

Stori

Chwarel Graiglwyd 1834-1911

The Story of

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gan | by **DENNIS ROBERTS** Golygwyd gan | Edited by **SUSAN ELLIS**

Cefnogwyd gan Gronfa Gynaliadwyedd yr Ardoll Agregau ar gyfer Cymru
a CyMAL: Amgueddfeydd Archifau a Llyfrgelloedd Cymru
Supported by the Aggregates Levy Sustainability Fund for Wales
and CyMAL: Museums Archives and Libraries Wales



Stori Chwarel Graiglwyd 1834-1911

Dyma hanes Chwarel Graiglwyd o'r dechrau ym 1834 nes iddi uno â'i chymydog Chwarel Penmaen ym 1911.

Yn 2005 daethpwyd o hyd i nifer fawr o ddogfennau yn seler swyddfa'r cwmni sy'n berchen ar y chwarel ar hyn o bryd Hanson (Heidelberg Cements) yn Y Gloch. Maent yn dyddio o 1879 i 1911 pan oedd y chwarel yn cael ei rhedeg gan y Darbshire Company. Roedd y rhan fwyaf mewn cyflwr da o ystyried eu bod wedi bod yn y seler am bron i gant o flynyddoedd mewn pentwr anniben ar ben ei gilydd. Doedd y rhai ar ben y pentwr ddim wedi'u difrodi'n ormodol a chawsant eu symud i Wasanaeth Archifau Cyngor Bwrdeistref Sirol Conwy yn Lloyd Street, Llandudno, lle byddent yn cael eu glanhau, catalogio a'u trwsio. Fe gymerodd y gwaith cadwraeth tringar hwn dros flwyddyn i'w gwblhau. Mae'r dogfennau bellach yn barod i gael eu hastudio gan unrhyw un sy'n ymddiddori yn hanes y chwareli cerrig yng Ngogledd Cymru.



▲ Hen Chwarel Graiglwyd i'r chwith gyda Nant Dywyll i'r dde Graiglwyd Old Quarry to the left with Nant Dywyll to the right



▲ Y dogfennau fel y darganfywyd yn y chwarel
The documents as they were found at the quarry



▲ Archifydd yn glanhau y dogfennau
An archivist cleaning the documents

Beth yw'r dogfennau?

Mae'r dogfennau'n cynnwys llyfrau archebion, llyfrau derbynebion, llyfrau cyflogau, llythyrau, cardiau post, telegramau, manylion llongau oedd yn cario'r cerrig i ffwrdd ac yn y blaen. Mae enghreifftiau o ddogfennau o'r fath i'w cael ar y tudalennau nesaf. Trwy eu hastudio fe gewch syniad da am y ffordd yr oedd y chwarel yn gweithio o ddydd i ddydd; sut yr oedd y cynhyrchion cerrig yn cael eu gwneud a'u hanfon at gwsmeriaid dros y môr neu ar hyd y rheilffyrdd. Yn bwysicaf oll, mae'r papurau'n dweud cryn dipyn wrthym am y dynion oedd yn gweithio yno, yn aml dan amodau peryglus iawn.

Mae'r dogfennau'n ymwneud â chyfnod pwysig iawn yn hanes y diwydiant chwareli cerrig. Roedd yn gyfnod pan fu llawer o newidiadau. Roedd cwsmeriaid yn galw am gynhyrchion newydd wrth i'r rheilffyrdd, y ffyrdd, y strydoedd a'r trefi ym Mhrydain dyfu a thyfu. Hwn oedd y cyfnod pan oedd y set garreg fel wyneb ffordd ar fin cael ei disodli gan facadam (metel ffordd), tar macadam a choncrit. Mae'r dogfennau'n dangos sut y gwnaeth y Darbshire Company dderbyn yr heriau newydd a sut, gyda'r Penmaen Quarry Company, y llwyddodd i gadw bron i fil o ddynion mewn cyflogaeth lawn tan y 1950au, pan arweiniodd technoleg a pheiriannau newydd at newidiadau mawr.

Mae'r chwarel ym Mhenmaenmawr yn dal i weithio. Erbyn hyn mae'r garreg yn cael ei chloddio mewn crater o waith dyn ar ben Mynydd Penmaenmawr ac yn cael ei mathru mewn melin fawr sydd i'w gweld ar y nenlinell. Y prif gynhyrchion yw balast rheilffordd, chipins ar gyfer rhoi wyneb ar ffyrdd a thywod (llwch) i wneud concrit. Dydy setiau ddim yn cael eu gwneud mwyach a dydy'r 'Hen Waith' na 'Nant Dywyll' ddim yn cael eu gweithio mwyach. Mae llawer o rannau gweithredol y chwareli wedi cael eu 'tirlunio' – mae'n anodd adnabod rhai o'r hen bonciau ac inclens a'r manau lle'r oedd y melinau mathru'n sefyll ar un adeg.

Mae injans stêm a disel wedi cael eu hen ddisodli gan loris anferth, a'r inclens, y brëcs a'r wagenni wedi cael eu disodli gan gludfeltiau. Does dim angen nifer fawr o ddynion bellach - mae peiriannau wedi cymryd drosodd. Mae llai nag ugain o ddynion bellach yn gweithio yno o'i gymharu â'r cannoedd oedd yn cael eu cyflogi yn y gorffennol.

A wyddoch chwi?

Pa fath o Graig sy'n cael ei chloddio yn Graiglwyd?

Mae pawb yn galw'r creigiau sy'n cael eu cloddio ym Mhenmaenmawr yn ithfaen. Yr enw ar y cwmni newydd a gafodd ei ffurfio ym 1911 oedd The Penmaenmawr and North Wales Granite Company, ond nid dyna'r enw cywir ar y graig. Diorit yw'r graig

The Story of Graiglwyd Quarry 1834-1911

This is the story of Graiglwyd Quarry from its beginning in 1834 until it joined with its neighbour Penmaen Quarry in 1911.

In 2005 a large quantity of documents were found in the cellar of the Bell Yard office of the present quarry company, Hanson (Heidelberg Cement). They dated from 1879 until 1911 when the quarry was operated by the Darbshire Company. Most were in good condition considering they had been in the cellar for nearly a hundred years piled untidily on top of each other. Those on the top of the heap were not too badly damaged and were taken away to the Conwy County Borough Council's Archive Service in Lloyd Street, Llandudno where they would be cleaned, listed and repaired. This delicate work of cataloguing and conservation took over a year to complete. The documents are now ready to be studied by anyone interested in the story of stone quarries in North Wales.

What are the documents?

They are made up of order books, receipt books, pay books, letters, postcards, telegrams, details of ships carrying the stone away and so on. Samples of such documents are to be found in the following pages. Studying them will give a good idea how the quarry worked day by day; how the stone products were made and sent to customers by sea and rail. Most importantly, the papers tell us a great deal about the men who worked there, often in very dangerous conditions.

The documents cover a very important period in the stone quarrying industry. It was a time of many changes. Customers demanded new products as the railways, roads and streets and towns in Britain grew and grew. It was the period when the stone sett as a road surface was about to be replaced by macadam (road metal), tar macadam and concrete. The documents show how the Darbshire Company met the new challenges and with the Penmaen Quarry Company kept nearly a thousand men fully employed until the 1950s, when new technology and machinery resulted in major changes.

The quarry at Penmaenmawr is still working. The stone is now quarried in a man-made crater on the top of Penmaenmawr Mountain and crushed in a large mill that can be seen on the skyline. The main products are railway ballast, chippings for road surfacing and sand (dust) for concrete making. Setts are no longer made and the 'Old Quarry' and 'Nant Dywyll' are no longer worked. Much of the quarry workings have been 'landscaped' – it is difficult to identify some of the old terraces and inclines and where the crushing mills once stood.

Steam and diesel engines have long been replaced by giant lorries, and the inclines, brake houses and wagons replaced by conveyor belts. Large numbers of men are no longer required – machines have taken over. Fewer than twenty men now work there compared to the hundreds employed in the past.

Did you know?

What kind of Rock is quarried at Graiglwyd?

Everybody calls the rocks quarried at Penmaenmawr - granite. The new company formed in 1911 was called the Penmaenmawr and North Wales Granite Company, but that is not the correct name for the rock. The rock is diorite.



Pam a Sut y Dechreuodd y Chwarel: Y Setiau Cyntaf

Ar y traethau islaw pentir Penmaenmawr mae cerrig crwn - rhai bach a mawr. Roedd y rhan fwyaf o'r cerrig crwn yma'n arfer bod yn ddarnau o graig a oedd wedi syrthio i lawr ochr y mynydd i mewn i'r môr. Cafodd y darnau caled hyn o graig lwyd eu symud yn ôl ac ymlaen gan y tonau gan achosi iddynt, ar ôl nifer o flynyddoedd, golli eu garwedd a throi'n grwn a llyfn. Fe drodd y creigiau hyn o lethrau'r mynydd yn gerrig crwn.

Dros ddau gan mlynedd yn ôl roedd llongau hwylio bychain yn dod o Lerpwl a phorthladdoedd eraill ar Lannau Mersi i Ogledd Cymru gan ddod â glo a nwyddau eraill. Pan oedd yn amser mynd yn ôl, roedd rhaid i gapteiniaid y llongau ddod o hyd i rywbeth i'w lwytho ar eu llongau. Doedd y llongau ddim yn medru mynd yn ôl yn wag oherwydd byddent yn troi ar eu hochrau a mwy na thebyg yn suddo pe bai'r gwynt yn chwythu'n rhy gryf yn erbyn eu hwyliau. Roedd yn rhaid i'r llwyth yn yr howldiau cargo fod yn ddigon trwm i ddal y llong i lawr. Yr enw ar y math yma o lwyth yw **ballast**.

Byddai capteiniaid y llongau hwylio neu'r llongau glannau bychain hyn yn dod at y glannau ym Mhenmaenmawr a Llanfairfechan i gasglu llwythi o **gerrig crwn** o'r traethau i'w defnyddio fel balast. Roedd y capteiniaid yn hwylio'u llongau ar y traeth, yn gollwng yr angor ac yn aros i'r llanw fynd allan. Roedd y llongau wedyn ar dir sych neu 'wedi tiri' ar y tywod ac mewn sefyllfa i gael eu llenwi â cherrig crwn. Pobl leol - ffermwyr a'u teuluoedd - oedd yn casglu a llwytho'r cerrig. Roedd yr arian yr oeddent yn ei gael gan y capteiniaid yn dderbyniol iawn i'r bobl dlawd yma.



▲ Cerrig mân ar lan y môr Pebble bank on the beach

Pan fyddai'r llongau glannau'n cyrraedd yn ôl yn eu porthladdoedd ar Lannau Mersi, byddai'r capteiniaid yn gwerthu'r cerrig crwn i'r bobl oedd yn gyfrifol am wella'r ffyrdd yn y trefi ar hyd glannau'r afon. Roedd trefi fel Lerpwl yn tyfu'n gyflym ac roedd angen defnyddio'r cerrig crwn neu'r '**cobls**' i roi wyneb ar y ffyrdd, neu fel arall buan iawn y byddai wagenni trwm a oedd yn cael eu tynnu gan geffylau'n troi'r ffyrdd yn draciau mwdlyd amhosib i'w defnyddio. Roedd pobl yn credu mai cobls Penmaen Mawr oedd y gorau am eu bod mor galed ac yn gwrthsefyll olwynion bandin-haearn y certi a phedolau haearn y ceffylau.

Er bod y strydoedd cobls yn well na rhai mwdlyd heb wyneb, doedden nhw ddim yn hawdd gyrru drostynt mewn wagenni'n cael eu tynnu gan geffylau ac yn sicr doedd hi ddim yn hawdd cerdded arnynt. Dechreuodd strydoedd wedi'u gorchuddio â cherrig a oedd wedi cael eu siapio neu'u trimio i roi wyneb mwy fflat, mwy gwastad, fod yn fwy poblogaidd. Roedd y rhai a oedd yn casglu'r cerrig crwn islaw Penmaen Mawr yn cael eu perswadio gan y capteiniaid môr i drimio'r cerrig mawr oedd yn gorwedd ar y llechwedd yn fras fel eu bod ar ffurf blociau. Roedd y capteiniaid yn gwybod bod y rhain yn haws i'w gwerthu ac y byddent yn cael pris gwell. O'u rhoi gyda'i gilydd, roedd y '**blociau**' hyn yn creu wyneb cryfach, mwy gwastad. Roeddent yn cael eu gosod yn agosach at ei gilydd ar wely o dywod, ac roedd hyn yn cael ei alw'n "setio i lawr"; dyna pam ein bod yn creu bod pobl wedi dechrau galw'r cerrig wedi'u trimio'n '**setiau**'.

► Llwytho cerrig o dan Penmaen Mawr
Loading pebbles on beach below Penmaen Mawr

Why and How the Quarry started: The First Setts

On the beaches below the headland of Penmaen Mawr are found pebbles both large and small. Most of the pebbles were once pieces of rock that had tumbled down the side of the mountain into the sea. The tides shifted these hard pieces of grey rock backwards and forwards which made them after many years lose their roughness to become rounded and smooth. The rocks from the mountain side became pebbles.



▲ Stryd gyda gwyneb o gerrig mân Cobbled street surface

▲ Settau gwael sy yn y stryd yma A street surfaced with primitive setts

Over two hundred years ago small sailing ships came from Liverpool and other ports on the Mersey to North Wales bringing coal and other goods. When it was time to return the captains of the ships had to find something to load onto their ships. They could not return empty because they would tip over onto their sides and probably sink if the wind blew too strongly against their sails. The load in the cargo holds had to be heavy enough to weigh the ship down. This kind of load is called **ballast**.

The captains of these small sailing ships or coasters would come to the shore of Penmaenmawr and Llanfairfechan to collect loads of **pebbles** from the beaches to use as ballast. The captains sailed their ships onto the beach, dropped the anchor and waited for the tide to go out. The ships were then 'high and dry' or 'beached' on the sand and in a position to be loaded with pebbles. The collecting and loading of the pebbles was carried out by local people - farmers and their families. The money they received from the captains was welcomed by these poor people.

When the coasters arrived back at their ports on the Mersey, the captains sold the pebbles to those people who were responsible for improving roads in the towns along the river bank. Towns like Liverpool were growing rapidly and needed roads to be surfaced with the hard pebbles or **cobbles**, otherwise heavy wagons pulled by horses would soon turn them into muddy tracks impossible to use. Penmaen Mawr cobbles were thought to be the best because they were so hard and resisted the iron banded wheels of the carts and the iron shoes of the horses.

Although cobbled streets were better than muddy unpaved ones, they were not easy to drive over in horse-drawn wagons and definitely not easy to walk on. Streets laid with stones that had been shaped or trimmed to give a flatter, more even surface, became more popular. Those who collected the pebbles below Penmaen Mawr were persuaded by the sea captains to trim the large stones which were lying on the hillside into rough block shapes. The captains knew these were easier to sell and a better price received. Put together, these **blocks** made a stronger, more even surface. Placing them closer together on a bed of sand was called "setting them down"; that is why it is believed the trimmed stones became known as **setts**.

Y Chwarel Setiau Gyntaf ar Lethrau Penmaen Mawr

Mae porthladd Runcorn ar lannau'r Afon Mersi. Roedd y llongau glannau'n dod â llawer o gerrig crwn a cherrig palmant yma. O **Runcorn** roeddent yn gallu cael eu hanfon ar hyd y gamlas i'r trefi newydd eraill yng Ngogledd Lloegr lle roeddent yn gallu cael eu gwerthu'n hawdd. Fe sylwodd marsiandwr a oedd yn byw yn Runcorn, **Dennis Brundrit** pa mor gyflym roedd cerrig Penmaen Mawr yn gwerthu ac roedd arno awydd gweld y lle yr oeddent yn dod ohono. Un diwrnod, daeth mewn llong i'r lle yr oedd y cerrig rhydd yn cael eu trimio'n fras ac fe berswadiodd y gweithwyr i werthu'u cynnyrch i gyd iddo ef a neb arall.



Roedd Mr Brundrit yn berchen ar chwarel yn ymyl Runcorn ac felly'n gwybod llawer am chwarella. Fe sylweddolodd, pe byddai'r graig ym Mhenmaen Mawr yn gallu cael ei chwythu a'i chloddio'n well, byddai'n bosib creu cerrig neu setiau wedi'u trimio. Gyda help dyn arall o Runcorn, **Phillip Whiteway**, fe brynodd yr hawl i chwarella ochr y mynydd. Nid oedd y dynion a oedd wedi gwneud y setiau cyntaf yn cael casglu'r creigiau rhydd ar ôl hynny ac fe gafodd y rhan fwyaf eu perswadio i weithio i gwmni Brundrit & Whiteway a'u chwarel newydd – Chwarel Penmaen.

Fe agorodd Chwarel Penmaen ym 1832 mewn rhan o'r graig o'r enw 'Y Jolly' sydd ar ochr ddwyreiniol y pentir a thua 50 metr uwchlaw lefel y môr. Cafodd jeti ei adeiladu, ac roedd yn ymestyn allan i'r môr ac yn ei gwneud yn hawdd llwytho'r llongau glannau. Roedd y setiau'n cael eu cario i'r jeti mewn wagenni ar reilffordd serth a oedd yn cael ei alw'n inclên.

Cyn bo hir roedd tair o bonciau wedi cael eu torri yn y llethr serth. Mae'r uchaf a'r fwyaf i'w gweld heddiw. 'Bonc Jolly' oedd ei henw – gair arall am twmp yw 'Ponc' neu 'Bonc' ac roedd y gair 'Jolly' yn dod o enw tafarn leol, 'The Jolly Herring', a oedd ar y ffordd islaw'r chwarel wrth ymyl yr inclên.

Daeth carreg Penmaen i fod mor boblogaidd fel bod Brundrit & Whiteway wedi adeiladu jeti arall ar ochr Llanfairfechan i'r pentir ac wedi dechrau mynd â blociau mawr o gerrig rhydd o'r llethrau serth yn gyntaf ac yna wedi dechrau chwythu'r graig er mwyn cychwyn chwarel newydd yr oeddent yn eu galw'n chwarel i Gorllewin Penmaen. Rhwng 1845 a 1848 fe adeiladwyd rheilffordd Caer a Chaergybi ar hyd gwaelod y mynydd, a oedd yn golygu bod rhaid tynnu'r jeti i lawr am nad oedd hawl gan y llinellau rheilffordd o'r chwarel i groesi'r brif linell reilffordd newydd. Cafodd llinell reilffordd newydd i dryciau'r chwarel ei chwythu o amgylch y mynydd o'r Chwarel Orllewinol i Bonc Jolly lle'r oedd yr inclên cyntaf yn mynd â'r cerrig i'r jeti cyntaf – **Jeti Penmaen**.

