living in the adjacent communities, such as Seven Sisters, and further afield.

# Penwyllt Village - Growth, Development and Decline

## Chapter 18

### The Decline and Abandonment

The growth of Penwyllt's prosperity was mirrored in the Electors Lists for Glyntawe, which included only the surrounding agricultural land owners until 1837 when Joseph Claypon is mentioned, but as owner of freehold land at Glanusk, not for his Penwyllt property. It was not until 1870 that electors such as Daniel Davies, proprietor of the Penwyllt Inn, were registered as freeholders in the village. Others listed in the same year are Gwilym Davies of Bwllfa House, Rees Davies of Penycae, Benjamin Evans, Rees Morgans, William Morgans and Francis Price. However, one hundred years later the village was all but abandoned, the homes of the workers condemned, the Stump closed, and much of the old industrial sites designated as nature reserve. The beginning of the end was in reality 1927.

When Stephens gained control of the brickworks Penwyllt's fate was sealed. Demand for silica bricks was already in decline as new technology was being introduced in kiln manufacture and such market as was left was over subscribed. Survival depended on buying out the opposition. Rationalisation always depends on analysis of costs and the location of the Penwyllt operation would have weighed heavily on the debit side. In any event by 1940 the works were closed and no new industry was likely to relocate in so remote an area. The limeworks, aided by the home food supply constraint of the war years struggled on for two more decades but in later years only as a minor employer.

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1. National Library of Wales, Q/REe, Electors Lists (Glyntawe)

## Penwyllt Village - Growth, Development and Decline

Breconshire County Council's 1954 County Development Plan indicates the contemporary state of the areas economic activity:

### Minerals - Limestone

It is in the county's carboniferous limestone series that most of the county's quarries occur, the stone is used for roadstone, concrete, burnt lime and ground limestone. Lime kilns are situated at Penwyllt, [+ others] ..while large limestone quarries producing road stone are located at Penderyn, Cefn Coed and Clydach.

### Minerals- Silica

Silica rock is worked by underground methods at Dinas Mine near Pontneddfechan. [No mention of Penwyllt].

### Minerals Other Than Coal. Penwyllt:

Messrs. Pontardawe Quarries Ltd. Limestone. 14500 tons annual output. 8 employed

Messrs. J W Morris & Son. Limestone. 20000 tons annual output. 22 employed.

### Railway services:

Craig-y-Nos Station: Av. Passengers carried per train: 0.8.

### Areas of Special Scientific Interest:

to be] considered: Penwyllt Silica Works: Millstone grit (Carboniferous) with fossil plant beds showing the transitional character of the flora.

## Penwyllt Village - Growth, Development and Decline

### Postscript

In 1960 British Rail closed the line from Brecon to Neath which had brought prosperity to the village; custom in both goods and passengers had declined to an uneconomical level. The housing stock was no longer a necessary adjunct to the works and what little investment there had been in upkeep faded away to nothing. In any case the new generation of young people were not satisfied with the lonely life offered in so remote a location.

By 1974 all but a few freehold property owners were relocated to new authority housing in Glyntawe and surrounding communities and since that time the settlement has begun to revert to its natural state. In many ways the area is again a study centre for geologists and naturalists just as it must have been in 1868 when the Reverend W S Symonds M.A. F.G.S. gave an address to the Woolhope Naturalists Fieldclub based on the geology of Penwyllt <sup>1</sup>

Powell Terrace remains conserved, used as headquarters for the South Wales Caving Club; members explore the cave system below the lime workings. Mounds of bricks are all that remain of Brick Row and Butlers Terrace but the pattern of the settlement is visible in the outline of the gardens and the tracks between one part of the village and another. Patti Row, back to back housing, stands in ruins. Little remains of the brickworks which were the heart of the community. PENWYLLT bricks lie around in abundance.

The Stump still stands with its adjoining dwelling, Wern House, as do many of the limekilns. Remnants of Christie's tramroad and its later additions are all around. It is also possible to walk the trackbed of the Neath and Brecon Railway. The station is intact although Madame Patti's private waiting room has long gone.

