

A new age of steam?

The Tua Valley Line, Portugal - Experience and Examples from the Technological Heritage Operations and Preserved Railways of Britain.

Dr Dominic Fontana

Department of Geography, University of Portsmouth, United Kingdom

dominic.fontana@port.ac.uk

The railways of Portugal are well known to a global community of steam enthusiasts, many of whom used to visit the country specifically to experience and photograph the last days of steam traction until as late as the 1980s. The narrow gauge lines north of the Douro River, and the Tua Valley line in particular, were considered as very special railways. Their outstanding combination of narrow gauge steam traction, relatively long runs of track and extraordinarily beautiful landscapes, made for a magical railway experience. In the 1980s steam was replaced with diesel traction and although there are now regular but infrequent steam hauled tourist trains on the Douro Valley line, there are currently very limited opportunities for people to recapture this experience. Portugal has several railway museums including the excellent National Railway Museum in Entroncamento, but these present static displays rather than "live" steam and many railway enthusiasts consider this to be a poor substitute for the "real" thing where steam locomotives are operating in steam, within a fully-fledged railway environment.



0189 2-8-4T Henschel 1925 Mallet locomotive at Regua.

Portugal possesses over 100 redundant steam locomotives (Bailey, 2013) dispersed in yards around its national railway network, some of them remain potentially usable and many are certainly restorable to full operating condition. Portugal also possesses track and routes, which have been recently closed to passenger and freight traffic. These are still largely intact and could be reopened as heritage railway operations at relatively low cost. 60 years of experience of operating and developing technological heritage and preserved railways has been accrued in Britain and this may prove valuable to the recognition of the tourist potential and economic benefits that such technological heritage and preserved railways present as part of a modern tourism industry.

Industrial and technological heritage tourism in Britain is an important part of the nation's tourism portfolio and includes historic factories, coalmines, motor museums, old ships, canals and railways. Most of these are owned and operated by charitable organisations, usually founded and often staffed by volunteer enthusiasts.

Railways alone are a very significant element of the heritage sector and Great Britain has over 150 preserved railways, which generate in excess of 15 million tourist journeys each year. The heritage railway industry employs 2,000 people directly and engages a further 18,000 volunteers, providing valuable social activity and contact outside of the commercially focussed world of work. Heritage railways contribute £579 million to the British economy and play a very important role in the extensive cultural and heritage tourism industry of the country (Heritage Railway Association, 2011).

Heritage or preserved railways are usually railway lines, which were built to meet commercial needs and were once run as fully commercial operations. Originally they were primarily concerned with transportation of goods and people but due to changing circumstances found that they no longer served that purpose and were duly closed by their owners.

Britain possesses considerable railway heritage resources, built during its long history of railway innovation and development. Indeed, the world's first public railway was established by act of Parliament in 1801 and opened in 1803, as the Surrey Iron Railway, running between Wandsworth and Croydon. On this line horses pulled privately owned freight wagons over cast-iron rails or plate-ways set in stone

blocks. The world's first steam railway was established in Britain in 1804, when Richard Trevithick used a steam locomotive to haul a train along the tramway of the Penyardren ironworks, near Merthyr Tydfil in Wales. From these very early experimental implementations railways developed rapidly in Britain, with the start of the modern railway age being marked by the opening of the Stockton and Darlington line in 1825 (Jones, 2012, p.7). By 1845 there were 2441 miles of railway open, which by 1900 had grown to some 18,680 miles in use, with railway lines reaching into almost all parts of the country. Britain's railways were built and financed by private companies, which then operated the lines that they had constructed and consequently, in the first decade of the 20th century the country's railways were run by a very large number of separate concerns. Each company was primarily interested in their own routes and railways competed with each other for traffic and business. Although there was no national railway plan the extensive railway infrastructure continued to serve the transport needs of the country reasonably effectively into the first half of the 20th century. However, the business structure of the railway sector was significantly affected and remodelled by the events of both the First and the Second World Wars. The wartime needs for the transportation of men and materiel during 1914 - 1918 saw the railways under direct state control for the duration of the war (Jones, 2012, p.13). The privations and demands of the war led to severe overuse and lack of maintenance of Britain's railways and consequently, after the First World War, the British government, seeking to improve efficiency and to encourage new private investment, joined the majority of Britain's 120 railway companies together under the 1921 Railways Act to form four big railway companies. These became known as the "Big Four" comprising; The Great Western Railway, The London Midland and Scottish Railway, The London and North Eastern Railway and the Southern Railway. Again, in the 1939 - 45 war the railways suffered from continued overuse, hostile bombing and severe lack of maintenance and investment, which meant that by the end of the Second World War Britain's railways, were in a parlous state. In response, the newly elected Labour government opted to take the entire network into permanent public ownership through nationalisation.

