

CAMBRIAN RAILWAYS

USER MANUAL



Introduction

Prior to 1923 the Cambrian Railways operated a network of lines in and around Mid Wales, stretching from Whitchurch in Shropshire to Aberystwyth and Pwllheli on the Irish Sea coast. The Cambrian branches extended deep into the rural valleys, while the Cambrian main line climbed to the summit at Talerddig before descending towards the coast. Perhaps most famous of all is the Cambrian Coast line, featured in the earlier 3DTrainStuff route, which follows arguably the most beautiful coastline in Britain. After the 1923 amalgamation, the Cambrian lines formed part of the Great Western Railway and in 1948 they became a rural outpost of the British Railways Western Region. Sadly, it wasn't long before the branch lines were closed followed by parts of the main line and many stations. Today, all that remains of the former Cambrian network is the main line between Welshpool and Aberystwyth plus the coast line to Pwllheli. Access to Welshpool is provided by the former GWR/LNWR line from Shrewsbury.

Our Cambrian Railways route includes most of the Cambrian network, with the exception of the main line between Oswestry and Whitchurch. The line from Shrewsbury is also included. The nominal era of the route is 1960, although this hasn't stopped us from including branch lines that closed in the 1950s and the impressive station roof at Shrewsbury. As you will discover, there are plenty of passenger stations and goods sidings, allowing infinite activity possibilities and many enjoyable hours of driving.

Station names and spellings

Several of the stations on the Cambrian have changed their names or spellings over the past few decades and a decision had to be taken regarding which version of the name to adopt in our route. In the interests of historical accuracy, it was decided to name the stations as they were in 1960. In some cases, such as Morfa Mawddach, this meant adopting the modern name (Morfa Mawddach had previously been called Barmouth Junction), while in others, such as Talwrn Bach Halt (renamed Llanbedr in the 1970s), the old name was used. Furthermore, several stations and the towns and villages that they serve, have had their previous English spellings replaced by the Welsh equivalents, e.g. Portmadoc to Porthmadog. Again, the correct spelling for 1960 was chosen. As a Welsh speaker from the Porthmadog area, the route author responsible for this decision recognises the sensitivity of this matter and hopes that no offence is caused.

History

The history of the Cambrian Railways begins in July 1864 with the amalgamation of five independent railway companies to become the Cambrian Railways. These five were the Oswestry, Ellesmere and Whitchurch Railway, the Oswestry and Newtown Railway, the Llanidloes and Newtown Railway, the Newtown and Machynlleth Railway and the Aberystwyth and Welsh Coast Railway. Between them, these five companies covered a large proportion of rural mid Wales and extended into North Wales along the Cambrian Coast.

By the time of the formation of the Cambrian Railways, the main line was already open (the section from Borth to Aberystwyth was completed in June 1864 and Oswestry to Whitchurch opened the following month), but the coast line only ran

between Aberdovey and Llwyngwriil. By the following July, the coast line has extended to Fairbourne and the ambitious scheme to cross the Dovey estuary on a viaduct between Ynyslas and Aberdovey and been abandoned in favour of the current line via Dovey Junction. This stretch eventually opened in August 1867, followed by the remainder of the Cambrian Coast line in October of the same year. Elsewhere, branch lines were built to Llanfyllin, Llangynog, Dinas Mawddwy, Dolgellau and Kerry. Meanwhile, the route to Llanidloes was extended along what became known as the Mid-Wales Railway to Brecon.

The next major event in the history of the route came in March 1922 when the Cambrian Railways became part of the Great Western Railway. There followed a period of expansion with certain sections of line becoming double track and many new halts opening. Indeed many of the small halts on the coast section date from the 1920s and 1930s when the Great Western was in charge. This was also the time that the first camping coaches appeared along the line, a sign of the growth in tourism in the region. This was a boom time for the former Cambrian lines.

The Cambrian route saw another boost in traffic after the Second World War, as Wales once again became popular with tourists. However, it wasn't long before the beginning of the slow and painful decline that affected so many rural railways across the UK. By the time of Nationalisation in 1948, the Mawddwy and Kerry lines had already lost their passenger services and both lines closed altogether in the 1950s. The western end of the Tanat Valley line to Llangynog was also an early casualty (1952), although the eastern section remained open for another 8 years. The biggest blow of all came in January 1965, when the Beeching axe fell on the former Cambrian main line between Buttington (near Welshpool) and Whitchurch. At the same time many of the stations on the remaining stretch of line to Aberystwyth were also closed, although the Cambrian Coast largely escaped unscathed and the majority of stations and halts are still open to this day.

Of course, it could have been so much worse. Had the Beeching report been implemented in full, even the Cambrian Coast line would have closed, but fortunately there was sufficient political pressure to save the line. The route was threatened once again in 1980 when a marine worm was found to have badly damaged the timber viaduct across the Mawddach estuary at Barmouth, but thanks to significant investment by British Rail (supported by the local authorities), the bridge was repaired and the route lives on today. The track was rationalised further in the 1970s and 80s, with many of the stations losing their passing loops and sidings. The 1980s also saw the introduction of radio signalling and the replacement of the ageing DMUs with modern sprinter trains. The route is currently operated by Arriva Trains Wales.

The Route

The 3DTrainStuff representation of the Cambrian Railways features the main line between Oswestry and Aberystwyth, the coastal section to Pwllheli and several of the former Cambrian Railways branch lines. The former GWR/LNWR line from Shrewsbury to Buttington is also included, allowing players to drive the famous Cambrian Coast Express, together with modern train services to Aberystwyth and Pwllheli. A map of the route is shown overleaf.

3DTS-UK Cambrian Route 2

Coastal route in West Wales.



KEY
 Large Station
 Minor Station
 Halt

0 5 10 15 km
 0 5 10 miles

Oswestry to Newtown

Oswestry was the headquarters of the Cambrian Railways and boasted a grand station building and a locomotive works. However, despite its importance, it only possessed two through platforms and a bay (used by the shuttle service to Gobowen on the Shrewsbury to Chester line). It is nevertheless a fitting starting point for our journey.



Oswestry station

Departing Oswestry, the line is double for the next five miles as far as Llanymynech, passing through stations at Llyncllys and Pant. The scenery along this stretch is nothing special, with gently undulating fields spreading out either side of the track. From an operating point of view, the only location of interest is Llyncllys Junction, where the Tanat Valley line branches off to the right. Llanymynech was also a junction, being the starting point for the Llanfyllin branch and also the end point for the Shropshire and Montgomeryshire (S&M) route from Shrewsbury. In earlier years, the S&M and the first mile of the Llanfyllin branch formed the grandly titled Potteries, Shrewsbury and North Wales Railway or Potts as it was known.