▼ Cei Penmaen o dan Bonc Jolly Penmaen Jetty with Bonc Jolly above



The First Sett Quarry on the Slopes of Penmaen Mawr

The port of Runcorn is on the River Mersey. Many loads of pebbles and paving stones were brought here by the coasters. From **Runcorn** they could be sent by canal to the other new towns in the North of England where they would be easily sold. A merchant living in Runcorn named **Dennis Brundrit** saw how quickly the Penmaen Mawr stones sold and was curious to see the place where they came from. One day he came by ship to the place where the loose stones were roughly trimmed and persuaded the workers to sell all their produce to him only.

Mr Brundrit owned a quarry near Runcorn and therefore knew a lot about quarrying. He realised that if the rock on Penmaen Mawr could be blasted and quarried better, trimmed stones or setts could be made. With the help of another man from Runcorn, **Phillip Whiteway**, he bought the right to quarry the mountainside. The men who had made the first setts were no longer allowed to collect the loose rocks and most were persuaded to work for Brundrit and Whiteway and their new quarry – The Penmaen Quarry.

The Penmaen Quarry began operating in 1832 at a point called 'Y Jolly' which is on the eastern side of the headland and about 50 metres above sea level. A jetty was built going out to sea where coasters could be loaded easily. The setts were brought to the jetty in wagons on a steep railway called an incline. Soon there were three terraces cut into the steep slope. The highest and the largest can be seen today. It was called 'Bonc Jolly' – 'Bonc' is bank and 'Jolly' was the name of an inn, 'The Jolly Herring', which stood on the road below the quarry and alongside the incline railway.

The Penmaen stone became so popular that Brundrit and Whiteway built another jetty on the Llanfairfechan side of the headland and began taking large blocks of loose stones from the steep slopes at first and then blasting the rock face to start new quarries they called the Penmaen West quarries. Between 1845 and 1848 the Chester and Holyhead Railway was constructed along the base of the mountain, which meant that the jetty had to be pulled down since the railway lines from the quarry were not allowed to cross the new main railway line. A new railway line for quarry trucks was blasted around the hill from the West Quarry to Bonc Jolly where the first inclines took the stone to the first jetty – **Penmaen Jetty**.



▲ Y Jeti Newydd yn agor Opening of Jetty

Chwarel Graiglwyd – Sut y Dechreuodd

O bentir Penmaen Mawr mae crib yn ymestyn tua’r dwyrain i Graiglwyd. Roedd llethrau’r mynydd hwn wedi’u gorchuddio â blociau mawr o gerrig mân sy’n cael eu galw’n sgri. Am flynyddoedd lawer roedd dynion o ffermydd cyfagos wedi bod yn mynd â’r cerrig yma, ar slediau oedd yn cael eu tynnu gan geffylau, i lawr at lan y môr lle’r oeddent yn cael eu gwerthu fel balast i’r capteiniaid môr. Roedd gan y creigiau ar sgri Graiglwyd ymylon llyfn ac roeddent yn galed iawn, ac felly’n hawdd i’w gwerthu fel wyneb ffordd. Roedd busnes mor dda i’r ffermwyr fel eu bod wedi palu llwybr o lethrau’r sgri i Fferm Graiglwyd, lle’r oedd traciau eraill yn arwain i lawr at lan y môr, rhywle islaw ffordd bresennol Church Road.

Fe glywodd dau ddyn o Lerpwl, sef **Thomas Brassey** a **John Tomkinson**, pa mor llwyddiannus oedd y chwarel newydd ym Mhenmaen. Fe wnaethon nhw benderfynu agor chwarel ar lethrau **Graiglwyd** ym 1834. Fe wnaethon nhw hefyd adeiladu rheilffordd inclên i’r jeti ar lan y môr a chyflogi’r dynion oedd wedi bod yn dod â’r cerrig o ochr y mynydd yn wreiddiol. Yn fuan, cafodd mynydd Graiglwyd, a oedd yn llyfn ar un adeg, ei chwythu, ac felly hefyd y lle sydd ymhellach i’r dwyrain, o’r enw **Nant Dywyll**.

Erbyn 1840 roedd chwarel Graiglwyd wedi cael ei gwerthu i dri dyn a oedd yn berchen ar chwareli yn Llanddulas yn barod: **Richard Kneeshaw**, **J T Raynes** a **William Lupton**. Daeth y cwmni newydd â dynion o Kirkcudbrightshire yn Ne Orllewin yr Alban a oedd yn wneuthurwyr setiau profiadol a hefyd yn ofaint i wneud y morthwylion arbennig yr oedd eu hangen i dorri creigiau a’u ffurfio’n setiau.

Erbyn y 1870au fe ddechreuodd Mr Kneeshaw a’i bartneriaid golli diddordeb yn chwarel Graiglwyd. Fe werthon nhw’r chwarel ym 1878 i’r teulu **Darbishire** o Plas Penderffryn, a oedd yn berchen ar rywfaent o’r tir oedd yn cael ei chwarela. Ond cyn iddi gael ei gwerthu roedd y teulu Kneeshaw wedi codi rheiliau’r inclên ac wedi datgymalu’r offer halio oedd yn rheoli’r wagenni arnynt. Roedd gan y teulu Darbishire broblem arall. Doedden nhw ddim yn cael defnyddio jeti Graiglwyd am ddeng mlynedd arall.

Cafodd y problemau hyn i gyd eu goresgyn yn y pen draw, yn bennaf diolch i un aelod o’r cwmni newydd, **Charles Henry Darbishire**. Cafodd ei wneud yn rheolwr chwarel Graiglwyd ym 1881. Roedd wedi cael ei hyfforddi fel peiriannydd ac wedi bod yn adeiladu rheilffyrdd ac yn helpu’i frawd i reoli chwarel lechi yn Nyffryn Nantlle.

Ac yntau’n dri deg pedwar mlwydd oed, y dyn ifanc mawr cryf yma oedd yr union un i ailadeiladu chwarel Graiglwyd.

Fe osododd Charles Darbishire inclên newydd i lawr ochr Graiglwyd at lan y môr ond gan nad oedd hi’n bosib defnyddio’r jeti fe aeth ati i wella’r ffordd yr oedd cerrig yn gallu cael eu cario ar hyd y rheilffordd at y cwsmeriaid. Roedd wagenni wedi’u llwytho’n cael eu tynnu i Gonwy lle’r oedd y cerrig yn cael eu llwytho ar longau, er mwyn iddynt eu cludo i borthladdoedd yng Ngogledd Lloegr. Roedd un archeb fawr am setiau’n cael ei chludo ar hyd y rheilffordd i Gei Connah ar lannau’r Afon Dyfrdwy, lle’r oedd y setiau’n cael eu llwytho ar long er mwyn eu cludo i Belfast yng Ngogledd Iwerddon. Roedd llwytho’r wagenni yn Graiglwyd, yna’u dadlwytho yng Nghonwy, cyn eu llwytho eto ar long yn eu gwneud yn fwy drud na setiau o chwareli eraill. Cofiwch, roedd yr holl lwytho a dadlwytho yma’n cael ei wneud â llaw! Roedd yn cymryd oriau lawer i nifer o ddynion wneud y gwaith.

O’r diwedd ym **1888** roedd y Darbishire Company yn gallu defnyddio **Jeti Graiglwyd** a oedd wedi’i ailadeiladu. Cafodd ei wneud yn uwch ac yn gryfach, ac ym mis Mehefin 1888 cafodd y llwythi cyntaf eu cario i ffwrdd, gyda thyrfa o bobl yn gwylio, a hwythau wedi dod i weld agoriad mawr y jeti newydd. Bellach roedd cargoau mawr yn gallu cael eu cludo’n rhatach dros y môr i borthladdoedd eraill. O hynny ymlaen doedd dim angen llwytho a dadlwytho cerrig o wagenni rheilffordd i longau yng Nghonwy. Ond roedd y Darbishire Company wedi sylweddoli pa mor gyfleus ac uniongyrchol oedd defnyddio rheilffyrdd i gludo cerrig i gwsmeriaid oedd yn byw’n bell oddi wrth borthladdoedd ond yn agos at reilffyrdd.



▲ C.H. Darbishire

Graiglwyd Quarry - How it Began

From the headland of Penmaen Mawr a ridge runs eastwards to Graiglwyd. The slopes of this hill were covered in large blocks of loose stones called scree. Men from neighbouring farms had for years been taking these stones, loaded on horse-drawn sledges, down to the seashore where they had been sold as ballast to the sea captains. The Graiglwyd scree rocks had smooth edges and were very hard indeed, which made them easy to sell as road surfacing. Business was so good for the farmers that they dug a path from the scree slopes down to Graiglwyd Farm, where other tracks led down to the shore somewhere below the present Church Road.

Two men from Liverpool, **Thomas Brassey** and **John Tomkinson**, heard how successful the new quarry at Penmaen was becoming. They decided to open a quarry on the slopes of **Graiglwyd** in 1834. They too built an incline railway to a jetty on the shore and employed the men who had originally brought the stone from the hillside. Soon the once smooth hill of Graiglwyd was blasted, as was a nearby hollow further to the east called **Nant Dywyll**.

By 1840 Graiglwyd quarry had been sold to three men who already owned quarries at Llanddulas: **Richard Kneeshaw**, **J T Raynes** and **William Lupton**. The new company brought men from Kirkcudbrightshire in South West Scotland who were experienced settmakers, and also blacksmiths to make the special hammers needed to break rocks and shape them into setts.

By the 1870s Mr Kneeshaw and his partners began to lose interest in the Graiglwyd quarry. They sold it to the **Darbishire family** of Penderffryn Hall in 1878, who owned some of the land which had been quarried. But before it was sold the Kneeshaws had taken up the rails from the inclines and dismantled the winding gear which controlled the wagons on them. The Darbshires had another problem. They were not allowed to use the Graiglwyd jetty for another ten years.

All these problems were eventually overcome, mainly because of one member of the new company, **Charles Henry Darbishire**. He was made

manager of Graiglwyd quarry in 1881. He was a trained engineer who had worked on constructing railways and helping his brother to manage a slate quarry in the Nantlle valley. At the age of thirty four this powerfully-built young man was just the one to rebuild Graiglwyd quarry.

Charles Darbishire laid new inclines down the side of Graiglwyd to the shore but because the jetty could not be used he improved the way stone could be taken away by rail to the customers. Loaded wagons were taken to Conwy where the stone was loaded onto ships to take to ports in the North of England. Loading wagons at Graiglwyd, then unloading them at Conwy, before loading them again onto a ship made them more expensive than setts from other quarries. Remember, all this loading and unloading was done by hand! It took a lot of men many hours to do the work.

At last in **1888** the Darbishire Company were able to use a rebuilt **Graiglwyd jetty**. It was made higher and stronger, and in June 1888 the first loads were taken away watched by a crowd who had come to see the grand opening of the new jetty. Large cargoes could now go cheaper by sea to other ports. There was no longer a need to load and unload stone from rail wagons to ships at Conwy. But the Darbishire Company had realised how convenient and direct it was to use railways to carry stone to customers who lived far away from sea ports but close to railways.

O'r amser y daeth yn rheolwr Chwarel Graiglwyd, dechreuodd Charles Darbshire feddwl sut y gallai wneud y chwarel yn llwyddiannus. Fe sylweddolodd fod yn rhaid i'w chwarel fod cystal â, os nad yn well na Chwarel Penmaen. Roedd y ddwy chwarel yn gwneud yr un cynhyrchion cerrig: setiau, cerrig torri, cerrig adeiladu a 'metlin'. Mae'n rhaid bod Charles wedi meddwl tybed i beth arall y byddai'r graig galed yn gallu cael ei defnyddio.

Fe glywodd am **beiriant â phŵer stêm** a oedd yn malu craig yn ddarnau bychain o graig neu 'facadam'. Fe ymwelodd â chwarel yn Swydd Gaerlŷr ym 1881 lle'r oedd un wedi bod ar waith am nifer o flynyddoedd. Fe greodd y peiriant argraff arno. Dyma oedd y ffordd gyflymaf o dorri cerrig er mwyn eu gwneud yn addas i'w gwasgaru ar wynebau ffyrdd a llwybrau. Flwyddyn yn ddiweddarach, fe welodd beiriant malu gwahanol ar waith ac fe benderfynodd brynu un cyn gynted â phosib. Un bach ydoedd, ac roedd yn bosib mynd ag ef at y ffordd lle'r oedd angen wyneb newydd o facadam.

Peiriannau mathru â phŵer stêm oedd yr ateb i gynhyrchu symiau uchel o facadam. Macadam oedd ar y rheiny oedd yn adeiladu ac yn trwsio ffyrdd ei eisiau. Macadam oedd y cynnyrch cerrig yr oedd ar y cwmnïau rheilffyrdd ei eisiau i'w osod fel balast ar eu rheilffyrdd. Rhwng 1888 a 1889 cafodd melin falu newydd a llawer mwy ei hadeiladu ym Mraichllwyd gan y Cwmni a'r holl facadam a gynhyrchwyd yn cael ei werthu i'r **London and North Western Railway Company**. Fe adawodd y trên cyntaf â'i lond o falast rheilffordd Gei Rheilffordd Graiglwyd ar Awst 15, 1889. Ers y diwrnod hwnnw mae wagenni wedi'u llwytho â balast wedi bod yn gadael Penmaenmawr yn rheolaidd, yn ddyddiol weithiau.

Ym 1891 fe gafodd y locomotif stêm cyntaf ei gyflwyno i wthio wagenni yn ôl ac ymlaen yn Y Gloch. Locomotif syml iawn ydoedd - doedd dim gorchudd arbennig dros y boeler a dim cysgod rhag y tywydd i yrrwr yr injan. Roedd yr injan a rhai eraill a brynwyd yn nes ymlaen yn cael eu galw'n 'Botiau Coffi' oherwydd y ffordd yr oeddent yn edrych.

Cynyddu wnaeth y galw am facadam. Ym 1900 cafodd hopran fawr - adeilad i gadw macadam - ei adeiladu dros y seidins. Roedd yn gallu dan 3,000 o dunelli o gerrig a'r rheiny'n gallu cael eu llwytho'n uniongyrchol i wagenni ar y brif reilffordd neu i wagenni llai a oedd yn mynd â cherrig i lawr i'r jeti i'r llongau a oedd yn aros.

Yn yr un flwyddyn cafodd peiriant mathru arall ei adeiladu er mwyn ymateb i'r galw. Cafodd hwn ei godi rhwng yr Hen Chwarel a Nant Dywyll mewn lle o'r enw Penmarian.

Roedd y peiriant mathru â phŵer stêm yn cael ei fwydo â cherrig o'r 'Hen Chwarel' yn bennaf. Mae'r garreg fan hyn yn arbennig iawn. Hon yw'r galetaf ym Mhrydain ac mae'n weddol hawdd i'w throï'n setiau. Ond, mae'r garreg wedi'i gwneud o grisialau mân iawn sy'n rhoi wyneb llyfn iawn iddi. Roedd y setiau a oedd yn cael eu gwneud ohoni'n rhy llithrig. Cafwyd llawer o gwynion bod ceffylau â phedolau haearn yn llithro ar y setiau ac yn torri'u coesau! Bu'n rhaid rhoi diwedd ar y gwaith creu setiau. Ond roedd y graig yma'n gwneud ymylfeini gwyth a chapanau gwyth ar gyfer drysau a ffenestri ac yn gwneud macadam ardderchog.

Erbyn dechrau'r 20fed ganrif roedd 400 o ddynion yn gweithio yn Graiglwyd a 500 ym Mhenmaen. Gan fod y ddau gwmni'n gwneud yr un cynnyrch roedd cystadleuaeth frwd rhwng y ddau. Am flynyddoedd

nhw'n galed i wella'r ffordd yr oedd eu cynhyrchion yn cael eu gwneud - phŵer stêm, peiriannau mathru, locomotifau, dulliau llwytho gwell ac yn y blaen. Roeddent hyd yn oed yn ysbio ar ei gilydd! Roeddent yn gwylio sawl llond wagen oedd yn gadael y seidins a faint o longau oedd yn cael eu llwytho yn y jetiau. Roedd ganddyn nhw 'ysbiwyr' yn Lerpwl i ganfod pwy oedd yn prynu'r cerrig a faint oeddent yn ei dalu.

Ar ôl 1900 roedd llai o alw am setiau. Roedd cynllunwyr trefi'n dod o hyd i ffyrdd cyflymach a rhatach o roi wyneb ar ffyrdd. Macadam a'r cerrig wedi'u malu'n fannach o'r enw chipins oedd y prif gynnyrch erbyn hyn. Erbyn 1911 roedd cwmnïau Graiglwyd a Phenmaen wedi sylweddoli y byddai uno â'i gilydd yn eu gwneud yn gwmni mwy effeithlon a phroffidiol ac yn golygu y byddent yn gallu rhannu syniadau newydd a fyddai'n cael eu datblygu ym myd y chwarel. Fe wnaethon nhw a chwmni arall, y Welsh Granite Co. o Drefor, ffurfio'r Penmaenmawr and Welsh Granite Company.

Roedd dyddiau'r Darbshire Company wedi dod i ben ond byddai'r teulu Darbshire yn dal i chwarae rhan yn y cwmni newydd am hanner can mlynedd arall.

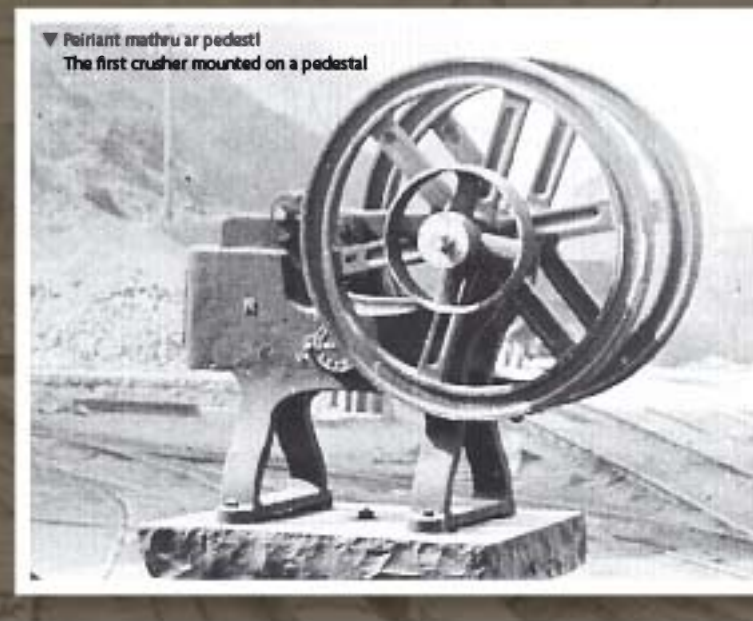
▼ Injan 'Coffi Pot' gyda'i gyrrwr a'i brentis
'Coffee Pot' locomotive with driver and apprentice



From the time he became manager of Graiglwyd Quarry, Charles Darbshire began to think how to make the quarry successful. He realised that his quarry had to be as good as, if not better than, the Penmaen Quarry. Both quarries made the same stone products: setts, breakers, building stone and 'metlin'. Charles must have thought what other use could be made of the hard rock.

