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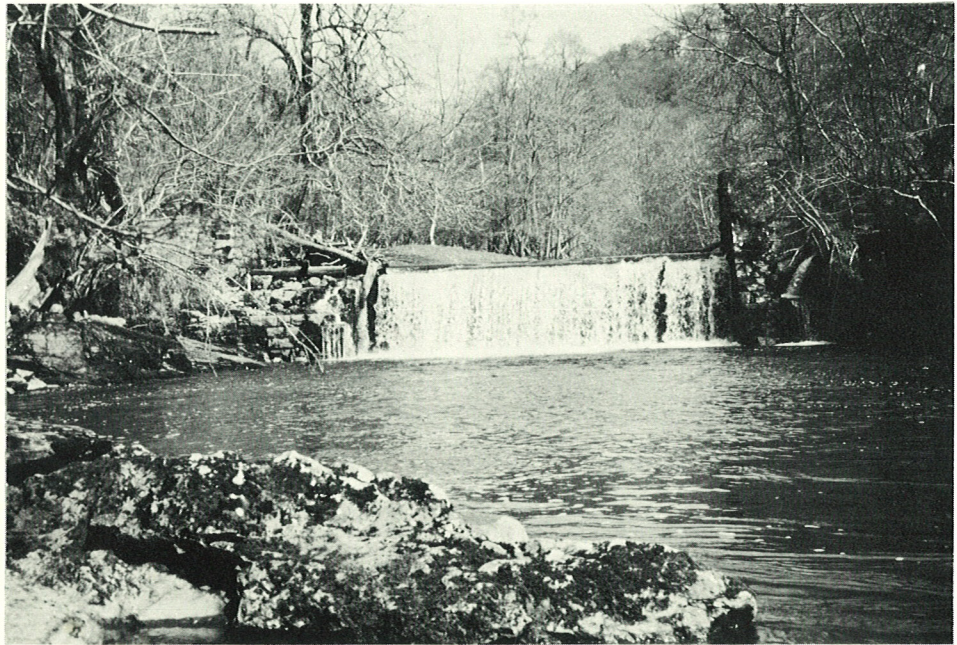
**ON HER MAJESTY'S SERVICE**

WASC 1759

# **The Old Gunpowder Factory at Glynneath**

by

Tom Pritchard, Jack Evans  
and Sydney Johnson



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The Old  
Gunpowder Factory  
at  
Glynneath

By Tom Pritchard  
Jack Evans  
Sydney Johnson

1985  
MERTHYR TYDFIL & DISTRICT  
NATURALISTS' SOCIETY

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## Acknowledgements

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The authors are particularly grateful to the Welsh Water Authority for their interest in this publication and for financial help which was readily given. Financial support has also been generously granted by the Imperial Chemical Industries.

We are greatly indebted to the following for supplying photographic illustrations: The National Trust, Aberdulais, Mr. Richard Evans, Mr. Clifford Moses (who also made available the Works diary), Mr. Stephen Morris, Mr. John Coughlan, Mrs. Dorothy Stevens, Mr. J. Giddings, and the R.A.F.A. Club, Glynneath.

Mr. Terry Evans kindly undertook the line drawing illustrations for the water-wheels.

Finally, we would be very grateful to anyone who could perhaps supply further information about this particular industrial episode at Pontneddfechan.

The upper weir which captured water for the upper leat (*Jack Evans*)

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## Foreword

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*From the President of the Society*

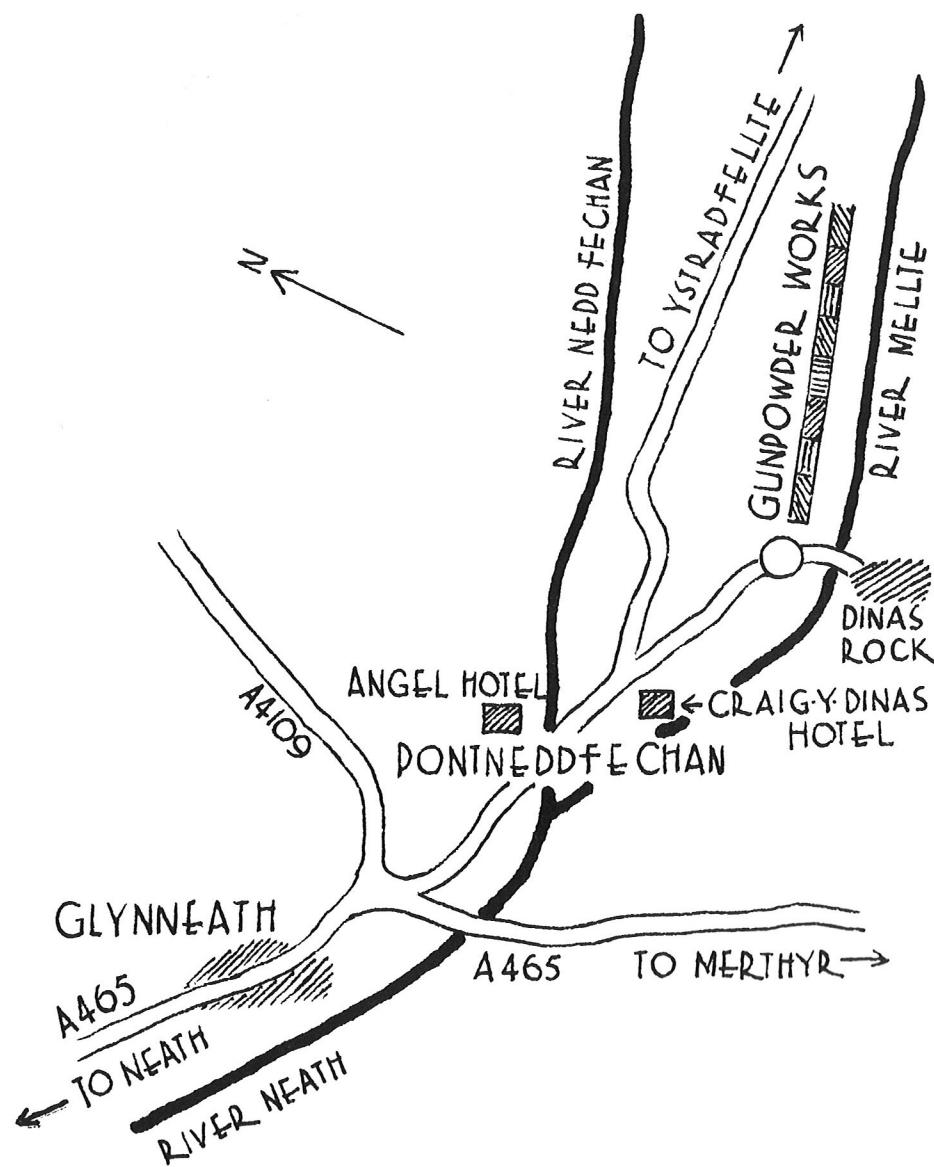
DOUGLAS W. THOMAS, F.R.C.S.

Today, most visitors attracted to the region of the confluence of the rivers Mellte and Sychryd will be either geologists admiring the folded features of Dinas Rock (*Bwa Maen*—Stone Bow) or those wishing to enjoy the peace and solitude of this area of outstanding natural beauty. Yet this quiet backwater of Glynneath was for a period of over a century (1820-1931) a busy and thriving industrial site, supporting a sizeable local community and producing both world famous furnace lining bricks and gunpowder. The gunpowder works stretched for nearly 2 miles along the banks of the Mellte and at that time was the only one in Wales. Its sole source of energy was water power. Despite the many built-in safety features (and these in themselves make interesting reading), explosions did occur.

Although the disused silica mines are still very much in evidence, the powder works sadly lie derelict beyond restoration. We are therefore grateful to Mr. Thomas Pritchard, Mr. Jack Evans and Mr. Sydney Johnson for producing this fascinating account of its history, workings, and methods of manufacture together with many extracts from a remarkable works diary which touches on many aspects of social, human and even equine interest. The narrative is generously illustrated and includes photographs of some antiquity. Thus the memory of this rather rare and historic works will be preserved for posterity.

Mr. Sydney Johnson and Mr. Jack Evans are well-known enthusiastic researchers into local industrial archaeology, and Mr. Thomas Pritchard was for many years an employee at the works and still resides 'on site' at Rose Cottage.

A tramroad with tram track served the entire length of the works on the north bank of the Mellte, and although the track has long since vanished, the tramroad remains for easy access to all sites. With the aid of this book as a companion guide, a most rewarding time may be had in idyllic surroundings, discovering and identifying the relics and remains of the buildings and water courses of these unique works.




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## Introduction

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The region drained by the main river Nedd (Neath) is an area of outstanding beauty. Early visitors to this locality including Edward Lhuyd, the naturalist and antiquary, Benjamin J. Malkin, traveller and historian, the artists T. Hornor and J. M. W. Turner, and perhaps the most famous of them all, Alfred Russell Wallace, one of the foremost naturalists of the 19th century, all loved the rivers, the wooded gorges and the incomparable waterfalls. Perhaps the finest appreciation was given by Wallace who wrote in his autobiography 'My Life':

"I cannot call to mind a single valley that in the same extent of country comprises so much beautiful and picturesque scenery and so many interesting and special features as the Vale of Neath."

This singular tribute was given at the end of a long and eventful life and notwithstanding his wanderings to many parts of the world including his famous explorations to the Amazon and Malay Archipelago.

It was into a part of this unspoilt setting of beauty and solitude which had so delighted the early travellers that there suddenly erupted many of the stream-driven equipment and accoutrements of Victorian industrialism.

In 1857, the Cambrian newspaper announced that a gunpowder works was to be erected at the top of the Neath Valley. The works was established by the Vale of Neath Powder Co. on a site formerly occupied by the Dinas Bridge Fire Brick Works of Fredericks and Jenner. This works produced the famous Dinas bricks which were made from silica, mined and crushed at nearby Craig-y-Dinas. They were heat resisting bricks used for lining the furnaces of steel and copper works and were the invention in 1820 of that man of many and diverse talents, William Weston Young. These bricks were known and used throughout the world for over one hundred and forty years, and even today the Russian word for a silica brick is 'Dinas'.

Between 1862/63, the gunpowder firm of Curtis's and Harvey took over, to be later merged into Nobel's Explosive Co. which in turn became part of Imperial Chemical Industries in 1926.

The site on which the works was built, offered three main advantages:

- (1) Isolation. An important factor in view of the potential danger involved in the manufacturing process.
- (2) The area was well wooded, thus providing a source of charcoal making, one of the ingredients of gunpowder.

- (3) The Mellte River afforded a plentiful supply of water to drive the wheels that powered the machinery.

