

WELSH HIGHLAND HERITAGE

September 2016

ISSN 1462-1371

£2.00

Issue No. 72

Web : www.welshhighlandheritage.co.uk

BEDDGELERT WATER TOWER - UPDATE



During the winter months, I was busy making the bits and pieces necessary to complete the installation of the Main Line side delivery. Because the track is now further away from the tank than the original layout, the new delivery pipe must swing out from the tank. This requires a water tight swivel joint. The water crane at the Down end of Beddgelert Station has one.

It is effective, but very expensive, and a little too 'high tech' in my opinion for a heritage application.

But here we must back track a little – seventeen years to be precise – to the installation of the water facility at Waunfawr. There, we faced a similar problem, with the tank not only set back from the Main Line, but also too low to allow for a fixed delivery pipe. Contractors were pressing ahead with the new line, and the situation required some quick thinking. The pipe was required to swivel no more than 100 deg., so why not use the thread of the elbows? There are two elbows in the delivery system, the

Cedric Lodge has been working hard to complete the Heritage water tower installation at Beddgelert. He has provided these notes on his progress to date.

top one fixed to the tank pipe work, the bottom one capable of swivelling. The swivelling is achieved by the bottom elbow rotating via the connecting thread. To give the system a fighting chance of surviving the effects of corrosion, the top thread is a stainless steel coupling welded to the top elbow, the bottom thread being native malleable iron. The

arrangement was only expected to last a couple of years, by which time the Railway should have been operational to Rhyd Ddu, and we would have had time to devise a better solution for the long term. Remarkably, the arrangement has worked satisfactorily without undue demands for maintenance, for seventeen years! It is 'low tech', and can be replicated with comparative ease within our own resources. It was the obvious choice for Beddgelert.

The Waunfawr system uses 6 in. diameter pipes; the Beddgelert system 3 in. dia. pipes, so the bits and pieces

are easier to handle. The arrangement of the swivel is the same as at Waunfawr, but is a bit neater: the connecting thread which provides the swivel is a bronze bush, machined to suit, and secured into the top elbow with Loctite. The bottom elbow entry is relieved by a chamfer to allow the application of lubricating oil. A neoprene shroud is fitted over the top elbow to keep water out of the swivelling thread.

Here we meet the real problem: for the delivery pipe to function satisfactorily, it must be supported by a tie bar. Those of you who have seen the Beddgelert tank may have noticed a steel framework at the top of the tank at the Down end. This was included to provide the top anchor of the tie bar. For the delivery pipe to swing out, the centre line of its rotation must pass through the centre of the top anchor. The centre of rotation of the elbows was established in the workshop, and marked with a centre pop. However, there were two other variables to take into account: the axial distance of the centre pop from the tank in relation to the top anchor, and the angular setting determined by the threaded connections between the adjacent flanges.

With better weather and light nights, I was able to commence work on site (midges permitting). During initial trials, it became clear there was a third variable: the horizontal axis of the pipe connected directly to the tank; it was rising as it left the proximity of the tank. I felt justifiably chastened for not having thought of it earlier, and recalled the old adage: "if you are assuming something – don't!" The misalignment was plain to see once I knew of it. I took measurements using a plumb line, for which I needed dead calm conditions. To correct the misalignment required the pair of mating flanges at the tank to be about 3/16 in. apart at the top, whilst remaining in contact at the bottom. This was more than could be achieved by dextrous use of jointing material; it was going to need a metal spacer, made tapered. I did not relish the task. Bronze or brass would be a suitable material, and on my next visit to Dinas for a firing turn, I asked Andy Bird if he had any brass/bronze discs. To my delight and surprise, he found a piece just the right size (on diameter). To cap it all, when I returned at the end of the day, there was the disc, beautifully machined-including the required taper. The following weekend, I went back to Beddgelert, and fitted the disc. It was perfect. (I could not resist teasing Andy later, telling him it needed another 1/32 in. off).

I was now able to establish the displacement of the centre pop from the centre of the top anchor. Fortunately, the centre pop was further out than the top anchor by about 1/16 in. Packing washers of suitable thickness were inserted between the top arms and the tank to correct this. All that remained was to set the angular position of the centre pop. First, the screwed joints were marked, dismantled, treated with Hermetite sealant, and reassembled. Final setting was done using the plumb line, before the sealant cured. I got to within 1/32 in., which I judged to be acceptable.

The next problem was the top anchor. Because the pipe swivels on a thread, as it does so, it rises, so unless provision is made for it, the tie bar will slacken off as the swing proceeds. The pitch of a 3 in. diameter British Standard Pipe (BSP) thread is 1/16 in. Fortunately (and elegantly), this is the same pitch as 5/8 in Whitworth thread. I found a brass 5/8 in. Whitworth nut amongst my stock, and used this, caged in a bracket to which the tie bar is attached. The nut runs on a 5/8 in. Whitworth bolt, which is restrained from rotation by a locking plate on top of the top anchor jaw. All this would be open to the elements, if it were not for a disc secured to the top of the 5/8 in. Whit. bolt. To cap it all as one might say, the disc is an aluminium pan lid, which has found a new and useful life on the WHR.

The delivery pipe itself posed a bit of a problem. I did not want standard 3 in. galvanised pipe; it would have been too heavy, and still be subject to corrosion over time. Stainless steel offered a better solution, and being resistant to corrosion, it could be thin walled. But it was expensive, particularly as it could only be obtained in 6 m. lengths. So a trawl of the Internet located a supplier of HGV exhaust systems in the Midlands: right size, thin wall and cut to length. I contacted them, and found they could also supply (and weld on) a small radius elbow at the end. The order was placed, and Mike Hadley collected it and delivered it here. It is a beautiful piece of work. I already had a 3 in. BSP S/S spigot. I machined a reference diameter at the clear end, and Brunswick welded it to the HGV pipe.

The pipe was assembled and the tie bar connected. At the bottom end, the tie bar is attached to a collar clamped to the delivery pipe. There is a bottle screw in the tie bar linkage by which the tension in the tie bar is adjusted. When all was assembled, I set the tension by 'feel', and swung the pipe for the first time. All was well, and I celebrated with a double helping of ice cream from the Beddgelert ice cream shop.