Hobbs Quarries work the limestone deposits for aggregate including the old Commoners Quarry and some commoners still resent this. Above all there are the scars on the landscape which are a testament to mineral exploitation in pursuit of which fortunes were won and lost over the 150 year period between 1820 and 1970.

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<sup>1</sup> The Geology of Penwyllt, W L Meredith, in the Annual Report of the Royal Institute.



Appendix I  
Landownership Penwyllt. 1820 to the Present

YEAR	DATE	VENDOR/LEASOR	PURCHASER/	PROPERTY	DOCUMENT	REFERENCE.
1828	12Aug	Thos Arnott/ Rob. Mercer	Marqs Campden Wm Watkins Wm Powell David Jeffries	BFT; 70 acres land Penw. Drim-Castell Du Wharf limekilns; limeshed; cotts; stables; Drim cly	Sub Lease	Mayberry NLW vol 1
1830		Claypon	"	"?		
1857			David Jeffreys	Penwyllt Quarries & BFT	"	"
1859			George Edwards	Crown allottment	Conveyance	?
1837	Claypon	Joseph		F/H land; Glanusk	Electors List	Q?REe NLW
1870	Davies	Daniel		F/H land & house Penwyllt Inn	"	"
1870	Davies	Rees		F/H land; Penwyllt & Wern	"	"
1870	Evans	Benjamin		Land & tenement (joint) Penwyllt	"	"
1870	Morgans	Rees		Dwelling House Penwyllt	"	"
1870	Morgans	William		Dwelling House Penwyllt	"	"
1870	Price	Francis		Land & tenement Penwyllt	"	"
1872	31Dec	G Edwards	N&B Ry Co	6 acres inc. station	Conveyance	Hobbs
1874	19Jun	Rich. Davies	N&B Ry Co	?	Conveyance	NCC 1987
1883	10May	Rose Davies Dan. Davies Gwil. Davies	Edwin C Pole Chas S Kershaw	?	Indenture of Lease	NCC 1955
1883	?		N&B RY Co	1 acr etc 1970	Deed Poll	Hobbs

YEAR	DATE	VENDOR/LEASOR	PURCHASER/	PROPERTY	DOCUMENT	REFERENCE.
1884	16May	Rees Davies	Pole & Kershaw			
		Gwil. Davies	(3rd part)			
		Dan. Davies	(1st part)			
		Cartmell Harrison	(2nd part)			
1889	24Jun	A Patti	George Hyatt Williams			Testratrix
			Ann Williams			
			John Parry	Penwyllt Quarries		
1918	31Jan	A Patti	Sarah Evans	1-10 Powell Street	Abstract of	Land Reg.
		Testratrix	Mary Williams		Title	232300/
			John Jones			1929
1926	1 Oct	Cederstrom	CYN S.B.Co	43 acres Penwyllt	Conveyance	Hobbs
1928	1 Oct	Cederstrom	CYN S.B.CO.	Hillcrest (Dinas)		
				Bungalow	Conveyance	Hobbs
1930	18Nov	Gt W Ry	CYN & P SBCo	6 acres/station	Agreement re	
					laying pipes	Hobbs
1936	21Jan	Mag. H & Llewelyn Davies	(1) NCC land		Lease	NCC1975
		Hannah Demaris Pugh	(2)			
		Jennet Evans, Mary A Davies,				
		Rachael Wagg	(3)			
		David, Gwenllian, Mary, Thos				
		Rich, Wm Lewis	(4)			
1937	26Apr	As 1936	21 Jan		Deed of Variation	
1945		No record			Lease Plan	Hobbs