About sixty-five men and women were employed there, most of whom were local from Pontneddfechan and Glynneath.

The gunpowder was used for blasting, quarry work, mining and civil engineering.

The works closed down on 31st December, 1931, following the decision of the Home Office to take black powder off the 'Permitted List of Explosives'.

Little now remains of this once extensive works, as the buildings that processed gunpowder were—for safety reasons—purged with fire and demolished in 1932.

The steep-sided and picturesque valley with its translucent waters has again become quiet and peaceful, and the walker confronted by grassy foundations, walls of old buildings, empty leats and remains of bridges is given ample opportunities for reflective thinking—what are all these old workings, why these massive retaining walls, why did water have to be stored in this part of the river, where do the leats go, when were the buildings erected?

It is to answer these questions that the following account has been written. Today only a few people can remember the powderworks, and the passing of the years will steadily reduce their numbers still further. It seems appropriate that the memory of the now defunct works be perpetuated. Not only should we remember the stones and the mortar and the old machines but how men lived and worked during a period that has been transformed so quickly by our far more complicated and computerised society.

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## General Description of Works

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The gunpowder works situated on the banks of the Mellte River above the village of Pontneddfechan, was in its day, the only one of its kind in Wales.

The works occupied an area of approximately one hundred and eighty acres. Eighty acres in the Parish of Penderyn along the south bank of the Mellte River were leased from the owners of the Aberpergwm Estate, and fifty four acres on the north bank of the river were rented from the Tredegar Estate, who owned property in the Parish. The remaining acreage was the freehold land of the owners of the works.

In those early days, beside cutting down the trees for charcoal making, much of the one hundred and eighty acre site was denuded of its vegetation in order to reduce fire hazard.



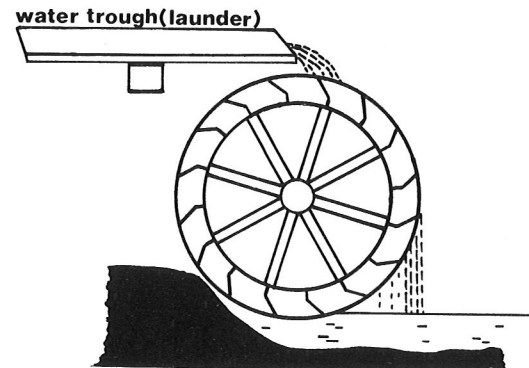
The Curtis and Harvey Stone at Rose Cottage. This was fixed in the mills building

*Jack Evans*

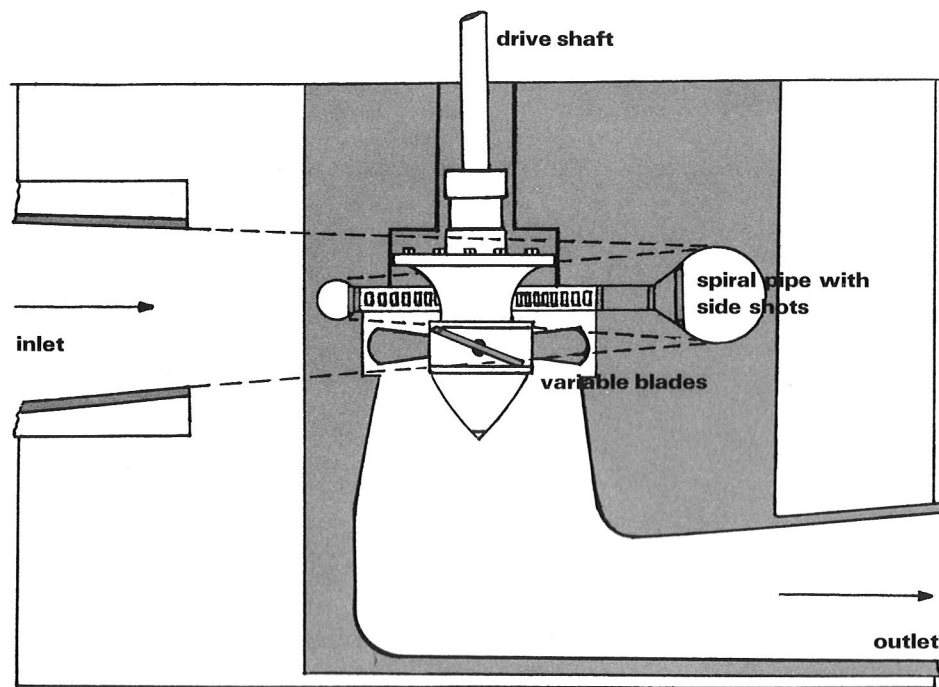
Initially the machinery was driven by water wheels and turbines, but later a number of the more efficient Pelton Wheels were installed.

Three kinds of water wheels were used:

- (a) The Overshot Wheel, where water is introduced at the top of the wheel into closed buckets which are carried down by gravity before being discharged near the bottom. These wheels were employed where the fall of water was comparatively high and the volume not necessarily large.

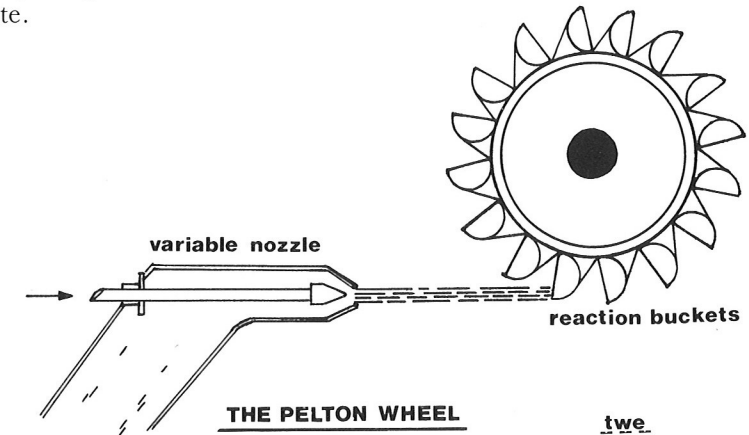


**Diagram A THE OVERSHOT WATERWHEEL** twe



**Diagram B THE WATER TURBINE** twe

- (b) The Water Turbine, where the energy stored in a reservoir of water is converted to mechanical energy by passing the water through a system of fixed passages to move fan-like blades attached to a rotor, causing it to rotate.



**Diagram C**

- (c) The Pelton Wheel, patented in 1889 by a U.S. engineer was more efficient than the others. Essentially the wheel is driven by the impulse of a jet of water upon curved buckets fixed to the edge; each bucket is divided in half by a splitter edge that divides the water into two streams that fall clear of the rotor.

To drive the wheels, two weirs were built, to divert some of the river water into leats. At the Upper Weir, a leat channelled water along the north bank to serve the water wheels that powered the machinery in the upper part of the factory. To conserve water, the spent flow at the end of this leat was carried across the river and discharged into the other leat.

The second leat took its water from the Lower Weir, ran along the south bank for some distance, then was taken across the river to the north bank to drive the water wheels that powered the machinery in the lower part of the works.

The factory buildings were strung out for approximately two miles up the Mellte valley, on both banks of the river.

To serve the buildings, a tramroad ran up the valley on the north side, crossing the river near the Upper Weir to reach the buildings on the south bank of the river.

The raw materials were delivered by rail—Saltpetre in half ton barrels, Sulphur and Charcoal in two-cwt bags. The tramway ran from the delivery point on the Vale of Neath Railway siding near Pencaedrain Tunnel and down an incline—the full trams pulling up the empty ones. From the bottom of the incline the materials were horse-drawn to the factory entrance—a wayleave having to be paid on every ton passing over the Aberpergwm Tramway.



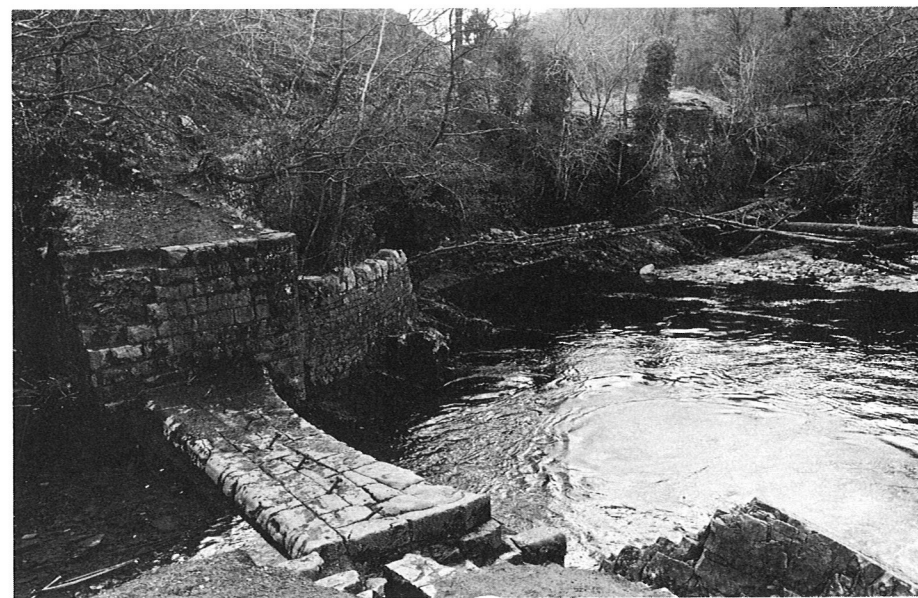
In the background is the building which housed the Pelton wheel. The foreground shows the culvert for run-off water from the wheel

*The National Trust, Aberdulais*



The old water leat above the top bridge which still contains water

*John Coughlan*



Lower weir and its leat which ran along the south bank of the river

*The National Trust, Aberdulais*





The remains of the Stove House

*The National Trust, Aberdulais*



In the foreground is the flue which led from the Boiler House to the stack in the background

*The National Trust, Aberdulais*

## The Routine Working Day

In the morning the workpeople would assemble outside the main gates and have a final smoke, before the day's work started.

A bell was rung at 7.30 a.m. and they would enter and proceed to the Search House which was sited near the existing Saltpetre Store, just beyond the Gatehouse. Here, in accordance with factory regulations they were searched and had to deposit any matches, pipes, cigarettes, and any articles liable to cause fires or explosions—The women's Search Room was situated on the ground floor of the Main Stores.

After being searched, they collected a numbered key for their place of work, from a key box kept in a special recess set into the wall of the Main Stores, and went to the Watch House.

There were three Watch Houses, two for the men—one situated by the Mills, the other half-way up the valley. The women's Watch House was situated on the other side of the river near the Pellet Press House, where they worked.