The valves on each side of the tank are the butterfly type: a stainless steel disc rotates within a rubber cage. List price is around £140 each, but I got lucky-twice! First, in the scrap yard at Bletchley, second, in a scrap yard on the A500 near Uttoxeter. Both work fine.

The control on the Siding side is as collected, and needs a bit more refinement. The control on the Main Line side is a cross piece (like Waunfawr), which allows operation of the valve from the ground or the loco. being watered. The cross piece is made, and is ready to fit.

There remains the thorny problem of how to store the bags when not in use. I have a plan for the Main Line side bag, but experience will determine its success.

I am committed to having the tank operational for the Superpower Weekend, so pay Beddgelert a visit, and see the installation for yourself.

TWO STATIONS AND A SIGNAL CABIN

(Oh! and a weighbridge)

TRYFAN JUNCTION:

On Saturday 30th July the earth moved at Tryfan Junction, well at least some of it did as the container was dragged out on to a lorry and taken to Betws Garmon. This has left the site looking much better and will enable us to start our long-standing intention of building a siding (actually a disconnected length of track) on which to display a rake of typical slate wagons. Other plans include: replacing some of the fencing (courtesy of the WHRS) and providing an information board, either inside or outside the building, giving a brief summary of the history of the signal cabin (the remaining stonework of which has been stabilised to prevent further degradation).

There are plans to open the station building on many more occasions in future, starting with SuperPower (9th to 11th September) when the building will be open for all of the three days. 'Heritage' trains will be run this year with 'Photo' stops at Tryfan Junction.

The more people who are prepared to volunteer to help supervise, the more frequently will the building be open in the future.

BETWS GARMON STATION:

The driving force behind the restoration of Tryfan Junction Station Building was undoubtedly Lewis Esposito. Well, Lewis is all fired up again, this time over Betws Garmon Station Building. Lewis has come up with a scheme to convert it into a holiday cottage, the building itself being renovated to the same standard as Tryfan Junction and fitted internally in a 1930s style. Clearly, there would be significant physical, operational and management hurdles to be overcome to allow this to be achieved. However, Lewis, Cedric Lodge and I have produced an 'information paper' which our chairman Nick Booker has circulated to the Board of the Ffestiniog and Welsh Highland Railways Heritage Company, a subsidiary of the Ffestiniog Railway Company. We await the feedback and, if it is positive, we will submit a formal application.

As noted above, there are many obstacles in the way. For example we will need planning permission and an agreement will be needed between the WHR Heritage Group and the Company. The track is currently too close to the building and so would have to be moved over. Lewis estimates the restoration would take several years to complete. It is unlikely that the site will ever be used as a station again.

PEN Y MOUNT SIGNAL CABIN:

I am sure that members will be aware that this is actually a replica of the Cambrian Crossing Box which, due to difficulties over land ownership and Network Rail's reluctance to have it close to their track, is now located at the junction of the Heritage Railway and the F&WHR. I think it is safe to declare openly that the replacement building was not up to the standards of the original! So far, we have had to carry out relatively major works on the roof, line the inside and completely replace and reattach the staircase structure. Much of this work was carried out by two volunteers: Lyndon Cooper and Steve Broomfield.

As I reported in *WHH69*, our final problem is that the paint won't stay on. After all manner of experiments, we have decided to replace most of the shiplap cladding and the door, which is rotting. We have now ordered the replacement shiplap timber from Davies Timber of Hollywood, Birmingham. The shiplap cross-section is not a standard one, so they are machining the section to a matching profile supplied by me. The new timber is Redwood. Once machined, they will pressure treat it. Members of the West Midland Group will cut it to its correct lengths, prime it, undercoat it and top coat it in the West Midlands. However, if the timber is wet (after pressure treatment), we will not paint it until it is dry: we are not falling for that one again!

This will all be done in the dry, and all surfaces will be painted. This means that the timber will be painted on all sides and we will not be sealing in damp.

Davies Timber is also supplying an external grade hardwood door to match in appearance the one supplied that has significantly deteriorated.

Lyndon and Steve have indicated that they may be prepared to fix the new shiplap in place.

And the weighbridge?

GLAN YR AFON WEIGHBRIDGE:

This proved to be a bridge too far! The Group were asked to consider renovating the weigh house at Glanrafon as our next project. Access to this site is just too difficult, the only road access being by agreement with a landowner, and access along the track bed requires the accompaniment of Tracksafe Supervisors. It's just too impracticable for the Group to undertake this particular project.

The North Wales Narrow Gauge Railways: As Pictorial an History as Possible. By John Keylock (Part 8)

1884

69.0 Following the 'excitements' of 1883, 1884 proved a comparatively quiet year.

The Official Returns for March 1884 record that there were station masters at each of the eight stations where they also performed signalman's duties. There were two guards, two drivers and two firemen, plus one ganger and four platelayers which represented the entire non-managerial staff.

Passenger numbers were showing an increase that would continue almost to the end of the century – more season tickets were being sold. Freight traffic was increasing steadily and indeed would do so until 1903. Enhanced revenues were all very well but, since the initial equipping of the railway, the locomotive *Beddgelert* had been purchased out of revenue. Furthermore, track replacement was already in hand and 'maintenance of the way and works' would generally cost more until the end of the century.