Continuing south, the railway becomes single track and passes through Four Crosses, Arddleen Halt and Pool Quay before crossing the River Severn for the first time shortly before Buttington. At this point, the line runs across the Severn's flood plain and the surrounding terrain is generally flat before rising steeply at the valley sides. Buttington was the junction for the former GWR/LNWR line from Shrewsbury, which joins on the left. Apart from serving a small village a short distance away, the station's only purpose was as a junction and it closed with the line from Oswestry.

Heading west from Buttington, the line is double track once more, as it follows the Severn up river. Three miles beyond Buttington lies the market town of Welshpool. This was an important station for passengers and goods and remains open today (although relocated slightly to make way for a by-pass). Some local trains from Shrewsbury and Oswestry terminated here, while others combined before continuing west. Consequently, the station was equipped with a water tank and turntable and even had a small engine shed. Welshpool also had an interchange with the narrow gauge Welshpool and Llanfair Light Railway, whose tracks can be seen approaching from the north.

The double track continues west from Welshpool past the dairy at Cilcewydd as far as Forden. From here to Newtown the line is single once more, as it follows the Severn through the pastures that border the river. Forden station appears to be in the middle of nowhere, as the village is almost hidden from view. The next station is Montgomery, which at face value should have been an important station, serving as it did the county town of Montgomeryshire. However, the town is several miles away and the station was of little use to its residents. The final station before Newtown was at Abermule, junction for the short, steeply inclined branch to Kerry. This was also the scene of an infamous head-on collision.

Newtown to Machynlleth

Newtown was another important market town and its station is still open today. The station itself was only small and the whole scene was, and still is, dominated by the impressive Royal Welsh Warehouse. Newtown was the starting point for certain local services and had a bay platform for this purpose. Beyond the station, there were carriage sidings on the left hand side an extensive goods yard on the right, which included a cattle dock and a separate coal yard.

From Newtown to Moat Lane, the line is once again double, resembling a true main line. Indeed, this is the last chance for drivers to thrash their locos at speed before the climb to the summit at Talerddig. The only intermediate stop on this section of line was at Scafell, although this rarely used halt only had a platform on the up side (towards Newtown). Scafell Halt closed in 1955.

Moat Lane was the junction for the Mid Wales line to Brecon and South Wales and was also the terminus for several local goods trains. In addition to its 5 platforms and large refreshment room, Moat Lane also had a two-road engine shed and turntable, situated between the Machynlleth and Llanidloes lines. The shed provided motive power for local goods trains, Mid Wales services and piloting (helper) duties up to Talerddig. Apart from a short length of platform, all signs of this station have now vanished.

Shortly after Moat Lane, the railway crosses the A470 trunk road followed by one final crossing of the River Severn, as it enters the small town of Caersws. Caersws station was unusual for this line in that it had a passing loop, but only one platform (on the up side). It also had a busy goods yard and was home to a Civil Engineering Department depot. The latter was situated on the site of the former Van Railway station, whose building and platform can be seen from the main line. Caersws station is still open today, although the sidings have now been removed.

Caersws marks the start of the climb to Talerddig summit and also a change of scenery as the railway leaves the Severn behind and follows the Afon Carno. After a gentle run across the fields, the climb starts in earnest at Pontdolgoch, a small station serving a tiny hamlet. For the next few miles the route is partly forested as the railway climbs along the river valley, passing over the river at 4 locations before reaching the village of Carno and its station. The village at Carno is spread out along the main road for quite some distance and in the years since the closure of the station has grown in size thanks to the opening of a Laura Ashley factory (which incorporates the old station building and yard). Laura Ashley lived nearby. The station is modelled as it was in 1960 with two platforms and a small goods yard. As with much of the line, goods traffic was largely agricultural.

The summit of the line and watershed between the Severn Valley and west Wales was at Talerddig. The station's main function was as a passing place and, while two platforms were provided for passengers, very few passenger trains stopped here. Today, Talerddig is the only passing loop between Newtown and Machynlleth.



Talerddig looking east

Immediately after Talerddig station, the railway passes through a deep rock cutting and begins its steep descent towards Machynlleth. The rock from this cutting came in useful as a building material and can be found in the bridges, walls and even station buildings along the route. After the cutting, the railway runs along a short embankment and crosses Bell's bridge. This was a favourite location for photographers in steam days, as locomotives climbing towards Talerddig would be working very hard at this point. Drivers heading down hill would face the opposite problem, especially on unfitted goods trains.

The steep descent continued through Llanbrynmair, where a siding was placed to catch runaway trains. This also served as a refuge siding for trains heading uphill or for goods trains needing to shunt in the station yard. The station served a small village by the same name, situated down in the valley. A few miles further towards Machynlleth, passengers reach one of the most picturesque locations at Commins Coch, where the railway crosses over the river high above the small village. The hills at this location are mostly wooded, adding to the scenic beauty. The village was served by a small GWR style halt, squashed between the railway and the main road (which by this point has climbed alongside the railway).

The final intermediate station on this stretch of line was Cemmes Road (now renamed Cemmaes Road), which as the name suggests, served a village called Cemmaes several miles away. In terms of railway geography, Cemmes Road was significant as the junction for the Dinas Mawddwy branch, although this closed to passengers in 1931 and closed completely 20 years later. The station comprised a passing loop and a goods yard.

The final descent to Machynlleth is down the Dovey Valley, with its gently sloping grassy sides and lush valley bottom. The river valley at this point is quite wide with a flood plain spreading out across the fields either side. The land use is predominantly cattle grazing. By the time Machynlleth is reached, the railway line is almost at the valley floor, although high enough to avoid any risk of flooding.

Machynlleth to Aberystwyth

Following the closure of Oswestry station in 1965, Machynlleth became the headquarters of what remained of the Cambrian network and is the hub of operations on the line today. The station only has two platforms, but it remains a busy station, especially during the summer months. The town itself is one of the largest in the region and was once the seat of the Welsh parliament. The skyline is dominated by a stone clock tower, which is visible from the railway line.

Until recently, passengers entering Machynlleth from the east would have first passed the entrance to the lower goods yard on the right hand side. This yard was significantly lower than the main line (at valley floor level) and was used for coal and also as an interchange with the Corris Railway, whose station was at the far side of the yard. To the left of the main line, the upper yard was carved out of the hillside, revealing a vertical rock face, known locally simply as 'The Rock'. The upper yard contained the loco shed (with coaling stage and turntable), goods shed, cattle dock and oil terminal.

From Machynlleth, the single line heads west along the southern bank of the River Dovey as far as Dovey Junction, where the line to Pwllheli crosses the river to head north along the coast. Until fairly recently, many of the coast services started at Dovey Junction and sidings were provided for the storage of rolling stock. Dovey Junction is a lonely place with no road access and has become even quieter in recent years, since most passengers now change trains for Pwllheli at Machynlleth. The station buildings and signal box were replaced in 1958, and it is in this later form that the station has been modelled.