He heard of a **steam powered machine** which crushed rock into small pieces of rock or macadam. He visited a quarry in Leicestershire in 1881 where one had been working for many years. He was impressed. This was the quickest way to break up stones suitable for spreading on the surface of roads and paths. A year later he saw a different crusher at work and decided to buy one as soon as possible. It was small and could be taken to the road which needed a new surface of macadam.

Steam-powered crushers were the answer to producing large quantities of macadam. It was macadam that was wanted by those who built and repaired roads. Macadam was the stone product wanted by the railway companies to place as ballast on their railway lines. Between 1888 and 1889 a new and much larger crushing mill was built at Braichllwyd by the Company with all the macadam produced sold to the **London and North Western Railway Company**. The first train-load of railway ballast left Graiglwyd Railway Quay on August 15, 1889. Since that day wagons loaded with ballast have regularly left Penmaenmawr, sometimes daily.



In 1891 the first steam locomotive was introduced to shunt wagons to and fro at Bell Yard. It was a very simple locomotive - no special cover over the boiler and no protection from the weather for the engine driver. This engine and others that were bought later were called 'Coffee Pots' because of their appearance.

The demand for macadam increased. In 1900 a large hopper - a building for storing macadam - was built over the railway sidings. It could hold 3,000 tons of stone which could be loaded directly into main railway wagons or into smaller wagons that took stone down to the jetty to waiting ships.

In the same year another crusher was built to keep up with the demand. This was erected between the Old Quarry and Nant Dywyll at a place called Penmarian. The steam-powered crusher was fed with stone mainly from the 'Old Quarry'. The stone here is very special. It is the hardest in Britain and made into setts quite easily. But, the stone is made of very fine crystals which give it a very smooth surface. The setts made of it were too slippery. There were many complaints that iron-shod horses slipped on the setts and broke their legs! There had to be an end to sett-making there. But the rock here made excellent kerb stones and lintels for doors and windows and made excellent macadam.

By the beginning of the 20th century there were 400 men working at Graiglwyd and 500 at Penmaen. Since both companies made the same product there was strong competition between the two. For years they worked hard at improving how their products were made - steam-power, crushers, locomotives, better loading methods and so on. They even spied on each other! They watched how many wagon-loads left the railway sidings and how many ships were loaded at the jetties. They had 'spies' in Liverpool to find out who was buying the stone and how much was being paid.

After 1900 there was less of a demand for setts. Town planners were discovering quicker and cheaper ways of surfacing roads. Macadam and the smaller crushed stone called chippings had become the main product. By 1911 both the Graiglwyd and Penmaen companies had realised that if they joined together they would make a more efficient and profitable company and be able to share the developments of new ideas in quarrying. They, with another company, the Welsh Granite Co. of Trefor, formed the Penmaenmawr and Welsh Granite Company.

The days of the Darbshire Company had come to an end but the Darbshire family were to be involved in the new company for another 50 years.



▲ Ysgol Pencae cyn 1930 Pencae School pre 1930



▲ Plas Mawr

Y Teulu Darbshire

Daeth y teulu Darbshire i blwyf Dwygyfylchi am y tro cyntaf ym 1854. Roedd y penteulu, Samuel Dukinfield Darbshire, yn gyfreithiwr o Fanceinion a oedd yn gweithio fel cyfreithiwr i'r Chester and Holyhead Railway Company tra'r oedd y rheilffordd rhwng y ddwy dref yn cael ei hadeiladu rhwng 1847 a 1849.

Cafodd Samuel ei ddenu i arfordir Gogledd Cymru a bu'n byw yn gyntaf ym Mae Colwyn cyn prynu ystâd Pendyffryn gan y teulu Smith. Roedd gan yr ystâd ffermydd yng ngorllewin a dwyrain plwyf Dwygyfylchi ac roedd yn berchen ar dri blasty, sef Plas Pendyffryn, Plas Mawr a Phlâs Celyn.

Roedd y rhan fwyaf o'r tirfeddianwyr ar yr adeg hon yn Anglicaniaid, hynny yw aelodaeth o Eglwys Loegr, ond Undodiaid oedd y teulu Darbshire. Fel **Undodiaid** byddent yn cael eu galw'n Anghydfurfwyr neu'n Ymneilltuwyr, a oedd yn golygu nad oeddent yn Anglicaniaid. Ym Manceinion, roedd Samuel wedi bod yn gysylltiedig â hybu addysg ar gyfer plant tlottach ac roedd yn ymddiddori'n arbennig mewn addysg wyddonol a thechnolegol. Yn fuan ar ôl cyrraedd y plwyf, fe adeiladodd 'Ysgol i Ymneilltuwyr' ar eu hystâd yng Nglanrafon ynghyd â thŷ i brifathro. Daeth yr ysgol i fod yn gapel i Anghydfurfwyr ar ddydd Sul. Un o'r gweinidogion mwyaf enwog i bregethu yno oedd y Parchedig Gaskell, perthynas i'r teulu Darbshire y bu i'w wraig, Elizabeth Gaskell, ddod yn nofelydd enwog.

Erbyn y 1870au roedd yr ysgol yn cael ei hariannu gan Gymdeithas yr Ysgolion Prydeinig a Thramor yn ogystal â'r teulu Darbshire. Enw'r ysgol bellach oedd Ysgol Brydeinig **Glanrafon**. Ym 1884 cafodd Ysgol Brydeinig newydd ei hagor ym **Mhencae** ar dir y teulu Darbshire ac fe roddon nhw £2,000 (sy'n werth £140,000 yn 2008) tuag at ei hadeiladu.

Roedd Samuel yn cefnogi'r Blaid Ryddfrydol a daeth yn ffrind i William Ewart Gladstone, un o'r Aelodau Seneddol Rhyddfrydol pwysicaf. Bu Mr Gladstone yn byw yng Nghastell Penarlâg yn Sir y Fflint ac ym 1852 cafodd ei wneud yn Ganghellor y Trysorlys. Ym 1855 daeth i Benmaenmawr ar ei wyliau. Daeth i'r ardal ar ei wyliau nifer o weithiau yn y blynyddoedd ar ôl hynny. Aeth ar sawl ymweliad â Phendyffryn ac fe dreuliodd nifer o oriau'n trafod crefydd a gwleidyddiaeth gyda Samuel, a wnaeth ei orau i annog Mr Gladstone a'i deulu i dreulio'u gwyliau ym Mhenmaenmawr.

Bu farw Samuel Darbshire ym 1870 ond fe wnaeth y teulu barhau i fyw ym Mhendyffryn. Ym 1878 fe brynodd y teulu Chwarel Graiglwyd gan Henry Kneeshaw a'i bartneriaid. Roedd angen llawer o arian i ddatblygu'r chwarel. Fe wnaeth y teulu Darbshire godi'r arian trwy werthu rhannau o'u hystâd ym 1881. Daeth Charles Henry Darbshire, mab

Samuel, yn rheolwr y chwarel pan oedd yn 34 mlwydd oed. Roedd yn beiriannydd a oedd wedi gweithio ar brosiectau adeiladu rheilffyrdd ym Mhrydain ac yn yr Alpau yn Swistir ac roedd wedi helpu ei frawd i reoli Chwarel Lechi Penyrsedd yn Nyffryn Nantlle. Roedd yn ddyn tal a chryf. Fe ddangosodd ei gryfder trwy lwyddo'n aml i ennill cystadleuaeth yn Nwygyfylchi a oedd yn golygu codi carreg arbennig, sef 'Y Garreg Gamp', dros ei ben (mae'r garreg, sy'n garreg fawr, lefn, i'w gweld yng ngerddi Neuadd Eden ym Mhenmaenmawr). Roedd yn aml yn mynd o amgylch chwarel Graiglwyd yn helpu ei ddynion i wthio wagenni wedi'u llwytho a thorri cerrig â morthwylion trwm.

Roedd Charles yn briod gyda Lilian ac roedd ganddynt wyth o blant. Buont yn byw i ddechrau ym **Mhlas Celyn** cyn ymgartrefu fel teulu ym Mhlas Mawr. Dechreuodd ymddiddori yn y ffordd yr oedd Penmaenmawr yn datblygu fel tref chwarel ac fel tref lan-môr. Daeth yn aelod o'r cyngor tref lleol ac yn Gyngorydd Sir cyntaf Penmaenmawr ym 1890. Fe adeiladodd ef a'i deulu dai i'r chwarelwyr a'u teuluoedd. Fe adeiladodd neuadd i bobl ifanc y dref, fe ddarparodd gaban i'r sgowtiaid ac fe adeiladodd Neuadd Ymarfer i'r **Uned o'r Fyddin Wirfoddol** a sefydlodd ym 1901 ac fe ddaeth yn Gyrnol yr Uned hon. Fe wnaeth hyd yn oed geisio uno gyda nhw i fynd i ryfel ym 1915 ac yntau'n 70. Pan gafodd ei wrthod, fe brynodd wisg milwr preifat ac fe brynodd docynnau i hwylio i'r Aifft lle'r oedd 'ei wirfoddolwyr' wedi cael eu hanfon. Cafodd ei wrthod o hyd a'i anfon adref. Roedd ef a'i deulu'n cefnogi digwyddiadau lleol megis garddwesti a chyngherddau.

Pan fu farw ym 1929 roedd wedi chwarae rhan weithredol yn natblygiad y chwarel ac yn natblygiad bywyd cymdeithasol, byd addysg a byd y campau ym Mhenmaenmawr am hanner can mlynedd.



The Darbshire Family

The Darbshire family first came to the parish of Dwygyfylchi in 1854. The head of the family, Samuel Dukinfield Darbshire, was a Manchester solicitor who was solicitor for the Chester and Holyhead Railway Company during the construction of the railway between the two towns from 1847 to 1849.

◀ Col Darbshire yn ei wisg milwrol Col Darbshire in uniform of a private soldier

Samuel was attracted to the North Wales coast and at first lived in Colwyn Bay before buying the Pendyffryn estate from the Smith family. The estate had farms in the west and east of the parish of Dwygyfylchi and the three mansions of Plas Pendyffryn, Plas Mawr and Plas Celyn.

Most landowners at this time were Anglicans, that is, members of the Church of England, but the Darbshires were Unitarians. As **Unitarians** they would be called Non-Conformists or Dissenters, which meant that they were not Anglicans. In Manchester, Samuel had been involved in encouraging the education of poorer children and was especially interested in scientific and technical education. Soon after his arrival in the parish he built a 'School for Dissenters' on their estate at Glanrafon with a house for a headmaster. The school became a chapel for Unitarians on Sundays. One of the most famous ministers to preach there was the Reverend Gaskell, a relation of the Darbshires and whose wife, Mrs Elizabeth Gaskell, became famous as a writer of novels.

By the 1870s the school was supported by the British and Foreign School Society as well as the Darbshires. The school was now known as the **Glanrafon** British School. In 1884 a new British School was opened at **Pencae** on Darbshire land and they also gave £2,000 (value in 2008 is £140,000) for its construction.



Samuel was a supporter of the Liberal Party and was to become a friend of William Ewart Gladstone, one of the most important Liberal Members of Parliament. Mr Gladstone lived at Hawarden Castle in Flintshire and in 1852 he was made Chancellor of the Exchequer. In 1855 he came to Penmaenmawr on holiday. This was the first of many in the years to come. He made many visits to Pendyffryn and spent many hours discussing religion

At his death in 1929 he had been active in the development of the quarry, the social, educational and sporting life of Penmaenmawr for fifty years.

▲ Samuel Darbshire

and politics with Samuel, who did his best to encourage Mr Gladstone and his family to spend their holidays in Penmaenmawr.

Samuel Darbshire died in 1870 but the family continued to live at Pendyffryn. The family in 1878 bought the Graiglwyd Quarry from Henry Kneeshaw and his partners. A lot of money was needed to develop the quarry. The Darbshires raised the money by selling parts of their estate in 1881.

Charles Henry Darbshire, the son of Samuel, became the manager of the quarry at the age of 34. He was an engineer who had worked on building railways in Britain and the Swiss Alps and had helped his brother to manage Penyrsedd Slate Quarry in Dyffryn Nantlle. He was a tall and powerfully-built man. He showed his strength by frequently winning the contest held in Dwygyfylchi which involved lifting a special stone called 'Y Garreg Gamp' (The Feat of Strength Stone) over ones' head (the stone, which is a large, smooth boulder, can be seen in Eden Hall gardens in Penmaenmawr). He often went around Graiglwyd quarry helping his men to push loaded wagons and breaking stones with heavy hammers.

Charles was married to Lilian and they had eight children. At first they lived at **Plas Celyn** before making Plas Mawr their family home. He became interested in the way Penmaenmawr was developing as a quarrying town and as a seaside resort. He became a member of the local town council and Penmaenmawr's first County Council member in 1890. He and his company built houses for the quarrymen and their families. He built a hall for the youth of the town, provided a hut for the scout group and built a Drill Hall for the **Volunteer Army Unit** which he established in 1901 and became their Colonel. He even tried to join up with them to go to war in 1915 at the age of 70. When he was refused, he bought the uniform of a private soldier and bought tickets to sail to Egypt where 'his volunteers' had been sent. He was still refused and sent home. He and his family supported local events such as garden fetes and concerts.



▲ 'Yr Hen Waith' Graiglwyd 'Old Quarry' Graiglwyd

01 O'r Gwaith i'r Glannau

Cafodd y ffotograff yma'i dynnu ym 1907. Mae'n dangos 'ponc', hynny yw y rhan o'r mynydd sy'n cael ei chloddio. Yr enwau eraill sy'n cael eu defnyddio yw 'teras' a 'llawr chwarel'.

I'r dde o'r ffotograff mae'r talcen sydd wedi cael ei ffurfio trwy dyllu ochr y mynydd a'i chwythu â ffrwydron. Mae'n lle peryglus i weithio ac mae'r lle oddi tano hefyd yn lle peryglus i weithio. Ar waelod y talcen mae'r creigiau sydd wedi disgyn yn dilyn chwythu'r graig. Wrth ymyl y creigiau sydd wedi disgyn mae wagenni'n llawn darnau llai o greigiau. Maen nhw wedi cael eu torri o greigiau mwy gan ddefnyddio morthwylion llaw.

Mae'r wagenni'n sefyll ar rêls sy'n arwain at reilffordd sy'n rhedeg ar hyd ymyl y bonc. Mae'r rheilffordd hon yn arwain at reilffordd inclên sy'n rhedeg i lawr y mynydd i felin falu Penmarian neu i lawr i'r jeti môr neu'r iard reilffordd.

03 O'r Gwaith i'r Glannau

Mae'r ffotograff hwn o Felin Penmarian, a dynnwyd ym 1907, yn dangos yr inclêns serth yn arwain i lawr i'r jeti a'r seidins.

Mae'r llinellau rheilffordd sy'n croesi'r inclên ar waelod y ffotograff yn arwain at Nant Dywyll ar y chwith a'r Hen Waith ar y dde. Mae'r tri dyn sy'n sefyll yn nhu blaen y wagen lwythog ar fin cael pas i lawr yr inclên serth. Roedd llwybr igam-ogam i'r gweithwyr fynd i fyny ac i lawr ond roedd yn well gan lawer gael pas ar wagen. Roedd wagen arbennig â seddi ynddo i gario ymwelwyr arbennig ar yr inclêns.



▲ Nant Dywyll

02 O'r Gwaith i'r Glannau

Dyma Nant Dywyll lle'r oedd y setiau gorau'n cael eu gwneud. Roedd y llechwedd yma'n lle rhy dywyll i dynnu lluniau da ac yn lle oer i weithio ynddo. Mae Nant Dywyll yn ddisgrifiad da o'r lle.

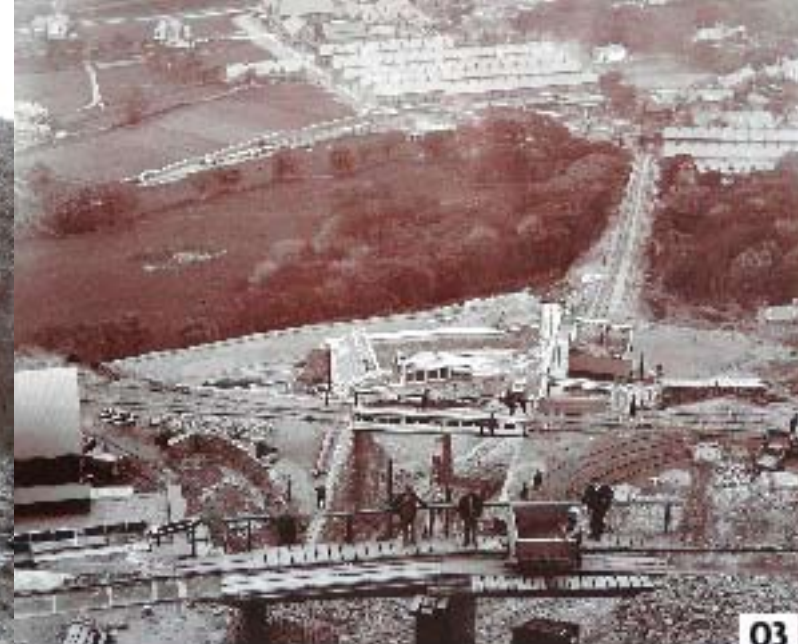
Gan ddechrau yn rhan uchaf y ffotograff a dynnwyd ym 1907, rydych yn gallu gweld bod y chwarel wedi'i gwneud o lorïau a phonciau wedi'u naddu yn y llechwedd serth. Yma fe gafodd cyfanswm o chwech o bonciau'u creu rhwng 1834 a 1900.

Yn hanner gwaelod y llun fe welwch lawr gweithio prysur yn y chwarel. Mae dynion i'w gweld ochr yn ochr â wagenni. Mae'r rêls yn arwain oddi wrth y graig. Mae pentyrrau o gerrig wrth ochr y rêls. Setiau yw'r rhain sy'n barod i gael eu cludo i ffwydd.

