

RAILFREIGHT STRATEGY FOR MID WALES

A Discussion Paper

1) Purpose

1.1. The purpose of this paper is to promote discussion and debate in the direction of reinstating freight traffic on the railway, with a view to realising environmental and economic benefits for the region. The author perceives a considerable resistance to returning freight to the railway and was keen to understand if it is in fact justified. However in compiling this work, the huge volume of material unearthed indicates considerable innovation and interest throughout the logistics and transport sector. What remains is to turn this into steel wheels rolling on steel rails.

1.2 “The rail freight industry is a UK success story. It brings benefits to the UK economy estimated at £1.6 billion per year in productivity gains for UK businesses, reduced road congestion and environmental benefits. Each tonne of freight transported by rail reduces carbon emissions by 76 per cent compared to road and each freight train removes 43 to 76 lorries from the roads - meaning rail freight has real potential to contribute to reducing UK emissions as well as building a stronger economy and improving safety by reducing lorry miles.” (“Rail Freight Strategy – Moving Britain Ahead”. Pub:- Department for Transport/Network Rail **(1)**)

2) History

2.1 In the UK, the railways were built to carry freight and throughout the 19th century and the first half of the 20th century, that was their primary purpose. Since 1963, that role has been progressively eroded to such an extent that at the present time, the railway is primarily a carrier of passengers.

2.2 Key reasons for the decline in merchandise being moved by rail go as far back as 1923, when the independent railway operators were all subjected to a forced merger by H.M. Government, which had taken over the companies for the duration of the First World War. At the cessation of hostilities, there was considerable backlog in maintenance and renewal and a cash strapped administration sought to dodge its responsibility for making good. The resulting four companies whilst large, were unable to meet the necessary demand for new investment in their core business – the carriage of freight. Legal constraints from being common carriers didn’t help either.



2.3.1 A freight train at Carnforth in 1964 hauled by less than ideal motive power. All the same it is interesting to note how many vehicles are being removed from the road by even a working such as this.

2.3 The situation did not improve much after nationalisation in 1948. A continuing dearth of new investment resulted in many secondary routes retaining freight handling equipment which dated back almost to the dawn of railways. The motive power situation was not much better either, despite effective improvements with steam traction. Owing to two major wars and an intervening economic depression, some very ineffective specimens managed to survive until after 1960 instead of being replaced. One such is shown at the head of a train at 2.3.1

2.4 Very inefficient rolling stock managed to outlast even steam traction. The unbraked wagon (with just a handbrake) was only banished from the network in 1981, some 13 years after the last steam hauled train. A train of unbraked mineral wagons is shown at 2.4.1. At nationalisation on 1948, the network operated over a million wagons of all types. Only around 10% of these were fitted with continuous brakes, which meant that inevitably, freight traffic operated quite slowly. The overall end to end average speed for the LMS group as a whole in 1938 was just 8.88 mph. Nevertheless, this railway claimed to be able to deliver 70% of consignments within 24 hours and 94% within the following day. Not bad for a company with its extremities in Bournemouth and Thurso (2).



2.4.1 A BR Standard Class 9F with a train of unbraked mineral wagons on the Midland Main Line. Whilst the 9F was a very capable, fast and modern machine, its ability to move the traffic along quickly is being hampered here by the low speed necessary for operating unbraked freight trains. Generally this was no more than 25 mph.

2.5 In the period since the Beeching report in 1963, the railway has haemorrhaged vast amounts of non-passenger traffic. Individual wagonload traffic was curtailed as freight facilities at wayside stations were withdrawn.

2.6 Whilst the introduction of company block trains, container trains and “Merry Go Round” mineral workings was heralded as the new bright future, throughout the 1960s, railfreight continued to decline. After a period of relative stability under the Labour governments of the 1970s, the downturn took on a more serious direction under the Thatcher administration. During the period to 1990, the railway lost newspaper traffic and there were major infrastructure losses with the closure of the Woodhead line over the Pennines and other freight routes. In 1991 the railway exited from wagonload traffic with the closure of the “Speedlink” network (3).