Departing Dovey Junction for Aberystwyth, it is only a short hop to the next station at Glandyfi. This station had a passing loop and a small goods yard, but neither were needed and the station closed in 1963. Continuing west, the line runs along the southern shore of the Dovey estuary through flat featureless farmland to Ynyslas (another station in the middle of nowhere), before turning south to Borth. Ynyslas closed in 1965, but Borth remains open today, albeit without its passing loop and goods yard.

Beyond Borth the route becomes much more scenic as it climbs through the woods towards the summit at Llandre before descending at 1 in 75 through typical sheep grazing country to Bow Street. Both of these stations had passing loops and goods yards, but neither survived the Beeching axe. Leaving Bow Street, down trains faced another steep climb, before the final descent to the terminus at the university town of Aberystwyth.

Approaching Aberystwyth, the line became double track immediately after Llanbadarn level crossing and is joined alongside by the Vale of Rheidol narrow gauge line from Devils Bridge. Mid-way along the double track stretch into Aberystwyth, the line passed the gas works, which was served by a siding off the up line. Further towards Aberystwyth, passengers sat on the right hand side of the train can see the impressive National Library of Wales perched high on the hillside. This confirms the status of the town as one of the most important in the region, a fact that is reflected by the grand station building.



Aberystwyth station

Aberystwyth was also terminus for the former Manchester and Milford line, which arrived in the town from the south. These trains terminated in platforms 4 and 5 on the left hand side of the station, the site of the current Vale of Rheidol station. Aberystwyth had a two road brick engine shed situated on the left hand side of the line just before the station and had several carriage sidings and an extensive goods yard on the opposite side. The carriage sidings and yard have long since been removed, but the engine shed remains and is used by the narrow gauge Vale of Rheidol trains. The passenger station has now been reduced to a single platform, but the impressive station building has survived.

Dovey Junction to Pwllheli

From Dovey Junction, the route heads north clinging to the shore of the Dovey estuary as it passes through the tiny halts at Gogarth and Abertafol (both now closed) on its way to the town of Aberdovey, nearly 10 miles from Machynlleth. This seaside town and former port is served by two stations: Penhelig and Aberdovey. Penhelig is a particularly scenic location, situated between two tunnels at the eastern end of the town and elevated above the main road. It has a single platform with an unusual pagoda style shelter. Aberdovey station is located at the other end of the town and had a passing loop and sidings. Shortly before the station, the harbour branch climbed up to the main line on the left hand side. This line served the quayside and beach sidings, from where sand was once loaded.

After Aberdovey, the route turns north towards Towyn (now Tywyn) as it passes Aberdovey golf course. From here to Towyn, the line is a few hundred metres inland and passengers lose sight of the sea for a while. Approaching Towyn, the line runs alongside the narrow gauge slate wharf and the western terminus of the Talyllyn Railway. The standard gauge station is located approximately ¼ mile further on and has two platforms. Until the rationalisation of the 1970s, Towyn had a goods yard complete with cattle dock, goods shed, coal yard and agricultural warehouses.

Continuing north from Towyn, the railway runs by the coast once more as it passes the army camp at Tonfanau with its own station. Shortly before the station, there were two sidings and a short branch line from the nearby quarry. The army camp, sidings and quarry have all disappeared, but the station remains open. From Tonfanau, the line climbs high above the sea, giving passengers spectacular views of Cardigan Bay. After passing through Llangelynin with its church and halt (closed in 1992), we reach Llwyngwrl, the one time northern terminus of the route. The station retained its water tank to the end of steam as a reminder of its former status. It also had a passing loop, a small yard and a camping coach.

From Llwyngwrl the railway climbs high above the sea and along the cliffs at Y Friog, where it is protected from falling rocks by an avalanche shelter. It then falls steeply through Fairbourne to Morfa Mawddach (formerly the junction for Bala, Llangollen and Ruabon) and the beautiful Mawddach estuary. Morfa Mawddach (named Barmouth Junction until 1960) is modelled as it was shortly before the closure of the Ruabon line, with the triangular junction still in place but rationalised. The station had a wooden refreshment room on the central island platform for passengers changing trains. Today, only one platform remains and the building has been replaced by a bus shelter.

The Mawddach estuary is crossed by means of the 800m long Barmouth viaduct (mostly a wooden trestle with an iron swinging portion at the northern end), which brings the railway into the seaside town of Barmouth. Barmouth is still a very popular holiday resort and the trains to this town are often crowded during the summer. Today, Barmouth has only two platforms, but it is modelled in our route as it was in the 1950s with four platforms in total, one of which was located on the opposite side of the level crossing from the main station. Barmouth was the start/end point for several local services from Machynlleth, Pwllheli and Ruabon and was, therefore, an important station. It had several sidings adjacent to the station on the western side and a goods yard on the opposite side of the line.

The line north of Barmouth passes through several halts and small stations serving the many villages that are strung out along the coast. First stop is Llanaber, followed by Talybont and Dyffryn Ardudwy, which was the only one of the three to have a passing loop and goods yard. Next came Talwrn Bach halt (now renamed Llanbedr), followed by Llanbedr & Pensarn (now renamed Pensarn). The former serves the nearby village of Llanbedr and an airfield (once used for military research). The latter is situated at the mouth of the Afon Artro, which is crossed on a curved wooden trestle. The final intermediate stop before Harlech is Llandanwg halt.

Harlech is approached through the sand dunes at the foot of a steep cliff. The town is essentially divided into upper and lower halves with the station and schools at the bottom of the hill and the town centre and shops at the top. The most famous landmark in the town is undoubtedly the castle, which stands high above the station. Harlech remains a busy station throughout the year thanks to the secondary school, which receives pupils from as far south as Barmouth and as far north as Minffordd.



Harlech

From Harlech the line runs inland across the flat Morfa Harlech through Ty Gwyn, Talsarnau and Llandecwyn. Ty Gwyn and Llandecwyn are both GWR era halts with short platforms and simple shelters, while Talsarnau boasted a proper station building and a small goods yard. It was also home to a camping coach. After Llandecwyn, the line turns through 90 degrees and crosses the Afon Dwyryd on another curved trestle (this time shared with a toll road). From the bridge to the station at Penrhyndeudraeth, the scene was dominated by the Cookes explosives works, which was once a major source of goods traffic for the line. Penrhyndeudraeth is a large village in the beautiful Vale of Ffestiniog, but it is mostly out of sight of the Cambrian railway line. The station only had a single platform, but there was a passing loop, together with several sidings.