YEAR	DATE	VENDOR/LEASOR	PURCHASER/	PROPERTY	DOCUMENT	REFERENCE.
1954	16May	?	Mag.H Davies		Deed of Appt	NCC 1955
			Hannah Pugh			
			Perc. Evans			
			Rach. Wagg			
			E.G.H Evans			
			P.A.T Evans			
			Ernst Evans			
1955	17Sep	Hannah Pugh	P SBCo Ltd	Beds seams veins mines	Conveyance	NCC 1955
		Ewart Evans		& deposits of Fireclay firestone & silica stone		
				at Penwyllt & Wern; 2256ac;excp parts formerly		
				occ by Breconshire Coal & Lime Co & those sold to		
				N & B Ry & parts site of BFT.		
				And beds etc of limestone & Kershaw Terr, Brick		
				Row, Butlers terr, workshops, offices, engines,		
				machines, kilns & quarries known as PSB Works		
1965	21Jun	Hanah Lewis	Hobbs	1-6 Penwyllt Cottts	Conveyance	Hobbs
		Davies		(known as Patti Row)		
1965	29Jun	Morgan Morgan	Hobbs	2,3,4, Kershaw Terr	Conveyance	Hobbs
1966	19Jan	MJ&E Burrows	Hobbs	Hillcrest (Dinas)	Conveyance	Hobbs
				Bungalow		
1967	5Dec	John Rees	Hobbs	1 Kershaw terr	Conveyance	Hobbs
		Mogan (as executor for Morgan Morgan)				

YEAR	DATE	VENDOR/LEASOR	PURCHASER/	PROPERTY	DOCUMENT	REFERENCE.
1968	14Oct	Percy Bengree			Statutory Declaration	NCC1975
1969	6Aug	Rich J Davies	SOS Wales (FC)	Mineral rights	Conveyance	NCC1975
		Nancy Sanders				
		Perc. Bengree				
1969	6Aug	?	SOS Wales (FC)	NE of OS42	Conveyance	NCC1975
1969	28Oct	P.D.S.B.C.	Hobbs	43 acres "	Conveyance	Hobbs/NCC
1970	15Jun	B R Board	Hobbs	6 acres incl CYN Station	Conveyance	Hobbs/Ncc
1975	25Mar	Sec.of State				
		for Wales				
		(for FC)	NCC	1020.63ac of Y-Wern	Conveyance	NCC1975
1978	8Dec	?	Hobbs	1ac 1258 yds adj 1970	Coveyance	Hobbs
1984	31Aug	Hobbs	NCC	9.946 acres part of Penwyllt Quarry	Lease 20yr	NCC1984
1986	3Apr	Hobbs	NCC	Right of Way	Deed	NCC
1987	26Aug	B R Board	NCC	6a 1683sq yds Coelbren Junction Branch Line	Conveyance	NCC

**Abbreviations:**

CYN S BCO Craig-y-Nos Silica Brick Company  
NCC Nature Conservancy Council  
SOS Secretary of State for Wales  
P.S.B.C. Penwyllt Dinas Silica Brick Company  
h Rail

NLW National Library of Wales  
N & B Ry Neath and Brecon Railway  
B.F.T. Brecon Forest Tramroad  
B.R. Britis

## Appendix 2

### Lime - Its Historical Importance

The poor soil of the upland Forest Fawr was only rendered fertile by the addition of lime; farmers depended on its use to produce food and fodder. In 1781, Philip Morgan, then Lord Tredegar, lord of the manor, sought to collect forest taxes from 'strangers'<sup>1</sup> coming to collect lime from the Forest. Their horses, which were allowed to graze freely close by the kilns while the business was enacted, were being impounded by the lord's servants. The tenants bought the case to court and counsel's opinion was sought.

On the Great Forest of Brecon it hath been a Custom, continued down from Time Immemorial<sup>2</sup>, for persons from the neighbourhood, as well as Cottagers and Farmers, to erect seu'l Kilns for burning of limestone, which there abounds in large Quarries, into Lime. These Lime Burners sell Lime upon the spott, and supply all without Distinction from wheresoever they be, who think it proper to come for it. .... There has Been never an instance of making any acknowledgem't to the Lord or any Else for the liberty to erect Kilns and to raise burn and vend Lime in the manner before mentioned, but being for the Increase and Incouragement of Husbandry, both from that and the usage it hath always been deemed a Thing of universal Right and that as well strangers as Tenants thereof might go there to fetch it, and while they stoop at the Kilns, suffer their Horses to go about grazing at a Convenient Distance, ..... And it is usual for those far off to go towards Lime in the Evening, arriving at the Kilns in the dusk, and turn out their Horses upon the Hill till dawn, when they load and return. .... The way to these kilns is from the Great use of it made a deep beaten Road and tho' it leads only to those Places, in a manner looked upon as a Common Highway.