2.7 In the period since privatisation, decline in the types of traffic has continued with the loss of almost all parcels and part load traffic. British Rail had a very effective parcels network, utilising large blue trolleys called “BRUTES” which could be loaded on trains en masse and sorted at stations as required. They also operated a very efficient same day parcels service known as “Red Star” which utilised spare capacity on passenger trains. Both these types of service ended in 1999. A BRUTE trolley is shown at 2.7.1



2.7.1 A BRUTE Trolley at Swindon Railway Museum, with a sample load.

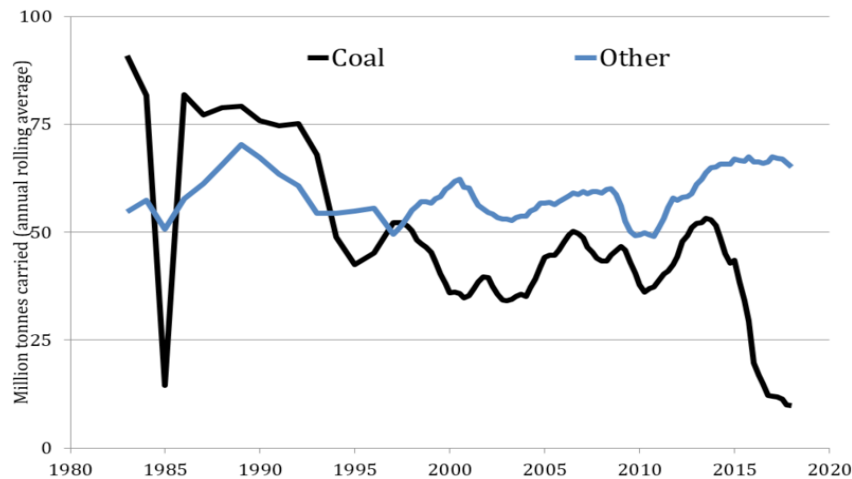


2.7.2 British Rail's “Red Star” parcels service offered an effective “same day” delivery to customers, utilising capacity on express passenger trains.

3) The Situation Today.

3.1 Since privatisation, there has been a small but significant revival in the fortunes of railfreight with increases in the transit of bulk traffic and intermodal. Sadly this has been offset by the steady decline in coal traffic for power generation which has taken place over the period, not to mention the almost total absence of parcels. Construction traffic increased by 7 per cent and consumer traffic by 6 per cent in 2001/6/7,

increasing each quarter, compared to the previous year. The final quarter figures show 9 per cent consumer and 11 per cent construction traffic increases compared to the same quarter in the previous year.



3.1.1 Graph of railfreight performance, 1984-2019. Note the decline in coal traffic.

3.2 On the Cambrian there is currently no freight. The last regular goods train was an oil tank working to Aberystwyth which ran until 1993. In 2005, there was a trial with moving timber to Kronospan in Chirk, which was generally regarded as very successful but sadly was taken no further **(4)** . Along the route the railway has been hemmed in by development and land has been sold off, thus restricting opportunity for renewed freight facilities.

3.3 Nevertheless, it would be sensible and enterprising to look at ways in which freight traffic could return to the Cambrian and indeed other parts of the UK network. The constant rumble of HGVs and other commercial vehicles through small towns around Wales and the rest of the UK is a source of irritation to local inhabitants everywhere. This could be an appropriate moment for elected representatives willing to grasp the opportunity to push for a change in transport policy as it would resonate with the public at large **(5)**.

3.4 Present day strategic planning has not really moved on from the model favoured under the Beeching proposal of block trains and concentrated flows between important centres **(6)**. Today the TEN-T core passenger and freight rail networks follow the outlines of the Inter-City network between major centres, with the addition of the fixed link through the Channel Tunnel to France and improved links to Felixtowe **(7)**. There are significant omissions in the map here, which does not differ greatly the rail network as proposed by "Option A" of the "Serpell Report" of 1983 **(8)**. Network Rail's "Freight Network Study" has little to offer away from the core routes, with a massive gap in Wales between the north and the south and little in Scotland north of Glasgow and Edinburgh, this despite a successful freight link being operated to Inverness by Stobart Rail, Tesco and Direct Rail Services as a joint venture. However, Stobart continues to expand, having initiated a service between Tilbury and Daventry in 2019 **(9)** .