1885

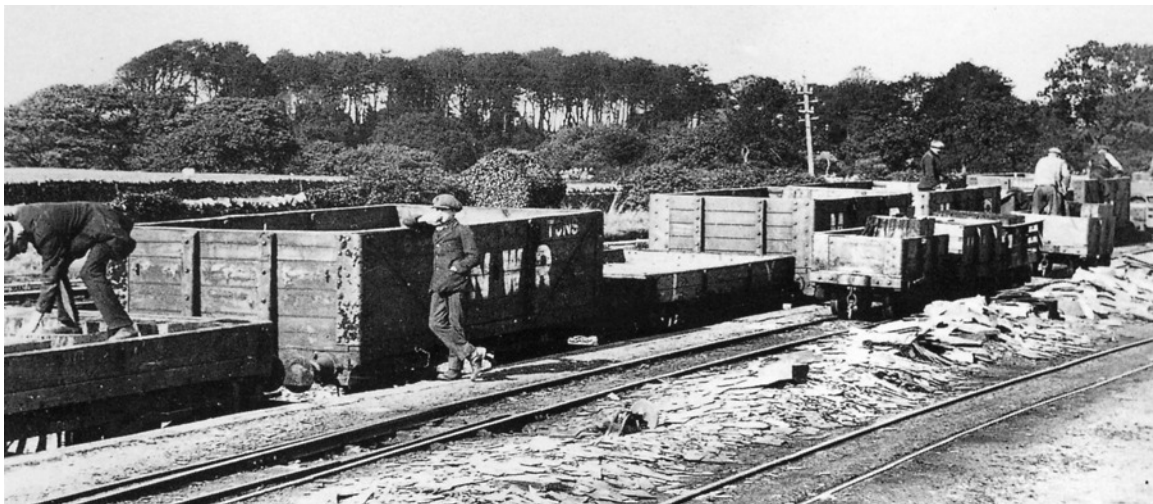
70.0 The major event of 1885 was the consideration by Parliament of the NWNCR Bill to extend their line from Dinas to Carnarvon. This was a sensible and logical wish as it would overcome the labour intensive transshipment - particularly of outward slate - at Dinas. Slate breakage would also be reduced. It is hardly surprising, however, that the LNWR were the only serious petitioners against the bill as they stood to lose both freight and passenger revenue.

Recall also the cost to the LNWR for having established the Dinas facility in 1876; and Sir Llewellyn Turner's contention that the NWNCR should have started at Bontnewydd anyway!

To construct this proposed line - giving direct access to Carnarvon for the slate quarries, mines and passengers served by the NWNCR - would cost £16,000 and according to Mr. Russell was absolutely necessary if the railway was ever to be worked at a profit. Transshipment costs were one reason why the railway was in Chancery - with Russell as Receiver.

Apart from Russell giving supporting evidence to the Select Committee, Sir Llewellyn Turner appeared as chairman of the Carnarvon Harbour Trust on whose land the extension was proposed to terminate on the opposite bank of the Afon Seiont requiring the river to be bridged. Robert Livesey, Mr. John Menzies, Managing Director of the Alexandra Quarries, Mr. Edward Huntley Owen J.P. and Mr. W. B. Jeffery, mining engineer and manager of Braich Quarry, all gave evidence in favour of the extension. Carnarvon Corporation and Chamber of Commerce were also much in favour of the extension.

In June the Bill went before the House of Lords Committee where the advocates of the extension offered the same reasons for its building. By way of compromise the LNWR suggested carrying narrow gauge wagons loaded with slate on standard gauge host wagons as was the practise on the Padarn Railway from the Llanberis Quarries to Port Dinorwic. Mr. Jeffery, who was also a member of the Carnarvon Harbour Trust, regarded the suggestion as impracticable as there would



The 'Dinas Junction Problem' identified by the NWNCR in their evidence to Parliament in 1885. Note the 'hive of industry' and the considerable pile of broken slate to the right of the narrow gauge wagons. Admittedly this photo was actually taken in the 1920's but little had probably changed since the 1880's. - L&GRP 2461 (WHHG 20)

be insufficient space to accommodate them on the new slate quays as envisaged. The Harbour Trust had resolved to provide the necessary funds to bridge the Seiont giving the narrow gauge line access to the proposed new quays.

The Alexandra Quarry was represented by its Chairman Sir Thomas Bateson MP. His quarry employed 200 men and he was so anxious for the proposed extension for the benefit of all local quarries – and indeed inhabitants – that he has subscribed toward the parliamentary expenses of getting the present bill passed. The Rhostryfan postmaster and a Waenfawr shopkeeper both spoke in favour of the bill but it was Russell who weighed in at length.

Russell, as Chairman since 1879, reiterated the trials and financial tribulations attendant upon opening the Moel Tryfan Undertaking and problems were now compounded by the uneconomical transshipment procedures at Dinas. Furthermore, there was no passenger train co-ordination due to the LNWR's intransigence who, it was felt, wished only to crush the NWNGR. The Bill was given a second reading the following day.

The only other objector to the Bill was local landowner Mr. Price Thomas, whose civil engineering consultant claimed that building the railway 'would seriously damage and interfere with his estate's natural beauty and sever it from the waterfront'. He also suggested that the estimated cost of building the extension was too low. Another witness for Mr. Price Thomas suggested that the proposed new slate quays would considerably depreciate the value of his client's property.

Mr. Findlay, General Manager of the LNWR, supported by three QCs, said that his company was making special trucks to carry narrow gauge wagons and 'he hoped that these would be in use in a few weeks'. Based on the railway's track record to date he doubted that the scheme would attract public subscription knowing that Mr. Russell and those acting with him had 'no money in their pockets'. Mr. Findlay suggested that those giving evidence in favour of the Bill 'had been solicited, had all expenses paid and perhaps given a fee as well'. (Laughter)

Mr. Livesey conceded that the railway had been a failure since it opened. This was attributed to 'the delay and expense occasioned at Dinas'. Making the extension would show a saving of at least 1/- per ton on goods and 6d a ton on minerals, which would be a great gain to the district's quarry owners. With regard to through booking arrangements he suggested that the LNWR did not regard the narrow gauge line as 'a safe concern'.

The extension had been surveyed and costed by Mr. James Weeks Szlumper, another personality who would return to the NWNGR scene later. It would be easy of engineering (running parallel to the LNWR) and would

not injure Mr. Price Thomas's property (Coed Helen?) in any way. However, in conjunction with the extension it was planned to replace the Bryngwyn incline with a spiral track to enable direct train access to the quarries. If the extension were not built there would be no point in building this diversion.