04 O'r Gwaith i'r Glannau

Mae'r ffotograff hwn a gafodd ei dynnu ym 1907 yn dangos Melin Penmarian. Roedd yn sefyll rhwng yr Hen Waith a Nant Dywyll, ac roedd rheilffordd yn ei chysylltu â'r chwareli hyn. Y tu mewn i'r casgliad cymhleth hwn o adeiladau sydd wedi'u gwneud o gerrig y chwarel a dalennau o haearn rhychog mae peiriant malu.

Roedd cerrig, o'r 'Hen Waith' yn bennaf, yn cael eu cludo yma i gael eu malu'n facadam a chipins. Roedd y peiriant mathru'n cael ei yrru gan injan stêm. Ym 1912 dechreuodd tân difrifol; cafodd y peiriant mathru ei ddinistrio a bu farw un dyn. Cafodd y peiriant mathru ei ailadeilladu fel un a oedd yn cael ei yrru gan drydan.



01 From Quarry Face to the Shore

This photograph was taken in 1907. It shows a 'bank', that is, the part of the mountain that is being quarried. Other names used are 'terrace' and 'quarry floor'.

To the right of the photograph we have the quarry face which has been formed by the hillside being drilled and blasted with explosives. It is a dangerous place to work on or below. At the bottom or base of the face are rocks which have fallen after blasting. Next to the fallen rocks are wagons with smaller pieces of rocks. They have been broken up from larger rocks using hand-held hammers.

The wagons stand on rails which lead to a rail running along the edge of the bank. This rail leads to an incline railway which runs down the hill to Penmarian crushing mill or down to the sea jetty or railway yard.

03 From Quarry Face to the Shore

Taken in 1907, this photograph from Penmarian Mill shows the steep inclines leading down to the jetty and the railway sidings.

The railway lines crossing over the incline at the bottom of the photograph lead to Nant Dywyll to the left and Old Quarries to the right. The three men standing at the front of the loaded wagon are about to have a ride down the steep incline. There was a zig-zag path for the workers to go up and down but many preferred to hitch a ride on a wagon. There was a wagon with seats in it to carry special visitors on the inclines.



02 From Quarry Face to the Shore

This is Nant Dywyll where the best setts were made. The hillside here was a dark and cold place to work in. Nant Dywyll (The Dark Hollow) is a good description of the place.

Starting at the top of the photograph which was taken in 1907, you can see how the quarry is made of terraces or banks cut into the steep hillside. Here six terraces were made altogether between 1834 and 1900.

At the bottom half of the photograph can be seen a busy quarry working floor. Men can be seen alongside wagons. The rails lead away from the rock face. There are piles of stones alongside the rails. These are setts ready to be taken away.

04 From Quarry Face to the Shore

This photograph of 1907 shows Penmarian Mill. It stood between the Old Quarry and Nant Dywyll, to which it was connected by rail. Inside this complicated collection of buildings built of quarry stone and corrugated iron sheets is a crushing machine.

Stone, mainly from the 'Old Quarry', was brought here to be crushed into macadam and chippings. The crusher was powered by a steam engine. In 1912 a serious fire broke out; the crusher was destroyed and one man died. It was rebuilt and powered by electricity.



05 O'r Gwaith i'r Glannau

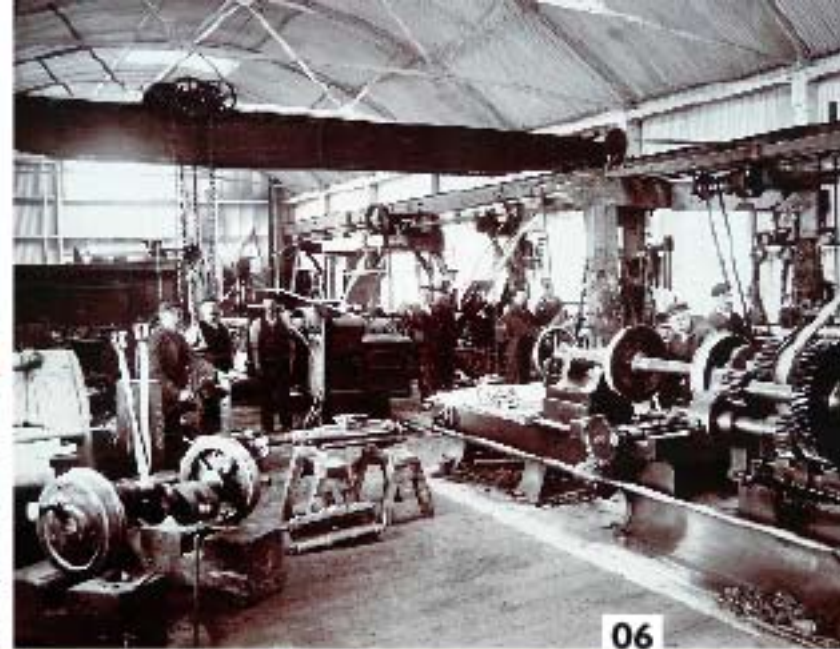
Melin Braichllwyd oedd y felin falu gyntaf i gael ei hadeiladu gan y Darbshire Company. Cafodd ei hadeiladu ar y ffin rhwng eu tir a'r tir oedd yn cael ei gloddio gan y Penmaen Company sydd i'w weld yn y cefndir.

Mae'r adeilad sy'n dal y peiriant mathru yn y cefn ar y chwith. Yr adeilad o'i flaen yw'r siop trwsio lle'r oedd peiriannau'r chwarel yn cael eu trwsio. Yma hefyd roedd 'siop' gof a 'siop' saer. 'Caban Lluch' yw'r adeilad ar y dde, ac yma byddai lluch mân oedd yn cael ei greu gan y peiriant mathru'n cael ei chwythu ar hyd pibellau hir.

Mae dau locomotif stêm i'w gweld. Ar y chwith mae locomotif Tanc Cyfrwy gan gwmni Hunslet ynghyd â chab a oedd yn rhoi rhywfaint o gysgod i'r gyrrwr rhag mwg, stêm, lluch, gwynt a glaw. Ar y chwith mae locomotif 'Pot Coffi' a gafodd ei adeiladu gan y de Winton Company, Caernarfon.

06 O'r Gwaith i'r Glannau

Y Siop Trwsio yw hon. Turnau yw'r peiriannau sydd i'w gweld. Mae'r dynion yn y llun yn beirianwyr medrus iawn. Roeddent nid yn unig yn trwsio offer ond hefyd yn cynllunio ac yn gwneud peiriannau ac roedd hynny'n arbed llawer o arian i'r Darbshire Company.



07 O'r Gwaith i'r Glannau

Dyma iard Y Gloch fel yr oedd ym 1907. Roedd cloch yn cael ei chanu yma yn y dyddiau cynnar ar ôl i'r teulu Darbshire ddod yn berchen ar y chwarel ac roedd hynny'n arwydd i'r dynion ddod i'r gwaith yn y bore ac yn arwydd iddynt roi'u harfau i lawr a mynd adref yn hwyr y prynhawn neu gyda'r nos.

Yn rhan uchaf y ffotograff fe welwch yr inclens serth yn dod i lawr o Felin Penmarian. Mae dau inclên ar wahân â dau 'Bréc' yn eu cysylltu â'i gilydd.

Mae 'Bréc' yn adeilad lle mae drwm mawr a rhaff neu gebl metel cryf o'i amgylch â dau ben rhydd. Mae'r ddau ben yn gallu cael eu bachu ar ddwy set o wagenni sy'n rhedeg ar linellau ar wahân ochr yn ochr â'i gilydd. Mae un set o wagenni llwythog yn cael ei ollwng i lawr inclên o'r Bréc. Mae'n teithio ar yr un cyflymder ag y mae'r drwm yn cael troi. Mae'r drwm yn cael ei reoli gan y bréc. Wrth i'r wagenni llwythog ddod i lawr, mae pen arall y cebl sydd wedi cael ei gysylltu â'r wagenni gwag yng ngodre'r inclên yn cael ei dynnu i fyny. Dylai'r wagenni llawn gyrraedd gwaelod yr inclên yr un pryd ac y mae'r rhai gwag yn cyrraedd y brig.

Pan fo'u taith fer, serth yn dod i ben, maen nhw'n cael eu dadfachu oddi ar y cebl. Yn Y Gloch roedd yn rhaid i'r wagenni gael eu cysylltu â chebl arall a oedd yn mynd â nhw i fyny neu i lawr inclên eraill. Roedd newid y ceblau'n waith peryglus iawn yn wir. Roedd y dynion oedd yn gwneud hynny'n fedrus iawn ac yn gallu bachu a dadfachu'r wagenni tra bo'r ceblau rhydd yn troi ac yn gwyro fel nadroedd blin.

Yn ystod y daith o Benmarian i Geir Rheilffordd neu'r Jeti, roedd y wagenni'n teithio ar bedwar inclên ar wahân ac yn cael eu rheoli mewn pedwar Bréc. Mae'r system hon yn cael ei galw'n **inclên hunanysgogol**. Does dim angen unrhyw bŵer na ffynhonnell ynni arall heblaw am bwysau'r wagenni llwythog yn mynd i lawr.

Roedd cerrig o Fraichllwyd hefyd yn dod i iard Y Gloch, i lawr inclên yn gyntaf ac wedyn, lle'r oedd y tir yn troi'n wastad, byddai'r wagenni'n cael eu tynnu gan locomotif stêm i'r iard. Ar ochr chwith y ffotograff mae swyddfeydd Graiglwyd. Maen nhw'n dal i gael eu defnyddio heddiw (2009).



05 From Quarry Face to the Shore

Braichllwyd Mill was the first crushing mill built by the Darbshire Company. It was built on the boundary between their land and that quarried by the Penmaen Company which can be seen in the background.

The building housing the crusher is to the back on the left. The building in front of it is the repair shop where quarry machinery was repaired. Here also was a blacksmith's 'shop' and carpentry 'shop'. The building to the right is a 'Dust Hut' into which fine dust produced by crushing was blown along large pipes.

Two steam locomotives are shown. To the left is a Hunslet Saddle Tank locomotive with a cab which provided some shelter to the driver from smoke, steam, dust, wind and rain. To the right is a 'Coffee Pot' locomotive built by the de Winton Company, Caernarfon.

06 From Quarry Face to the Shore

This is the Repair Shop. The machines seen are lathes. The men in the photograph are very skilled engineers. They not only repaired equipment but designed and made machinery which saved the Darbshire Company lots of money.

07 From Quarry to the Shore

This is Bell Yard or 'Y Gloch' as it was in 1907. A bell was rung here in the early days of the Darbshire ownership which signalled the men in the morning to come to work and, in the late afternoon or evening, to return home.

At the top of the photograph you can see the steep inclines coming down from Penmarian Mill. There are two separate inclines with two **Drum Houses** or **Brake Houses** linking them together.

A Brake House (Bréc) is a building in which there is a large drum, around which is a strong metal rope or cable with two free ends. Both ends can be hooked onto two sets of wagons which run on separate lines running alongside each other. One set of wagons when loaded is lowered down an incline from a Brake House. The speed it travels is the speed that the drum is allowed to turn. This is controlled by the brake. As the loaded wagons descend, the other end of the cable attached to the empty wagons at the foot of the incline, is pulled up. The full wagons should reach the bottom of the incline at the same time as the empty ones reach the top.

When their short, steep journey ends, they are unhooked from the cable. At the Bell Yard the wagons had to join onto another cable which took them up or down other inclines. Changing the cables was a very dangerous job indeed. The men who did it were very skilled in hooking and unhooking the wagons while the loose cables swivelled and swished about like angry snakes.

On the journey from Penmarian to the Railway Quay or Jetty, the wagons travelled on four separate inclines and were controlled at four Brake Houses. This system is called a **Self-acting incline**. No other power or source of energy except the weight of the loaded wagons descending is required.

Stone from Braichllwyd also came to Bell Yard, first down an incline then, where the ground levelled, the wagons were brought by steam locomotive to the yard. To the left of the photograph are the Graiglwyd offices. They are still being used today (2009).



▲ Cei Rheilffordd Graiglwyd Railway Quay

08 O'r Gwaith i'r Glannau

Cafodd y ffotograff hwn o Gei'r Rheilffordd neu'r Seidins ei dynnu ym 1907. Yn y pen pellaf ar y dde mae'r brif reilffordd rhwng Llundain a Chaergybi a oedd yn cael ei rhedeg ar y pryd gan y London and North Western Railway Company.

Yn y pen pellaf ar y chwith mae dau jeti'n arwain o'r promenâd dros y cerrig crwn at y tywod. Newydd gael ei adeiladu y mae'r promenâd newydd. Yn y canol mae'r seidins sy'n perthyn i'r Darbishire Company. Roedd wagenni a oedd yn dod â cherrig i lawr yr inclens o'r graig yn cael eu dadlwytho yma a'r cerrig yn cael eu rhoi mewn ystorfa fawr neu hopran. O'r fan hon roedd wagenni mwy ar y brif reilffordd yn cael eu llwytho. Roedd cerrig wedi'u malu'n dod ar hyd llythrennau ac i mewn i'r wagenni wrth iddynt fynd o dan yr hopran.



▲ Llwytho llongau ar Jeti Graiglwyd Ships loading at Graiglwyd Jetty

A wyddoch chi?

Sut y cafodd y graig ei ffurfio?

Roedd y graig ar un adeg yn lafa tawdd a oedd wedi'i ddal ar waelod llosgfynyddoedd yng nghramen uchaf y ddaear. Fe arhosodd yno am ganrifoedd gan oeri'n araf nes iddo droi'n graig solet. Dros nifer o filoedd o flynyddoedd fe wisgodd y graig feddalach uwch ei phen ac o'i hamgylch a gafodd ei ffurfio 300 miliwn o flynyddoedd yn ôl, gan adael y graig folcanig galed ar yr wyneb. Erbyn hyn y graig hon, sef y galetaf ym Mhrydain, yw Graiglwyd a Phenmaenmawr a'r cefn rhyngddynt. Ond nid yw'r graig union yr un fath ym mhobman. Mae craig Graiglwyd wedi'i gwneud o grisialau bach iawn sy'n ei gwneud yn llyfn pan fydd yn cael ei chloddio. Mae'r graig ar hyd y cefn ac yn Nant Dywyll ac yna ym Mhenmaenmawr wedi'i gwneud o grisialau mwy ac mae felly'n edrych yn fwy 'garw' pan fydd yn cael ei thorri.

09 O'r Gwaith i'r Glannau

Dyma Jeti Graiglwyd ym 1907. Cafodd y jeti'i ailadeiladu ym 1888.

Roedd y jeti gwreiddiol ar yr un lefel â'r llwybr neu'r promenâd sy'n rhedeg ar hyd y glannau. Roedd yn rhaid i bobl groesi'r rêls wrth fynd am dro. Cafodd y jeti newydd ei godi'n uwch na'r llawr, a oedd yn ei gwneud yn bosib i bobl gerdded oddi tano. Roedd hefyd yn golygu bod llethr graddol a oedd yn ei gwneud yn hawdd gwrthio'r wagenni i ben draw'r jeti ar gyfer eu dadlwytho.

Roedd cerrig wedi'u malu'n fân yn cael eu tipio allan o'r wagenni ar lithren ac i mewn i howldiau'r llongau. Roedd yn rhaid i'r setiau gael eu llwytho i mewn i'r llongau â llaw. Byddai eu tipio i gyd ar unwaith o wagen yn achosi difrod i'w hymylon, a oedd wedi'u trimio'n ofalus.

10 O'r Gwaith i'r Glannau

Mae'r ffotograff a dynnwyd ym 1907 yn dangos ardal o'r enw 'Cae Fflags'. Yma ym 1897 fe ddechreuodd y Darbishire Company wneud fflacs concrit.

Cafodd cwmni newydd, 'The Perfect Pavement Co Ltd', ei ffurfio i redeg y gwaith cynhyrchu fflags, ond bu'n rhaid iddo gau ym 1912. Serch hynny, cafodd briciau concrit eu gwneud yma wedi hynny.

Ar y dde mae'r hopran dal lle'r oedd y cerrig yn cael eu cadw cyn eu llwytho i mewn i'r wagenni er mwyn eu cludo ar hyd y rheilffordd neu ar y môr.



▲ Jeti Graiglwyd gyda Cae Fflags Graiglwyd Jetty with 'Cae Fflags'

08 From Quarry Face to the Shore

This photograph of the Railway Quay or Sidings was taken in 1907. To the far right is the main London to Holyhead railway line which was operated at the time by the London and North Western Railway Company.

To the far left are two jetties leading from the promenade over the pebbles onto the sands. The new promenade has just been built. In the centre are the sidings belonging to the Darbishire Company. Wagons bringing stone down the inclines from the quarry face were unloaded here into a large storage building or hopper. From here, larger main line wagons were loaded. Crushed stone passed down chutes into wagons as they went under the hopper.

09 From Quarry Face to the Shore

This is Graiglwyd Jetty in 1907. The jetty was rebuilt in 1888.

The first jetty was on the same level as the path or promenade running along the shore. People had to cross the lines when going for a walk. The new jetty was raised above the ground, which allowed people to walk underneath. It also meant that there was a gentle slope on which wagons could be pushed easily to the end of the jetty for unloading.

Crushed stone was tipped out of the wagons onto a chute and into the holds of the ships. Setts had to be loaded into the ships by hand. To tip them all at once from a wagon would damage their carefully trimmed edges.

10 From Quarry Face to the Shore

The photograph taken in 1907 shows an area called 'Cae Fflags' or the field of the flagstones. Here in 1897 the Darbishire Company began making concrete flagstones from dust produced during crushing operations.

A new company, 'The Perfect Pavement Co Ltd', was formed to operate the flag works, but it had to close down in 1912. However, concrete bricks were made here later.

To the right is the tall hopper where stone was stored before being loaded into wagons for delivery by rail or sea.

Did you know?

How was it formed?

The rock was once molten lava which was trapped at the base of volcanoes within the earth's upper crust. It remained there for centuries slowly cooling down until it became solid rock. Over many thousands of years the softer rock which was formed 300 million years ago above and around wore away, leaving the hard volcanic rock on the surface. This rock, the hardest in Britain, now forms Graiglwyd and Penmaen Mawr and the ridge between them. But the rock is not exactly the same everywhere. Graiglwyd rock is made up of very small crystals which make it smooth when quarried. The rock along the ridge and Nant Dywyll and then Penmaenmawr is made of larger crystals and is therefore 'rougher' in appearance when cut.



▲ Roedd tadau yn mynd a'u bechgyn gyda nhw i'r chwarel enwedig yn ystod y gwyliau ysgol
Fathers often took their sons to work with them especially during school holidays.