The line from Penrhyndeudraeth to Minffordd was steeply graded and heavy trains often required assistance. At Minffordd, the Cambrian line passes under the Ffestiniog Railway, with which it forms a passenger interchange. Until the 1970s, there were also goods sidings here from where slate was once transhipped from the narrow to the standard gauge. Even after the closure of the narrow gauge for slate traffic, the slate quarries continued to use the yard for many years. After Minffordd, the railway descends steeply to the Traeth Mawr and passes Minffordd granite quarry, which had a single siding for loading stone. The quarry is still open today, but the siding was removed many years ago. After 2 miles of level track over the Glaslyn estuary, the line enters the important town of Porthmadog (or Portmadoc as it is known in our 1960 version of the route).

In steam days Portmadoc was an important staging post for goods trains, being the start/end point for many workings and a crew change location for all others. For this reason, Portmadoc had a large (by Cambrian standards) yard and an engine shed, which provided locomotives and crews for goods services to Pwllheli and Barmouth, local trip workings to Minffordd quarry and Penrhyndeudraeth and banking/piloting duties over the summits at Wern and Minffordd.

Heading west, the railway climbs steeply over the summit at Wern before joining the coast again near Black Rock Sands, a popular beach, which until 1976, was served by a small wooden halt. From here it is a short run along the coast to the picturesque town of Criccieth with its beaches and ruined castle. Criccieth is another popular holiday resort and was the nearest town to the home of Prime Minister Lloyd George. The station has been modelled as it was before the rationalisation of the 1970s, which saw the removal of one of the platforms, the passing loop and goods yard.

The next station is Afon Wen, junction for the LMS line to Caernarfon. The LMS (former LNWR) route was an important link to the North Wales coast and was the most convenient route for tourists from the north of England. A short stretch of this line has been modelled as far as the first station at Chwilog. Afon Wen station had three platforms and a goods yard, but as its sole purpose was as an interchange between the two routes, it closed along with the Caernarfon line in 1964 and was later demolished.

In 1939 Butlin built his Pwllheli holiday camp just beyond Afon Wen at Penychain and this provided a boost to traffic over the Cambrian and Caernarfon lines when it opened to the public just after the war. The stretch of line from Afon Wen to

Penychain became so busy that it was doubled and signalled for bi-directional running. A second platform was constructed at Penychain, but this has since been removed.

Beyond Penychain the line is single once more for the final leg of the journey to Pwllheli with one intermediate halt at Abererch. The original terminus at Pwllheli was situated on the eastern edge of the town on a site that was later used for the engine shed and goods yard. In 1909 the line was extended to its current terminus ½ mile further east. Unlike Aberystwyth, this station only had two platforms and a wooden single storey building. The goods and locomotive facilities were also fairly limited by comparison with the Cambrian's other terminus station. Today, only one platform remains and the station building is now a café.

Dolgellau to Morfa Mawddach

The western section of the Ruabon to Barmouth line between Dolgellau and Morfa Mawddach was built by the Cambrian Railways, hence its inclusion in our route. Indeed, right until closure Dolgellau retained its local passenger service from Barmouth in addition to the through trains. Dolgellau station was situated in the heart of the town alongside the Afon Wnion on what is now the A470 by-pass. There was a goods yard to the west of the station, while at the eastern end there was a turntable. The station itself had two buildings (one GWR and one Cambrian), dating from the days when the Ruabon and Barmouth lines were operated independently by the GWR and Cambrian Railways respectively.

Leaving Dolgellau, the railway runs along the bank of the Wnion for a short while, before crossing over the river and entering the Mawddach river valley. The next station on the line is Penmaenpool, which had a passing loop, goods siding and perhaps surprisingly an engine shed. This shed provided motive power for the Dolgellau shuttle and provided stabling facilities for locomotives that had worked over to Barmouth from Ruabon, as Barmouth had no shed itself. Most of the remainder of the route follows the southern bank of the Mawddach, the only exception being the last mile between Arthog and Morfa Mawddach. Today, the whole route is open as a public footpath.

The Branch lines

Several Cambrian branch lines have been modelled and are included with the route.

The first of these is the Kerry branch, which left the Cambrian main line at Abermule and climbed steeply up the narrow Mule Gorge into the hills to the south of the Severn Valley. There were two intermediate stations along the 4 mile route, but passenger services ceased in the 1930s. The goods traffic was dominated by agricultural supplies, livestock and bricks from the brickworks at Goitre, although by the time of closure in 1956, the only traffic of any significance was to and from the annual sheep fair at Kerry.

More successful was the Llanfyllin branch, which maintained healthy passenger and goods services until closure in 1965. The line branch left the main line at Llanymynech, mid-way between Buttington and Oswestry, and headed west along the valley of the Afon Cain. The first mile of the route was once part of the Potts line to Nantmawr, which had been abandoned in favour of the Tanat Valley branch (see

below). The former junction and a short spur of this line have been modelled and can be found just beyond Carreghofa Halt. Immediately after the junction, the line descends steeply to the village of Llansantffraid, which was served by a station with a goods yard. There was also a short passing loop here. Further along the valley, there was another station at Llanfechain followed by a halt at Bryngwyn. The line terminated 8.5 miles from Llanymynech in the village of Llanfyllin.

The Tanat Valley branch is the largest of the branches, measuring 19 miles from the junction with the main line at Llynclys (south of Oswestry) to the terminus at Llangynog. The line was built as a light railway, a point which is emphasised by the open level crossings, primitive stations and lack of major civil engineering features. Indeed, for the most part, the line runs alongside the Afon Tanat on the valley floor. The majority of the stations serve tiny hamlets or isolated farming communities and, consequently passenger traffic was very light. Goods traffic was dominated by agricultural supplies, livestock, domestic coal and stone from the slate and granite quarries near Llangynog. The line west of Llanrhaiadr Mochnant closed in 1952, while the remainder of the line struggled on for goods only until 1960.

By contrast to the remainder of the Tanat Valley branch, the eastern end as far as Blodwell Junction (where the Potts line from Llanymynech had once joined) was well used and remained open until the 1980s. This was due to the large number of quarries in the area, all of which were served by the railway. The first of these was the Whitehaven quarry at Porthywaen, which had an extensive network of sidings in addition to a narrow gauge tramway. Porthywaen was also the starting point of a steeply graded branch, which climbed high above the valley to serve lime kilns. Returning to the Tanat Valley, the next quarry was at Llanddu, shortly before Blodwell Junction. This quarry is still open today and was the last to use the railway. Finally, by reversing at Llanddu, trains could access the Nantmawr branch (once the western end of the Potts), which served a quarry and a lime kiln. With the closure of the original line from Llanymynech, all traffic to and from Nantmawr ran via the Tanat Valley line. This traffic continued until the 1970s.

Shrewsbury to Buttington

The line from Shrewsbury to Buttington was never part of the Cambrian Railways, but it was an important link into the Cambrian network from the Midlands and the south of England. It was also the route taken by the Cambrian Coast Express and is today the only means of access to the Cambrian lines. For these reasons, this former LNWR/GWR line has also been included in our Cambrian Railways route.