Mr. Saunders QC on behalf of the LNWR said that if the Bill was rejected their Lordships had a remedy for slate breakages at Dinas (the host wagons) and the LNWR would have to renegotiate working arrangements. Mr. Rodwell QC on behalf of the promoters said 'a more selfish, ungenerous opposition was never shown to any Bill' and felt the committee was perfectly justified in passing the Bill with or without the bridge which matter could be dealt with subsequently by the Harbour Trustees. The preamble to the Bill was then approved and the Act passed in July.

71.0 J. A. Huddart, who had been involved at the Railway's beginnings, was now in debt. He left the Brynker Estate and died in London.

72.0 In September 1885 the Annual General Meeting of the NWNGR was held at the Adelphi Hotel in Liverpool to receive the director's half yearly report and statement of accounts to the 30th of June. Based on the corresponding period in 1884, receipts showed an increased income from passengers and goods traffic and from 'miscellaneous sources'. Having paid the half yearly interest on 'A' debenture shares and arrears of interest left a balance of £76-3s-9d that would be carried forward to the next half year. Compared with today's figures this would seem to be but a nominal amount but £1 then would be equivalent to over £100.00 today.

The Chairman (Russell) pointed out that these results were satisfactory showing that the traffic on the line was steadily increasing, and the additional traffic worked out at a comparatively small additional operating cost. The proprietors would learn with great satisfaction that the Bill promoted by the Company for a line of three miles from the present terminus at Dinas Station to Carnarvon Harbour and a line of two miles from Bryngwyn was successfully carried through Parliament, and that the Act received the Royal Assent on the 31st July. The construction of the lines would greatly increase the earning power of the existing system of the company, and would greatly add to the value of the undertaking. The adoption of the report and statement of accounts was moved by the Chairman, seconded by Mr. J. Lloyd, and was unanimously agreed to by the meeting.

1886

73.0 During 1886 track renewal continued and Livesey introduced two devices in an attempt to reduce further maintenance. Most important was his anti-spreading bar. This was made from a 'wide length of flat iron bar with a 180-degree curve at each end which slotted into the outer flanges of the new

flat bottom rail'. Initially these were tried on the sharpest curves but with results being better than anticipated three per 24 foot rail length were fitted throughout the line. These tie bars saved platelayers time and increased sleeper life as, before their introduction, sleepers were rendered prematurely useless by constant re-spiking. Many of these tie bars were found along the track bed during 21st century reconstruction of the WHR. Additionally, he used barbed dog spikes to better 'bite' the wooden sleepers.

1887

74.0 In March 1887, the three 4-wheeler carriages were taken out of service and before disposal were stored at Rhyd Ddu.

In July - presumably for the benefit of a forth coming half-yearly meeting - Livesey reported to Russell on works carried out on the railway in the half year to June. A copy of his report is reproduced below. By

the end of the year three miles of railway had been re-laid since January 1884.

The September 1887 half yearly meeting of Shareholders and Directors in Liverpool was presided over by Sir Llewellyn Turner who explained the delays caused by slate transshipment at Dinas. To overcome this problem, shareholders were asked to approve a resolution to extend the line from Dinas top Caernarfon as empowered by the July 1885 Act of Parliament. The total cost including that of the Act would be about £20,000 (£2.2 million in today's money) and a great saving would be affected by avoiding all the expense at Dinas. Shareholders would benefit. It was expected that the cost of the extension would be even less over the years than deputing traffic to the LNWR as at present. The resolution was passed unanimously on a motion by Mr. C Davidson, seconded by Mr. J Lloyd. The spiral route for use by locomotives from Bryngwyn to the Drumhead was not to be proceeded with at present.

NORTH WALES NARROW GAUGE RAILWAYS CO.

DINAS STATION
NEAR CARNARVON

July 1887

TO J.C. RUSSELL, Esq.,
CHAIRMAN OF THE NORTH WALES NARROW GAUGE RAILWAYS

SIR,

I beg to report that during the Half-year ending 30th June last, the Permanent Way and Works of this Railway have been satisfactorily maintained together with the Engines, Carriages and Wagons.

During the Half-year 2,000 New Sleepers have been laid on the Line, and about 50 tons of Steel Rails weighing 41¹/₄ lbs to the yard.

The two Fairlie Engines have been thoroughly overhauled. The Wheels of one of them have been fitted with New Tyres, and the Firebox of the other has been restayed and a New Set of Brass Tubes put in the Boiler.

Two Bridges carrying the Railway over the River Gwyrfaï near Nant Mill and Bettws Garmon have been re-timbered throughout.

The whole of the Stations and Signal-boxes have been re-painted during the same period.

I am Sir,
Your obedient servant

R.H. LIVESEY
General Manager

NWNGR Wagons - Slate Stock

When I started this occasional series (in *WHH64*) I was well aware of the ‘can of worms’ potentially to be unleashed. In that first article I wrote:

Other historians when considering the Railway’s goods vehicles have noted the same data sources [the Company’s Board of Trade Stock Returns and their six-monthly accounts] but repeatedly have come across significant discrepancies between these sources, more often than not apparently due to differences in the perceived uses for particular vehicles and therefore in their descriptions by the particular recorders. Indeed, in previous histories these differences have often been described as ‘irreconcilable’.

In parallel with John’s history of the NWNGR, it would seem appropriate at least to attempt to shine some light into the murkier corners of the Railway’s Goods Stock story. To do this we will look at what we know – in addition to the two sources noted above, our other main source will be photographs – and we will explore what we can deduce where we do not ‘know’. Clearly there will be speculation, but if this is supported by reasoning others may wish to pursue the subject and hopefully offer additional clarification. I hope that this occasional series will prove productive!

Discussions prompted by my notes on the Covered Vans have, I think, proved fruitful so it is perhaps time to embark on another topic. I have been putting off addressing the particular issue of slate wagons but it is now ‘bite the bullet’ time!