In the Watch Houses, the danger building workers had to change into special clothes provided. Each person had two barrels, one for clean clothes, and the other for working clothes—some workers could be blacker than colliers after dealing with ground charcoal and black powder. Any other clothing worn had to be without pockets or metal fittings. In order to prevent grit being carried into danger buildings, they were forbidden to turn up trouser bottoms. The Forewoman was responsible for seeing that the female workers removed all metal and celluloid hairpins in their Changing Room.

Danger building workers were also supplied with two pairs of special safety slippers made of leather, with leather soles fastened to the uppers by means of wooden pegs. One pair was used for walking from the Watch House to their place of work. Here they changed to the other pair for use on the clean floors inside. Under no circumstances were 'dirty' slippers to be placed on 'clean' floors or 'clean' slippers on dirty floors.

Mill operators, who were not allowed to stay in the mill buildings whilst milling operations were going on, also stayed in the Watch House during that time.

Every building where there was an element of danger had to be swept out at the end of a day's work.

All platforms and loading sheds had to be swept frequently and kept damp.

Gunpowder was transported along the main tramway to various parts of the factory in special horse-drawn covered trucks. The interiors of powder trucks came under the category of 'clean' floors, so every driver had to put on safety overshoes before entering a truck.

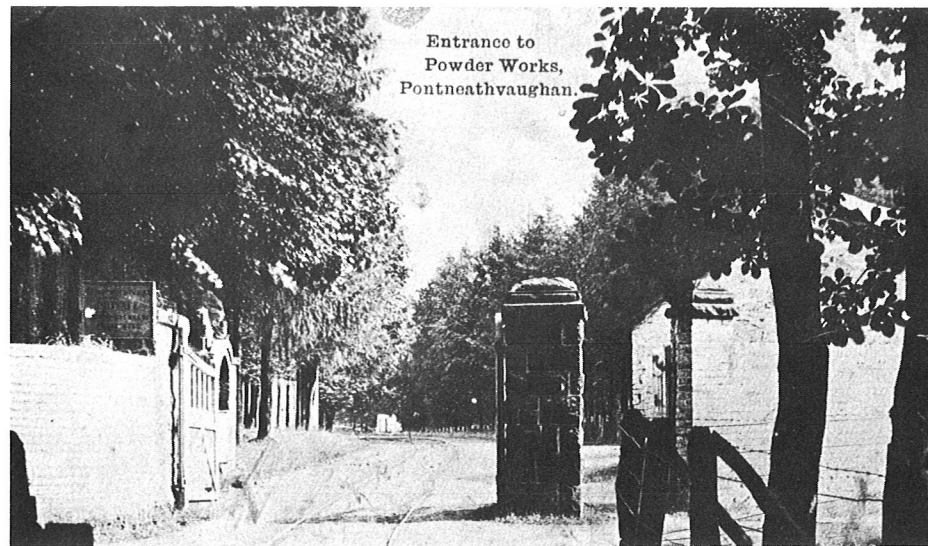


The workforce of the Powder Works, *circa*. 1890

(Back row, left to right): James Harrett, Joshua Stacey, David R Morgan, Tom Thomas, Thomas Cole, Ben Owens, - Davies, William Williams, - Worthing, A Collins, Gwilym Kemeys, Jenkin Lloyd, - Collins, Wyndham Moses, Francis Lloyd, Rees Rees, David Harret

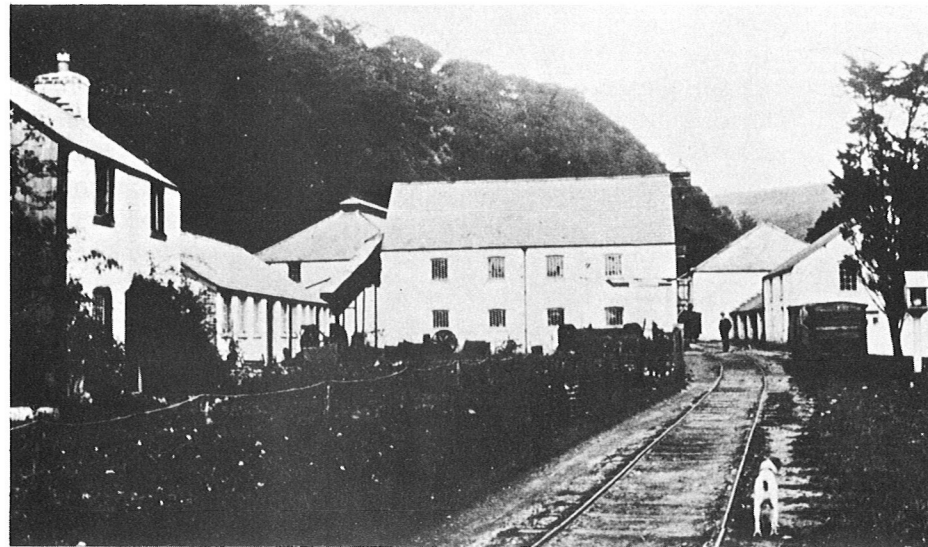
(Middle row, left to right): Dafydd Thomas, Harry Poole, Ben Thomas, William Harries, Thomas Sims, Herbert Kemeys, John Lewis, Thomas Thomas, Dafydd Williams, William Bevan, John Harret, W. Hamilton, Peter Williams, Henry Bevan, - Browning, George Williams, - Morris, Morgan Rowlands, John Thomas, Meredith Davies

(Front row, left to right): George Bond, Ebenezer Williams, William Morgan, Thomas Williams, Francis Davies, Lewis Moses (later manager), William Sims, Hogben (Manager), Thomas Moses (Foreman), - Nuthall, Walter Jones, Thomas Harret, Donald Wear, William Rowlands, John Davies, John Jenkins



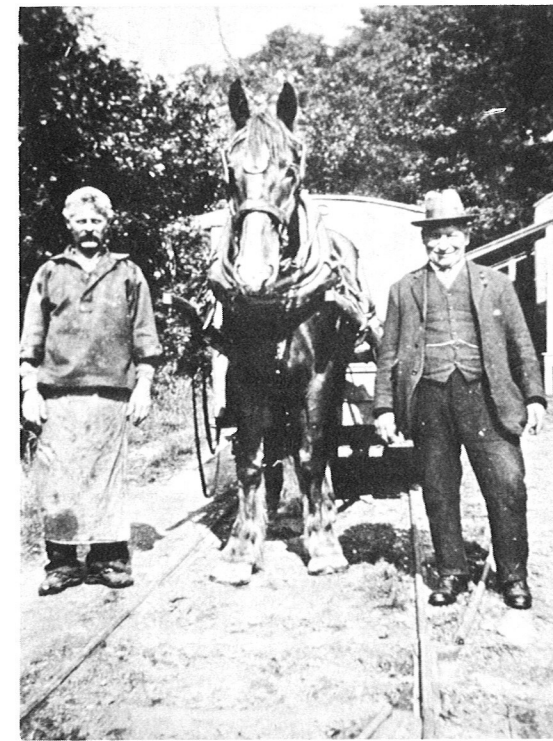
A postcard showing the entrance to the powder works at Pontneddfechan. Note the corruption of the village name to Pontneathvaughan by which the place came to be known. The compilation of Ordnance Survey maps was undertaken by Englishmen who anglicised many Welsh place names

*J. Giddings*



View of the yard from the entrance with Hollybush Cottage on the left and adjoining this the Refineries. In the centre is the Saltpetre Store House with the bell. To the right is a powder tram in front of the Foreman's Office, Stables and Stores

*Clifford Moses*



Powder tram, specially made, for the conveyance of powder between the buildings

*Richard Evans*

The branch tramlines running from the main line to all danger buildings were made of wood and the horses were shod with copper shoes to prevent sparks. Horses had to be unhitched before loading or unloading commenced. Safety regulations also decreed that vehicles containing powder were not to approach within 50 yards of similar vehicles whilst in transit.

A person under the age of 18 was not allowed to be employed in, or enter a danger building, except under the supervision of a person of the age of 21 or upwards.

There was a midday break for lunch—the men changing their slippers when they came out of the buildings and when they returned.

The workers were allowed bathing and changing time within the working hours, an interesting forerunner of the colliery pit head baths system that has developed in modern industry.

At 4.30 p.m. when the day's work ceased, the bell was rung again.

dangerous accident, and was committed wilfully by the personal act, personal default, or personal negligence of the person accused, such person shall be liable, if the court is of opinion that a pecuniary penalty will not meet the circumstances of the case, to imprisonment, with or without hard labour, for a period not exceeding six months.

### SPECIAL RULES

#### II. FOR THE FACTORY

1. Smoking is strictly prohibited in any part of the Works, Grounds or Roads belonging to the Factory.

2. No matches or other means of procuring a light, or pipes or cigarettes, or articles liable to cause fire or explosion, are to be brought into the factory by employees, excepting those persons who have residences within the Factory grounds, when proceeding direct between their residence and the Factory Gate. With the exception of the aforementioned persons, all employees are to leave any such articles at the Search House situated near the entrance. Employees are to be searched regularly to ensure the observance of this rule.

Any person bringing a bag, basket or other package into the factory, shall, when called upon, submit the bag, basket or other package to a search, and all persons employed on the factory shall submit to a similar search at any time.

3. No intoxicating liquors of any kind are to be brought upon the factory except with the written authority of the Management. No employee under the influence of liquor is to be allowed to enter the factory.

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Any employee discovered to be under the influence of liquor when inside the factory is to be at once removed and discharged.

4. Every danger building worker before commencing work is to change in the changing room into the special clothes provided. Any other clothes worn must be without pockets or metal fittings. The Charge Hand is responsible for seeing that female workers remove their metal or celluloid hairpins in the changing room. No clothing provided by the Company is to be worn outside the factory except when supplied for a special purpose, and when not in use it is to be left in the changing room.

5. In order to prevent grit being carried into buildings, trousers provided by the Company are not to be worn turned up.

6. Employees are to take proper care of factory clothing and are not to cut or alter it in any way.

7. Special powder boots and overshoes are provided for workers in all buildings having clean floors. In no instance are these to be worn on dirty floors, and every care is to be taken to avoid their coming into contact with grit. Dirty boots are to be changed at the entrance to each clean building, and when not in use are to be kept in the receptacle provided. In no circumstances are dirty boots to be placed on clean floors or clean boots on dirty floors.

8. Every danger building is to be swept out at the conclusion of the day's work, and examined before starting work in the morning. Every danger building is to be thoroughly cleaned down at the expiration of the week's work. All platforms and loading sheds are to be

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Extract from factory booklet of 'SPECIAL RULES' to be observed by all employees at the Gunpowder Works, Glynneath.