Shrewsbury station is modelled as it was in the 1950s before the roof was demolished and when all of the goods yards and sidings were still in place. Unfortunately to avoid overloading the simulator (especially on older computers) we had to compromise on the trackwork, so the decision was taken to omit the yards adjacent to the Chester and Crew lines (i.e. to focus on the track that you will see from the Cambrian bound trains). However, everything towards Wellington, Hereford, the Severn Valley and Welshpool has been modelled as accurately as was possible using the standard track pieces available with the simulator. The former S&M Abbey station has also been included for good measure.



Shrewsbury station and castle

Between Shrewsbury and Buttington, some artistic licence had to be employed due to a shortage of research material and difficulties accommodating the correct trackwork. For example, the station at Hanwood could not be modelled correctly, as it would have meant laying points on curved track (not possible with the standard track pieces). Intermediate stations are included at Hanwood, Yockleton, Westbury, Plas-y-court and Breidden. All of these stations closed in 1960, although the passing loop at Westbury was retained into the 1990s. In addition, large yard at Hookagate is also included. This was built by the War Department as an interchange with the S&M (which was taken over by the military), but was later used as a long-welded rail plant.

The Trains

The following locomotive types are included:

Great Western Railway Class 4500 and 4575 4MT 2-6-2T Prairie

The Class 4500 Prairie is a medium size tank engine designed by Churchward for use on the Great Western Railway's many branch lines. These locomotives were used for goods and light passenger work and were a very common sight all over the GWR, including the Cambrian Coast. However, their usefulness was limited by their small water tanks and this meant that they were often restricted to performing local duties.

To overcome the shortcomings of the 4500, Collett modified the design to include larger water tanks giving the locomotive a water capacity of 1300 gallons. 100 members of this new class of locomotive, known as the 4575, were built between 1926 and 1929. They were instantly distinguishable from the 4500 by their sloping tank tops and could be seen all over the Great Western (and later the Western Region of British Railways), particularly on branch lines and secondary lines such as the Cambrian. Typical duties on the Cambrian Coast line included hauling the local goods trains and the Machynlleth to Pwllheli stopping passenger train.

Both varieties of Prairie tank locomotive are included in Great Western and British Railways liveries.



GWR 4575 Prairie

Great Western Railway Class 3200 4-4-0 Dukedog

The Dukedog class of locomotive was a hybrid comprising the frames of the old Bulldog and the boiler from a Duke class locomotive. This strange combination was ideally suited to the Cambrian, as the resulting locomotive had sufficient power to haul 6 carriage trains over Talerddig, while being light enough to cross Barmouth Viaduct and the other wooden trestles on the Cambrian Coast and Aberystwyth lines. Initially, the locomotives were numbered in the 3200 series and some carried the names of Earls. However, the names were soon dropped (and re-allocated to the Castle class) the locomotives were re-numbered in the 9000 series. The outside frames and elegant proportions gave the appearance of an old locomotive dating from the turn of the century, whereas in reality, the entire class was built between 1936 and 1939. Dukedogs were equally at home on passenger or goods trains and worked regularly over the Cambrian lines until their withdrawal in 1960.

Four Dukedogs are provided, 2 in the GWR livery and 2 in BR black.



A pair of Dukedogs crossing the Dovey

Great Western Railway Class 4300 4MT 2-6-0 Mogul

The 4300 class 4MT Moguls were designed by George Jackson Churchward and introduced to the GWR from 1911 onwards. They were designed as a mixed traffic locomotive and were used on a variety of passenger and goods work all over the GWR network. Although not as powerful or as admired as the Manors, it was not unusual to see them hauling the Cambrian Coast Express in the 1950s. However, they were also regularly used on stopping passenger and goods services. 342 of this class were built at Swindon Works and Robert Stephenson & Company, Newcastle upon Tyne. Of these, 100 of the class were withdrawn and cannibalised to provide parts for the then new Manor and Grange classes.

Two different types of Mogul are included with the route: The 6300 series locomotives are of the earlier design with an open-sided cab, while the 9300 series have closed cab sides resembling those of a Manor. Several versions of each type are provided in GWR and BR liveries.



GWR Mogul in BR Black livery hauling ex LMS carriages

Great Western Railway Class 7800 5MT 4-6-0 Manor

The Manors were first introduced in 1938 specifically for routes like the Cambrian, where weight restrictions prevented the use of the more powerful locomotives. They were classified as 5MT in BR days, making them the most powerful locomotive to run over the Cambrian, while their axle loading was the lowest of all of the 4-6-0 locomotives on the GWR. Although often associated with the Cambrian Coast Express, they were officially mixed traffic locomotives and were expected to carry out their fair share of freight duties, especially in the later years. When first built, the Manors were very poor steamers and, therefore, unpopular with footplate crews. Fortunately, a series of trials carried out by British Railways in the early 1950s and subsequent modifications resulted in significant improvements in performance, so much so that 10 new locomotives were built to supplement the fleet.

Four Manor class locomotives are provided, one in GWR livery, one in BR black and 2 in BR green. The difference in performance between the GWR and BR locomotives noted above has been accurately reproduced.



7802 Bradley Manor at Machynlleth

BR Standard Class 4 2-6-4T



BR Standard Class 4 80104 at Pwllheli

The 80xxx series Standard Class 4 locomotive was one of several new locomotive types introduced by British Railways in the 1950s. As the name suggests, the locomotives were built to a standard design with many similarities between the various types to allow economies to be made in their manufacture and maintenance. The 'Standards' were allocated to all regions of the recently nationalised railway, where they quickly displaced many of the traditional locomotive classes previously belonging to the LMS, LNER, GWR and SR. The Standard class 4 2-6-4T locomotives were designed for mixed traffic use and were used on a wide variety of duties including suburban passenger services and passenger and goods workings over secondary and branch lines. The two 80xxx locomotives included with the route both ran over the Cambrian lines towards the end of steam on BR. Both are now preserved.

Carriages and wagons

A selection of passenger and goods rolling stock is provided for the GWR and BR eras. The passenger carriages comprise local compartment stock and longer distance GWR carriages in GWR livery and their post-war BR repaints. Former LMS carriages are also provided in the post-war liveries. Finally, 3 liveries of BR mk1 carriage (red & cream, chocolate & cream and maroon) are provided for activities from the mid 1950s to 1967. Good wagons include GWR era private owner coal wagons, vans, wooden wagons loaded with stone and slate, cattle wagons and gunpowder vans, together with later wagons suitable for post-war activities.

Steam locomotive driving tips

Reverser

The reverser controls the "cut-off", the percentage of the piston cycle over which steam is admitted into the cylinder. The higher this value, the more steam is used per wheel revolution and the greater the tractive effort exerted by the driving wheels on the rails. When starting off, you need to have the reverser set to full forward (or reverse) to obtain the maximum tractive effort in order to start the train moving. This is similar to being in first gear in a car. As your speed increases, the amount of steam passing through the cylinders will also increase, so it is necessary to gradually reduce the reverser setting in order to avoid using too much steam.