3.5 In 2017, the total freight moved by rail was 17.17 billion tonne kilometres, on over 200,000 freight train movements. Around 94% of trains arrived right time or within 15 minutes of that. Since 2013, the percentage of goods moved by rail has varied between 8 and 12%, with a falling trend towards the end of the decade **(10)**. This owing to a decline in the amount of coal used for generating electricity.

3.6 For the record, on the roads, there were 404,804 HGVs licensed in 2016, with 315,000 drivers in employment. The average HGV payload was only 8.8 tonnes **(11)**, or less than that of a short wheelbase rail wagon – which may provide food for thought. Average fuel consumption was around 8 mpg. From the safety angle, the number of road casualties linked to HGVs (killed or seriously injured) was 1,284 **(12)**.

3.7 Meanwhile there is as yet, no such thing as a “carbon free” HGV. Whilst there have been experiments in Sweden with “electrified roads”, as yet these are not fully developed, a mere 2km having been laid for trials **(13)**. Other limited experiments have taken place in Korea with buses equipped for wireless induction charging **(14)**. Given the prohibitive expense of laying this equipment in the highway, the writer cannot help but wonder that fitting it in between railway tracks might be more profitable.

4) A Level Paying Field?

4.1 Vested road interests would argue that their sector operates in open competition. However, back in 1965, “Railway Magazine” published an article which demonstrated that “the road haulier operates under a licensing tariff fixed so low that it has not only been the basic cause of the loss of goods traffic sustained by the railways during the past decade but also an important contributor to avoidable congestion on the roads.” **(15)** The situation does not seem to have changed much since then.

4.2 Back in the 1960s the protagonist was none other than Dr. Beeching himself. “Railway Magazine” commented:-

“In an analytical study of comparative road and rail costs on a series of typical long hauls he demonstrated that the road freight transport operator was paying no more than one third to one half of his road track costs” **(16)**.

4.3 With margins of 3 or 4% today it is probable that if road haulage had to pay its full costs, then it would cease to be profitable at all **(17)**. It may be that employment conditions in the logistics sector of the “Gig Economy” are something of a barometer for wider profitability; terms of service can be quite onerous for individuals in the field who are often “self employed”. The Bath based thinktank, Transport Intelligence Ltd commented on ethical concerns;-

“The low barriers to market entry and a plentiful supply of people willing to take on a low skilled job have meant that the amount paid by some carriers is barely enough to cover the cost of running a vehicle. There have been allegations that to some carriers their sub-contractors are ‘disposable’. They can be utilized for a period of time at an unsustainable rate, knowing that they will eventually be forced to give up due to the lack of economic viability. The carrier will then replace the owner-driver from a plentiful pool of new market entrants.” **(18)**

At least the railway has a reasonable record of care for its workers.

4.4 Whilst the Freight Transport Association (FTA) asserts that lorries pay enough tax to cover the entirety of road maintenance, Campaign for Better Transport (CBT) maintains that the report is flawed, based on out-of-date figures and incorrect assumptions, and in fact HGVs only cover one tenth (11 per cent) of their road damage costs. CBT concludes that UK wide, HGVs only cover a third of their overall costs and are being subsidised by the taxpayer to the tune of £6 billion a year adding;-

“The largest and heaviest HGVs, (mostly but not entirely articulated), cause a great deal more damage to foundations and structures of roads than cars. This is because the damaging power rises exponentially as weight increases.....Motorways are constructed to a higher specification than local-authority-run roads to cater for heavy goods vehicles, but it is the latter which make up almost 98 per cent of our network which explains the poor repair of many local authority-controlled roads **(19)**.”

5) Examination of Possibilities for the Cambrian by Sector.

5.1 Network Rail has set out its plans for the future of bulk freight and has at this stage no plans for any bulk flows along the Cambrian. There are no corporate operations of sufficient size along the railway west of Shrewsbury to make this viable at the present time. Nevertheless, a strategic view should be taken with regards land use adjacent to the railway to facilitate new freight infrastructure should it be required in the future. It would be particularly useful to preserve the former oil terminal at Aberystwyth for future rail use.



5.2.1 Aerial view of the large hump marshalling yard at Kijfhoek in the Netherlands. There have not been any similar yards in the UK since 1990.