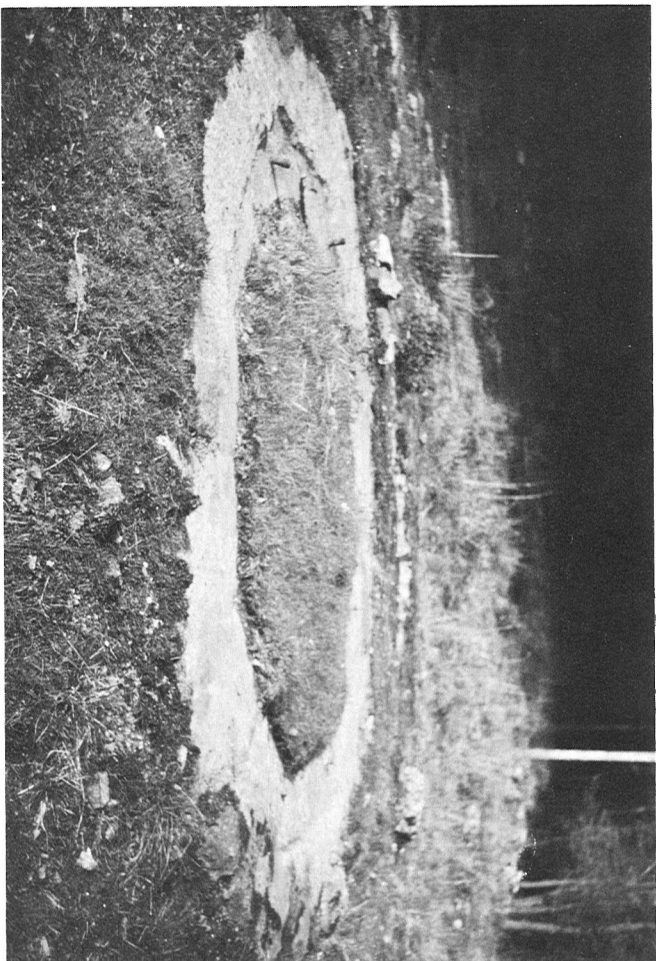
## The Powder Manufacturing Process

Black powder is made with three main ingredients: Saltpetre (Potassium Nitrate)—Sulphur—and Charcoal.

Each of the lumpy raw materials was ground down into powdery granules, then mixed together in the Mixing House, in the proportions of 75% Saltpetre, 10% Sulphur, and 15% Charcoal. This mixture was termed, the "Green Charge".

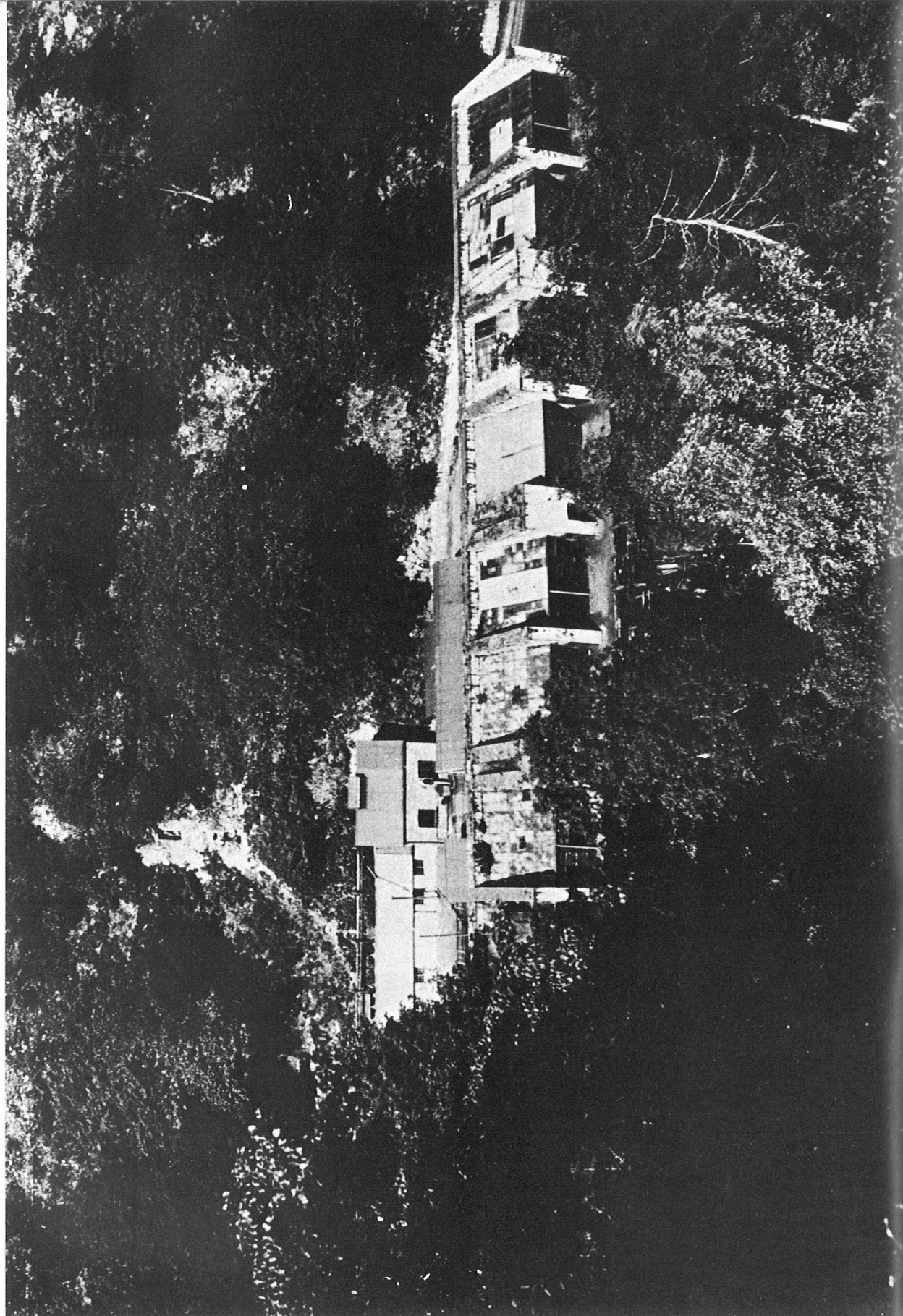
The Green Charge (75 lbs.), was stored in the CHARGE HOUSE until required, then taken to the MILLS, and there milled and compressed by large mill wheels—rotating in circular motion—until the powder became compacted into a homogeneous mass. The milling process took two to four hours, depending on the quality of the powder.

The milled powder was then conveyed to the CAKE PRESS HOUSE, where it was compressed by high pressure presses into one inch thick slabs. The slabs were then broken into random pieces small enough to go into barrels for transportation.



A masonry foundation marks the site of one of the mills

John Coughlan



Looking south from the site of one of the old mills. Hollybush Cottage is in the background with Rose Cottage behind the trees

*Jack Evans*

In the CORNING HOUSE the pieces of slab powder were reduced to grains by crushing and sieving, different size meshes producing different size grains.

The grain powder then went to the STOVE HOUSE to be dried by spreading it out on canvas-covered frames, heat being provided by steam pipes from the Boiler House next door.

When dried, the powder was sent to the DUSTING HOUSE, where the dust was extracted by sieving. The recovered dust was returned to the Pellet Press House where it was mixed in with the rest of the powder being processed there.

From the Dusting House, some of the powder went to the Glazing House to be polished, and the rest was sent to the PELLET PRESS HOUSE where five women operated machines that pressed the powder into pellets approximately one and a half inches in diameter and two inches long.

At the GLAZING HOUSE, powder required for quarry blasting work was polished—which enabled it to permeate more easily into the cracks in the rock. The polishing agent was graphite which was mixed with the powder and revolved in a bunch of four barrels until it became quite bright and shiny. It was then termed 'Cannon Bright'.

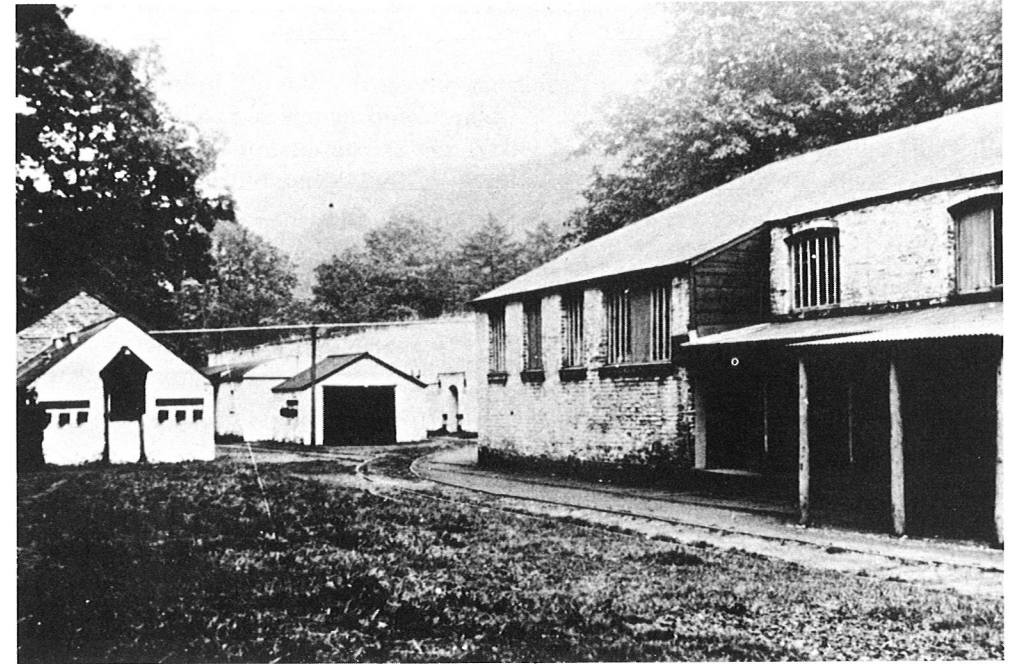
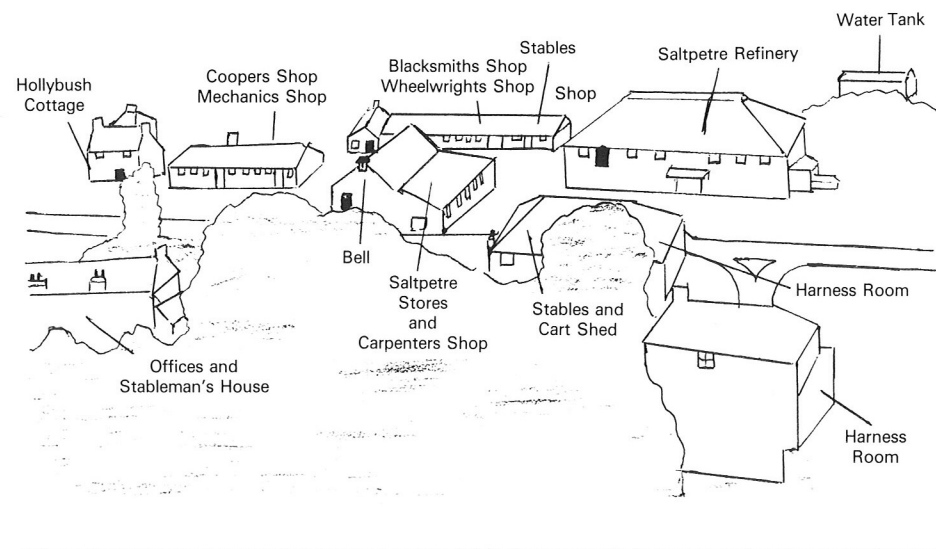
◀ Front view of the eight mills with Steam Engine House and Watch House in the background

*Clifford Moses*



The Powder Works Yard

Clifford Moses



In the centre of the picture is the Fire Station in front of the Charge House.  
On the left is the Watch House with the Mixing House on the right

Clifford Moses

There was also a special type of powder termed 'Bobbinite', made here by adding an ingredient called Maizite—a white material that looked like rice. The Bobbinite was sent to the Pellet Press House to be pressed into pellets.