I refer above to ‘what we know’ but, before commencing this discussion, I believe we must first forget what we think we know. I am fairly confident that many of us, perhaps most of us, when presented with the phrase ‘slate wagon’ will immediately conjure a similar mental image. After all, the Festiniog Railway owned and operated over 1000 slate wagons, some wooden, most metal, some of 2-ton capacity, some 3-ton, some braked, some not, but all of a generically similar ‘open slat’ design. The Penrhyn and Dinorwic Quarries, to name but two, used very similar-looking vehicles so it would be unsurprising if this basic image was triggered when seeing the descriptor ‘slate wagon’ in the context of the NWNGR story. However, this, as we will see, would not be appropriate in this case.

In 1921, Major G. C. Spring, a former Royal Engineer, reported on the Croesor Tramway and the remaining elements of the NWNGR at the request of Festiniog Railway management. Within this wide ranging analysis, he summarised NWNGR rolling stock, including goods stock, leaving us the following list of surviving wagons⁽¹⁾:

4-wh. Brake Van (fitted continuous brake)	1
Slate Wagons (various)	90
2-Ton Open Wagons	12
4½-Ton Coal Wagons	13
Bolster Wagons	14
Bolster Runner Wagons	20

We can obviously debate Spring’s interpretation of these vehicles and their uses – some of the descriptions are quite specific, for example the 13 “4½-Ton Coal Wagons”, and some less so.

In the following year, Robert Williams (the Boston Lodge Locomotive Superintendent) was despatched to Dinas by Col. Stephens to review the surviving NWNGR carriage and wagon stock. Following this visit he simply listed this stock⁽²⁾ but then, another year later, he produced a report summarising the condition of this stock⁽³⁾.

If we compare the two Williams’ lists, from 1922 and 1923, we can see that the descriptors used in his first summary were essentially functional and he appears to have built his assessment around the tasks to which each type of wagon was put.

Slate Wagons	82
Goods & Coal Wagons	19
Goods Vans	0
Timber trucks	12
Slab trucks (runners)	11

However, when he later wrote his report he used as descriptors terms that more obviously represented the physical nature of the vehicles in question.

Iron Crate Wagons 29, Box Wagons 46, Coal Wagons 13 (bottoms very bad), Goods Wagons 5, in fair condition. Timber trucks 12 Bolsters, the whole in bad state, solebars broken and roughly patched. Check trucks 11. The 11 are in a very dilapidated state as far as the woodwork is concerned, but several good wheels and axles. A large proportion of the wagons with bad wheels much worn, flanges too high, flats, and require re-turning and new wheels. There are 15 Iron Crates, tops minus bottoms, and wheels in good condition.

June 1923

If we compare these three sources with the Railway’s 1921 and 1922 Board of Trade Returns we have five essentially parallel, and presumably comparable, sets of information. These five lists are intriguing as, on the face of it, they simply confirm their apparent inconsistencies and the difficulties with their reconciliation referred to above.

However, let us not forget the oft-quoted observation generally attributed to Sir Josiah Stamp⁽⁴⁾ (1849 -1941):

“The Government are extremely fond of amassing great quantities of statistics. These are raised to the nth degree, the cube roots are extracted, and the results are arranged into elaborate and impressive displays. What must be kept ever in mind, however, is that in every case, the figures are first put down by a village watchman, and he puts down anything he damn well pleases.”

I would suggest that the work of Spring and Williams, whilst perhaps suffering from issues of interpretation, are inherently more reliable than the Company's BoT Returns – at least in their case we know who was actually “putting down” the basic information! The BoT Returns do appear particularly difficult to reconcile, especially if earlier years' figures are also considered. However, there are threads of consistency through the work of Spring and Williams. For example, Spring recorded 13 large coal wagons in 1921 and Williams showed the same 13 in his report two years later.

However, there are differences. For example, where in Williams' work was the Brake Van recorded by Spring? How can we reconcile the apparently large differences in the numbers of ‘Open Goods’ and ‘Runners’ reported by the two analysts? I will leave these as possibly tantalising thoughts to be addressed in future articles. Apropos of our previous notes on covered vans, note that none of these data record any such vehicles.

The following table summarises the five sets of information discussed above.

Description adopted by the ‘reporter’ in each case.	BoT Return		Spring	Williams	
	1921	1922	1921	1922 List	1923 Report
Slate	13	94	90	82	
Iron Crate					29
Coal			13		13
Timber Trucks	18	13	14	12	12
Open Goods	82	9	12		
Goods and Coal				19	
Goods Wagons					5
Box Wagons					46
Slab Trucks (Runners)			20	11	
Check Trucks					11
Brake Vans			1		
Total	113	116	150	124	116

For now, however, let us look specifically at the ‘slate wagon’ figures. The 1921 BoT Return listed 13 ‘slate’ and 82 ‘open goods’ wagons – a total of 95 – whilst in 1922 the Return listed 94 ‘slate’ and only 9 ‘open goods’ – a total of 103. With there being no specific reference to the large coal wagons we have to conclude that either these were omitted for some reason or that they are included in the numbers presented. The larger totals offered by Spring in 1921 and by Williams in 1922 would appear to suggest omission, begging the question as to why the Railway's staff would, apparently deliberately, take such a step?

To summarise, the BoT Return in 1921 can be interpreted as reporting 95 slate wagons whereas the 1922 Return specifically lists 94. Spring recorded 90 in 1921 and Williams noted 82 in 1922. In 1923 Williams identified 29 ‘crates’ and 46 ‘box wagons’ – a total of 75 – but he also noted “15 Iron Crates, tops minus bottoms, and wheels in good condition”. Assuming that these ‘crates’ were not included in the 29 listed earlier this would suggest a total number of 90 ‘slate’ wagons. It would seem that Williams' review was perhaps more critical than Spring's as he was perhaps ‘writing off’ wagons that had simply been counted in the earlier review.

These figures, particularly the 1923 Report figures, are interesting in that they clearly show that, at that time, the numbers of ‘slate’ wagons were fairly evenly divided between the ‘box’ type and the ‘crate’ type. Indeed, photographs, such as we have covering this period, suggest that this was probably the case from the earliest days of the Railway.