5.2 It would in theory be possible to return to full wagonload traffic nationwide. Computer sorting of wagons and automatic making up of trains is not beyond the bounds of technology. Indeed, there has been at least one study carried out within the EU to examine possibilities **(20)**. The European group “Shift 2 Rail” notes

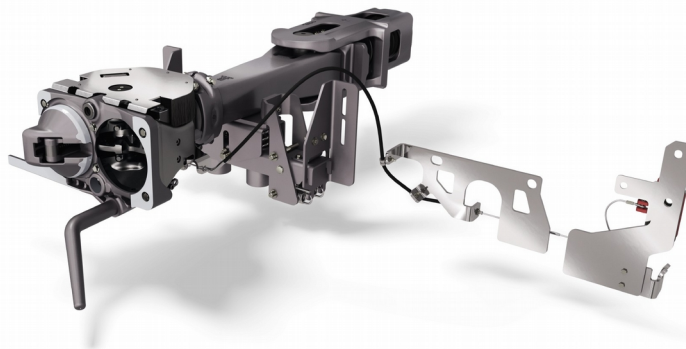
“One of the ways to increase efficiency of existing infrastructure is to automate the cargo haul. Trains are more suited for autonomous operation than other types of vehicles (especially road vehicles) as they are moving on a fixed and known track. Nevertheless, most of the innovation in autonomous vehicles is occurring on the road due to lack of innovation in railway automation as a consequence of railway heavy regulation. Noted regulations and safety focus hampers the implementation of recent innovations in autonomous driving and pushes cargo transport to road with much higher risks and casualty levels.”

and:-

“For European rail freight to become more attractive, the rail freight sector must provide customer tailored services to its clients and be more effectively integrated in the logistics value chain. Reliability, lead times, deliveries on-time and in full, frequencies and cost must meet customer requirements for different goods segments.”

5.3 The study examined ways of providing computer control for remarshalling of trains. It would of course be desirable to have as much of the process as possible given over to automation. However, it is interesting to note that despite reliable fully automatic couplers having been around since the earlier part of the 20th century **(21)** there is still a fair amount of freight rolling stock across Europe which relies on historic methods of coupling. Fully automatic coupling of freight vehicles would improve safety for staff in marshalling yards and allow productivity improvements.

5.4 The German company Siemens have developed computer systems aimed at controlling the whole process of sorting and making up trains. Their “Trackguard Cargo MSR32 system” for automation of train formation yards seeks to automate not only the sorting of wagons but the hump locomotives as well **(22)**. In Switzerland the state railway, SBB have been trialling a fully automatic Scharfenberg type coupler manufactured by Voith, who believe it will eliminate the need to couple wagons manually **(23)**. Meanwhile Alstom, Lineas and ProRail announced in July 2020 they will start test drives with fully automatic shunting in 2021. It concerns Automatic Train Operation Grade of Automation 4 (GoA4). The tests are to be carried out with a diesel-hydraulic shunting locomotive of rail freight carrier Lineas and will take place on a shunting yard in the Netherlands **(24)**.



5.3.1 The Scharfenberg fully automatic freight coupler developed by Voith.

5.4 Thus it is clear that in Europe, developments are in hand to effect a great improvement in productivity for wagonload freight traffic. This will enable rail to play a greater part in maintaining economic activity whilst at the same time mitigating against the effects of climate change. The nations of the UK ignore these developments at their peril and the country may thus be left behind and technologically backward. A policy shift from governments away from road based logistics to enable investment and development of this sector of rail transport is vital. Nevertheless there are huge hurdles to be overcome, not the least of which is rebuilding critical mass necessary for viability. It is unlikely that wagonload traffic will return to the Cambrian in the near future.

5.5 In the area of palletised or trolley loads and parcels traffic, it is possible that some progress could be made on the Cambrian. Several concerns have been examining ways in which merchandise could be carried by passenger train again **(25)**. In a small way this is already happening as the Caledonian Sleeper service currently conveys consignments of seafood from Inverness to London Euston. The business model probably best suited for the railway would be in the role of contracting to third party logistics operators. This would obviate the need for the railway to provide collection and delivery beyond the railhead, a service from which British Rail exited in July 1981 **(26)**. It may be that vacant space on the more sparsely used services could be utilised for the carriage of goods and recent experiments by GB Railfreight using Class 319 electric units have proved encouraging **(27)**.