▲ Tyllwyr Graiglwyd. Sylwch ar y dyn gyda'i fiwgl ar y chwith.
Drillers at Graiglwyd. Note the man on the left with the bugle.

Roedden Nhw'n Gweithio yn y Chwarel

Tyllwyr a Chreigwyr

Mae chwarela'n dechrau ar y graig. Dyma lle mae tyllau'n cael eu gwneud yn y graig solet yn barod i'w llenwi â ffrwydryn. Pan fydd y ffrwydryn yn cael ei danio, bydd y graig yn hollti ac yn syrthio i waelod y graig – llawr y chwarel.

Roedd hwn yn waith peryglus: gweithio ar glogwyn fertigol ar uchder o 100 troedfedd gan obeithio na fyddai'r rhaff yr oeddech wedi'ch clymu'n sownd ynddi'n torri; gan obeithio na fyddai darnau rhydd o greigiau'n syrthio ar eich pen: gan obeithio na fydddech yn taro'ch llaw â morthwyl trwm; gan obeithio na fydddech yn agor eich dwylo ar greigiau miniog a oedd newydd eu chwythu. O ran cyfarpar roedd ganddo raff gref oedd yn ei ddal ar y graig. Roedd hon wedi'i chlymu'n sownd mewn trosol metel oedd wedi'i guro i mewn i'r graig uwch ei ben. Os oedd yn gweithio gyda rhywun arall ar y graig roeddent yn gwneud gwaith 'dwbl hand', hynny yw un yn dal y cŷn hir tra bo'r llall yn anelu'r morthwyl oedd yn pwyso 5lbs (92.5kg). Weithiau byddai dau ddyn yn sefyll ar blatfform pren oedd yn sownd yn y graig. Yn dilyn pob ergyd yn erbyn yr ebill, byddai'r sawl oedd yn ei ddal yn rhoi tro iddo cyn yr ergyd nesaf. Roedd gwaith 'sengal hand' i'w gael hefyd. Gyda'r gwaith hwn byddai dynion oedd yn gweithio ar eu pennau'u hunain yn tyllu ac yn chwythu creigiau mawr a oedd wedi disgyn ar lawr y chwarel ac a oedd yn rhy fawr i gael eu torri â morthwylion.

Rhoi'r 'llenwad' neu'r ffrwydryn yn y twll oedd y cam nesaf. Y ffrwydryn cyntaf i gael ei ddefnyddio oedd powdwr du. Roedd hwn yn cael ei gadw mewn baril neu gasgen yn agos at y man lle'r oedd y tyllwyr yn gweithio. Roedd hwn yn cael ei wthio i lawr y twll â ffon bren. Wedyn roedd ffiws yn cael ei roi yn y powdwr du yn y twll, ac roedd popeth yn barod ar gyfer tanio'r powdwr a ffrwydro'r graig.

Roedd y chwythu'n digwydd ar amser penodol yn ystod y dydd ac roedd yn rhaid rhoi rhybudd i'r holl weithwyr ar lawr y chwarel. Roedd hyn yn cael ei wneud gan **ddyn a chanddo fiwgl**. Roedd galwad gyntaf y biwgl yn rhybuddio pawb bod chwythu ar fin digwydd. Roedd yn dweud wrth ddynion am ddod i hyd i gysgod rhag y cerrig a fyddai'n neidio drwy'r awyr ar ôl y ffrwydrad. Roedd ail alwad y biwgl bum munud yn ddiweddarach yn rhybuddio bod ffiwsys yn mynd i gael eu tanio ac roedd trydedd alwad yn rhoi gwybod yn bendant bod pob 'ergyd' wedi cael ei thanio. Yr enw ar yr alwad olaf hon oedd y 'corn heddwch'.

Roedd powdwr du'n cael ei ddefnyddio yn ystod dyddiau cynnar chwarela. Pan fyddai'n ffrwydro byddai'n torri'r creigiau'n ddarnau gweddol fawr oedd yn gallu cael eu troi'n setiau. Fyddai darnau bach ddim wedi bod yn addas bryd hynny. Yn nes ymlaen pan oedd eisiau'r graig i wneud macadam, roedd deinameit yn cael ei ddefnyddio, ac roedd hwnnw'n chwythu'r graig yn ddarnau bach oedd yn ffitio yn y peiriannau mathru.

Ym 1895 fe ddechreuodd y broses o durio creigiau'n fecanyddol. Roedd yr injans tyllu'n cael eu gyrru gan aer cywasgedig a hwnnw'n cael ei fwydo i mewn i'r injans tyllu ar hyd pibellau.

They Worked in the Quarry

Drillers and Rockmen

Quarrying begins at the rock face. This is where the solid rock is drilled with holes to be filled with explosive. When this is fired, the rock breaks up and collapses to the foot of the rock face – the quarry floor.

This was a dangerous job: working on a vertical cliff 100ft high hoping that the rope which you were tied to did not snap; hoping that a loose rock did not fall on your head; hoping that you did not hit your hand with a heavy hammer; hoping that you did not cut your hands on sharp, freshly-blasted rock. His equipment was a strong rope which held him on the rock face. This was tied to a metal stake hammered into the rock above him. If he worked with another on the rock face they were working 'double-handed', that is, one man holding the long chisel while the other swung the hammer weighing 5lbs (2.5 Kg). Sometimes two men stood on a wooden platform fixed to the rock face. After every blow against the drill, the one holding it would give it a twist before the next blow. There was also 'single-handed' work. Here men working alone drilled and blasted large rocks which had fallen on the quarry floor and were too big to be broken by hammers.

Putting the 'charge' or explosive into the hole was the next step. The explosive first used was blackpowder. This was kept in a barrel or cask near to where the drillers worked. It was rammed down the hole with a wooden stick. A fuse was then inserted into the blackpowder in the hole, and all was ready to light it and explode the rock.

Blasting took place at a set time during the day and a warning had to be made to all workers on the quarry floor. This was done by **a man with a bugle**. The first bugle call warned everyone that blasting was to take place. It told men to find shelter from flying stones after the explosion. A second bugle call five minutes later warned that fuses were to be lit and a third call when it was certain that all the 'shots' had gone off. This final call was called the 'all clear' or 'corn heddwch' (peace call).

Blackpowder was used in the early days of quarrying. When it exploded it broke the rocks into quite large pieces which could be made into setts. Small pieces would not then be suitable. Later when the rock was wanted to make macadam, dynamite explosive was used, which did blast the rock into small pieces which would fit into the crushers.

In 1895 mechanical rock-boring was begun. Drills were powered by compressed air which was fed into the drills along pipes.



▲ Tyllwyr: yr hen dull a'r dull newydd Drillers: old and new methods

Malwyr neu Blociwr

Roedd y creigiau a oedd wedi syrthio i lawr ar ôl chwythu'n rhai o wahanol feintiau. Roedd yn rhaid i'r rhai mawr iawn gael eu chwythu eto gan y creigwyr neu gan falwyr. Roedd gwaith y malwr yn flinedig iawn. Gyda gyrdd mawr ac amrywiaeth o gynion neu drosolion, roedd yn gostwng maint y creigiau mwy. Roedd yn cynhyrchu 'cerrig torri'. Lymphiau o greigiau oedd y rhain a oedd yn cael eu torri'n nes ymlaen gan ddynion a bechgyn eraill â morthwylion bychain i wneud 'metlin'. Roedd 'metlin', yn hytrach na darnau o greigiau afluniaidd, yn cael ei ddefnyddio i roi wyneb ar ffyrdd. Roedd y malwr yn llwytho wagen â 'cherrig torri' a hynny â llaw.

Byddai cerrig mawr yn cael eu chwythu eto neu'u hollti gan ddefnyddio 'plwg a phlwen'. Roedd rhesaid o dyllau bas yn cael eu gwneud yn y graig. Roedd dwy bluen – darnau fflat o haearn â thro bach yn un pen – yn cael eu gosod yn y twll a phlwg – cŵn crwn, byr, trwchus – yn cael ei roi rhyngddynt. Pan fyddai'r cŵn yn cael ei daro â'r morthwyl byddai'n achosi i'r plu wasgu wysg eu hochr yn erbyn y graig. Yn y pen draw, trwy daro pob plwg yn ei dro, byddai'r graig yn cracio a'r crac yn dilyn llinell y tyllau.

Prif waith blociwr oedd rhoi cerrig i'r setiwr a oedd yn addas i'w troi'n setiau. Byddai'n dewis y blociau gorau ac yn eu siapio'n fras yn barod ar gyfer y setiwr. Roedd morthwylion mawr, oedd â blaen ar un pen ac a oedd yn fflat ar y pen arall, yn cael eu defnyddio i wneud hyn. Roedd y blociau hyn yn cael eu llwytho ar wagenni a'u gwrthio i ble bynnag yr oedd y setiwr yn gweithio. Roedd blociwr yn aml yn cyflenwi mwy nag un setiwr. Roeddent yn gwbl ddibynol ar ei gilydd. Dim blociau, dim setiau. Dim setiau'n cael eu gwneud, dim angen am flociau.

Weithiau byddai blociwr yn gwneud ei setiau ei hun. Byddai'n cael ei alw'n 'setiwr bach'.



Sledgers or Blockers

The rocks that had tumbled down after blasting were of different sizes. The very large ones had to be blasted again by the rockmen or by sledgers (malwyr). The sledger's work was very tiring. With large sledge-hammers and a variety of chisels or crowbars, he reduced the size of the larger rocks. He produced 'breakers'. These were lumps of rock which were broken up later by other men and boys with small hammers into 'metlin'. 'Metlin', rather misshapen small pieces of rock, was used to surface roads. The sledger loaded a wagon with 'breakers' by hand.

Large stones were blasted again or split using a 'plug and feather'. A row of shallow holes were made into the rock. Two 'feathers' – flat pieces of iron slightly curved at one end – were placed in the hole and a plug – a short, thick round chisel – was placed in between. When the chisel was struck by hammer it caused the feathers to press sideways against the rock. Eventually, by striking each plug in turn, the rock would crack along the line of the holes.

The main work of a blocker was to provide the settmaker with stone suitable for making into setts. He chose the best blocks and roughly shaped them ready for the settmaker. Large hammers, pointed at one end and flat on the other were used to do this. These blocks were loaded onto wagons and pushed to where the settmakers worked. A blocker often supplied more than one settmaker. They were totally dependent on each other. No blocks, no setts. No setts made, no blocks required.

Sometimes a blocker made his own setts. He was called a 'setiwr bach' – a lesser settmaker.



▲ Wagen gyda llwyth o setiau mawr ar y bont pwysu
Wagon of large setts being weighed at the weighbridge



▲ Talis Tallies

Setiwr

Y rhain oedd y chwarelwyr mwyaf medrus ac felly'r rhai oedd yn cael y tâl uchaf. Doedd eu gwaith ddim yn arbennig o beryglus, ond yn flinedig iawn. Byddent yn sefyll drwy'r dydd yn trimio blociau o gerrig i wneud setiau ac yna'n eu llwytho i mewn i wagenni.

Pan fyddai'r setiwr yn derbyn ei flociau a oedd wedi'u siapio'n rhannol roedd yn rhaid iddo benderfynu faint o setiau y byddai'n gallu eu gwneud o un bloc. Yn aml byddai'n cael cyfarwyddyd bod angen meintiau penodol. Ar ôl nifer o flynyddoedd o wneud setiau, byddai'r rhan fwyaf o setiwr yn gallu mesur carreg â'u llygaid – doedd dim angen prennau mesur na mesuryddion.

Byddai setiwr yn sefyll uwchlaw bloc o garreg. Byddai'n ei ddal yn gadarn yn ei le ag esgid drom ar un droed. Roedd gan yr esgid ddarn o fetel a oedd wedi'i hoelio ar un ochr i amddiffyn y droed rhag cael ei tharo gan y morthwyl. '**Clem patro**' oedd yr enw ar yr amddiffynnydd metel hwn.

Roedd y morthwyl oedd yn cael ei ddefnyddio'n eithaf arbennig. Roedd un pen yn geugrwm gyda min ar yr ymyl allan. Roedd yn pwysu tua 6lbs (2.7kg) ac yn cael ei ddefnyddio i drimio ('patro') ymyl y setiau i roi siâp gwastad.

Roedd sefyll drwy'r dydd a phlygu dros y cerrig yn rhoi cefn crwn a choesau ychydig yn gam i setiwr. Mewn tywydd da roeddent yn gweithio yn yr awyr agored, ond mewn tywydd gwael roeddent yn gweithio mewn cabanau neu lochesi ag un ochr agored. Pan oedd wedi cwblhau llwyth o setiau byddai setiwr yn bachu **tali** ar y wagen. Ar y tali hwn roedd ei rif arbennig ef. Roedd y wagen wedyn yn cael ei gwrthio at bont bwysu i gael ei phwysu. Roedd pwysau'r llwyth yn cael ei gofnodi mewn llyfr a rhif y setiwr yn cael ei roi wrth ei ymyl. Roedd y dynion yn cael tâl yn ôl pwysau'r setiau yn hytrach na nifer y setiau

Gweithwyr Macadam neu 'Fetlin'

Roedd y rhain fel arfer yn fechgyn neu'n ddynion hŷn oedd yn gallu gwneud gwaith a oedd yn cael ei ystyried yn haws neu'n llai llafurus.

Roedd yn dal yn flinedig iawn a braidd yn ddiflas. Carreg wedi'i thorri ac yn mesur tua 2 fodfedd (5cm) sgwâr oedd 'metlin' ac roedd yn cael ei gwneud trwy daro'r lympiâu a oedd yn cael eu galw'n 'gerrig torri' â morthwyl. Roedd gan y morthwyl oedd yn cael ei ddefnyddio ben crwn bychan, yn pwysu 12 owns (300 gram), ac roedd ganddo gam hir iawn a hwnnw fel arfer wedi'i wneud o gangen collen. Roedd y bechgyn yn codi'r morthwylion uwch eu pennau ac yn taro'r creigiau dro ar ôl tro â symudiad tebyg i chwipio.

Roedd y gwaith yn weddol beryglus gan fod darnau miniog o gerrig yn hedfan o gwmpas. I amddiffyn eu llygaid roedd y bechgyn yn gwisgo sbectol bach â medrydd metel yn hytrach na gwydr ynddynt.

Roedd mannau 'metlin' i'w cael ym mhob man o amgylch y chwarel lle'r oedd cerrig yn gallu cael eu danfon – wrth ymyl breciau'r inclens, wrth ymyl y seidin.

Roedd y 'metlin' yn cael ei lwytho i mewn i wagen gan ddefnyddio ffyrcl! Roedd yn fforc arbennig ag wyth pigyn tua 2.5cm ar wahân. Dim ond cerrig o'r maint cywir fyddai'n cael eu llwytho wedyn, gan y byddai darnau llai o graig yn syrthio trwy'r pigynnau.

Yn y pen draw, cafodd 'metlin' a oedd yn cael ei dorri â llaw ei ddisodli gan fetlin sy'n cael ei gynhyrchu â pheiriannau mathru.

Roedd llawer o swyddi eraill fel pwyswyr, gweithwyr melin, gofaint, brêcars, gyrwyr injans, fforddolwyr ar y rheilffyrdd, ffitwyr a pheirianwyr a llwythwyr.



▲ Gweithwyr macadam Macadam workers

Settmakers

They were the most skilful of the quarrymen and therefore the highest paid. Their work was not particularly dangerous, but very tiring. They stood all day trimming blocks of stone to make setts and then loading them into wagons.

When the settmaker received his partly shaped blocks he had to decide how many setts he could make out of each block. Often he was told that certain sizes were required. After many years of settmaking, most settmakers could measure a stone with their eyes – there was no need for rulers or gauges.

A settmaker stood above a block of stone. He held it firmly in place with the heavy boot of one foot. The boot had a piece of metal nailed to one side to protect the foot from being struck by the hammer. This metal protector was called a '**clem patro**'.

The hammer used was rather special. One head was concave in shape with the outside edge sharpened. Weighing about 6 lbs (2.7Kg) it was used to trim ('patro') the edge of the setts to give an even shape.

Standing all day and bending over the stones gave settmakers a bent back and slightly bandy legs. In good weather they worked outside, but on bad days they worked in huts or shelters with one open side. When he had completed a load of setts a settmaker would hook a **token or tally** on the wagon. This token had his special number on it. The wagon was then pushed to a weighbridge to be weighed. The weight of the load was entered into a book and the settmaker's number noted alongside. The men were paid by the weight of the setts rather than how many there were in the wagon.

Macadam or 'Metlin' Workers

They were usually boys or older men who could carry out what was thought to be easier or less strenuous work.

It was still very tiring and rather boring. 'Metlin' was broken stone measuring about 2 inches (5cm) square and made by hammering the lumps called 'breakers'. The hammer used had a small rounded head, weighing 12 ounces (300 grammes), with a very long handle usually made from a branch of the hazel tree. The boys raised the hammers over their heads and hit the rocks time and time again with a whipping action.

The job was quite dangerous as sharp bits of stone flew about. To protect their eyes the boys wore small spectacles with metal gauge rather than glass fitted in them.

'Metlin' places were found all around the quarry where stone could be delivered – near incline breaks, by the railway siding.

The 'metlin' was loaded into a wagon with forks! It was a special fork with eight prongs about 2.5cm apart. Only stone of the correct size would then be loaded, as smaller pieces of rock would fall through the prongs.

Eventually, hand broken 'metlin' was replaced by that produced by mechanical crushers.

Other occupations include weighmen, blacksmiths, mill workers, brakemen, engine drivers, platelayers, fitters and engineers and loaders.



► Setiwr Settmaker

Llyfrau Cyflog John Davies – Gilfach, Rhif 87

Brodor o Benmachno, lle’r oedd chwareli llechi i’w cael, oedd John Davies. Fe ddaeth i Benmaenmawr yn ddyn ifanc a chael gwaith yn Chwarel Graiglwyd fel setiwr. Ef oedd un o’r cyntaf i weithio ar bonc Rhif 2 yn Nant Dywyll. Dechreuodd pobl alw’r rhan yma o’r chwarel yn Bonc Penmachno ar ôl y lle yr oedd ef yn dod ohono.

Roedd pawb bob amser yn ei adnabod fel John Davies ‘Gilfach’. Roedd dau reswm dros hyn. Yn gyntaf roedd yn byw mewn tŷ yn Ffordd y Gilfach ac yn ail, trwy ychwanegu ‘Gilfach’ at ei enw roedd pobl yn gallu gwahaniaethu rhyngddo a dynion eraill o’r enw John Davies oedd yn byw yn y dref neu’n gweithio yn y chwarel. Roedd ychwanegu enw lle at enw dyn yn beth gweddol gyffredin yn y chwarel gan fod cymaint o ddynion a chanddynt yr un enwau.