In their 1881 Accounts, the Company declared 90 slate wagons. By 1891 this had increased to 118 and to 120 by 1895. The declared total reduced to 97 in 1909, 95 in 1911 and 74 in 1912. These data offer no clues as to the nature of these wagons, but the ‘flurry’ of information from the early 1920's gives us a glimpse of their make-up at that time, based on which, together with available photographic evidence, we can at least speculate as to the likely make-up over the early years.

In these notes I will therefore look in particular at the ‘box’ wagons used by the Railway primarily for the transport of slate. In a future issue I will look at the ‘crate’ wagons.

Small ‘Box’ Wagons

Sample wagon numbers (from photographs); 5, 35, 37, 50, 56, 57, 58, 70, 121.

Photographs show there to have been distinctly different designs of small box wagon used by the Railway. However, we have to exercise care when assessing such photos to ensure that we are really looking at NWNCR/WHR wagons and not at ‘visiting’ FR wagons.

We have one official manufacturer's photograph showing a wooden box wagon apparently intended for the NWNCR (figure 1). However, assessing those photographs available to us so far, only one of these wagons has been identified at the Railway, and that in an apparently abandoned state (figure 2).

The most numerous box wagons to one single design appear to be the type shown in figures 3 and 4. Boyd has suggested⁽⁵⁾ that the angle irons supporting the sides of the wagons were indications of repairs, replacing the original wooden battens damaged in service. However, all of the photographs of these vehicles show these angle irons and there is no indication that they were ever fitted with wooden battens. Indeed, wagons that were fitted with such battens were to be seen right up until the final days of the WHR/FR.

In early 1917, one of the Dick, Kerr petrol electric locomotives, a design destined for the Western Front, was trialled on the NWNCR. One of the photographs from

those trials shows the locomotive coupled to a Pickering brake composite carriage and a rake of at least 8 of these wooden box wagons. Rarely in photographs of NWN GR or WHR wagon rakes do we see such a consistency of wagon type in a single rake!

Remains of these vehicles were photographed by Wheeler in 1935 (figure 6) and by Casserley in 1941 (figure 7).

The design of these wagons was fairly simple comprising a wooden under frame supporting wheel axles through various designs of axle box supports. The wagon floors were formed of transverse planks laid across the top of the under frame and held in place by the side and end planks which were tied to the under frame by two T-section angle irons on each side. The end planks were tied to the side planks by 90-degree angle irons fastened with a single column of bolts on each face. The joint between the corner irons and the under frame was reinforced by additional metal strap at each lower corner.

If we look at the photograph reproduced on page 4 as part of John Keylock's NWN GR history we will see three further types of wooden box wagons.

The wagon nearest to the camera (enlarged in figure 8) and the fourth wagon from the camera are both of a similar design but quite distinct from the 'standard' wooden wagon discussed above. However, they do differ from each other as the farther wagon is clearly larger than that in the foreground. This design of wagon with its much broader corner angle irons - with a staggered double row of bolts making attachment to the end planks - and wooden battens tying the side planks together is virtually identical to certain wagons owned and operated by the FR, begging the question as to whether these were indeed 'visiting' FR wagons. The generally accepted dating of this photograph, together with at least one other photograph which shows a very similar wagon in clearly an NWN GR-era view suggests that these were indeed NWN GR wagons. Their similarity to these FR wagons does suggest that they might

well have been manufactured for the NWN GR by Boston Lodge.

The second wagon in this line up (figure 9) appears to be of yet another design variation. If viewed side-on, this would appear to be a 'standard' (if there were such a thing) NWN GR box wagon. However the end detail is significantly different. Gone are the angle irons that reinforced the corners and the sides are apparently tied to each other by three metal straps which also support the end timbers. This wagon, or one like it, can be seen in other photographs⁽⁶⁾ but nowhere do we see more than one at any one time.

The Railway appears to have acquired its goods rolling stock from a number of sources and as a result functionally similar vehicles do display significant differences one from another. There appears to be a general consensus as to the total numbers of wagons allocated to slate carriage and how this total varied with time. Analysis of the 'data-rich' period around the time of opening of the WHR suggests that rather more than half of these slate vehicles were of the 'box' variety. Photographic analysis continues, but to date 13 distinct slate wagons (9 'box', 4 'crate') have been identified specifically by number. The search continues!

¹ J.I.C. Boyd, *Narrow Gauge Rails in South Caernarvonshire*, Vol. 1, (1988) page 238

² J.I.C. Boyd, *Narrow Gauge Rails in South Caernarvonshire*, Vol. 2, (1989) page 69

³ Ibid. page 70

⁴ Josiah Charles Stamp, 1st Baron Stamp GCB GBE FBA (21 June 1880 – 16 April 1941), was an English industrialist, economist, civil servant, statistician, writer, and banker. He was a director of the Bank of England and chairman of the London, Midland and Scottish Railway.

⁵ J.I.C. Boyd, *Narrow Gauge Rails in South Caernarvonshire*, Vol. 1, (1988) page 236

⁶ e.g. Locomotive Publishing Company No. 1662 (later LPC/REAL 77879)



Figure 1 (left) - Maker's photograph of a drop-sided wooden slate wagon for the NWN GR - Gloucestershire Records Office D 4791/16/1

Figure 2 (right) - For many years, apparently, a single wagon lay out of use at Rhyd Ddu/Snowdon Station on the NWN GR. This wagon can be seen in a number of photographs - figure 2 is an enlargement from a Francis Bedford (the Company, not the man who died in 1894) image of 1897 published by Catherall and Pritchard as their C&P 2754 (WHR 66). '2754' is a Bedford Archive image number which aids us in dating the photograph via the Francis Bedford Archive at Birmingham Library. Apart from minor detail in the axle box support area, the comparison between the two images is compelling. Wagons of this type have not been in any other NWN GR or WHR photographic location, unless any reader can advise to the contrary!



Figure 3 (left) allows an early glimpse of a 'standard' NWNGR wooden slate wagon (no. 35) seen alongside standard gauge stock at Dinas Junction - Gwynedd Archives.