Train Simulator quantifies the amount of steam used in lb/hour and presents this value as the "steam usage rate". To see this value while driving the locomotive, press the F5 key twice to display the Head-Up Display (HUD). Immediately above the steam usage rate is the steam generation rate, the amount of steam created by the boiler. In order to maintain your boiler pressure you should aim to set the reverser and regulator such that the steam generation and steam usage rates are balanced at all times. If necessary, slow down to allow the boiler pressure to recover. It is sometimes possible to allow the boiler pressure to drop for a while, if you know that there will be an opportunity for it to recover before too long (such as a station stop or down hill stretch), but make sure that you budget your steam usage carefully to avoid an embarrassing stop for a blow up.

Note – the steam usage rate will increase dramatically when the fireman injects cold water into the boiler, so you must take this into account. Of course, you can control the injectors yourself if you opt for manual firing, but this is beyond the scope of this manual.

Vacuum brakes

The steam locomotives all use vacuum brakes. A vacuum brake operates by keeping one side of the brake cylinder at a certain level of vacuum (25" on the GWR and BR Western Region) and varying the vacuum on the other side of the cylinder to apply or release the brakes. With 25" of vacuum in the train pipe, both sides of the brake cylinder are in equilibrium and the brakes are "off". As air is allowed into the train pipe, the pressure differential between the two sides of the cylinder applies the brakes. To release the brakes, a valve is opened to a vacuum reservoir (which is maintained at 25"), the pressure on the train pipe side of the brake cylinder is reduced to 25" vacuum and a spring pulls the brakes off again.

The important difference between a vacuum system and either an air system or a hydraulic system (such as on an automobile) is that the setting on the brake lever controls the rate of application or release of the brakes and not how hard the brakes are on. The way to drive any vacuum braked locomotive is to use the gauge in the cab. As you move the brake lever into the apply position, you will see the needle fall from 25" towards zero. To limit the brake application, you should return the handle to the "running" position as soon as the correct vacuum level has been reached. This will typically be in the range 10-15". The running position is essentially a dead zone between the "apply" and "release" positions, although there will be some leakage from the train pipe. The best way to drive any vacuum braked train (indeed the correct way) is to release the brake until you have 25" of vacuum and then return the handle to the running or lap position. If you run at 80-90% running, you will be ready to apply the brakes in a hurry. It is much quicker to apply the brakes if you use the mouse from the cab view, rather than the keyboard.

Activities

Introduction

The Cambrian Railways route includes the first 20 activities of a series depicting the fictional career of a man from Porthmadog who joined the GWR as a cleaner in 1935 and went on to work as a fireman and driver for the next 50 years. The activities begin in 1935 with the 15 year-old, who had recently found work in a local foundry, taking trips to Pwllheli and Dolgellau, before travelling to Machynlleth and back for his job interview with the GWR. The activities continue 3 years later, when a shortage of footplate crew gives our friend his first footplate opportunities, working the local goods trains on the northern section of the Cambrian Coast. The current series ends in the summer of 1939 with a special excursion from Chwilog (on the Caernarfon line) to Machynlleth.

In addition to providing the opportunity for users to enjoy the route and rolling stock, the activities also aim to highlight some of the more interesting aspects of railway operation on the Cambrian, including the many goods workings that have long since ceased. All of the activities are based on prototypical practices and, where possible, the timings of the player service and computer-controlled trains have been taken from a genuine 1938 working timetable. In some cases, compromises have been made to avoid the simulator's limitations and unnecessarily long waits at stations (where more time was allowed for shunting than is needed in the activity), but every effort has been made to maintain the correct look and feel of the pre-war Cambrian Coast.

The activity briefs are reproduced below.

01. 1935 - Day trip to Pwllheli: Part 1

This is the first part of a return passenger trip between Portmadoc and Pwllheli in 1935. Drive the 0900 service from Portmadoc to Pwllheli calling at the stations listed on the timetable only.

02. 1935 - Day trip to Pwllheli: Part 2

This is the second part of a return passenger trip between Portmadoc and Pwllheli in 1935. Drive the 1530 service from Pwllheli as far as Portmadoc calling at the stations listed on the timetable only.

03. 1935 - Day trip to Dolgellau-1

This is the first part of a passenger trip between Portmadoc and Dolgellau in 1935. Drive the 1107 departure from Portmadoc as far as Barmouth.

04. 1935 - Day trip to Dolgellau-2

This is the second part of a passenger trip between Portmadoc and Dolgellau in 1935. Drive the 1230 local passenger service from Barmouth to Dolgellau.

05. 1935 - Job interview: Part 1

Drive the 0640 passenger service from Portmadoc to Dovey Junction.

06. 1935 - Job interview: Part 2

Drive the 1638 passenger service from Dovey Junction to Portmadoc.

07. 1938 - Minffordd Quarry trip

In this activity you drive the short trip working from Portmadoc to Minffordd Quarry and return on a wet spring morning in 1938. Starting from the loco shed in Portmadoc, draw forward to the water column to fill up with water. Follow the preset path to Portmadoc yard road 3 to collect a train of empty stone wagons. Still following the preset path, add brakevan 32771-0 to the rear of the train before reversing to Minffordd Quarry. At the quarry, drop off your train of empties (but not the brakevan) and pick up the 6 loaded wagons from the quarry siding. Return to Portmadoc, drop the brakevan back where you found it and complete the activity by placing the loaded stone wagons in Portmadoc yard road 3.

08. 1938 - Portmadoc shunt

It is 1130 on a wet spring morning in 1938. The down goods train has dropped off wagons for Portmadoc and the local area and is about to depart for Pwllheli. Your task is to place the dropped off wagons in the correct sidings and collect empty wagons from the goods shed and coal yard.

Dispose of train 32768 as follows:

32768-0 & 1 to Portmadoc goods shed
32768-2, 6, 7, 9 & 10 to Portmadoc yard reception
32768-3 to Portmadoc goods siding front
32768-4 to Portmadoc yard road 1
32768-5 to Portmadoc yard road 2
32768-8 to Portmadoc coal yard

Collect all existing wagons from Portmadoc goods siding front, Portmadoc goods shed and Portmadoc coal yard and place in Portmadoc yard road 1. Complete the activity by returning the loco to its starting location in Portmadoc yard road 3.

09. 1938 - Penrhyn trip: part 1

This is the first part of a return trip working from Portmadoc to Penrhyndeudraeth. Follow the preset path to Portmadoc yard reception and pick up train 32768. Reverse to the yard shunting neck and add the brakevan to the rear of the train. Proceed to Minffordd. At Minffordd stop before the point leading to the yard and uncouple the rear 3 wagons.