This explanation was directed to Edward Bearcroft at Lincolns Inn on the 25 August 1781. He was asked to venture an opinion on Whether from the immemorial usage any persons may not Erect Kilns, dig up and sell Lime to whomsoever they please without making acknowledgement to the Lord, at least have not the Tenants of the Manor and Commoners a Right so to do for Manuring their own Lands?

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1 Strangers in this context refers to those who did not hold the right of common

2 1 TIME IMMEMORIAL refers to a custom dating back to 1189 when common law was regularised

## Appendix 2

The counsel's reply doubted if 'all persons' had a right to erect kilns etc. but suggested that both the Commoners and the Tenants may justify doing so for the purpose of manuring their Own Lands, if in point of fact they have immemorially been used to do so.

### Enclosure

When the Enclosure Act (34, GIII, c75) was passed by Parliament in 1808 no thought or reference was given to this ancient right of the tenants and commoners. The Act was to enable the Crown, for the purpose of improving Land Revenue of England (among other powers), to sell the Crown's interests in the Great Forest of Brecknock and stated that:

[His Majesty] is owner of the soil of the Great Forest of Brecknock in the County of Brecknock, and of the mines, minerals, and other substances within and under the same...

That indicated that the Forest was to be sold without regard to the the tenants' rights, including that of digging and burning lime. The passing of the Act was followed by a series of lawsuits from tenants and commoners. In the event this action delayed the sale and enclosure for 11 years during which time compromises were sought. A report of 1816 by the enclosure commissioners demonstrates the strength of opposition they faced.

We were about to proceed [with the sale] But finding that a great impediment to the sale would arise in consequence of a claim set up by the Hommagers [it was deemed it would be more desirable to separate entirely] the interests of His Majesty from those of the freeholders and commoners.

Commissioners were appointed for dividing and allotting the Forest ensuring that, among other considerations places for public limestone quarries would be allocated. The suggestion followed a meeting held at Dyfynnog when a proposal was put to the crown which included that statement:

That those parts of the common containing limestone quarries were left open for the use of the future tenants of the farms and commoners at present enjoyed.

It was settled that 8 areas should be kept for public limestone extraction, one of these was the Commoners Quarry at Penwyllt.

### Appendix 3

#### Uses (Historical and Contemporary) of Lime

Lime and limestone have been used for many purposes by different civilisations. The list below is not exhaustive but gives a clue as to the importance and flexibility of the substance.

**Preparation of Hides:** Used to purify the skin.

**Bleaching Agent:** The bleaching properties of lime have long been known. There is evidence that Celtic women used limewater to bleach their hair blond. In 1779 Charles Tennant showed that chlorine could be absorbed into lime, yielding a bleaching agent.

#### **Water Purification and Effluent Treatment:**

This natural property of limestone accounts for the geographical position of spa towns where natural water flows pure.

**Limewash:** Since ancient Roman and Greek civilisations limewash has been used to whitewash and waterproof the walls of domestic and other buildings.

**Limewater:** Lime dissolved in water was once thought to have healing properties.

**Construction:** For many centuries lime was used to produce a primitive mortar for use in building works. In September 1538 890 loads of lime were burnt for Henry VIII's Nonsuch Palace in Surrey. Mortar made from lime was used in Crete in the middle mian period circa 1800 BC.

**Dyeing:** Indigo dyeing was improved in the 18th century by adding ferrous sulphate and lime to the vat.

**The Chemical Industry:** Burnt lime and hydrated lime are used as raw materials in the manufacture of a wide range of important chemicals such as soda



### Appendix 3

#### Uses (Historical and Contemporary) of Lime

ash, caustic soda, organic acids and solvents.

##### Road Building:

Limestone is used for the base course and also used as the wearing course of minor roads for it has a high resistance to polishing by traffic but is not sufficiently strong to withstand heavy use. Limestone is particularly easily coated with tar and bitumen in the production of Macadams. In The Geology of Penwyllt, W.L.Meredith describes the limestone of Penwyllt as being "divided into the upper, middle and lower beds, the lower beds being the most productive quality for lime and the others most durable a road and building material.