The nationalised British Railways came into being in January 1948 and although there was considerable optimism for the future of the railways, it was clear that there would need to be closures. These began as early as February 1948. In 1950 150 route miles were closed, 275 in 1951 and a further 300 in 1952 (Jones, 2012,

p13). During the remainder of the 1950s there continued to be significant closure programmes instigated by Government. This culminated in the publication in 1963 of a report about the future of British railways by Dr Richard Beeching in which he identified 2,363 stations (Jones, 2012, p43) and 5,000 miles of railway line for closure, - 55% of all stations and 30% of the total route miles. Consequently, from the 1950s until the middle 1960s there was the rapid closure of a considerable proportion of Britain's railways. The potential loss of much of Britain's railway heritage was recognised by many enthusiastic amateurs. Therefore, the closure of so much of the railway system, combined with the modernisation of the railways including the swift changeover from steam to diesel and electric traction, inspired many individuals to group together with the aim of preserving their own small parts of Britain's industrial and railway heritage. As a result many of the lines closed during the 1950s and 60s were taken over or re-opened by volunteers who wished to recreate their railway as it once was, as an historical experience, and consequently, almost all of these railway preservation operations have become focused on serving the tourist and leisure markets rather than local transportation needs. However, although these events were extremely important in raising the public consciousness of Britain's railway heritage, not all preserved or heritage railways in Britain result from the nationalisation and government closure programmes and there are a number of examples where preserved/heritage/tourist railways have evolved from different foundations and developed a variety of operational and organisational models. Potentially, at least, their range of foundation, formation, organisation, infrastructure and approaches may provide examples, which could help to inform railway enthusiasts and other interested people or organisations about how and why heritage railways could be of benefit to the tourist and more general economy of Portugal.

The world's first heritage railway

The first line in the world to be recreated and re-invigorated as a heritage railway was the Talyllyn narrow-gauge line in Wales, which was taken into volunteer operation in 1951. The Talyllyn railway is a 2 ft 3 in gauge, narrow-gauge line which runs for 7.25 miles from Tywyn to the village of Abergynolwyn. The line was opened in 1866 to carry slate from the quarries at Bryn Eglwys to Tywyn. In addition to carrying slate the line was the first narrow gauge railway in Britain authorised by Act of Parliament to carry passengers using steam locomotion. However, the line was

never really successful as a passenger carrying business except when carrying tourists during a short summer season. The line was therefore predominantly used for carrying slate, however after the First World War sales from the slate quarry declined. The quarry continued with a relatively low level of production until it was finally closed following a serious collapse on Boxing Day 1946 (Talyllyn Railway, 2012a).

Local MP Mr. Henry Haydn Jones had owned the railway and quarry since 1911. When he died in 1950 his widow kept the railway running for the remainder of the summer season until the line closed in October 1950. At this point Tom Rolt and a group of railway enthusiasts called a public meeting in Birmingham to form the Talyllyn Railway Preservation Society who took over the line in February 1951, running their first trains on 14th May 1951 (Talyllyn Railway, 2012b). The essential notion behind the formation of the Talyllyn Railway Preservation Society was that members would provide money for the railway through membership fees, fund-raising activities and donations, and also to provide volunteer labour working on the railway itself.

It is now a much visited tourist attraction. The line currently has six steam locomotives and four diesel locomotives. It also owns 23 carriages and vans, including all of the original carriages and the brake van built specifically for the railway. In 2006, nearly 51,000 passengers were carried. (Robinson, 2007) and by 2010 passenger journeys had risen to 85,146.

Isle of Wight railways

Today, the Isle of Wight has two railways. Both could be classed as heritage railways although one is owned and operated as part of the national railway network and the other is privately owned by a charitable organisation and operated primarily as a volunteer-run tourist railway.

During the 1860s the Isle of Wight developed an extensive railway network that provided both passenger and goods transport to many of the isolated rural places around the island. In common with railways in many parts of Britain, much of the network on the Isle of Wight was closed in the 1950s and 1960s. The major part of the closures resulted from the 1963 publication of the report on the future of the railways by Dr. Richard Beeching. Beeching wished to close the entire railway system

on the Isle of Wight, apart from the half-mile length along Ryde Pier from the Pierhead to the Esplanade, which he intended would remain open to convey ferry passengers from ship to shore.