Figure 4 (right) is an enlargement from a photo showing a line of derelict stock at Dinas Junction after the closure of the WHR - WHR77. These two photos show some of the wagons' construction detail and also show there to have been at least two different designs of axle box support adopted by their manufacturer(s?).

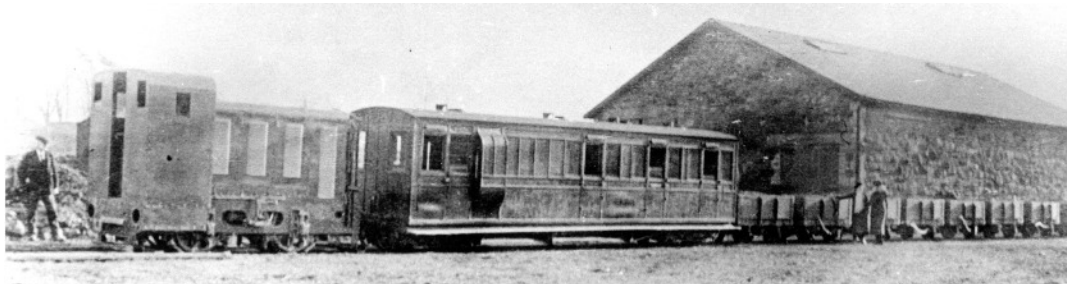


Figure 5 - A rake of at least 8 of the 'standard' NWNGR box slate wagons attached to the rear of one of the Pickering brake composites at Dinas Junction during the trial of a Dick, Kerr petrol-electric locomotive in early 1917 - WHR132



Figure 6 (left) - H.F. Wheeler August 1935 (Wheeler 14/12) - and Figure 7 (right) - H.C. Casserley July 1941 - show examples of NWNGR 'standard' wooden slate wagons in various stages of decay.



Figure 8 (left) and Figure 9 (right) are enlargements from WHHG20 (reproduced in full on page 4) and demonstrate two distinct designs of wooden box wagon, each unlike the 'standard' design of wagons shown in figures 3 to 7 above.

From the Editor

Nick Booker has sent me the following appreciation of J.C. Russell's grand-daughter.

Evelyn Mary Gordon Pangman 1926 - 2016

Evelyn Pangman, who has died in Canada aged 90, was the younger daughter of Sydney and Margaret Saunders. Margaret, was the only child of James Cholmeley Russell and his wife Eleanor. She married Sidney Saunders in 1919 and their first daughter Elizabeth, always known as Betty, was born in 1922, she died a spinster in 1998. Evelyn was born in 1926 and grew up in Surrey, never knowing her father, who had died before she was born. Towards the end of the Second World War Evelyn met and married Peter Pangman a Canadian Navy Officer stationed in England. They subsequently moved to Canada. Peter died in the 1990s. Through a combination of some research by Dewi Thomas and some serendipity I tracked down Evelyn in 2004 and spoke and corresponded with her and she very kindly sent me some family photographs of JCR, which are as far as I know the only photographs we have of the man who had such a significant influence on the narrow and standard gauge

railways in Wales. Evelyn was a feisty lady and much enjoyed the outdoors and sailing with her husband.

Ben Lowry, one of her grandchildren is now the custodian of the Russell family archive including JCR's shooting trophies. Evelyn had recently enjoyed her 90th birthday and is happily remembered by son Michael, daughter Wendy, five grandchildren and six great grandchildren.

Nick Booker



(continued from p. 12) photograph was taken before the re-boiling of 1902. However, the sand-boxes had been relocated to the same position as those fitted to *Moel Tryfan*. Why were these boxes relocated? If this were driven by practical reasons, why then was the original installation re-instated when the locomotive had its new boiler fitted in 1902?

Figure 4 offers us a much clearer view of *Snowdon Ranger* fitted with sand-boxes 'a-la *Moel Tryfan*' but, unfortunately, from an angle that prevents us easily to determine whether this photo pre- or post-dates the new boiler. Normally our second line of identification as noted above would be the maker's plates but, again unfortunately, the locomotive in figure 4 was not carrying maker's plates when this photo was taken. Yet again this begs the question - why?

It would seem that SR's original sand-boxes were replaced by MT 'look-alikes', possibly in the early to mid 1890's, only to be re-instated when the locomotive was re-boiled in 1902. Finally the sand-boxes were removed around the time of the outbreak of World War 1.

Whatever the answers to these questions might be, and whatever precise timescale might yet emerge, it remains the case that for an apparently limited period an obvious configurational difference between *Snowdon Ranger* and *Moel Tryfan* temporarily disappeared. Determining which of these locomotives is which in photographs where one cannot read the name-plate is perhaps not as clear-cut an exercise as it might have first appeared!

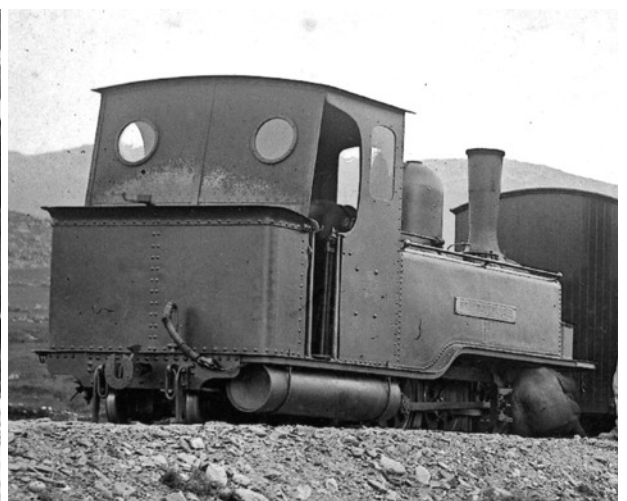


Figure 3 (left) - *Snowdon Ranger* arrives at Snowdon Station ca.1914. Note that the sand-boxes are no longer present.