##### Aggregate:

Limestone is the largest source of crushed rock for aggregates using the physical property of the stone, not the chemical ones. This is the major use for limestone from Penwyllt today.

##### Pyramids:

The limestone of the Mediterranean Basin was used to build the pyramids of ancient Egypt.

##### Iron and Steel:

Burnt lime is used in iron and steel manufacture to treat molten steel to further reduce silica and alumina content and remove sulphur and phosphorus. The Linz Donawitz steel making process required limestone whose quality was rigidly specified.

##### Blasting:

Lime can be used to create holes in rock for explosive charges. A wedge is hammered into a pool of quicklime and water causing heat and pressure to split the rock face.

### Appendix 3

#### Uses (Historical and Contemporary) of Lime Agricultural Uses of Lime

Lime has been used as a soil improver since ancient times. In Cato's De Agricultura of the second century B.C. advice is given on cultivation and accompanied by a description of a limekiln. In 1603 George Owen wrote of the construction of kilns in his Description of Pembrokeshire.

A special Act was passed (33 Geo II, c. xv) relating to coastal duties on coals shipped from Milford Haven to Cardiganshire, Pembrokeshire and Carmarthenshire for the purpose of lime burning and by 1758 farmers in the Vale of Glamorgan were using 10 times as much lime as they had a decade earlier. The Napoleonic wars and its attendant grain price increase made it was necessary to expand the amount of cultivated land in Britain to meet the domestic food market. Between 1790 and 1810 an estimated 800,000 new acres were bought into cultivation causing vast numbers of lime kilns to be built for the purpose of burning lime to improve the sterile soil. This intensive liming in the 19th century created reserves that were to last for many years.

The evolution of intensive farming and the introduction of better seed varieties gradually used up the reserve, not only on arable lands but also on grassland.

The process by which lime spreading improved land was probably not fully understood at this time but with improvement of scientific knowledge it is now defined. The acidity of the soil is measured on a pH scale where neutral is 7.0 and anything below that indicates increasing acidity. Most crops thrive best on a soil which is measured at around 6.5 for arable and 6.0 for grassland. If the acidity of the soil is more than this the balance can be redressed by adding lime. It is also suggested that herbicides and pesticides are less effective in acid conditions. Neutralising soil acidity lime makes nitrogen, phosphorous, potassium, sulphur, calcium and magnesium more readily available to plants. Lime also supplies calcium and/or magnesium as crop nutrients. In addition it has a beneficial effect on soil structure by assisting in building up soil crumbs, keeping heavier soil open and friable. Drainage in such cases is

### Appendix 3

#### Uses (Historical and Contemporary) of Lime

more effective and the land is 'warmer' and more easily worked down to a fine tilth.

Lime is lost from the soil by leaching and cropping; the time scale varies according to conditions and the type of crop grown. As an example of this cut grass has a higher rate of loss than grazing grass. The addition of other concentrated fertilisers also increases the speed at which lime is lost. It is necessary to reapply lime at intervals and this is generally done between ploughing and seeding as lime is comparatively slow acting.

The agricultural use of lime was always a seasonal demand, peak times being the 3 months of spring and 6 weeks of the autumn period; generally the period between ploughing and planting as lime is added to unseeded ground. The operation of kilns was adjusted to this seasonality so, that when orders were flat only one kiln was kept fired. Burnt lime was never used to improve grasslands but as kibble lime developed it was used extensively on pasture, especially during the war to boost production.

The Agriculture Act of 1937 created a Land Fertility Committee to provide subsidy to farmers for liming. The grant covered up to 50% of the cost of the lime plus up to 50% of associated transport costs to get the lime to where it was needed. Lime use increased dramatically. Before the Act farmers in England and Wales used approximately 400,000 tons of lime annually. The table shows how usage increased from 1939 and how alterations in payment of subsidies affected production.