A local campaign prevented the closure of the line from Ryde Pierhead to Shanklin, running along the east coast of the Isle of Wight. This line served the most densely populated part of the island and was kept open as part of the nationalised British Railways network. In common with the modernisation programme going on throughout Britain's railways at the time, steam trains were withdrawn from the line on 31 December 1966 and it was then converted from steam operation to third rail electric power. In order to reduce tidal flooding within the Ryde Esplanade tunnel, which could cause significant problems for the 630-volt DC, third rail electric system, the height of the track bed was increased (Jones, 2012, p72). In turn, this resulted in reduced clearance within the tunnel and trains built to the national loading gauge could no longer run through it, as they were then too tall for the tunnel. Consequently, it was necessary to use rolling stock built to a lower height specification and so second-hand London underground vehicles were acquired for the purpose. This brought its own problems elsewhere on the line, as it required the extensive modification of the relationship between the track and the platform heights to accommodate the low carriage height of the old London Underground rolling stock. Nevertheless, in the long term this approach has proven to be quite effective for the operation of the line over the past 46 years. Although very old, the electric trains were cheap to acquire, are robust and simple to maintain. Periodic overhaul and restoration of the cars is carried out at the Island's own maintenance depot at Ryde St John's Road. For an island-based railway system the possibility of local maintenance and overhaul is an important consideration otherwise, it would be necessary to ship the railway vehicles across to mainland England by ferry which would be a costly and time-consuming operation.



2-car unit 007 arrives at Ryde St John's station for service to Ryde Pierhead, 24 May 2011. Class 483 unit, former London Underground rolling stock, built in 1938.

The line continues in use as a passenger transportation system marketed as "The Island Line" run by South West Trains (since 2007), part of Stagecoach PLC, using tracks owned by Network Rail (since 28 October 2002). Network Rail is a private limited company which is run on a "not for shareholder dividend" basis (Network Rail, 2013). The line currently runs with 6 x 2 car Class 483 units, which are former London Underground rolling stock, built in 1938 – the oldest in use on any lines of the British National railway network. Although not originally a consideration, to a degree this use of historic vehicles reflects the tourist nature of the Isle of Wight and railway enthusiasts travel to the island specifically to ride on the former underground trains. However, it should be noted that the line is well used by local residents simply as reliable transport as well as providing something of an historical attraction for the tourists. Possibly surprisingly, the line regularly achieves the best timekeeping and reliability figures on the entire National railway system even though the infrastructure and trains may be regarded as antique curios.

As a model of commercial railway operation, which mixes the local transportation needs of the community with the interest and desires of dedicated railway enthusiasts the "Island Line" is unique in Britain. It certainly provides an interesting and historic means of commuting between the towns on the east coast of the Isle of Wight and the cross-Solent ferries from Ryde Pierhead to Portsmouth.

Isle of Wight Steam Railway

In addition to the electric railway, the Isle of Wight has another railway owned by a charitable education trust and specifically operated in the "traditional" heritage railway mould, running trains for enthusiasts and tourists on approximately 200 days a year. The Isle of Wight Steam Railway (ISWR) runs along part of the original route-way between Ryde and Newport, which was closed under the Beeching cuts of the 1960s. It extends for approximately 5 miles between Wootton and Smallbrook Junction, where it joins the Ryde Pierhead to Shanklin electric railway at a recently built junction station. Here passengers can transfer between electric and steam trains. This enables visitors to travel by train from locations on the English mainland, using the Portsmouth to Ryde ferries to cross the Solent and then reaching the steam railway by way of the historic London Underground trains on the "Island Line".

The Isle of Wight Steam Railway has its main base at Havenstreet where it has an engine shed, engineering facilities, a museum, gift shop and cafe as well as a number of functional railway buildings, all of which provide interest to visitors. The facilities are in the process of significant development as a result of the Isle of Wight Steam Railway being awarded, in June 2012, a Heritage Lottery Fund grant of £970,000 which together with another £250,000 funding, will provide covered accommodation and a workshop to protect the railway's vintage carriage fleet at Havenstreet station. Volunteer labour of the railway membership will provide £75,000 of the matched funding required as part of the grant conditions (IWSR, 2012).



**Propelling a four-coach train into Wootton Station.
19 April 2012.**

Volunteers are an important part of the Isle of Wight Steam Railway operation as they provide the vast majority of people who work on the railway, undertaking tasks including engine driving, signalling, shunting, ticket inspecting, plate laying and track maintenance, locomotive cleaning and maintenance, carriage restoration, ticket sales and working in the shop. The IWSR has recently (2012) been awarded The Queen's Award for Voluntary Service. This is the highest award in Britain for volunteer groups and has been given to the railway in recognition of the community involvement and achievements made possible by the IW Steam Railway's many volunteers. Currently, around 300 volunteers work on the railway, some on a regular basis and others occasionally, but they all contribute directly to the experience of the 115,000 passengers carried by the railway each year, thereby playing a very significant role in the success of the Isle of Wight's tourist industry. The railway also has a small permanent staff who provide continuity of management and organisation and form the framework around which the volunteers can work effectively and efficiently.