Roedd John Davies yn grefftwr medrus iawn ond mae gennym dystiolaeth sy’n awgrymu nad oedd y gwaith yn ei fodloni. Roedd yn galed gweithio yn yr awyr agored ym mhob tywydd, heb wybod a fyddai’n gallu siapio digon o setiau i gael cyflog go lew. Roedd ef a chwarelwyr eraill yn cael tâl pob pythefnos. Gan eu bod yn cael eu talu yn ôl faint yr oeddent yn ei gynhyrchu, mae’n rhaid ei bod wedi bod yn anodd iddyn nhw a’u gwragedd wneud yn siŵr bod arian yn dod i mewn i’r tŷ bob amser.

Roedd y dynion yn cael tâl mewn arian parod. Roedd hyn amser hir cyn bod gweithwyr yn cael eu talu â siec neu eu cyflog yn cael ei anfon yn syth i fanc. Dyma enillion pythefnosol John Davies am chwe mis ym 1882.

▲ John Davies a’i wraig Elizabeth (Betsan)
John Davies and his wife Elizabeth (Betsan)

Dyddiad 1882	Cyfanswm yr Arian (£sd)	Arian (£c)	Gwir Werth yn 2009
Ebrill 1af	£3.1.4	£3.07	£258.21
Ebrill 15fed	£3.5.0	£3.25	£273.35
Ebrill 29ain	£4.2.3	£4.11	£345.68
Mai 13eg	£2.17.10	£2.85	£239.70
Mai 27ain	£3.3.0	£3.15	£264.94
Mehefin 10fed	£2.5.3	£2.26	£190.08
Mehefin 24ain	Dim Cofnod		
Gorffennaf 8fed	Dim Cofnod		
Gorffennaf 22ain	£3.16.4	£3.82	£321.29
Awst 5ed	£3.5.11	£3.34	£280.92
Awst 19eg	£2.19.3	£2.96	£248.95
Medi 2il	Dim Cofnod		
Medi 16eg	£0.4.0	20c	£16.82

Roedd John Davies wedi cael llond bol o weithio yn y chwarel. Roedd yn dymuno agor siop oedd yn gwerthu bwydydd a llestri. Fe wnaeth hyn ym 1882. Roedd ei siop yng nghanol y dref lle mae banc y Nat West heddiw. Nid oedd yn llwyddiannus fel siopwr ac ar ôl dwy flynedd roedd yn ôl yn y chwarel yn gweithio fel setiwr unwaith eto.



The Pay Books of John Davies – Gilfach, No 87

John Davies was a native of Penmachno where there were slate quarries. He came to Penmaenmawr as a young man and found work in Graiglwyd Quarry as a settmaker. He was one of the first to work at Number 2 bank at Nant Dywyll. This part of the quarry became known as Bonc Penmachno after the place he came from.

He was always known as John Davies ‘Gilfach’. There were two reasons for this. First of all he lived in a house in Gilfach Road and secondly by adding ‘Gilfach’ to his name, people were able to identify him from other men called John Davies who lived in the town or who worked in the quarry. Adding a place name to a man’s name was quite common in the quarry because there were so many men with the same names.

John Davies was a very skilled craftsman but there is evidence that the job did not satisfy him. It was hard working in the open in all weathers, not knowing whether he would be able to shape enough setts to make a decent wage. He and other quarrymen were paid fortnightly. Since they were paid by the amount they produced, it must have been difficult for them and their wives to make sure that there was always some money coming into the house.

The men were paid in cash. This is a long time before workers were paid by cheque or their wages sent directly to a bank. These are the fortnightly earnings of John Davies for six months in 1882.

Date 1882	Cash Total (£sd)	Cash (£p)	True Value 2009
April 1st	£3.1.4	£3.07	£258.21
April 15th	£3.5.0	£3.25	£273.35
April 29th	£4.2.3	£4.11	£345.68
May 13th	£2.17.10	£2.85	£239.70
May 27th	£3.3.0	£3.15	£264.94
June 10th	£2.5.3	£2.26	£190.08
June 24th	No Entry		
July 8th	No Entry		
July 22nd	£3.16.4	£3.82	£321.29
Aug 5th	£3.5.11	£3.34	£280.92
Aug 19th	£2.19.3	£2.96	£248.95
Sept 2nd	No Entry		
Sept 16th	£0.4.0	20p	£16.82

John Davies had had enough of working in the quarry. He wanted to open a shop that sold groceries and crockery. This he did in 1882. His shop was in the town centre where the Nat West Bank is today. He was not successful as a shop keeper and after two years he was back in the quarry working as a sett maker once again.



▲ Tŷ Llety'r ar Ffordd Graiglwyd Boarding house in Fernbrook Road

Dyma'i gyflog ym 1884/5 dros fisoedd yr hydref a'r gaeaf.

Dyddiad 1884/5	Cyfanswm yr Arian (£sd)	Arian (£c)	Gwir Werth yn 2009
Hyd 11eg	£2.4.5	£2.22	£192.87
Hyd 25ain	£2.1.4	£2.07	£179.87
Tach 8fed	£2.5.4	£2.27	£197.22
Tach 22ain	£2.2.4	£2.12	£184.14
Rhag 6ed	£1.14.6	£1.73	£150.30
Rhag 22ain	£1.17.6	£1.88	£163.33
Ion 3ydd	£2.2.9	£2.14	£185.92
Ion 17eg	£1.16.8	£1.85	£160.73
Ion 31ain	£2.7.9	£2.39	£207.64
Chwe 14eg	£1.9.11	£1.49	£129.45
Chwe 28ain	£1.5.0	£1.25	£108.60
Mawrth 14eg	£2.2.10	£2.15	£186.79

Gwerth ei gyflog

Rydyn ni'n dweud yn aml y byddech yn gallu prynu llawer mwy â'ch arian amser maith yn ôl. Nid yw hyn ond yn rhannol wir. Ar y tudalennau blaenorol gallwn weld beth fyddai gwerth cyflog John Davies heddiw. Mae ennill £3.3s.0d. (£3.15) fel ennill £264.94 sydd i'w weld yn eithaf tipyn, ond cofiwch fod hyn am bythefnos o waith! Byddai teuluoedd yn ei chael yn anodd byw ar y swm yna o arian heddiw. Heddiw rydyn ni'n gwario arian ar nwyddau a gwasanaethau na fyddai John Davies wedi meddwl amdanynt yn y 1880au.

Roedd setiwr yn cael cyflog gwell na chwarelwyr eraill. Roedd ganddynt yn aml arian dros ben ar ddiwedd pythefnos i'w wario ar adeiladu tai newydd iddynt eu hunain neu hyd yn oed dai llety mawr ar gyfer ymwelwyr.

Cafodd nifer o dai llety'u codi yn Fernbrook Road ac mewn mannau eraill ym Mhenmaenmawr, a'r rheiny'n cael eu rhedeg gan wragedd y setiwr.

Ar dudalen 31 mae ffotograff a dynnwyd ym 1882 o siop John Davies. Roedd yn sefyll yng nghanol Pantyrafon, Penmaenmawr. Cafodd ei thynnu i lawr ychydig flynyddoedd yn ddiweddarach a'i disodli gan adeilad llawer mwy.



Here are his wages in 1884/5 over the Autumn and Winter months.

Date 1884/5	Cash Total (£sd)	Cash (£p)	True Value 2009
Oct 11th	£2.4.5	£2.22	£192.87
Oct 25th	£2.1.4	£2.07	£179.87
Nov 8th	£2.5.4	£2.27	£197.22
Nov 22nd	£2.2.4	£2.12	£184.14
Dec 6th	£1.14.6	£1.73	£150.30
Dec 22nd	£1.17.6	£1.88	£163.33
Jan 3rd	£2.2.9	£2.14	£185.92
Jan 17th	£1.16.8	£1.85	£160.73
Jan 31st	£2.7.9	£2.39	£207.64
Feb 14th	£1.9.11	£1.49	£129.45
Feb 28th	£1.5.0	£1.25	£108.60
March 14th	£2.2.10	£2.15	£186.79

Value of his wages

We often say that you could buy a lot more with your money a long time ago. This is only partly true. On the previous pages we can see the value today of John Davies' wages. Earning £3.3s.0d. (£3.15) is like earning £264.94 which seems quite a lot, but remember this was for two week's work! Families would find it difficult to live on that amount of money today. Today we spend money on goods and services which John Davies would not have thought about in the 1880s.

Settmakers were better paid than other quarrymen. They often had money to spare at the end of a fortnight to spend on building new houses for themselves or even large boarding houses for keeping visitors.

A number of boarding houses were built in Fernbrook Road and elsewhere in Penmaenmawr, run by the wives of the settmakers.

Above is a photograph taken in 1882 of John Davies' shop. It stood in the centre of Pantyrafon, Penmaenmawr. It was pulled down a few years later and replaced by a much larger building.

Dyma un dudalen o lyfr cyflog John Bostock. Y dyddiad arno yw Tachwedd 6ed 1897.

38 tun. 16cwts	Cerrig torri @ 5c	£2.3s.0d. (£2.15)
64 tun. 8cwts		
5 tun. 12cwts	Setiau @ 2c	11d (5c)
1 tun. 10cwts	Macadam @ 2¼c	3d (1c)
19 tun. 10cwts	Gwasttraff @ 2¾c	4s.6d. (23c)

£2.8s.8d. (£2.44)

cwts (byrfodd ar gyfer canpwys)

Roedd John Bostock yn cael powdwr du - y ffrwydryn - a ffiws o ystorfeydd y chwarel. Roedd powdwr du'n cael ei ddarparu wrth y pwys (tua ½ kg) a'i gadw mewn baril neu gasgen bren. Roedd ffiws yn cael ei ddarparu gan y coil. Roedd powdwr du'n beryglus. Roedd yn rhaid ei gadw'n sych ac yn bell o unrhyw fan lle gallai gwreichion neu dân achosi iddo ffrwydro.

Roedd cofnod gofalus yn cael ei gadw o'r powdwr du a'r ffiwsys a oedd yn cael eu rhoi i John Bostock a'r blociwrws eraill.

Mawrth 17 1879 – 100 pwys o bowdwr : 11 coil o ffiws

Rydych wedi darllen mor ofalus yr oedd yn rhaid i bawb fod ar adeg chwythu. Weithiau doedd y powdwr ddim yn ffrwydro. Roedd hwn yn amser peryglus. Roedd yn rhaid i'r blociwr aros ychydig funudau wedyn mynd at y twll yn ofalus. Weithiau roedd y powdwr yn damp ac yn gwrthod ffrwydro; weithiau fyddai'r ffiws ddim yn llosgi i'r pen. Pan fyddai hyn yn digwydd byddai'r blociwr yn ailgynnau'r ffiws ac yn rhedeg i ffrwrdd mor gyflym â phosib i fan diogel.

Un diwrnod wnaeth un o dyllau John Bostock ddim ffrwydro. Fe arhosodd fel yr oedd wedi gwneud nifer o weithiau yn y gorffennol cyn mynd at y twll. Pan ddechreuodd feddwl yn y pen draw na fyddai'r powdwr yn ffrwydro fe aeth at y graig i archwilio'r ffiws a'r powdwr. Wrth iddo blygu dros y twll fe ffrwydrodd y powdwr ac fe gafodd ei ladd. Doedd dyn profiadol fel John Bostock hyd yn oed ddim yn saff rhag damweiniau angheuol yn y chwarel beryglus.

Fe gafodd ei wraig iawndal - swm o arian y byddai'n gallu byw arno ar ôl iddi golli ei gŵr. Gyda'r arian fe brynodd fferm bach uwchlaw Rowen o'r enw Rhiw. Heddiw mae'r adeilad yn cael ei ddefnyddio fel hostel ieuencid.

A wyddoch chwi?

Beth yw set?

Darn o graig yw set sydd wedi'i siapio â morthwylion fel ei fod ar ffurf bloc gydag ochrau ac ymylon llyfn. Roeddent yn cael eu gosod ar ffyrdd a phalmentydd i greu wyneb a fyddai'n para'n dda. Roedd tywod yn cael ei wasgaru ar yr wyneb a'r setiau'n cael eu gosod yn agos at ei gilydd a'u gwrthio neu'r taro â morthwylion pren l mewn i'r tywod meddal. Wedyn roedd mwy o dywod yn cael ei frwsio i mewn i'r bylchau cul rhwng y setiau. Mae nifer o feintiau. Un o'r rhai mwyaf poblogaidd oedd y ciwb 4 modfedd (10cm). Mae setiau wedi'u gwneud â morthwyl yn dal i gael eu cynhyrchu, ond nid ym Mhenmaenmawr. Mae'r setiau sydd ar gael heddiw'n dod o Bortiwgal ac India.

Did you know?

What is a sett?

A sett is a piece of rock which has been shaped with hammers to a block with even sides and edges. They were placed on roads and pavements to form a hard-wearing surface. Sand was spread onto a firm, level surface and the setts placed close together and pushed or hammered with wooden mallets into it. More sand was then brushed into the narrow spaces between the setts. There are many sizes: one of the most popular was the 4inch cube (10cm). Hammer-made setts are still produced, but not in Penmaenmawr: setts available today come from Portugal and India.

Dr		Co		Powder	
Date	Qty	Per cent	Dr	Co	Res
July 29	12 quarts	300	150	3950	3775
Aug 26	5 half	250	225	2000	1000
	3 quarts	300			

On the left is one page of John Bostock's pay book. It is dated November 6th 1897.

38 tons 16cwts	Breakers @ 5d	£2.3s.0d. (£2.15)
64 tons 8cwts		
5 tons 12cwts	Setts @ 2d	11d (5p)
1 ton 10cwts	Macadam @ 2¼d	3d (1p)
19 tons 10cwts	Rubbish @ 2¾d	4s.6d. (23p)

£2.8s.8d. (£2.44)

cwts (short for hundredweight)

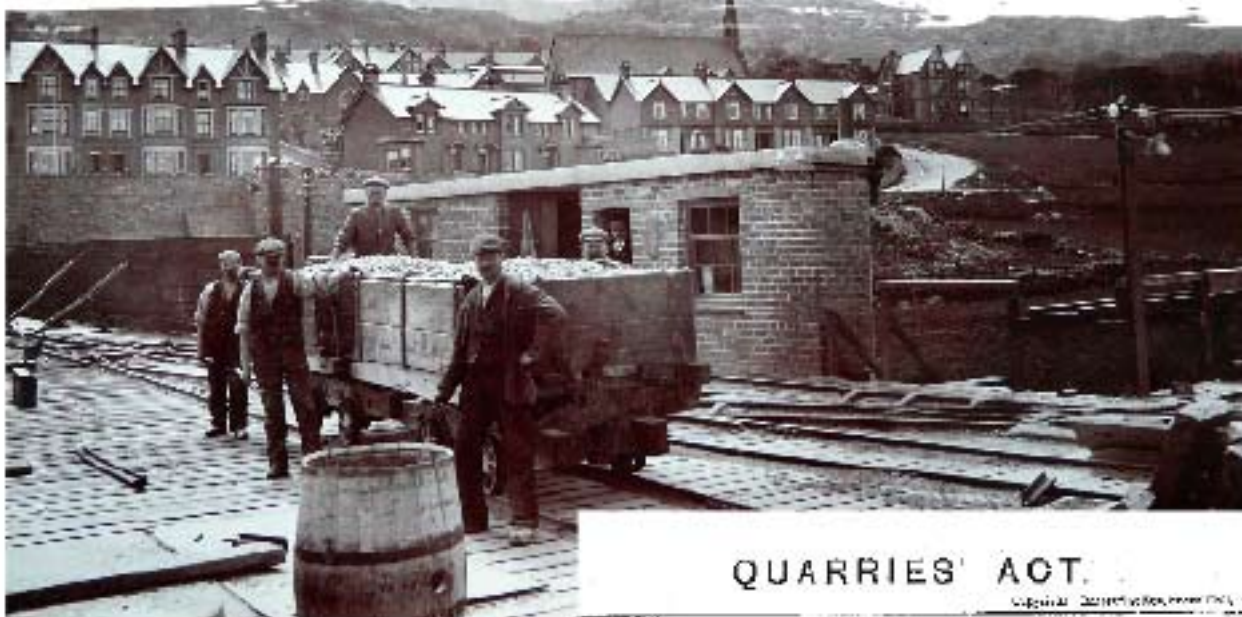
John Bostock was given blackpowder – the explosive – and fuse from the quarry stores. Blackpowder was supplied by the pound weight (about ½ Kg) and kept in a wooden barrel or cask. Fuse was provided by the coil. Blackpowder was dangerous. It had to be kept dry and not to be near where a spark or a fire would cause it to explode.

A careful record was kept of the blackpowder and fuse given to John Bostock and other blockers.

May 17 1879 – 100 pounds of powder : 11 coils of fuse

You have read how careful everyone had to be at times of blasting. Sometimes the powder did not explode. This was a dangerous time. The blocker had to wait a few minutes and then carefully approach the drill hole. Sometimes the powder was damp and would not explode; sometimes the fuse did not burn to the end. When this happened the blocker relit the fuse and ran away as quickly as possible to safety.

One day one of John Bostock's drill holes did not explode. He waited as he had done many times in the past before approaching the hole. When he eventually thought the powder would not explode he went to the rock to examine the fuse and powder. As he bent over the hole the powder exploded and he was killed. Even an experienced man like John Bostock was not safe from deadly accidents in the dangerous quarry. His wife received compensation – a sum of money on which she could live after she had lost her husband. With the money she bought a small farm above Rowen called Rhiw. Today the building is used as a Youth Hostel.



Thomas Griffith Davies

Roedd Thomas Davies yn fwy adnabyddus fel 'Twm Temple'. Mae Twm yn dalfyriad o Thomas ac roedd 'Temple' yn enw ar long.



▲ Thomas Davies

Rydym eisoes wedi darllen bod y 'Temple' yn un o'r llongau cyntaf i gael eu llwytho â cherrig o jeti Graiglwyd ym mis Mehefin 1888. Ac yntau'n fachgen pedair ar bymtheg mlwydd oed, mae'n rhaid mai Thomas oedd un o'r llwythwyr oedd yn symud y setiau'n ofalus â llaw ar y jeti i howld cargo'r 'Temple'. Mae ei lysenw'n dweud wrthym ei fod yn cael ei gofio am hyn. Doedd bywyd llwythwr ar y jeti ddim bob amser yn bleserus. Roedd gwrthio a llwytho wagenni yn y jeti agored mewn gwyntoedd cryf ac oer, gyda

thonnau'n taro yn erbyn yr adeiledd pren yn gallu bod yn beryglus iawn. Weithiau mewn tywydd gwyntog byddai'r llwyth yn troi drosodd a'r setiau'n disgyn i'r môr. Pan fo'r llanw'n isel mae'n bosib dod o hyd i setiau yn y tywod lle'r oedd y jetiau'n sefyll ar un adeg.