YEAR	PRODUCTION IN TONS	% OF S. WALES TOTAL
1938	256100	14.9
1950	657800	21.2
1969	1360000	15.1
1971	7 Quarries - No Lime Production	

In 1964 the method of subsidising lime use was changed to a fixed scale of contribution towards cost, spreading and haulage. As haulage costs, in particular, increased the effective grant was

### Appendix 3

#### Uses (Historical and Contemporary) of Lime

reduced to only about 25% of the total cost to the farmer by 1976 when subsidy was withdrawn altogether. The table illustrates the decline in usage which accompanied these rising costs. However improvement in technology, notably the increased use of spreaders which eliminated the cost of bags offset the loss of grant until high inflation and rising transport costs eroded the saving. Until the late 1940s lime used in agriculture, as produced in the kilns at Penwyllt, was formed by taking limestone ( $\text{Ca CO}_3$ ) and heating it to 900 - 1100 degrees centigrade during which process carbon dioxide ( $\text{CO}_2$ ) was driven off in the form of gas, leaving a residue, quicklime ( $\text{CaO}$ ). The process was known as calcinating. Quicklime reacts exothermically with water, fiercely enough to generate steam, and forms slaked or hydrated lime ( $\text{Ca (OH)}_2$ ). This product was potentially unstable making transportation of the material difficult with the result that, as mechanical technology made it possible, ground lime became increasingly popular. Lime ground after burning is known as kibble lime and can be applied onto the field by spreader without the slaking process. This was the form of soil improver that began to be produced at Penwyllt in this period. However, during the late 1950s, more sophisticated methods of grinding the unburnt stone sufficiently small to be naturally oxidated eventually replaced kibble. The investment required in new machinery drove many small concerns out of business, including the limeworks at Penwyllt.

By 1983 The Agricultural Lime Users Council estimated that the use of agricultural lime was only 3,500,000 tons annually. They considered this to be around 20% lower than is necessary to maintain a satisfactory lime status in the nations crop producing lands. <sup>1</sup>

Against this brief history of lime and explanation of its importance and usage it is possible to measure the rise and decline of lime production at Penwyllt.

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<sup>1</sup> Lime in Agriculture, The Agricultural Lime Producers Council, (1983).

### Silica Brick Properties.

William Harry of Swansea Valley patented the idea of covering the vaulted brick roof of furnaces with silica sand which then fused into a solid arch in 1817.<sup>1</sup> Once the properties of the material had been recognised others developed the science and by 1820 the first silica brick originated is believed to have been made by William Weston Young of Dinas Rock. From this the technology was quickly taken up by other manufacturers as evidenced in the following description of the industry:

There are several different types of fire bricks with different powers of resisting high temperatures and the corrosive actions of different kinds of slag. Bricks made from fire clay resist temperatures of up to 1500 degrees centigrade. Silica bricks resist temperatures of up to 1700 degrees centigrade but are liable to crack with sudden temperature change, and are therefore only used for the arches of steel furnaces where resistance to high temperatures is absolutely necessary .....<sup>2</sup>.

The definition of silica adopted by the Geological Survey states:

Those sandstones and quartzites, able to be used for silica brickmaking.

Demand for silica bricks grew in the late 19th century and early 20th century as a requirement for open hearth linings. After World War I demand increased when silica bricks became the standard refractory for coke ovens and the market more than doubled between 1918 and 1937. Production remained steady during the post war period; in 1959 about 98% of South Wales' output of silica bricks went to steel works. However between 1955 - 69 output fell as demand decreased and the number manufactures fell from around 293003 tonnes to 69810 tonnes per annum.

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1 Glamorgan Historian vol 5, pp61-100, (1968)

1 Donald Hunter, The Diseases of Occupations, VI Edition, 1976.

2 John Blunden, The Mineral Resources of Great Britain, 1975 p278; quoting from: W Davies, British Resources of Ganalister and Silica Rock, Transactions of the British Ceramic Society 47, 1948 p55.

Silica when vitrified has a very low co-efficient of expansion, which enables it to withstand sudden changes in temperature: it can be heated to redness and than plunged into cold water without cracking.