Figure 4 (right) - *Snowdon Ranger* photographed at Snowdon Station no earlier than 1894 (the complete photo shows a train including all four of the Ashbury 'Summer' carriages delivered in 1894 - the complete photo also suggests that the station building had not been extended, therefore pre-1896/7?). The view does not allow us to determine whistle location and the locomotive does not have any maker's plate fitted. At first glance, this loco could easily, but erroneously, be identified as *Moel Tryfan*.

Peter Liddell's Photo Analysis

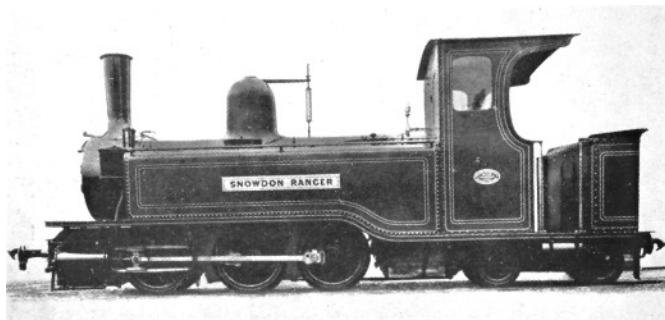
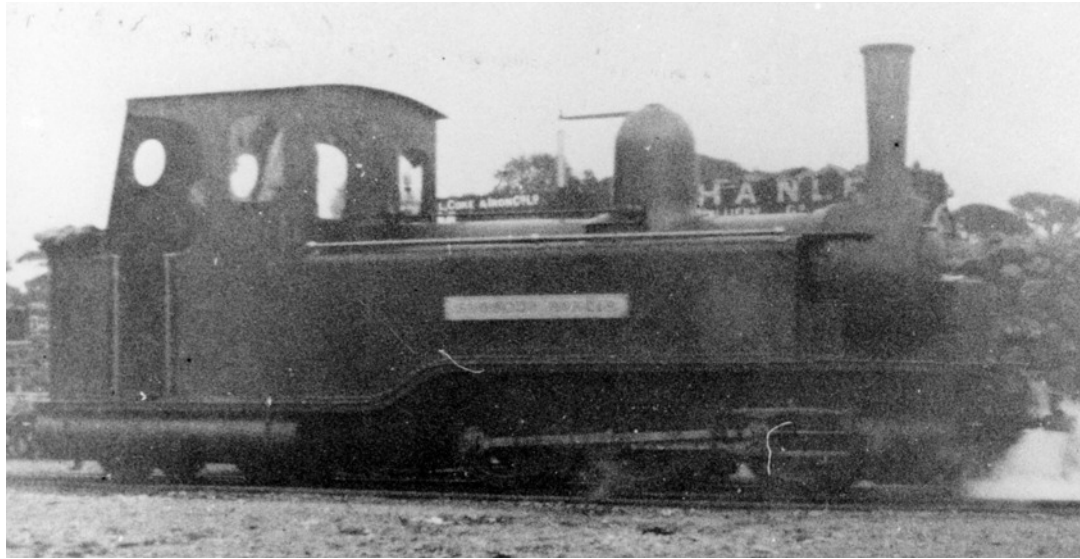


Figure 1 (left) - Maker's photo of *Snowdon Ranger* 1875 - note sand-box arrangement, whistle location and maker's plate. (WHR16)

Figure 2 (right) - *Snowdon Ranger* (after re-boiling) at Dinas Junction ca.1908. Note the relocated whistle and changes to the maker's plate but the same arrangement of sand-boxes and operating linkages - Locomotive Publishing Co. No. 5633 (later 77872)

Beware the blanket assumption! In this issue I would like to remind those who wish to analyse photographs, myself included, not to make unwarranted blanket assumptions. I will use as my worked example photographs of the NWNGR single-Fairlie locomotive *Snowdon Ranger*, specifically addressing how to tell *SR* apart from her sister locomotive *Moel Tryfan*.

Both locomotives went through a series of developments before their parts were 'merged' to form the *Moel Tryfan* that finally survived into WHR service. Most significantly, the locomotives, originally built by The Vulcan Foundry at Newton-le-Willows were sent to Davies and Metcalf, Manchester, for re-boiling, *SR* in 1902 and *MT* in 1903. When the locomotives were re-boiled certain specific features changed, most notably, perhaps, their whistles were relocated from the top of the boiler to a position high on the cab front. Additionally, and helpfully for the analyst, Davies and Metcalf replaced the original Vulcan Foundry maker's plates with their own and these new plates differed visually in having only four lines of 'text' as opposed to the original five. We do not need to be able to read the plates to determine which we are looking at – in photos where the plates can be seen, of course!

When built, an obvious visual determinant was the location of the sand-boxes – mounted on the footplate on *MT* but located high up at the front of the side tanks on *SR*. Additionally, the sand-boxes on *SR* were linked by operating rods that ran between the two across the top of the boiler. This difference is so distinct that very often one simply looks at the sand-boxes and says "ah!".

We do not have many photographs which definitely show *Snowdon Ranger* but I suspect we have enough to determine a possible time-line. Figure 1 is a maker's photograph of *Snowdon Ranger* showing both the high-mounted sand-boxes and the operating linkage over the top of the boiler. Figure 2 shows the same locomotive after it was re-boiled in 1902. The same sand-box/linkage arrangement can still be seen. Figure 3, taken ca.1914, shows us that eventually the sand-boxes disappeared altogether but nevertheless these images suggest continuity of this unique installation through most of the locomotive's independent life. So what are we to make of the photograph at the head of this page?

Whilst admittedly of indifferent quality, the locomotive in the image is undoubtedly *Snowdon Ranger* and we can see from the whistle location that the (continued on p. 11)

Editor:	Peter Liddell	E-mail	peter.liddell@welshhighlandheritage.co.uk
Secretary:	Cedric Lodge	E-mail	cedric.lodge@welshhighlandheritage.co.uk
Membership Secretary:	Derek Lystor, 14 Teign Village, Bovey Tracey, NEWTON ABBOT, TQ13 9QJ	Telephone	01626 853963
		E-mail	dick.lystor@welshhighlandheritage.co.uk