All the finished powder whether in grain or pellet form, went finally to the HEADING UP and PACKING HOUSE. Here the polished powder was weighed, packed in linen bags of varying sizes, put into clean barrels which were sealed, then stored in the Magazine until required.

The pellets were wrapped in a special brown paper, ordinary black powder in packets of three, and the Bobbinite in packets of four, which were sealed and boxed, each box containing 250 pellets. These were also stored in the Magazine until required.

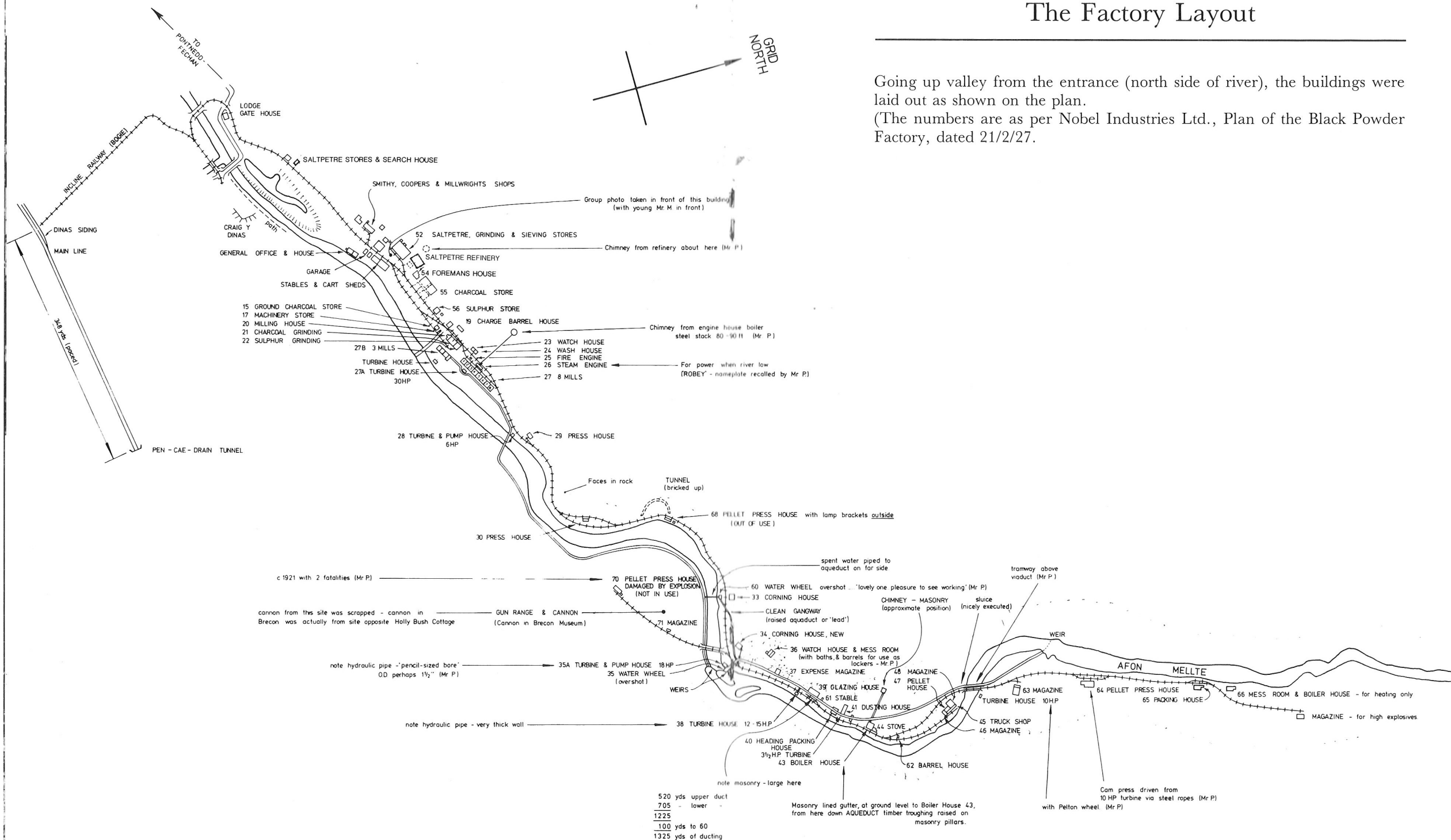
For quality control, there was a powder testing area equipped with an old cannon, now in the Brecon Museum. The powder had to propel an eight inch diameter cannon ball for a particular distance in order to meet specification.

This powder was not of course suitable as a sporting gunpowder.

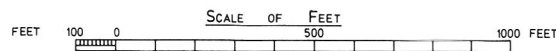
The first practical smokeless powder, Schultze, which was based on wood fibre and contains a high proportion of barium nitrate was manufactured in other factories, particularly in Argyllshire in Scotland in the 1870's.

# The Factory Layout

Going up valley from the entrance (north side of river), the buildings were laid out as shown on the plan.  
 (The numbers are as per Nobel Industries Ltd., Plan of the Black Powder Factory, dated 21/2/27.



## PLAN OF GLYN NEATH BLACK POWDER FACTORY

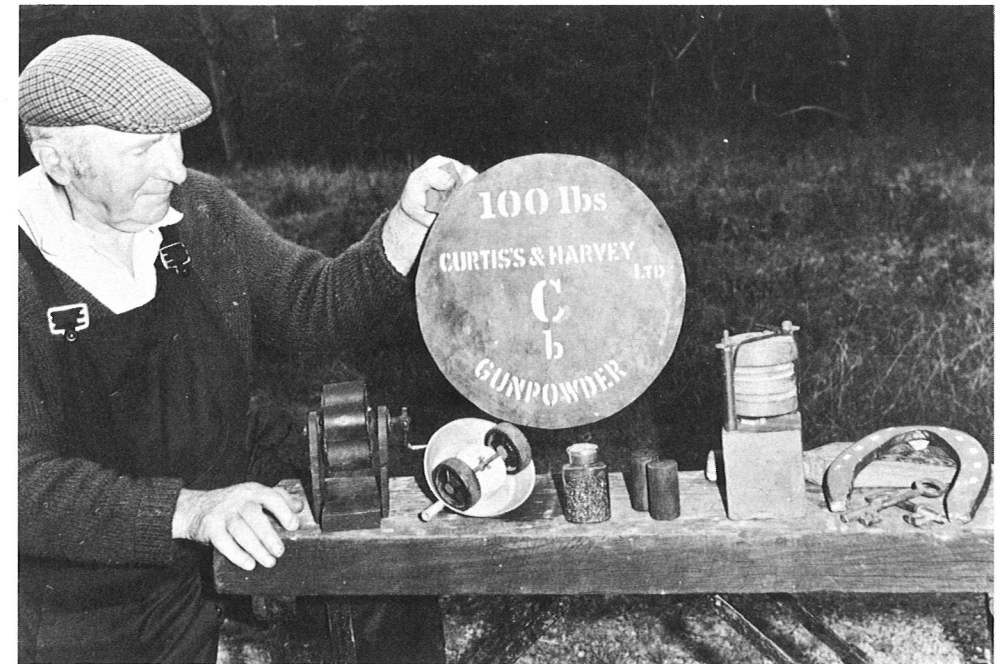




The powder testing cannon situated in front of Hollybush Cottage. Rose Cottage is in the background. Powder was first placed in the barrel. The ball had a bored hole into which a fuse was inserted which, when lighted, fired the ball. Another testing cannon was situated half way along the factory

*Stephen Morris*

Black powder was nevertheless used locally by the fur, feather and fin fraternity. Empty cartridges were purchased and filled with the powder, a cotton wad and the pellets. The quarry had a sporting chance—after the aim had been taken and the cartridge fired, a black impenetrable cloud appeared between the game and the shooter, making it extremely difficult to ascertain whether or not the shot had reached its target.