Particle size as well as chemical composition is tightly specified for refractory usage; the ideal grading of the rock after crushing and milling should be made up of equal parts of fine and coarse particles, with very few of intermediate size... 3.

The texture of silica rocks can be broadly classified into 3 types dependant on the degree of compaction. The first is very compact silica rock of quartzite, which is tough and glassy; the second is loosely consolidated material or quartzite sandstones which crumble easily; and thirdly there is a stone of intermediate compaction with low porosity. It is the last which are the most likely to contain suitable particle size gradings for silica brick manufacture as it is important that the porosity of the rock after firing should be as low as possible. Sometimes this was achieved by grading crushed silica to create a combination of coarse, medium and fine grain.

The use of silica bricks in iron and steel manufacture contracted as changing technology especially in the steel industry caused increased demand for higher performance refractories. Silica bricks were still used for a time as an alternative to magnesite/chrome bricks for open hearth furnace roofs but as an increasing percentage of steel output was derived from basic oxygen furnaces their usage declined. Silica is almost a pure oxide which means it has a melting point rather than a melting range. This ensures it retains its strength until the melting point of  $1730^{\circ}\text{C}$ . is almost reached. Neither will silica bricks shrink or expand at temperatures close to melting point unless they have been underfired.

Silica properties etc.

In a paper presented to the Metallurgical Society A E Dodd describes the properties of silica bricks explaining that in poorly fired bricks the quartz converts to cristobalite while in

#### Appendix 4

well fired bricks practically the whole of the reversible expansion takes place below  $600^{\circ}$  c. i.e. before the bricks become red hot.<sup>1</sup> Disintegration is often caused by the action of carbon monoxide contained in blast furnace gas. A variation in temperature in different parts of the kiln when firing bricks, especially the up-draught type of kiln used in South Wales, can mean a variance in specific gravity and expansion. The close textured bricks are better than open textured ones for steel furnaces provided that a good proportion of rough material, i.e. pieces of silica rock up to approx.  $3/8$  of an inch, is included in manufacture. A close textured brick has lower porosity and permeability and greater heat conductivity which will prolong its life.

He also quotes the gas engineers specification of July 1934 for bricks used in gas retorts and suggests it is equally applicable as a guide for selecting bricks for coke ovens:

Silica content: minimum 92%  
No sign of fusion at  $1670^{\circ}$  degrees cent.  
Permanent expansion after heating for 2 hours at  $1450^{\circ}$  c. not more than 0.5%

In conclusion he notes that a brick excellent for one use and position may not necessarily be good for another.

The refractory properties of silica bricks is also influenced by their alumina content (See table) which is a naturally occurring feature of the rock.

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<sup>1</sup> From a paper delivered by G. M. Workman to practical steelmakers in 1969. Copy provided by Mr Workman.



## Appendix 4

Table Showing the Effect of Alumina Content

Content	Melting Point ° c
Pure silica	1730
0.5% alumina	1710
1.0% alumina	1690
2.0% alumina	1630
5.0% alumina	1545

Firing causes expansion of 12% by as demonstrated on the conversion table below. It is vital that this is completed in the kiln so attention to the firing process is essential otherwise expansion would take place later when the bricks are in situ which causes contortion and cracking. Underfired bricks are identifiable by being smaller than<sup>n</sup> intended. An expansion test is used to try the bricks. This involves heating a sample for 2 hours to a temperature of 1450<sup>0</sup> c. and measuring the change in length. The maximum allowable linear expansion should not exceed 0.5% .

Table Showing Specific Gravity

Raw Silica	Quartz. S.G. 2.65
Fired Silica	Cristobalite. S.G. 2.32.

In the absence of surviving accounts relating to the Penwyllt works an indication of costings can be ascertained by reference to records from Baldwins of Landore who also produced silica bricks. <sup>1</sup> where, in 1921, an average of 40000 bricks a week were produced.

Contract 29, using kiln number 3, was commenced on 30 January 1921 and finished on 4 March 1921. The cost of clay and lime was £210. 4. 0d; the cost of coal was £119.9.1d, wages were £299.19.3

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1 West Glamorgan Archives D/DZ 53/7/1/5-8)

#### Appendix 4

and a standing charge of £53.11.0d was added to cover maintenance of the kilns etc. Carriage added a further £24.3.6d making a total cost £707.6.10d for the firing of a kiln load.