Yn ddiweddarach yn ystod ei yrfa yn y chwarel daeth yn frêcar oedd yn rheoli'r wagenni ar yr inclens. Am nifer o flynyddoedd ar ôl iddo ymddeol 'Brêc Twm Dafis' oedd yr enw ar ei frêc. Mae'r inclên a'r brêc wedi hen ddiplannu erbyn hyn.

QUARRIES' ACT.

Thursday, March 22, 1906

I Report that I have this day inspected the external parts of the Plant, Machinery, and Appliances as required by Special Rule 22, and find them in order

No. 10

Signed, Thos. G. Davies

Thomas Griffith Davies

Thomas Davies was better known as 'Twm Temple'. Twm is short for Thomas and 'Temple' is named after a ship of that name.

We have read already that the 'Temple' was one of the first ships to be loaded with stone from the Graiglwyd jetty in June 1888. Thomas as a nineteen year old lad must have been one of the loaders who moved carefully by hand, the setts from the wagons on the jetty into the cargo hold of the 'Temple'. His nickname tells us that he was remembered for this. A loader's life on the jetty was not always pleasant.

Pushing and unloading wagons on the open jetty in strong cold winds, with waves crashing against the wooden structure could be very dangerous. Sometimes in windy weather the load would tip over and the setts fall into the sea. At low tide setts can be found in the sand where the jetties once stood.

Later in his career in the quarry he became a brakeman controlling the wagons on the inclines. For many years after he retired his drum house was called 'Brêc Twm Dafis' - 'Tom Davies' Brake'. The incline and the brake have long disappeared.

No. 276

ORDER No. PENMAENMAWR, 9 Nov 1889

SHIPPED on board the S. S. Temple

Master Tom Hughes

Port Liverpool

Dock Ganning Dock

Cargo Sates Macadam 2" 100.1

Breakers

Consignee Messrs R & B Jones

For Blewett & Worscombe Esq

Freight

Clerk Samuel Jones

William Hughes

Galwedigaeth Beryglus: Hanes damwain ym 1903

Roedd gweithio yn y chwarel yn waith peryglus, yn enwedig i'r rhai oedd yn gweithio ar y graig. Creigiwr a oedd yn tyllu'r graig, yn chwythu'r graig ac yn clirio'r cerrig rhydd, oedd yn wynebu'r perygl mwyaf.

Ar Fawrth 18fed 1903 roedd Robert Meirion Parry o Gilfach Road, Penmaenmawr ar fin dechrau tyllu yn Graiglwyd pan fu damwain. Roedd yn gwneud y math o waith yr oedd wedi'i wneud yn chwarel lechi Blaenau Ffestiniog cyn symud i Benmaenmawr gyda'i deulu ifanc iawn ddwy flynedd cyn hynny. Roedd hyd yn oed wedi bod yn greigiwr mewn chwarel yn America. Felly roedd yn ddyn profiadol iawn oedd yn gwybod am beryglon ei waith.

Fel arfer, cyn ei ollwng ei hun â rhaff i lawr y graig, fe roddodd drosol dur yn y ddaear ar y bonc uwch ei phen. Fe glymodd raff yn sownd yn hwn. Wedyn fe benderfynodd pa mor bell yr oedd am fynd i lawr ac fe adawodd ddigon o raff rhydd cyn gwneud dolen o amgylch un goes ac un arall am ei frest.

Roedd yn teimlo'n saff ac yn ddiogel. Cyn belled â bod y trosol yn aros yn y ddaear, fyddai'r rhaff ddim yn gallu ei datglymu'i hun na thorri, a fyddai ganddo ddim llawer i boeni yn ei gylch. Roedd wedi gwneud hyn gannoedd o weithiau ym mhob tywydd ac ar wahanol fathau o greigiau.

Fe wthiodd ei hun dros ymyl y graig ac yn araf dechreuodd ei ollwng ei hun i lawr, gan bwysu'n ôl a chadw'r ddwy droed yn erbyn y graig lefn. Roedd yn abseilio. Wrth iddo symud i lawr, roedd yn siglo o ochr i ochr gan achosi i'r rhaff wneud yr un modd. Fe darfodd hyn ar ddarn rhydd o graig a ddaeth oddi yno'n gyfan gwbl ac, wrth iddo ddisgyn, fe drawodd Robert â chilergydd ar ochr ei ben gan ei daro'n anymwybodol.

Fe wnaeth sŵn y darn o graig yn taro ochr y graig a'r sgrech fer gan Robert dynnu sylw ei gyd-greigwyr. Fe welon nhw Robert yn hongian bron ar ei ben i lawr ar ben pellaf ei raff. Buan iawn yr oeddent yn ei halio i fyny i'r bonc uchaf, gan obeithio nad oedd wedi cael anaf rhy ddifrifol.

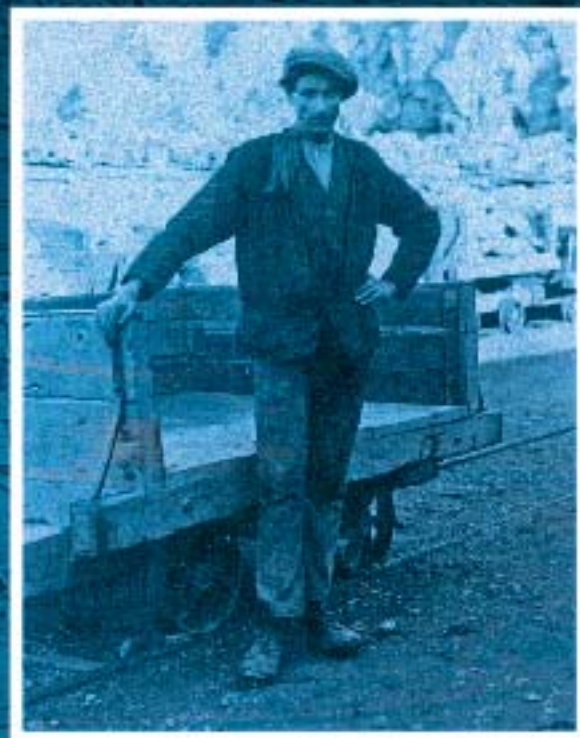
Pan oeddent wedi datod Robert o'i raff a gwneud iddo eistedd i fyny, fe ddaeth ato'i hun ddigon nes ei fod am sefyll.

"Rwy'n iawn," meddai wrth ei ffrindiau. "Rhowch ychydig funudau'n fwy i mi ac fe af yn ôl at fy ngwaith."

Ond mynnodd y dyn oedd yng ngofal y tyllwyr y dylai Robert fynd adref ac fe wnaeth hyd yn oed ofyn am wirfoddolwr i gydgerdded gydag ef. Roedd ganddo ffordd bell i fynd i lawr y llwybr igam-ogam oedd yn arwain at Y Gloch, lle byddai ganddo ychydig o waith cerdded yn unig cyn cyrraedd ei dŷ. Ond fe wrthododd Robert bob cymorth.

"Os bydd fy ngwraig yn fy ngweld yn cael fy hebrwng adref gan rywun arall bydd yn cynhyrfu. Bydd yn meddwl bod fy namwain yn waeth nag ydoedd mewn gwirionedd. Diolch am fy helpu. Mi fydda i'n iawn. Mi welaf i chi yfory, rwy'n siŵr."

A chyda hynny fe gychwynnodd ar ei daith i lawr y llechwedd serth. Pan gyrhaeddodd adref roedd ei wraig, a oedd wedi bod yn wael ers genedigaeth eu hail blentyn bum mis cyn hynny, wedi'i synnu i'w weld yn cyrraedd adref o'i waith. Fe eglurodd yn sydyn beth oedd wedi digwydd ac fe helpodd hi ef i dynnu ei siaced drom a'i esgidiau hoelion wyth a gwneud iddo orwedd ar y sofffa yn yr ystafell ffrynt. Doedd hi ddim yn hapus gyda'r ffordd yr oedd yn edrych ac fe benderfynodd alw am y meddyg.



▲ Chwarelwr yn 1903 Quarryman in 1903



▲ Tyllwr yn gollwng ei hun i lawr y graig Driller about to lower himself down the rockface

A Dangerous Occupation: Story of an accident in 1903

Working at the quarry was dangerous, especially for those who worked on the rock face. A rockman who drilled the rock, did the blasting and cleared loose stones faced the most danger.

On March 18th 1903 Robert Meirion Parry of Gilfach Road, Penmaenmawr was about to start drilling at Graiglwyd when an accident happened. He was doing the kind of work he had done in Blaenau Ffestiniog slate quarry before moving to Penmaenmawr with his young family two years previously. He had even been a rockman at a quarry in America. He was, therefore, a very experienced man who would have known the dangers of his work.

As usual, before lowering himself by rope down the rock face, he drove a steel crowbar into the ground on the terrace above. To this he tied his rope. He then decided how far he wanted to go down and allowed enough loose rope before making a loop around one leg and another loop around his chest.

He felt safe and secure. As long as the crowbar stayed in the ground, the rope could not unknot itself or snap, and he would have little to worry about. He had done this hundreds of times in all weathers and on different kinds of rock.

He swung himself over the edge of the rock face and slowly began to lower himself, leaning backwards and keeping both feet against the smooth rock. He was abseiling. As he moved down, he swung from side to side making the rope do the same. In doing so it disturbed a loose piece of rock which came away from the rock face and, in falling, it struck Robert a glancing blow on the side of his head and knocked him unconscious.

The sound of the rock hitting the side of the rock face and the brief cry made by Robert attracted the attention of his fellow rockmen. They saw Robert hanging almost upside down on the end of his rope. They were soon hauling him up to the top terrace, hoping that he was not too seriously injured.

When they had untied Robert from his rope and made him sit up, he recovered enough to want to stand.

"I'm alright," he told his friends. "Give me a few more minutes and I'll go back to my work."

But the man in charge of the drillers insisted that Robert should go home and even asked for a volunteer to walk with him. He had a long way to go down the zig-zag path which led to Bell Yard, from where he had only a short walk to his house. But Robert refused any help.

"If my wife sees me being brought home by another she will panic. She'll think that my accident was worse than it really is. Thank you for helping me. I'll be fine. See you tomorrow I'm sure."

And with that he set off down the steep hillside. When he got home his wife, who had been unwell since the birth of their second child five months previously, was shocked to see him home from work. He quickly explained what had happened and she helped him to take off his heavy jacket and hob-nailed boots and made him lie on the sofa in the front room. She was not happy with the way he looked and decided to fetch the doctor.

Roedd gan Gwmni'r Chwarel ei feddyg ei hun, Dr J.R. Williams, oedd yn byw nid nepell o'u cartref yn Fernbrook Road. Roedd pob chwarelwr oedd yn cael ei gyflogi gan y cwmni'n talu swm bach o arian allan o'i gyflog i dalu am wasanaeth Dr Williams. Fe ddaeth ar unwaith. Pan roddodd archwiliad i Robert fe sicrhodd Mrs Parry mai clwyf bychan yn unig oedd yr un ar ochr ei ben. Fe olchodd y clwyf yn ofalus a rhoddodd gyfarwyddyd i Robert orffwys ar y sofffa am ychydig oriau gan ddweud y byddai'n iawn wedyn.

Roedd Mrs Parry yn awr wedi cael ei gadael ar ei phen ei hun gyda'i gŵr. Fe eisteddodd wrth ei ymyl gan ei wylion agos. Fe sylweddolodd yn fuan bod Robert yn gwaethygu'n araf. Roedd yn griddfan, yn colli ymwybod. Fe anfonodd hi am Dr Williams am yr ail waith. Unwaith eto, fe ddaeth ar ei union a chyn gynted ag y gwelodd Robert roedd yn sylweddoli bod y creadur druan mewn cyflwr difrifol iawn. Roedd hefyd yn sylweddoli bod angen help meddygon eraill arno. Roedd yn gwybod bod yn rhaid cyflawni llawdriniaeth arbennig o'r enw trepannu ar benglog Robert. Er mwyn gwneud hyn roedd angen drilio twll yn agos at y lle yr oedd y graig wedi'i daro ar ei benglog a mwy na thebyg wedi'i gracio. Byddai drilio twll bychan yn lleddfu'r pwysau ar yr ymennydd lle'r oedd y penglog wedi cael ei wthio tuag i mewn gan rym y graig a ddisgynnodd.

Yn gyntaf fe anfonodd Dr Williams ei geffyl a'i drap ei hun i ymofyn Dr Clifton Hughes o Lanfairfechan ac fe anfonodd deigram at Dr Ross o Fae Colwyn yn gofyn am ei help ar unwaith. Daeth y ddau cyn gynted â phosib, gyda Dr Ross yn cyrraedd ar y tren. Daeth y tri at ei gilydd yn ystafell ffrynt 'Glasfryn' lle'r oedd Robert yn dal i orwedd ar y sofffa. Aeth Dr Ross ati ar unwaith i law-drin y penglog a oedd wedi cael niwed, gyda chymorth y ddau arall. Roedd y llawdriniaeth drosodd cyn pen dim. Aeth Dr Williams i mewn i'r gegin lle'r oedd Mrs Parry'n eistedd ac yn cael ei chysuro gan gymdogion.

► Chwarelwr 2009 gyda gwisg diogelwch
Quarryman of 2009 with safety clothing

"Wel, Mrs Parry," meddai'r meddyg, "Mae Dr Ross wedi llwyddo i leddfu'r pwysau ar ymennydd eich gŵr. Rydym yn gweddio y bydd yn cael gwellhad llwyr yn awr. Yn naturiol, mae mewn trwmgwsg o hyd yn dilyn y llawdriniaeth. Bydd yn cysgu am beth amser. Dewch i'm nôl pan fydd yn deffro."

Fe ddilynodd Mrs Parry'r meddyg i'r ystafell ffrynt, lle gwelodd hi ei gŵr yn cysgu'n dawel gyda rhwymyn am ei ben. Gyda dagrau'n llifo i lawr ei gruddiau fe ddiolchodd hi i'r ddau ohonynt am ddod i'w thŷ bychan i helpu ei gŵr.

Mae pob un ohonom yn dymuno diwedd hapus i bob stori. Ond nid felly y mae hi gyda'n stori ni am Robert Parry. Ni ddaeth ato'i hun a bu farw ddeuddydd yn ddiweddarach. Roedd y dref gyfan mewn sioc, yn enwedig y rhai oedd yn mynd i Gapel Pencae ar y gyffordd rhwng Ffordd Graiglwyd a Hen Ffordd Conwy. Daeth nifer fawr i'w gynhebrwng yn y capel y bu'n ei fynychu'n rheolaidd yn ystod y ddwy flynedd yr oedd wedi bod yn byw ym Mhenmaenmawr.

Mae hon yn stori am ddamwain drychinebus, ond byddai wedi bod yn bosib atal ei farwolaeth pe bai ef, ei gydweithwyr a'r Darbshire Company wedi gwybod neu feddwl am reolau syml ynghylch diogelwch mewn gweithleoedd peryglus.



A wyddoch chiwi?

Cerrig Torri

Byddai'r blociau cerrig hyn o wahanol faint yn cael eu torri'n fân nes ymlaen â morthwylion deuben bychain yn faint a oedd yn addas ar gyfer eu gwasgaru ar ffyrdd. 'Metlin' oedd yr enw ar hyn. Roedd 'metlin' yn gallu cael ei wneud yn y chwarel ond roedd llwythi o gerrig torri'n cael eu hanfon ar hyd y rheilffordd a thros y môr i leoedd megis Lerpwl lle'r oeddent yn cael eu torri'n fân gan griwiau o weithwyr. Yn aml byddai cerrig torri'n cael eu hanfon i garchardai a thlotai er mwyn rhoi i garcharorion a thlodion di-waith 'rywbeth i'w wneud'.

Macadam

Weithiau mae'r gair hwn hefyd yn disgrifio 'metlin' ond roedd yn cael ei ddefnyddio i ddisgrifio'r garreg o faint cyson a oedd yn dod allan o beiriannau mathru. Roedd macadam llai'n cael ei alw'n 'chipins'.

The Quarry Company had its own doctor, Dr J.R. Williams, who did not live too far away in Fernbrook Road. Every quarryman employed by the Company paid a small sum of money out of their wages to pay for the services of Dr Williams. He came at once. When he examined Robert he assured Mrs Parry that the wound on the side of the head was slight. He bathed it carefully and gave instructions that Robert should rest on the sofa for a few hours and then he would be fine.

Mrs Parry was now left alone with her husband. She sat by his side watching him closely. She soon realised that Robert was slowly getting worse. He was moaning, and losing consciousness. She sent for Dr Williams a second time. Again he came at once and as soon as he saw Robert he realised that the poor man's condition was very serious. He also realised he needed help from other doctors. He knew that a very special operation called trepanning had to be performed on Robert's skull. This required a hole to be drilled near to where the rock had struck him on the skull and had probably cracked it.

Drilling a small hole would release pressure on the brain where the skull had been pushed inwards by the force of the falling rock.

Dr Williams first of all sent his own horse and trap to fetch Dr Clifton Hughes from Llanfairfechan and sent a telegram to Dr Ross of Colwyn Bay asking for his immediate help. Both came as quickly as possible, with Dr Ross arriving by train. The three gathered in the front room of 'Glasfryn' where Robert was still lying on the sofa. Dr Ross at once began to operate on the damaged skull, assisted by the other two. The operation was soon over. Dr Williams went into the kitchen where Mrs Parry was sitting being comforted by neighbours.

"Well, Mrs Parry," said the doctor, "Dr Ross has successfully relieved the pressure on your husband's brain. We pray that he will now recover completely. Naturally he is still in deep sleep after the operation. He will be asleep for some time. Fetch me when he awakes."

Mrs Parry followed the doctor to the front room, where she saw her husband sleeping peacefully with a bandage tied around his head. With tears running down her cheeks she thanked them both for coming to her little house to help her quarryman husband.

We all wish that every story has a happy ending. But our story about Robert Parry is not one of these. He did not recover consciousness and died two days later. The whole town was in shock, especially those who went to Pencae Chapel at the junction of Graiglwyd and Old Conwy Roads. A large number attended his funeral at the chapel he had attended regularly in the two years he had lived in Penmaenmawr.