Shunt Minffordd yard as follows:

Drop off 32768-2 in Minffordd siding 4

Pick up 32797-0 & 1 and 32828-0 from Minffordd siding 2 / goods shed and attach to the train on the main line

Drop off 32768-0 & 1 in Minffordd siding 2.

Pick up 32829-0 & 1 (2 wagons only) from Minffordd siding 5.

Return to the train on the main line and continue to Penrhyndeudraeth. Stop in the goods loop opposite the platform, uncouple the brakevan and shunt as follows:

Pick up 32799-0 and all of train 32800 and place in the goods loop

Drop off 32768-4 in the loading dock and 32768-3 in the coal siding

Drop off 32797-0 & 1 and 32828-0 in the goods loop.

Take 32829-0 & 1 to the Cookes siding where the activity will end.

10. 1938 - Penrhyn trip: part 2

This is the second part of a return trip working from Portmadoc to Penrhyndeudraeth. It is now 1600hrs and, since the first part of the activity, two goods trains have called at Penrhyndeudraeth. The first train, the 1205 ex Barmouth dropped off 5 empty GPVs. The second, the 1420 from Portmadoc to Machynlleth collected all of the empty wagons from the goods loop together with the loaded GPVs. The local goods to Barmouth is just departing the station having passed a Ruabon to Pwllheli passenger.

Run round the brakevan in the goods loop (you will need to press the tab key to pass the first signal) and wait for a few minutes for the passenger train to reach Portmadoc (until 1608). As soon as the shunt signal clears, return to Portmadoc with the brakevan. If the signal hasn't cleared by just after 1608, reverse slowly towards the signal to prompt it to clear. (Note: it is the small ground signal). On arrival at your home station, place the brakevan in the brakevan siding and complete the activity by returning the loco to the shed. The activity will end when you stop by the water column.

11. 1938 - Banking and piloting

In this activity you assist a southbound goods train over the hill to Penrhyndeudraeth before returning as pilot on a northbound passenger train, running through to Pwllheli. Couple onto the rear of the goods train in Portmadoc yard reception and depart immediately for Penrhyndeudraeth. Stop in Penrhyndeudraeth loop, uncouple from the goods train and attach the loco to the front of the passenger train in the platform.

Press enter to load passengers. Drive the 1513 passenger service (1337 ex Dovey Junction) to Pwllheli calling at all stations and halts.

12. 1938 - Afon Wen goods

In this activity you drive the 1645 local goods train between Portmadoc and Afon Wen with one intermediate stop at Criccieth. Follow the preset path out of Portmadoc yard and onto the main line heading towards Criccieth. At Criccieth, stop on the main line just inside the loop (i.e. make sure that the whole train is on the double track section, but not too far past the point). Uncouple the brakevan and shunt the train into Criccieth goods siding 2. Pick up all 5 wagons from this siding, return to the main line and couple to the brakevan. Uncouple the last 4 wagons (brakevan + 3) and return to Criccieth goods siding 2. Drop off 32844-1 at the rear of this siding and place 32844-0 inside the goods shed. Return to the train on the main line, couple and continue to Afon Wen. At Afon Wen, place the brakevan in yard road 1, the next three wagons (the empties from Criccieth) in yard road 2 and the remainder of the train in yard road 3, where the activity will end.

13. 1939 - Cookes special

In this activity you drive a special explosives train from Penrhyndeudraeth to Machynlleth. You start at the coaling stage at Portmadoc shed, where the tender has just been filled with coal. Draw forward to the water tank and top up the tender water. Once you have a full tender of water, follow the preset path to the yard to collect 2 empty vans (32835-0 & 1) from Portmadoc yard road 3 to use as barrier wagons followed by a brakevan (32837-0) from the yard shunting neck. You may now proceed to Penrhyndeudraeth. At Penrhyndeudraeth, stop in the platform, uncouple the front wagon from the remainder of the train and head over to the Cookes siding to pick up the train of loaded GPVs (the whole of train 32800). Return to the platform, couple up to the other barrier wagon and brakevan and continue to Machynlleth. At Machynlleth, stop at the red signal past the station, where the activity will end.

14. 1939 - 1130 goods to Pwllheli

In this activity you drive the morning down goods train on the last leg of its journey to Pwllheli. After a crew change and a spot of shunting at Portmadoc, this train is now ready to depart. At Criccieth, stop on the main line just inside the loop (i.e. make sure that the whole train is on the double track section, but not too far past the point). Uncouple the rear 3 wagons and take the rest of the train to the adjacent goods siding. Stop just before the goods shed and drop off coal wagon 0-37. Return to the train on the main line, uncouple the next two wagons and drop off van 0-36 at the front of Criccieth goods siding 2 (leave both wagons outside the goods shed to be shunted by a later train). Return to the train on the main line, couple and continue to Pwllheli. Stop in Pwllheli yard reception 1, where the activity will end.

15. 1939 - 1400 goods from Pwllheli

In this activity you drive the afternoon local goods train between Pwllheli and Portmadoc. The train is ready to depart, so start immediately.

At Afon Wen, stop in the goods loop and uncouple the front 3 wagons. Draw forward into Afon Wen yard road 3 and drop off LMS vans 0-43 and 0-44. Return to the train in the goods loop via Afon Wen yard road 2. Shunt the whole train into Platform 3

and continue to Criccieth. At Criccieth, stop in the platform and uncouple the loco from the train. Pick up cattle wagon 32777-0 from the cattle dock and add it to the front of the train. Continue to Portmadoc. At Portmadoc, reverse the train into the yard reception, where the activity will end.

16. 1939 - 1545 goods to Barmouth

In this activity you drive the afternoon local goods train between Portmadoc and Barmouth Junction (Morfa Mawddach). Starting from Portmadoc yard, draw forward into the station and uncouple the loco from the train. Pick-up cattle wagon 32794-0 from Portmadoc cattle dock, add it to the front of your train and continue to Penrhyndeudraeth. Stop in Penrhyndeudraeth loop and uncouple between wagons 0-34 and 0-51. Pick up wagon 32867-0 from the goods loop (slate from Minffordd). Continue to Harlech. At Harlech, stop in the up platform, uncouple the loco and add cattle wagon 32862-0 to the front of the train. Also at Harlech, drop off LMS van 0-52 in the goods siding alongside the concrete warehouse. Continue to Dyffryn Ardudwy. At Dyffryn, stop in the up platform and place cattle wagon 0-34 at the cattle dock. Continue non-stop to Morfa Mawddach. At Morfa Mawddach, stop in the up branch platform and uncouple the loco from the train. Follow the preset path round the triangular junction and couple to train 32851 in the East shunting neck. This will end the activity.