Tom Pritchard holding a brass stencil with some models and relics of the factory. *Left to right:* (a) Model of Glazing Machine; (b) Model of a Mill Runner; (c) Glass jar of Black Powder; (d) Black Powder Pellets as used in collieries; (e) Model of Cake Press; (f) A copper horse-shoe with which horses working in danger areas were shod

*Tom Pritchard*

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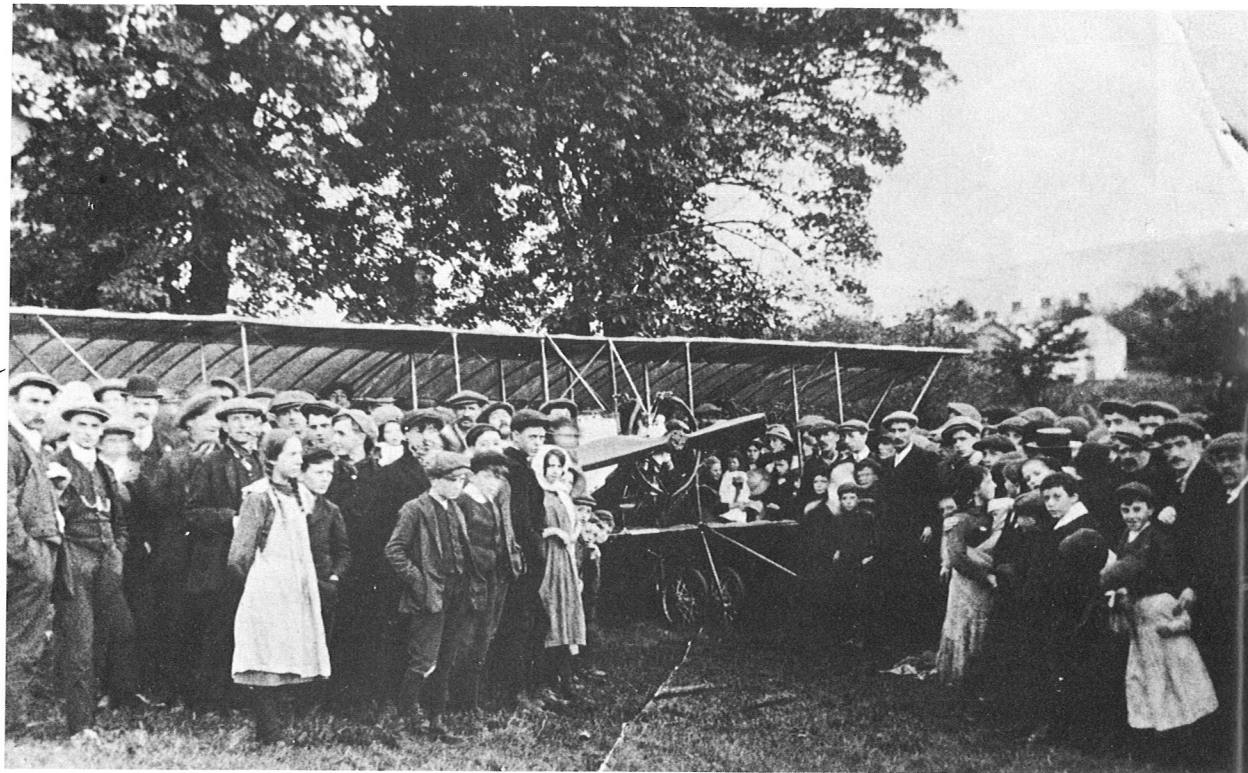
## The Diary of Events

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At the beginning of this century no one could have foreseen the quickening pace of change that would take place all over the world. Since the days of our grandfathers the tempo has been increasing immensely and many social problems have been created by its very rapidity. Four entries taken at random from a diary of Events compiled by L. I. Moses from 1911 until the factory closed in 1940 exemplify the remarkable accomplishments of modern ingenuity in the past few decades.

**14/10/13.** "A bi-plane passed over the Factory about 4 p.m. Aviator T. Prosser, Birmingham."





The first plane to alight in the Neath Valley. Diary entry 14/10/1913. 'A bi-plane passed over the factory about 4 p.m. Aviator E. Prosser, Birmingham.' Shortly afterwards it made a forced landing at Ynyscymmer Farm

*R.A.F.A., Glynneath*

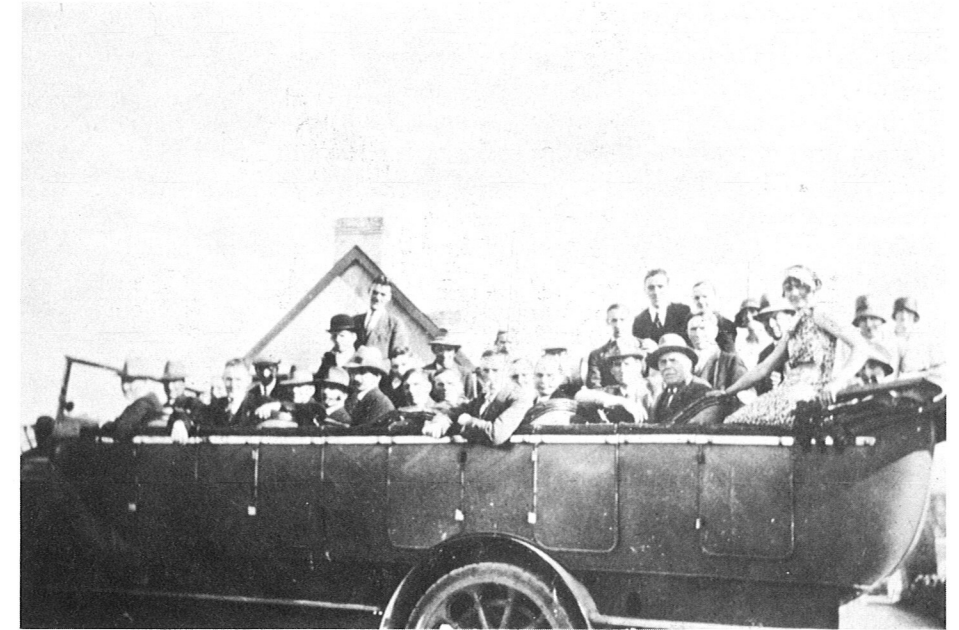
This was obviously considered so exciting and momentous that even the name of the pilot had to be discovered. Little could they have thought that in a relatively short time sophisticated jet planes would carry a large payload of passengers and goods and place the outermost parts of the world within a few hours travel of each other.

It is salutary also to think that our landings on the moon and possibly the planets in the near future are today generally considered quite normal and do not elicit the wonder and thrill indicated in the above entry.

**26/7/18.** "Typewriter in use for the first time."

This mechanical method of printing, so advanced in its time is now being phased out with powerful technology. Such systems as tele-printers, computerised photo-setters, word processors and self-correcting electronic typewriters with built-in memories are revolutionising the whole printing process.

**7/9/29.** "First works outing by charabanc to Rhossili, Gower coast. A most enjoyable outing."



First works outing by charabanc to Rhossili, Gower in July 1929

*Richard Evans*

With what nostalgia the older generations remember these visits to what were then the country's lonely places. The essence of these great social occasions has been encapsulated in that hilarious and superb story of a day's outing by charabanc to Porthcawl in 'The Outing' by Dylan Thomas.

**24/5/15.** "Mr T. R. Curtis here and Mrs T. R. C. By motor-car from London."

People then could not have envisaged the transport revolution that was about to take place in a relatively short time.

The decline of the railways was followed by the motor-car jungle which caught us unawares, with millions of extra vehicles using the roads every few years. The pressure of these cars, buses and lorries required new and extensive road systems, and radical changes in town and factory planning to accommodate the new commuter classes. All this as a result of improvements in the internal combustion engine, and a far cry from the jollity of the simple charabanc.

Any locality is a scene of changes with nothing remaining constant, but sometimes history tends to fade into fable. Facts become clouded with doubts and controversy, and it is here that a carefully kept unembroidered diary can be of inestimable value in giving a true assessment of the life and times of people during the first half of this century.

**Working Hours and Wages**

**26/2/13.** "Alterations of working hours commenced.

Commencing at 7 a.m. Leaving work at 5 p.m.

1 hour for meals. 1½ turns paid for night work at Mills & Glazing.

Night men to perform all duties between 5 p.m. and 7 a.m.

Girls to have half yearly advances of pay until the maximum 14/6 per week is reached."

**19/2/15.** "C. and H. paid a war allowance to meet increased cost of living.

viz: 3/- per week for men (married).

1/6 per week for single men.

1/- per week for women and boys.



Halfway along the factory showing the upper water leat and the middle bridge across the river. This carried a tramroad which served the buildings on the east side of the river

*Clifford Moses*



The top bridge which carried the tramroad and water leat. Only the pillars now exist

*Stephen Morris*

**2/10/15.** Increase of wages 6d per day and War Allowance 3/- all round, 2/- girls and 4d per day wages.

**5/1/17.** Advance of 6d per day war wages, granted after result of Arbitration.

**26/10/17.** Wages increased. Men 1/- per day, women 6d per day as from 6th October, 1917, conditional on overtime being worked as usual.

Demand made for 1/6 per day for men and 9d for girls.

**16/5/21.** Tradesmen rate of wages reduced 2d per hour from this date and the following are affected—Carpenters, Wheelwrights, Mason, Blacksmith and Cooper.

**1921.** Weekly pay put in force for the first time. One week in hand.

**20/7/22.** Mr. Handsford representing E.T.E.A. here meeting Mr. Bonham of Dockers Union to discuss Cam Press contract price for machinists. It was agreed that the price should be 10d per 1,000 (for ages 18 and upwards) and their wages were not to be below the standard rate when on contract unless the fault could be assigned to the operator.

**Years of Service**

We are now living in a state of great luxury compared with those at the turn of the century. Material goods, food, clothing and housing are no longer such problems as they were. Most young people do not have the



Another view on the top bridge showing the water leat.

faintest idea how recent and exceptional is the luxury in which they are now living, and yet many find only boredom in this affluent society. Perhaps they are vaguely conscious of a feeling that there is no point in many of the productive activities contrived by the new technologies and they see themselves becoming the slaves of machines and computers. They see the bright promises on which they have been fed gradually fading, unemployment increasing, growth almost coming to a standstill, the world in the grip of inflation, and the gloomiest forecasts made with increasing regularity. Perhaps also they feel the need for an identity and the sense of belonging to an organisation or a group or a place of work.

Although workers in the past had few or none of the modern luxuries, only low wages for hard work, yet they had a stability by knowing they were an integral part of a living community. Unlike the present, where many



Part of the leat as it now appears situated behind the Stove House

*The National Trust, Aberdulais*

workers commute and often change their occupation frequently, there was a continuity, albeit inescapable, of years of service in the same establishment. This tended to give a sense of purpose, and is exemplified by the following entries in the diary.

**18/5/12.** Thomas Moses (Foreman) resigned after 50 years service.

**8/6/12.** Complimentary dinner given to Thomas Moses together with a gold watch and chain on his retirement after 50 years service.

The dinner was held at the 'White Horse' Hotel, Pontneathvaughan.

**25/1/15.** John Thomas, Pressman retired (aged 87 years). Gratuity of £5 + 5/- per week pension.

*(In 1908 an Old Age Pension Act conceded 5/- per week at the age of 70 to all those with means below £21 per annum.)*

**1/1/18.** Mr. W. N. Ogden died at 2.55 p.m. after a little over a week's illness with pneumonia. Aged 61 years. 14 years manager at Glyn Neath.

**5/1/18.** Mr. Hodgen's funeral. Works closed at 11.30 a.m. Buried at Blaengwrach Church.



The Moses family circa 1880 outside Rose Cottage. Seated in the front is R. Thomas Moses who was Foreman of the Works for 50 years. Middle of the Three standing is Wyndham Moses who became the Foreman after his father. To his left is Lewis Ivor Moses who later became the Manager.

**17/1/18.** Mr. L. I. Moses at Cannon Street House, appointed Manager at Glyn Neath Factory from 1st January, 1918.

**16/?/2.** Francis Davies (workman) died (aged 74).

**14/10/27.** John Harret retired 75 years of age after 51 years service (continuous). Had helped to reconstruct and enlarge the factory when taken over by C. & H.