This is a story of a tragic accident, but Robert's death could have been prevented if he, his fellow workers and the Darbshire Company had followed what we regard today as basic rules of safety.

Did you know?

Breakers

These blocks of stone of different size were later to be broken up with little lump hammers into a size suitable for spreading on roads. This was called 'metlin' (metalling). 'Metlin' could be made at the quarry but loads of breakers were sent by rail and sea to places such as Liverpool where they were broken up by gangs of workmen. Often breakers were sent to prisons and workhouses to give prisoners and the unemployed poor 'something to do'.

Macadam

Sometimes this word also describes 'metlin' but it was used to describe the even measured stone that came out of crushers. Smaller size macadam was called 'chippings'.



Danfôn Setiau ar hyd y Rheilffordd a thros y Môr

Mae hon yn dudalen o lyfr derbynebion sy'n dangos bod Capten Thomas Roberts wedi danfon setiau ar yr s.s. St George, Conwy ar hyd y rheilffordd ar Awst 12, 1879.

Fe adawodd chwech o wagenni'r seidins yn Graiglwyd a hwythau'n cario 29 tonnall a 3 chanpwys o setiau 3 ¼ modfedd wrth 7 ¼ modfedd ar y London and North Western Railway. Cafodd y setiau eu danfon i Gei'r Afon yng Nghyffordd Llandudno lle cawsant eu llwytho ar yr s.s. 'St. George'. Dydyn ni ddim yn gwybod yn union i ble'r oedd y cargo'n mynd ond i Lerpwl mwy na thebyg.

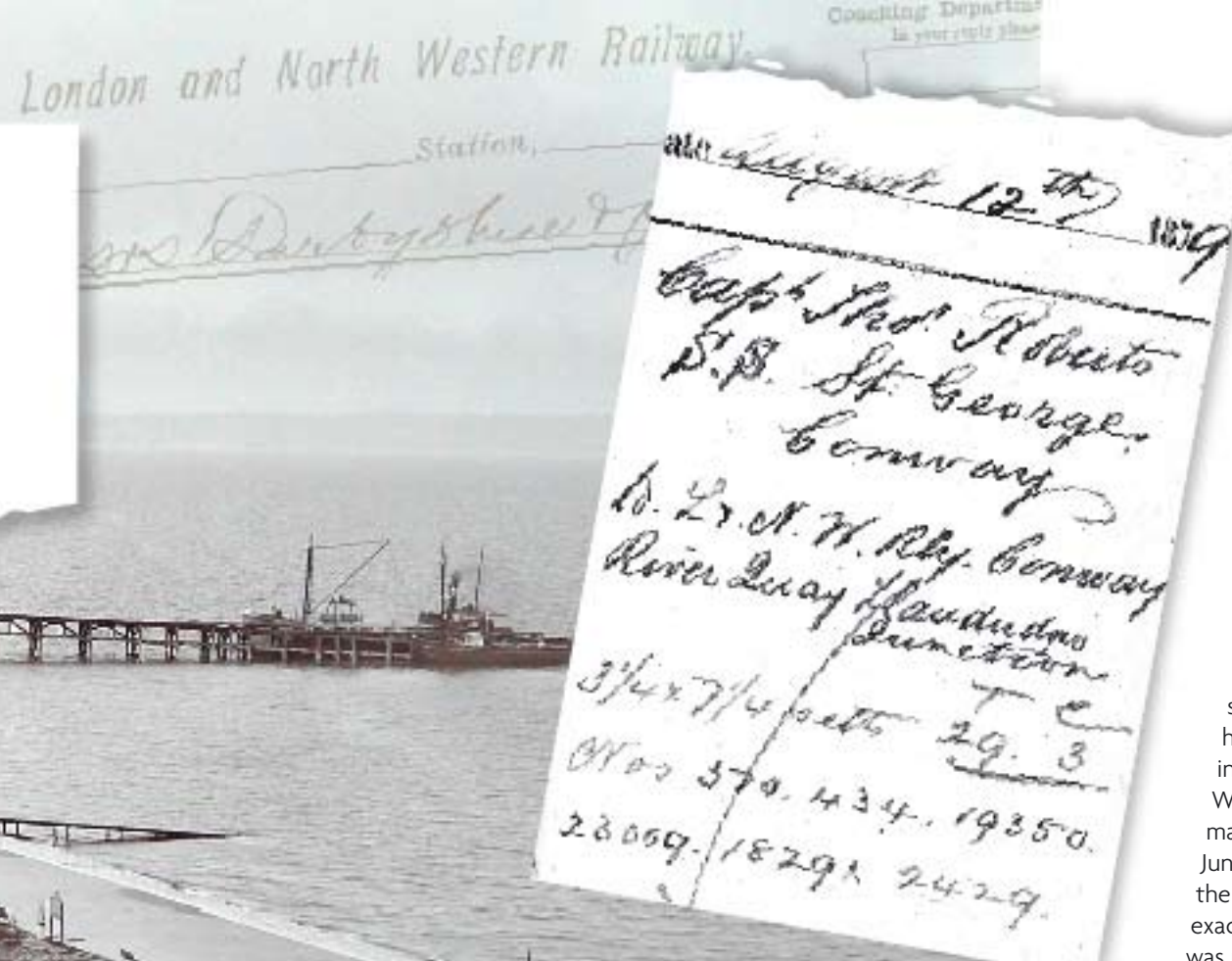
▲ Cilffyrdd wrth Gorsaf Penmaenmawr
Railway sidings at Penmaenmawr Station

Mynd â Cherrig i Ffwrdd ar hyd y Rheilffordd

Pan gydiodd y teulu Darbshire yn yr awenau yn Graiglwyd ym 1879 yr unig ffordd o anfon cerrig at eu cwsmeriaid oedd ar hyd y rheilffordd. Erbyn hyn roedd pob tref fawr wedi'i chysylltu â'r system reilffyrdd yn ogystal â threfi llai a phentrefi. Y fantais o ddefnyddio'r rheilffordd oedd bod y cynhyrchion cerrig yn gallu cael eu cludo i mewn i iardiau nwyddau a oedd yn aml wedi'u lleoli yng nghanol pob tref. Unwaith yr oedd y wagenni wedi'u llwytho â cherrig ym Mhenmaenmawr ni fyddai'n rhaid eu dadlwytho nes eu bod yn cyrraedd pen eu taith a'u bod yn agos at y cwsmeriaid. Dyma restr o orsafoedd rheilffordd sydd i'w gweld yn llyfrau archebion Chwael Graiglwyd o 1879. Mae'r gorsafoedd wedi'u rhestru yn y drefn y maent yn ymddangos yn y llyfrau:

- Mostyn
- Sandbach
- Chester
- Preston
- Bank Quay (Warrington)
- Wavertree
- Treffynnon
- Pemberton
- Northwich
- Blackburn
- Birkenhead
- Huddersfield
- Latchford
- Newton Bridge
- Y Fflint
- Anfield
- Crewe
- Saltney
- Leeds
- Cyffordd Llandudno
- Manceinion
- Abergele
- Llannerch-y-Môr
- Accrington
- Longsight
- Derby
- Sutton Weaver
- Bury

▲ Ceir'r Ynys neu Cei New York Island Quay or New York Quay



Delivering Setts by Rail and Sea

This is a page from a receipt book which shows that a delivery of setts was made by Captain Thomas Roberts on the s.s. St George, Conwy by rail on Aug 12, 1879.

Six wagons left Graiglwyd railway sidings carrying 29 tons and 3 hundredweights of 3 ¼ inch by 7 ¼ inch setts on the London and North Western Railway. The delivery was made to the River Quay at Llandudno Junction where they were loaded onto the s.s. 'St. George'. We do not know exactly where the cargo went but it was probably Liverpool.

Taking Stone away by Rail

When the Darbshires took over Graiglwyd in 1879 the only way to send the stone to their customers was by railway. By this time all large towns were connected to the railway system as well as smaller towns and villages. The advantage of using the railway was that the stone products could be taken right into goods yards which were quite often to be found in the centre of towns. Once the wagons were loaded with stone at Penmaenmawr they would not have to be unloaded until they arrived at their destinations and close to the customers. This is a list of railway stations which appear in the order books of Graiglwyd Quarry from 1879. The stations are in the order they appear in the books:

- Mostyn
- Sandbach
- Chester
- Preston
- Bank Quay (Warrington)
- Wavertree
- Holywell
- Pemberton
- Northwich
- Blackburn
- Birkenhead
- Huddersfield
- Latchford
- Newton Bridge
- Flint
- Anfield
- Crewe
- Saltney
- Leeds
- Llandudno Junction
- Manchester
- Abergele
- Llannerch-y-Môr
- Accrington
- Longsight
- Derby
- Sutton Weaver
- Bury





Llongau’n Ymweld â Jeti Graiglwyd

Mae’r canlynol yn dabl o longau a ymwelodd â Jeti Graiglwyd i gasglu cerrig ym mis Ebrill 1892.

Dyddiad	Llong	Porthladd pen taith	Yn cario	Tunelledd
Ebrill 6	s.s. Penmon	Runcorn	Cerrig Torri	120.6
Ebrill 8	s.s. Craignair	Lerpwl	Setiau 3 ¼ x 6 ¼	108.12
Ebrill 8	s.s. Flagstaff	Runcorn	Macadam 2 fod.	135.01
Ebrill 8	s.s. Hannah Beckett	Widnes	Macadam 2 fod.	140.12
Ebrill 9	s.s. Ant	Lerpwl	Setiau 3 ¼ x 6 ¼	159.4
Ebrill 11	s.s. Gertrude	Warrington	Macadam 2 fod.	81.7
Ebrill 11	s.s. Ada	Warrington	Macadam 2 fod.	86.6
Ebrill 19	s.s. Hannah Beckett	Runcorn	Macadam 2 fod.	99.19
Ebrill 22	s.s. Ant	Lerpwl	Setiau 3 ¼ x 6 ¼ Sianelau 12 x 18	153.5 15.2 } 168.7
Ebrill 23	s.s. Penmon	Runcorn	Cerrig Torri	110
Ebrill 25	s.s. Ant	Belfast	Setiau 3 ¼ x 6 ¼ Sianelau 12 x 6	197 5.7 } 202.7
Ebrill 25	s.s. Craignair	Lerpwl	Setiau 7 ¼ x 6 ¼	110.10
Ebrill 30	s.s. Temple	Lerpwl	Setiau 3 ¼ x 6 ¼	120.4

Cyfyngwyd y Darbishire Company i allforio mewn llongau o Gonwy rhwng 1879 a 1888. Ond, pan gafwyd yr hawl i ddefnyddio glanfa Graiglwyd yn 1888, cynyddodd trafnidiaeth y môr yn gyflym, yn enwedig ar gyfer allforio macadam a cherrig mân.

Fel y gallwch ei weld yn y tabl uchod, roedd Runcorn a Lerpwl yn fannau yr oedd cychod chwarel Graiglwyd yn mynd iddynt yn rheolaidd. Roedd llawer o gwsmeriaid yn Lerpwl ar gyfer y cerrig ac roedd Runcorn, oherwydd y cysylltiadau â phrif gamlesi, yn fan dosbarthu pwysig i drefi ym mhob rhan o Ogledd a Chanolbarth Lloegr.

Ships Visiting Graiglwyd Jetty

The following is a table of ships that visited Graiglwyd Jetty to collect stone in April 1892.

Date	Ship	Port of destination	Carrying	Tonnage
April 6	s.s. Penmon	Runcorn	Breakers	120.6
April 8	s.s. Craignair	Liverpool	Setts 3 ¼ x 6 ¼	108.12
April 8	s.s. Flagstaff	Runcorn	Macadam 2 ins	135.01
April 8	s.s. Hannah Beckett	Widnes	Macadam 2 ins	140.12
April 9	s.s. Ant	Liverpool	Setts 3 ¼ x 6 ¼	159.4
April 11	s.s. Gertrude	Warrington	Macadam 2 ins	81.7
April 11	s.s. Ada	Warrington	Macadam 2 ins	86.6
April 19	s.s. Hannah Beckett	Runcorn	Macadam 2 ins	99.19
April 22	s.s. Ant	Liverpool	Setts 3 ¼ x 6 ¼ Channels 12 x 18	153.5 15.2 } 168.7
April 23	s.s. Penmon	Runcorn	Breakers	110
April 25	s.s. Ant	Belfast	Setts 3 ¼ x 6 ¼ Channels 12 x 6	197 5.7 } 202.7
April 25	s.s. Craignair	Liverpool	Setts 7 ¼ x 6 ¼	110.10
April 30	s.s. Temple	Liverpool	Setts 3 ¼ x 6 ¼	120.4

Export by sea for the Darbishire Company was limited to shipping from Conwy from 1879-1888. However, once the right to use the Graiglwyd jetty was established in 1888, sea traffic expanded rapidly especially in the export of macadam and chippings.

As can be seen from the above table, Runcorn and Liverpool were regular destinations for the quarry boats from Graiglwyd. There were many customers in Liverpool for the stone products whilst Runcorn, because of the links to major canals, was an important distribution point to towns all over the North and Midlands of England.

A wyddoch chi?

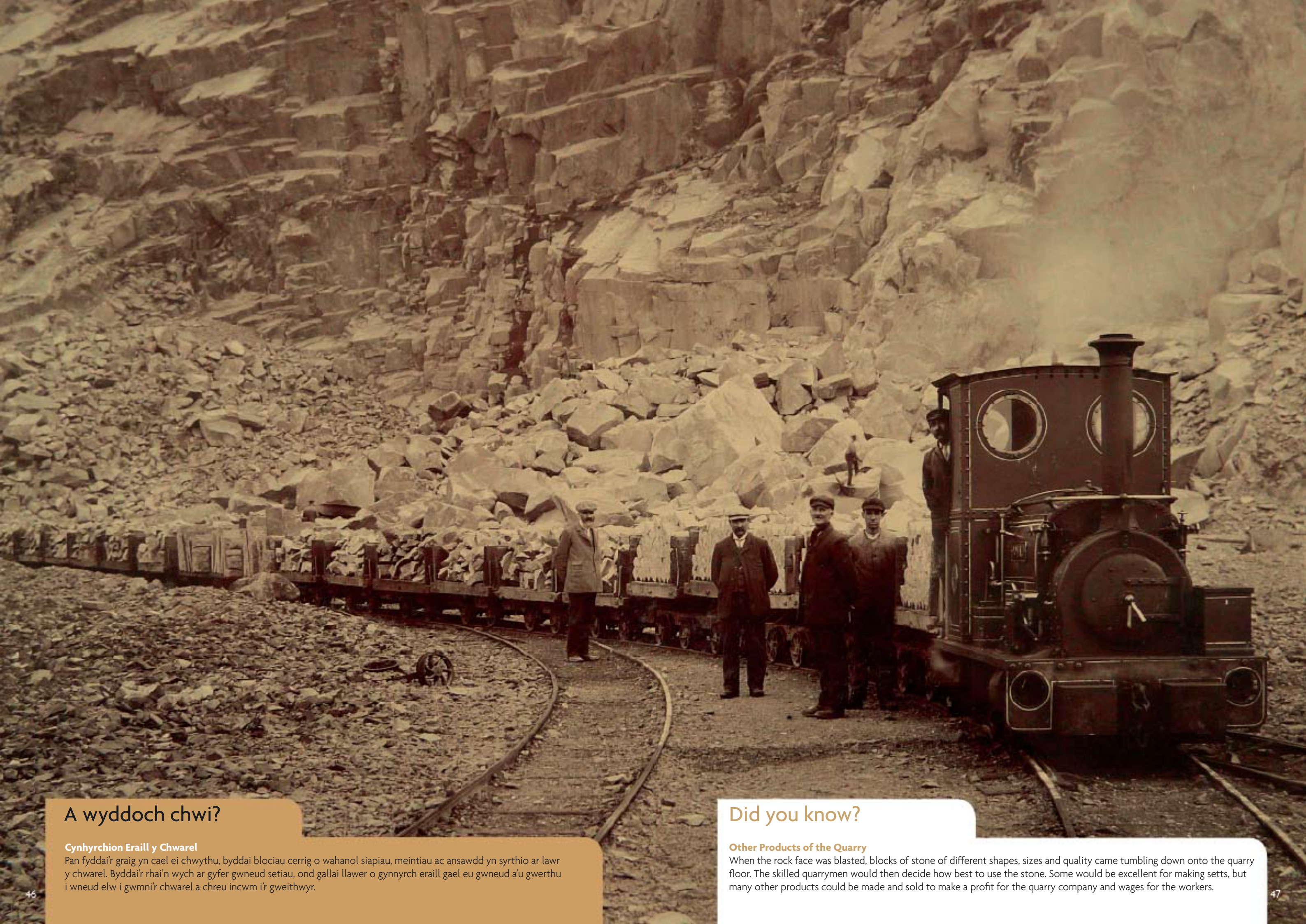
Carreg Adeiladu

Cerrig oedd y rhain a oedd wedi’u trimio’n fras ac a oedd yn cael eu defnyddio i adeiladu waliau tai a muriau terfyn. Roeddent yn gerrig o amryw feintiau a siapiau – weithiau â phedair ochr ac yn aml â thair ochr. Roedd eu rhoi gyda’i gilydd â mortar yn gwneud y seiri maen a oedd yn codi waliau’n bobl fedrus iawn yn wir. Roedd **conglifeini**’n cael eu trimio’n daclus ar ddwy ochr ac fel y mae’u henw’n awgrymu roeddent yn gerrig ar gyfer corneli allanol waliau.

Did you know?

Building Stone

These were rocks, roughly-trimmed and used to build house and boundary walls. They were of various sizes and shapes – sometimes four-sided and often three-sided. Putting them together with mortar made the stone masons who built walls very skilful men indeed. **Corner stones** were trimmed neatly on two sides and as their name suggests they were for the outside corners of walls.



A wyddoch chwi?

Cynhyrchion Eraill y Chwarel

Pan fyddai'r graig yn cael ei chwythu, byddai blociau cerrig o wahanol siapiau, meintiau ac ansawdd yn syrthio ar lawr y chwarel. Byddai'r rhai'n wych ar gyfer gwneud setiau, ond gallai llawer o gynnyrch eraill gael eu gwneud a'u gwerthu i wneud elw i gwmni'r chwarel a chreu incwm i'r gweithwyr.

Did you know?

Other Products of the Quarry

When the rock face was blasted, blocks of stone of different shapes, sizes and quality came tumbling down onto the quarry floor. The skilled quarrymen would then decide how best to use the stone. Some would be excellent for making setts, but many other products could be made and sold to make a profit for the quarry company and wages for the workers.