17. 1939 - 0430 goods to Barmouth

In this activity you drive the early morning local goods train between Portmadoc and Barmouth. The train is ready to depart so start immediately. Pick up and drop off wagons along the way as follows:

At Penrhyndeudraeth: pick up wagon 32865-0

At Talsarnau: pick up 32879-0 and drop off 0-2 (at the coal yard)

At Harlech: pick up wagons 32877-0 and 32878-0

At Llanbedr & Pensarn: pick up wagon 32876-0

At Dyffryn Ardudwy: pick up wagon 32858-0

In all cases, the empty wagons should be added to the front of the train, i.e. stop in the station and uncouple the loco from the train before shunting. At Barmouth, stop in the station, where the activity will end.

Note:

At all locations apart from Dyffryn Ardudwy, the reverse points are placed on the single line beyond the station, so it doesn't matter if you overshoot. However, at Dyffryn Ardudwy, the reverse points are placed within the station area and you must stop as soon as the white arrow disappears to avoid losing the preset path. You will also need to press the Tab key to pass a red signal at Dyffryn Ardudwy.

18. 1939 - Slow goods to Portmadoc

In this activity you drive a local goods train between Barmouth and Portmadoc, calling at Llanbedr & Pensarn, Harlech and Penrhyndeudraeth. The train is ready to depart so start immediately. At Llanbedr & Pensarn, stop in the loop, uncouple wagon 0-1 and take it to the cattle pen. Return to the train and drop off wagons 0-13 and 0-7 in the goods siding (do not stop until you reach the reverse point). Collect the remainder of your train from the loop and continue to Harlech. At

Harlech, run through the station and reverse into the up platform. Uncouple the loco and temporarily pick up coal wagon 32861-0 from the coal yard. Next, drop off vans 0-3 and 0-4 in the goods siding alongside the concrete warehouse. Take LMS van 0-28 back to the platform and return to the siding to drop off wagon 0-2 and 32861-0 at the cattle dock and coal yard respectively. Finally, place wagon 0-27 at the coal yard, collect your train and continue to Penrhyndeudraeth. At Penrhyndeudraeth, stop in the platform, uncouple between 0-23 and 0-33 and drop off the 5 empty GPVs in the loop. Collect your train and complete the journey to Portmadoc. At Portmadoc, stop in the station, where the activity will end.

19. 1939 - Fast goods to Portmadoc

In this activity you drive the daily Machynlleth to Pwllheli goods train between Barmouth and Portmadoc. The train has already shunted in Barmouth, dropping off wagons for the town and intermediate stations to Penrhyndeudraeth (to be taken by a local goods train later). It is now ready to depart with those wagons bound for Portmadoc and beyond. Drive non-stop (if the signals allow) to Portmadoc. Stop in Portmadoc yard reception, where the activity will end.

20. 1939 - Chwilog excursion

In 1938 and 1939, the GWR ran special excursion trains from Chwilog on the LMS Caernarfon line to Shrewsbury, with Portmadoc men working the trains as far as Machynlleth (the GWR had running powers as far as Chwilog). Little is known about these workings, although it is believed that they were worked by Cambrian 0-6-0 locomotives. This activity attempts to recreate one of these forgotten events, using Dukedog 3214 in the place of the 0-6-0. Drive the 0800 departure from Chwilog as far as Machynlleth, calling at Afon Wen, Portmadoc, Harlech, Barmouth and Towyn only.

Hints and tips for completing the activities

1. Many of the activities use a preset path. Where this is the case, the points (switches) will change automatically as soon as you reach the reverse point (when the curved white arrow in the track monitor disappears). However, for this to work properly, you must stop as soon as the reverse point is reached. To achieve this, it is essential that you slow down to a walking pace before the white arrow disappears from the track monitor. (This should become easy with practice).
2. During many of the activities, you will encounter red signals protecting occupied lines. Some of these signals can be passed at danger by pressing the tab key, but if you are not granted permission to pass, you must wait for the signal to clear. If you have stopped to allow another train to pass in the opposite direction, the signal should clear automatically as soon as the line is clear. If this does not happen, release the brakes and inch forwards (this usually has the desired effect of causing the signal to clear).
3. If you overshoot any of the station platforms, **DO NOT REVERSE**, simply miss out the station. Reversing confuses the signalling and sometimes leads to problems with the computer-controlled trains on single track lines such as the Cambrian.
4. Train Simulator does not allow the designated platform locations to extend past points (switches), so in certain locations (Aberystwyth and Pwllheli on

- the Cambrian route), it is not possible to load/unload passengers over the entire length of the platform. Follow the instructions in the activity briefs to ensure that you stop at the correct location.
5. Train Simulator sometimes crashes when coupling with the front coupler. You are advised to save the game before coupling, just in case this happens. Once coupled, you will find it impossible to uncouple from trains longer than a few wagons, so you will need to uncouple in several places if you find yourself in this situation. Even with shorter trains, uncoupling isn't easy. The trick here is to reverse at less than walking pace until you are clear of the train.
 6. Some activities require you to take coal or water. This is achieved by stopping the train at the correct location alongside the coal stage or water column and pressing the T key until you have the coal bunker or water tank is full. You can see how much water or coal you have by pressing the F5 key twice. The water/coal points are realistically slow, so be patient.
 7. Due to a Train Simulator bug, the wagon handbrakes will not release properly once applied. Do not apply the handbrakes until the wagons are in their final positions.

Glossary

Points (the British term for switches) – a special piece of railway track that enables the route of the train to be switched from one track to another.

Shunting (the British term for switching) – moving wagons between sidings or tracks

Unfitted wagons – wagons that do not have air or vacuum brakes, i.e. handbrakes only.

Fitted wagons – wagons fitted with air or vacuum brakes that can be operated by the driver from the locomotive.

Unfitted train – a train containing mostly (or entirely) unfitted wagons.

Fitted train – a train consisting entirely of fitted wagons.

Partially fitted train – a train consisting of a mixture of fitted and unfitted wagons. There must be sufficient fitted wagons to comply with the regulations for partially fitted trains (i.e. to provide adequate braking force for the train) and these wagons must be placed together at the front of the train

Down – the direction away from London (i.e. towards Pwllheli or Aberystwyth)

Up – the direction towards London (i.e. towards Shrewsbury or Oswestry)

Credits

The *Cambrian Railways* route was produced by 3DTrainStuff-UK. The team members responsible for this add-on were as follows:

Martin Heywood – Route builder, activities, physics and sounds

Michael Cleasby – Route builder, testing and research

Richard Scott – 3D graphic artist (locomotives, rolling stock and route objects)

Nigel Apperley – 3D graphic artist (locomotives, cabs and route objects)

Peter Holton – 3D graphic artist (route objects)

The team would also like to acknowledge the contribution of Vern Moorhouse who built the original 3DTrainStuff Cambrian route on which the current version is based.

Other Microsoft Train Simulator Add-on Products

For further information about 3D Train Stuff, Llc. and their add-on products for Microsoft Train Simulator please visit our website www.3DTrainStuff.com