**1928.** The following workmen retired under age 65 years limit.

John Jenkins, 62 years service.

William Hamilton, 56 years service.

J. E. Williams, 28 years service.

Meredith Davies, 34 years service.

William Phillips 10 years service.



Powder Works Dinner at the *White Horse* Hotel, Pont-nedd-Fechan, 27th April, 1928

*Dorothy Stevens*

### Accidents

**21/1/12.** Whilst a trolley of Saltpetre was being let down the Incline at 4 p.m. (Tom Taylor and Henry Young in charge), a number of boys viz: Joe and Johnny Cole, Idris Jones and Gilbert Williams, all of Pontneathvaughan were riding on the trolley. Just as the trolley was leaving the top the hitching plate broke away thus allowing the trolley to run wild. Joe Cole and Idris Jones jumped off, Johnny Cole and Gilbert Williams kept on until the trolley got derailed at the parting of the Incline, finally turning into the wood about 30 yards from the bottom. The trolley was completely broken up and the Saltpetre strewn all over. Johnny Cole escaped with a bruised ankle and cuts about the head, but unfortunately Gilbert Williams was dashed against a tree killing him instantly.

**26/9/13.** A journey of trams containing 108 barrels of gunpowder, left the rails between the two presses and rolled down to the river bed. The powder was all recovered and the horse escaped serious injury.

**4/11/13.** Thomas E. Thomas was burned about the legs at 6 p.m. at the Stove Boiler. He had gone to examine the fire previous to changing into his clean clothes and on opening the door of boiler, a spark fell on to the bottom of his trousers and he was burnt rather badly about his legs. He put the fire out by jumping into some water that was in an old boiler close by.



The Staff photograph as printed in the I.C.I. Magazine, June 1928

(Back row, left to right): D R Morgan, W Thomas, W Simons, T Pritchard, A Lewis, A Jones, F Lloyd, W Eckley, T Chin, G Webster, G Kemeys  
 (Third row, left to right): - Gower, G Bullock, G Elcote, C Stephens, C Hamer, J Davies, D J Thomas, G Taylor, J Price, D Williams, O Jones, A Hamer, R Jones, H Stacey  
 (Second row, left to right): A Walters, T James, G Williams, F Davidson, P Williams, J Stacey, W Phillips, M Davies, E Worthing, T Thomas, B Thomas, W Morgan, J Lewis, T Williams, F Harries, B Davies, J Hamer, R Hughes  
 (Front row, left to right): L Taylor, F M Williams, - Phillips, M Arthur, A Williams, C Taylor, J Harret, A James, L Moses, W Moses, W Bevan, W Hamilton, J Jenkins, K Walters, R Pugh, M Williams, A Morgan, H Gower, G Cornealys



The remaining foundations of the water leat which went over the top of other buildings

*The National Trust, Aberdulais*

**31/1/14.** Benj Owens accidentally drowned in Neath River, supposed to have fallen in from tramway, near the old Pontneathvaughan Bridge. Work stopped 2 days searching for body.

**15/3/14.** The body of Benj Owens discovered at Aberavon after having been 6 weeks in the water.

**23/7/14.** John Pugh, Haulier met with an accident. He was delivering fuses to Ysguborwen Colliery, Aberdare, the horse taking fright of a steam engine, upset the cart with the result he fractured his leg in two places. The horse escaped injury and the cart was not damaged.

**28/3/29.** William Morgan (57) Glazing House (Staff grade) found dead in water tank of middle Watch House. Presumed to have had a heart attack whilst lifting a bucket of water for washing. Inquest held. Verdict death through heart failure.



Viewing the old foundations of the water leat from the tramroad

Jack Evans

**9/8/29.** George Elliot aged 53 died at Merthyr Infirmary. He was proceeding to Pant Quarries, Dowlais with horse and cart containing  $\frac{1}{2}$  ton of powder. He had a seizure about 7 a.m. near the Dynevor Arms, Merthyr and taken to the Infirmary where he died about mid-day.

**30/5/30.** Roland Hughes suffocated by fall of earth and stone whilst erecting a dry wall at back of No. 588 H.E. Magazine. To improve the ventilation of the Magazine a cutting had been made round the Magazine and a dry wall built to keep back the bank.

**31/5/30.** Inquest on Roland Hughes at 'White Horse'. Verdict 'accidental death'.

#### *Of Wars, Strikes, Weather and other Oddments*

**13/3/11.** Factory idle, all hands searching for Gwilym Kemeys who was missing since Saturday night having attended an Eisteddfod at Penderyn.

Gwilym Kemeys arrived home at 10.30 p.m. via Colbren.

**14/8/11.** Major Cooper Key and Capt. Thomas inspected the Factory. All in order but an objection was raised to men wearing Flannelette clothing.

**4/8/14.** England declares war against Germany. Commencement of European War in which the following powers were involved. Great Britain, France, Russia, Belgium and Serbia against Germany and Austria.

**19/8/14.** Workmen paid in £1 and 10/- notes.

(Comment: The 10/- note ceased to be legal tender on 21/10/70 and was substituted by the heptagonal coin. A similar fate was accorded the £1 note which began to be phased out in 1985 for the gold coloured coin.)

**15/2/15.** H. Young enlisted in the Welsh Guards (our only soldier to date).

**27-28/3/16.** A blizzard of unusual severity commenced about 10 p.m. on the 27th. Caused great damage to telegraph poles and wires, uprooting hundreds of trees, upwards of 200 being blown down in the Factory.

All telegraphic and telephonic communications stopped on the 28th in consequence and also Railway traffic for the greater part of the day suspended. Several lives were lost in different parts of South Wales.

**5/6/16.** Lord Kitchener and Staff drowned while on the way to Russia on board HMS 'Hampshire', the ship supposed to have been mined or torpedoed. Only one survivor out of 600 crew.

**9/6/17.** . . . . . discharged for smoking on Incline.

**19/4/21.** Factory closed for one week to 26th April, owing to state of trade consequent on the Miners' Strike.

**23/2/23.** Very heavy snowstorm. Heaviest for many years. Telephone services temporarily disorganised.

**1/5/26.** National Coal Strike commenced.

**4/5/26.** General Strike declared by T.U.C., our own workers not affected. Working up to Friday, 7th May when manufacturing ceased.

**11/11/29.** Severe storm of wind and rain. The flood in the river believed to be a record. Damage was done to centre pillar of upper bridge, a good deal of the stonework carried away. Cam Press turbine was completely silted up, and some damage done to the lower dam.

**19/12/27.** Cam Press and Packing Shop idle in consequence of steam pipes for heating having frozen. Very severe frost, 11 degrees registered. Two heating pipes burst in Cam Press through frost.

#### *Social and Historical*

**7/5/26.** Special constables commenced guarding Factory by arrangement with Brecon Chief Constable.

**6/6/26.** Special constables cease guarding Factory. Uniformed police take over duty.

**8/12/26.** Police guard left after termination of Strike.

**31/12/31.** Factory closed in consequence of Bobbinite going off the permitted list and falling off of Black Powder sales.

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## The Danger Factor

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Despite the inherent danger involved in gunpowder making, there were surprisingly few fatalities or even injuries sustained at the Glynneath Factory.

The diary of Events records those that occurred here, and some of the serious accidents that took place in other powder factories of the group.

Practically all the explosions that occurred at Glynneath, happened in the Mills—although the only fatal accident resulting from the actual powder making process took place in a Pellet Press in 1921, when two men died.

There were two groups of Mills, one a bank of three, the other a bank of eight.

Mills Nos. 4-11 were driven by a 60 h.p. water turbine sited near the river level. A drive shaft from the turbine came up through a pit shaft and was connected to the Mill shafting. The drive was extended down to the lower area of The Yard by means of three steel ropes to drive the Fitting Shop machines, Saltpetre grinding machinery, Circular Saw and the Stables chaff cutter. Mills Nos. 1-3 were driven by a separate pelton wheel.

The mill buildings were built as a group. They had three very strongly built walls, with a frail timber front wall and roof which could yield if an explosion occurred, thus minimising the damage to the main structure and the machinery. The front wall and roof could be rebuilt easily if damaged.

Each Mill was equipped with an automatic water drenching system, designed to come into operation in the event of an explosion.

No-one was allowed to walk in front of a mill building. There were special passage-ways built to provide access from the rear.

In order to prevent a build-up of an explosive, dust-laden atmosphere, it was important to keep the charge damp. This special procedure was known as 'Liquoring'.

If a thunderstorm was imminent, the mills had to be shut down until the storm had passed.

Here, extracted from the diary of Events, is a selection of the explosions that occurred between 1911 and 1931.

**16/2/11.** No. 9 mill exploded on 75 lb. green charge after making 10 to 12 revolutions. Cause unknown.

**24/6/11.** No. 9 mill exploded (Saturday) at 7.25 p.m. on a green charge. The mill had made only a few revolutions. The drenchers in the adjoining mills acted effectively. No cause could be assigned for the explosion.

**4/8/11.** No. 1 mill fired on Charcoal at 7 a.m. by starting after being standing short of water and repairs. The probable cause being the Oil box having got jammed against the Runner.

**19/8/11.** No. 10 mill exploded (Saturday) at 1.15 p.m. on a 75 lb. green charge (Bobbinite). The mill was being started and had only made a few revolutions. No damage was done, (not a board displaced), probable cause over-liquoring.

**9/5/12.** No. 11 mill exploded at 9.45 a.m. on a 75 lb. green charge (Bobbinite). The mill was only just started. No damage was done and the drenchers not disturbed. No cause could be assigned for the accident.

**23/5/12.** Major T. H. Crozier inspected the factory and found all in order.

**24/7/12.** No. 11 mill exploded at 4 a.m. on a 75 lb. Bobbinite green charge. The mill was being started and had made only a few revolutions when the accident happened. No damage was done and the drenchers were not disturbed.

**7/2/12.** H.M. Inspector of Factories inspected the factory and found all in order with the exception, he suggested, that the crankshaft of D. Pumps in Lower Press House be protected.

**6/5/13.** Major Crozier here. All in order.

**15/7/13.** No. 5 mill exploded at 10.30 p.m. on a 75 lb. Bobbinite green charge. The mill had made only 2 or 3 revolutions when the accident happened. D. R. Morgan was passing the mill at the time and received a few burns on his face, he escaped further injury by his presence of mind in jumping into the leat. The damage to the mill was slight, the front being displaced.

**27/10/13.** Major Cooper-Key inspected the factory and found all in order, with the exception that the barrels in the Expense Magazine were not sufficiently covered.