Production from the kiln was silica cement to the value of 31s and 59900 silica bricks valued at 307s 9d.

The total profit was £297. 12.2d.

Sickness in the silica handling industry was caused by pneumoconioses and the manufacture of silica bricks was the first industry to which the Workmen's Compensation (Silicosis) Act 1919 was applied. By 1976 the instances of silicosis in the industry were reducing mainly because of new mechanization, especially the introduction of continuous kilns which workers did not need to enter.

# The History of the Village of Penwyllt

## Bibliography

### Unpublished Primary Sources.

#### Oral Testimony. Contributors:

Mr Ron Davies (118 Graig Road, Godre Graig, Pontardawe, Swansea)

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Mr Farr-Davies, Solicitor and Grandson of Sir Alfred Stephens.

Mr D G Burrage, Ystradgynlais.

Mrs S Hardy, Penwyllt.

#### Other;

John D. G. Economic History of South Wales, Dr. Sc. Thesis, University College Wales (1930).

John A H, The Industrial Development of South Wales, ( 1950)

Annual Reports of the Church of England Navvies Mission, at Sion College, Victoria Embankment, London.

The Mayberry Papers, National Library of Wales and Brecon Museum.

The Tredegar Papers, National Library of Wales.

Companies House Archives, Records relating to Craig-y-Nos Silica Brick Company, later Penwyllt Dinas Silca Brick Company, File 232068

# The History of the Village of Penwyllt

## Bibliography

Hobbs Holdings, Mr John Lewis, Company Secretary, Various leases and Associated Information.

Nature Conservancy Council, Various leases.

Census Returns 1831-1881.

Parish Records, Callwen Church.

## Published Primary Sources

Levi Thomas, (translation of his articles) published in Y Traethodydd, Supplied by the National Library of Wales.

Workman George, Paper delivered to the practical steelmakers, 1969

## Secondary Sources

Blunden J, The Mineral Resources of Great Britain, (1975).

Davies Walter, General View of Agriculture and Domestic Economy of South Wales, (London 1815).

Glamorgan History, Vol. 5, (1968).

Greenwell A and Elsdon J V, Practical Stone Quarrying, Crosby, Lockwood and Son, (1913).

Hughes, Stephen, The Brecon Forest Tramroad (Aberystwyth, 1990)

Hunter D., The Diseases of Occupation, (1976)

Ince Laurance, The Neath Abbey Iron Company, (Netherlands 1984)

Use of Lime in British Agriculture, Gardener and Gardener, Farmer and Stockbreeder Publication (1957)

Levi Thomas, Articles in Trachodydd (1864).

Lloyd John, The Great Forest of Brecknock, (London, 1905).

Lloyd John, Historical Memoranda of Breconshire, (Brecon, 1903).

Memoirs of the Geological Survey, H.M.S.O. (1929).

# The History of the Village of Penwyllt

## Bibliography

Ministry of Health, Report of the South Wales Regional Committee, (1920).

North F. J., Minerals of Glamorgan, Cardiff Naturalist Society Translation, (1917).

Page J. Forgotten Railways South Wales, (Newton Abbot, 1979).

Popplewell L., A Gazetteer of the Railway Contractors of Wales and the Borders 1830-1914, (Bournemouth, 1984).

Rees W., Industry Before the Industrial Revolution, Vol. I, (1968).

Reynolds, P.R., The Brecon Forest Tramroad, (Swansea, 1979).

Searle A B, Limestone and its Products, (London 1935).

Swansea and District Trades Directory, (1930-31).

Second Industrial Survey Of South Wales, Vol. 1, (Cardiff, 1937).

Thomas T. M. The Mineral Wealth of Wales and its Exploitation, (Oliver and Boyd, 1961)

Tomlinson C., Cyclopaedia of Useful Arts, (London, 1854).

Williams Richard, Limekilns and Limeburning, (Shire ).