5.5.1 GB Railfreight have been experimenting with caged trolleyloads on Class 319 units. Here, a cage is unloaded from a train at Euston.

5.6 The possibility of using or acquiring dedicated vehicles for freight work should not be discounted. It would not be beyond the grounds of credibility to convert redundant Class 158 units to carry parcels and merchandise. After all, the Class 325 Postal EMU was based on a Class 319 bodyshell and the intention was that they could be converted for passenger use if no longer required for the carriage of mail **(28)**. A “reverse conversion” of a Class 158 would seem perfectly feasible and would allow a freight movement to be marshalled into a passenger train without requiring an extra path. The use of the Class 158 as a donor vehicle would have the benefit of ETCS signalling equipment already fitted and thus make is especially useful for the Cambrian. There would, of course need to be commonality of coupling between the two types of train. This is something which could cause problems as the proposed new Class 197 units for the Cambrian reputedly will be unable to couple with anything else.



5.6.1 Class 325 postal vehicles are based on a Class 319 bodyshell and have wide roller shutter doors to facilitate loading. Investigation as to the feasibility of converting redundant Class 158s into a freight configuration should be carried out.

5.7 In the recent past, supermarkets have been suggested as possible railfreight customers and indeed as indicated at 3.4 above, Tesco and Stobart rail have a very successful partnership with GB Railfreight. However, this may not be appropriate for the Cambrian as with the exception of Tesco in Newtown, supermarket sites in the towns along the route are not really suited for rail deliveries without transshipment via road transport from the railhead. Nevertheless, supermarket traffic as it stands is very wasteful as 50% of all journeys are completely empty. This may be something that the railway may wish to address so that it could offer an improved product in the longer term. Meanwhile, at Newtown, the author understands the store has been partially repurposed as a distribution centre for “Home Deliveries. Its situation adjacent to the railway would make it a possible candidate for modal shift.



5.7.1 A Tesco/Stobart/DRS Service near Chesterfield in Derbyshire.

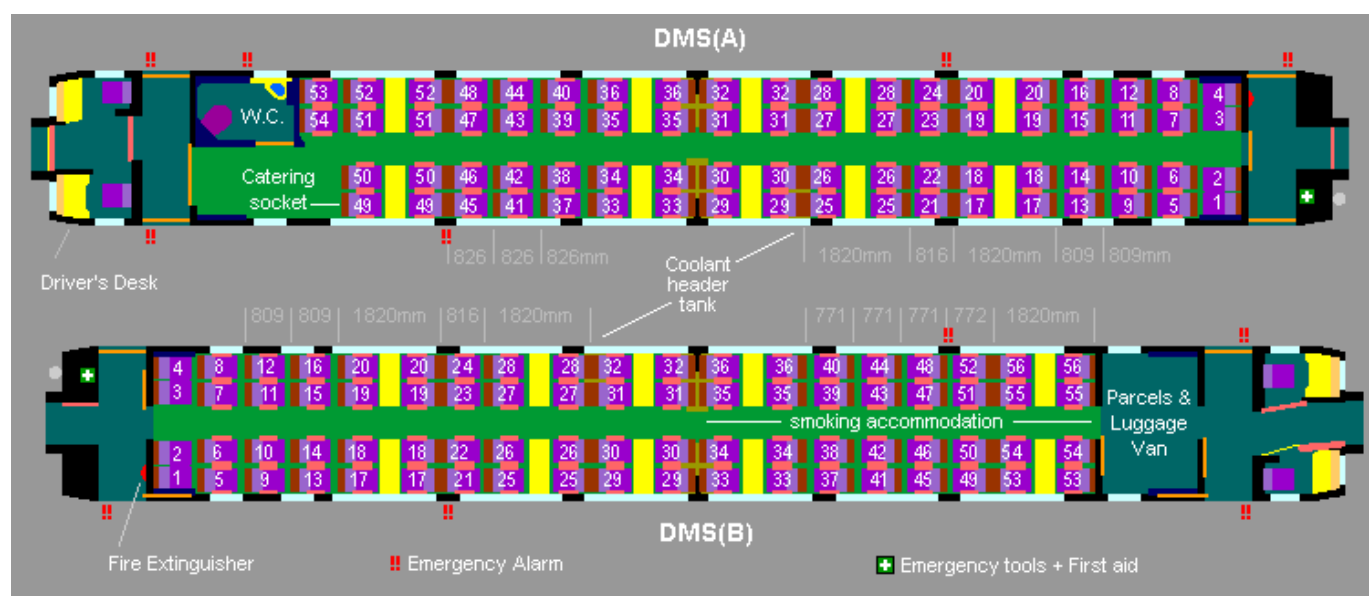
6) Conclusions.