**1/1/14.** No. 4 mill exploded at 9.15 a.m. All mills were stopped for stock taking, and the charge in this mill had been lifted, and the runners were being moved off the clinkers, no bags or leathers were used. No-one was injured.

**6/6/14.** No. 3 mill exploded this morning at 5.25, 5 minutes before charging, the charge was 75 lb. 'Merchants'. The explosion was a violent one, considerable structural damage being done to the mill and adjoining mill Nos. 2 & 4. The woodwork of the turbine house was completely demolished. No damage being done to the machinery and no-one was injured.

No real cause could be assigned for the accident, but inclined to think the charge had worked too dry. The millkeepers favoured a broken plough to be the cause.

**9/12/14.** Inspector of Factories inspected Factory. All in order.

**9/7/15.** A serious accident at Hounslow at 9.20 a.m. involving a Glazing House, two Stoves and eight mills. Very considerable damage was done to Workshops, Saltpetre Refinery and other buildings. Unfortunately a man named Marks was killed, his body being projected a very considerable distance. Injuries to other workpeople were negligible.

*(Hounslow was a sister factory in Middlesex.)*

The quantity of powder in the buildings were, Glazing House 2,000 lbs. and in the two Stoves, 6,000 lbs. altogether.

The accident was supposed to have originated in the Glazing House, spread to the two Stoves, and afterwards to the Mills.

Two horses were also killed. No cause could be assigned to the accident.

**3/12/15.** Major Crozier inspected the Factory.

**26/1/16.** Factory Inspector here.

**25/3/16.** No. 11 mill exploded at 1.40 a.m. on 75 lb. Bobbinite green charge. The mill was being started and made only a few revolutions when the accident happened. No damage was done and only one of the three drenchers was disturbed.

**27/4/16.** No. 5 mill exploded at 1 a.m. on a 75 lb. charge after running 1½ hours. The damage done was rather considerable to adjoining mills. The drenchers acted efficiently.

**19/10/17.** Mr. Edwards, H.M.I. Factories inspected the factory, and passed as satisfactory, the fencing in refinery for protection of Boilers, also fencing around the upright shaft in Corning House.

**24/9/18.** No. 1 mill exploded after running 1 hour at 5.45 a.m. Cause, nut of the spindle stripping the thread, nut missing.

**15/11/20.** No. 5 mill exploded at 12.30 (noon). The mill had made only a few revolutions when the accident happened. (Charge 50 lb. green and 25 lb. rework). The mills had all been standing for 3 weeks owing to the Miners' Strike, the clinker had been lifted, and prior to putting on powder on the day of the accident, they had been running on sawdust for a couple of hours.

**11/1/21.** No. 2 Mill exploded at 3.45 p.m. on a green charge of 50 lb. and 25 lb. rework. The explosion occurred immediately on starting after laying the charge. We are of the opinion that the probable cause was due to the turbine not being sufficiently checked during charging time, as only 3 mills were actually running at the time. The Saw Bench, having been stopped for the day, which would result in the turbines running light and at increased speed.

Explosion occurred in No. 70 Pellet Press at 11.30 a.m. The Millwright J. Jones and helper D. Jones were in the building for the purpose of oiling and moving the moulds by means of levers in the usual way to prevent sticking in consequence of the press being idle. About 300 lb. of powder was in the building at the time. L. I. Moses (Manager) had visited the building half an hour previously and spoke to Millwright Jones, everything was in order. L. I. Moses was on the opposite side of the river when the explosion occurred (about 200 yards distant) and was first on the scene and found Jones (Millwright) his legs being pinned under some stones, and was released after some difficulty. David Jones had found his way to the water leat nearby and had evidently jumped in to put out his burning clothes, he walked home to Dyffryn Golwg, Pontneathvaughan.

Unfortunately both men died during the night from shock.

**22/9/21.** Major Cooper-Key inspected the factory.

**5/12/21.** Explosion at Camilty, in the Corning House. 2 Corning House men were killed.

*(Another factory in the Group.)*

**8/6/22.** No. 6 mill exploded on 75 lb. Merchant charge at 8.30 a.m. after running 1½ hours. The mill roof and front completely displaced, roofs of Nos. 5, 6 and 7 slightly moved. The flash wall (part) between Nos. 6 and 7 fallen in on to the archway. One plank in water leat broken. The drenchers on Nos. 1, 2, 6 and 7 mills acted efficiently. No. 4 was standing by at the time.

**23/9/22.** Nos. 4 and 5 mills exploded at 9.45 a.m., on 75 lb Merchant charge. No. 5 mill was being started, and almost immediately exploded. A charge barrow containing green charge had been temporarily left opposite No. 4 wall, which caught fire from No. 5 mill and thus communicated to No. 4 mill.

**3/1/23.** No. 8 mill exploded at 7.40 a.m. after turning 10 minutes on Merchant charge. Damage done was slight, part of roof and front blown down. None of the drenchers in the group acted.

**21/3/23.** Col. Thomas, H.M. Inspector here inspecting factory.

**3/?/25?** No. 5 mill exploded at 9.20 a.m. on a 75 lb. Merchant charge, after running for 1¾ hours. The head millkeeper (Harner) had only just left the mill which he had liquored with one pint of water. The roof and front of mill was completely demolished, besides displacing some of the roofs in adjoining mills. The drenchers acted efficiently.

**24/2/26.** Nos. 9 and 10 mills exploded at 8.25 p.m. on 75 lb. Bobbinite charge. Damage extensive. No cause could be assigned to the explosion.

**21/12/26.** Dr. Watts, H.M. Inspector of Explosives, first visit to factory.

**13/5/27.** Nos. 9 and 10 mills exploded.

It was found a bolt was displaced from the top of No. 10 mill, which was fouled by the arm of the crown wheel, the bolt dropping into the mill bed and causing the explosion. The explosions, almost simultaneously, were very violent, causing a good deal of structural damage to the mills.

**21/6/27.** Major T. H. Crozier (Home Office) H.M. Inspector here.

**12/11/28.** All mills charged under new system, viz. stopped simultaneously for uncharging and charging following accident at Blackbeck.

### 31st December, 1931

Factory closed in consequence of Bobbinite going off the Permitted List, and falling off of black powder sales.



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## The Horse's Tale

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Looking back along the long dim tunnel of the past, it is perhaps difficult for our present generation to realise how extensively the structure of society depended upon the horse.

We have recorded something of the working day of the people who worked the factory. But they relied heavily on the contribution of the horse, for throughout its entire operational life the Glynneath factory used horses as a means of transportation.

The Tramway—that essential line of communication which ran from the bottom of the Incline to the top of the works—was worked with horses.

The importance of this quadruped work-force can perhaps be appreciated by the fact that, in company with the Foreman and the Millwright, the Stableman was also housed on the premises. He and his wife lived in the Cottage attached to the main Office building near the Stables, which on average, housed about ten horses.

**23/7/28.** Evan Worthing (Stableman) and his wife vacated Office Cottage, having retired on 14th July after 24 years service. 'On pension'.

**6/8/28.** V. Hargest (Stableman) occupied Cottage.

Here the record of 'Events' gives us a brief glimpse into the lives of these stoic servants of those gunpowder days.

### *The price of horses*

**14/12/11.** Horse 'Farmer' purchased from Mr. Thomas, Glanrafon for £37.

**6/3/11.** Chestnut horse 'Rattler' purchased from Mr. T. Evans, Rydwaun, Aberdare, for £37 (with grey Irish horse) thrown in, rising 6 years.

**5/7/11.** Carriage Mare 'Flower' purchased from Mr. H. Home, Neath, £50.

**29/9/13.** New horse arrived from Hounslow. 6 years old, price £52.

**11/11/13.** Two carthorses purchased from Mr. Thos. Evans, Rhydywaun, Aberdare. Price £42 each, aged 5 years.

**11/9/14.** Carriage Mare bought by the Remount Dept. for the war price of £47.

**8/11/17.** Purchased Brown mare aged 6 years, 16 Hands from Mr. Thomas Evans, Rhydywaun, Aberdare, £89.

Cow from same farmer price £35.

**27/4/18.** Horse on trial from Mr. Richards, purchased for £125.

**4/3/20.** Two carthorses purchased from Ed. Richards, Cwmgwrach, at £140 each. (16 Hands) 6 years old.

**26/2/26.** Horse 'Tinker' 5 years old. (Iron grey) purchased from Ed. Richards, Cwmgwrach. £49.

### *'Pensioned off'*

**12/7/18.** Old horse 'Buller' slaughtered and taken away by J. Boulton.

**23/1/20.** Old horse 'Lion', slaughtered by W. Jenkins.

**3/5/30.** Horse 'Tinker' slaughtered by W. Tomkins, Horse Slaughterer.

**15/7/18.** 'Tommy' pony sold to Mr. E. Llewellyn for £15. (21 years old).

### *Accidents*

**23/7/14.** John Pugh, Haulier, met with an accident. He was delivering fuses to Ysguborwen Colliery, Aberdare, the horse taking fright of a steam engine, upset the cart with the result that he fractured his right leg in two places. The horse escaped injury and the cart was not damaged.

**18/2/21.** Chinn (Stableman) fell off Carriage Horse near Plasydinas. The horse took fright at a motor lorry and reared and fell, he escaped injury, hurt his elbow by falling.



A present-day activity on the old site. Members of the Merthyr Tydfil and District Naturalists' Society at a Fungus Foray outside Rose Cottage

*S. J. Collett*

*(Horses that were ill or suffered from chafing due to pulling heavy loads were put out to graze, and the following costs were recorded.)*

**28/6/20.** Mare 'Bounce' put out to grass at Mr. Parry, Bronwydd, at 4/- per week.

**9/5/21.** 6 horses put out to graze on Rheola Field in the occupation of Mr. Llewellyn, at 8/- per head per week.

*(There is perhaps a measure of poignancy in the entry concerning 'Duke', once so resplendent in his prize winning accoutrements.)*

**31/8/22.** Glynneath & District First Annual Horse Show. Took first prize (cup) with; 'Duke' for Cleanest and Best Turn-out.

Second prize £1 for best Tradesman Turn-out.

**29/6/27.** Horse 'Duke' having become lame, slaughtered by Tomkins.

**24/9/25.** Chevrolet Saloon arrived to replace horse-drawn carriages.

*(After powder manufacturing ceased in December 1931 the works was still used to store explosives and detonators for a number of years.)*

**15/1/32.** Two of factory horses 'Lion' and 'Traveller' slaughtered.

**19/5/32.** Horse 'Sailor' sold to Mr. Jenkins, Red House, Morriston. £23.

**17/6/34.** S.D. Agency of Cardiff took over handling of explosives and detonators at Glynneath. The horses and carts to be disposed of.



£2.50

WASC 1759