6.1 Bulk freight is unlikely to return to the Cambrian as there is little call for it. The types and levels of economic activity in the region do not lend themselves to this type of rail transport, although consideration should be given for a modal shift to rail for any type of bulk load into the region. Meanwhile, every effort should be made to preserve former railway land for future rail use, in particular the former oil terminal at Aberystwyth.

6.2 Whilst it would be desirable to have a return to wagonload traffic, this is unlikely to occur without determined government investment and intervention. Over the distance from the English Midlands to Aberystwyth rail already has the potential to offer a competitive edge, something which also applies from other English conurbations. An EU study from 2015 points to threshold of 200-300km (124-186 miles) above which rail is particularly competitive and the potential for modal shift is higher (29). If road transport were persuaded to pay its full costs then the competitive edge for rail would increase.

6.3 Freight for supermarkets would probably not be viable in Mid Wales unless it were routed through a dedicated container terminal as is the case in the North of Scotland. This is unlikely to happen without pressure from government to invest in this type of service. Nevertheless, the distances involved from main distribution depots to Aberystwyth could make it a paying proposition, especially if this were accompanied by an increase in home deliveries around that area.

6.4 Palletised or trolley load of merchandise offers the best potential for a restart of freight on the Cambrian. Some services on the timetable as enhanced from 2015 remain lightly used and thus could offer opportunities for loads in caged trolleys. In previous times, British Rail “Sprinter” units of Classes 150 and 156 had dedicated space for the carriage of mail and parcels which could be locked out of use for the public. Palletised loads would require the use of dedicated vehicles, such as the Class 158 conversions previously suggested.



6.4.1 Classes 150 and 156 had lockable areas for the carriage of parcels and mail. The secure space is shown at right of the DMS(B) on this floorplan diagram of a Class 156 DMU.

6.5 The environmental benefits of rail transport should not be ignored. Society pays very heavily for the “convenience” of road transport, which has hidden its true cost very effectively over the years. Whilst road transport remains popular, the large volume of HGVs at work contribute 22% of total surface transport emissions **(30)**, despite representing only 5% of total road vehicles. Air pollution in the UK kills between 28,000 and 36,000 people every year **(31)**.

6.6 If we are to take seriously the business of tackling climate change and environmental damage, then a concerted effort to bring about modal shift to rail must be made. Recently, a report in the “Guardian” examined studies which concluded that wind-borne microplastics are a bigger source of ocean pollution than rivers. The article stated that “550,000 tonnes of particles smaller than 0.01mm are deposited each year, with almost half ending up in the ocean.” **(32)**

6.7 In the longer term, electrification of the Cambrian lines should be considered as this would reap considerable environmental benefits. The amount of power required to run all the lines west of Shrewsbury could be provided by a facility similar to the 24mw Tirgwynt Windfarm near Carno **(33)**. There would of course, have to be backup but that problem is far from insurmountable. Decarbonisation of transport is of the utmost importance and this could be achieved locally through such an initiative.

6.8 It is clear that there are many avenues for railfreight development which are not being followed up. The generous quantity of material available on-line to the author indicates that there are good intentions aplenty. However, good intentions alone are not enough. These need to be translated into action and real freight trains. Political pressure must be brought to bear at all levels to force a turn around in surface transport policy to bring about a huge modal shift in favour of rail. Only governments have the necessary volumes of cash to invest in rail to an adequate level. This has not been happening in the UK.

6.9

Any products or services brought to fruition by railfreight protagonists must be offered to the logistics sector in the spirit of assistance and co-operation, rather than competition. Whilst operators such as Stobart have understood the benefits that rail can bring, many do not understand this as yet.

Angus Eickhoff.

Shrewsbury Aberystwyth Rail Passengers' Association (SARPA).

July 2020.

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Where a web URL is shown, it was correct at the time of writing but may have changed in the interim.

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