The origins of the Isle of Wight steam railway can be traced back to the enthusiasm and imagination of Ron Strutt and Iain Whitlam who called a meeting in south

London during 1965 to gather interest from like-minded people into the possibly preserving some elements of the old Island railways. The group formed the Wight Locomotive Society whose initial aim was to try and secure at least one former London & South Western Railway O2 class 0-4-4-0T engine and, if at all possible, some carriages to accompany the locomotive (Mitchell and Smith, 1998). It was originally intended that the preservation was just for static display however the group's ambitions rapidly grew and by January 1971 all of the stock was moved to Havenstreet and the Isle of Wight Railway Company was formed in 1972. By 1991 the line had been extended along the original route-way to Smallbrook Junction adjacent to the then British Rail line from Ryde to Shanklin (Mitchell and Smith, 1998). Today, the IWSR is one of the leading heritage railways in Britain, having developed from a few enthusiasts with a redundant locomotive in the late 1960s into a vibrant element of the Island's tourism industry in just 40 years, significantly contributing to the community well-being and the wealth of the region.

Brue Valley line, Norfolk

The Brue Valley line, Norfolk, has taken a different approach to the development of a steam railway and provides an example where the standard gauge track route-way has been reused as a narrow gauge tourist railway rather than as a heritage railway in the strict sense. Originally, the line was part of the standard gauge national railway network and this has now been redeveloped as a narrow gauge steam railway utilising modern, especially built, antique styled, steam locomotives. The line is specifically intended to be a tourist attraction rather than re-creation of the railway as it once was. Few of the previously existing railway buildings such as stations or signal boxes have been used other than the original road or railway bridges along the line. This approach has considerable advantage over the reinstatement of full-size standard gauge locomotives, rolling stock and their associated infrastructure, by offering significantly reduced operating and fuel costs of the much smaller and lighter locomotives. The new narrow gauge track is far cheaper to purchase and install than standard gauge rails and sleepers. Additionally lower operating costs could be expected from running the line with newly built locomotives rather than employing restored antique motive power with all the attendant problems of potentially worn parts and fragile materials. The use of the previously existing standard gauge route-way, which is much wider than the space required for the 15-inch narrow gauge track, has also allowed the local authority to build a footpath

alongside the railway. This has extended the potential usefulness of the route to walkers and cyclists as well as the tourist railway. The route-way was originally begun in 1877 when the East Norfolk Railway opened a line from Norwich to Cromer, which was then extended from Wroxham to Aylsham in 1880. The line was nationalised in 1948 and in 1952 the passenger service was withdrawn although freight continued to Buxton Lammas until 1964 and Aylsham and Coltishall, which were closed in 1974. The Bure Valley Railway opened on 10 July 1990, and the long distance footpath opened in 1991. The Bure Valley railway runs from Wroxham to Aylsham a distance of some 9 miles or approximately 14.5 kilometres. Initially the railway hired several locomotives including Black Prince, Sampson and Winston Churchill, from the Romney, Hythe and Dymchurch Railway which operates on the same track gauge. The Bure Valley line currently (2012) has five steam and three diesel locomotives. The railway is supported by a volunteer group "The Friends of the Bure Valley Railway" (FoBVR), which also owns diesel locomotive number 4, and supports the railway financially and by organising events and regular working parties of volunteers.



Bure Valley Railway, the engine driver rotates the turntable at Wroxham, 8 August 2012. The engine is the 15 inch gauge locomotive No. 9 'Mark Timothy' 2-6-4 Tank ZB Class. This was originally built by Winson Engineering as an oil fired loco, rebuilt by Alan Keef Limited as coal fired. It entered full service in July 2004.

In addition to carrying tourists, the railway operates specific training events for more

dedicated enthusiasts who wish to learn how to drive a steam locomotive. The railway offers a series of training courses for prospective locomotive drivers and are currently offering one-day (£225) and two-day (£325) steam locomotive driving courses, a one-day "advanced" driving course (£295) and a one day "Gold Driver Experience Course" at £800. For the "Gold" course, having received sufficient training, the student may drive the locomotive and train, running without passengers, for a total of 36 miles driving. (Brue Valley Railway, 2012)

Volk's Electric Railway, Brighton

The Volk's Electric Railway is a heritage railway that was originally built as a tourist railway over 125 years ago, a purpose it still retains. Volk's Railway is the oldest operating electric railway in the world. Today, It is owned and operated by Brighton & Hove City Council and runs along a section of Brighton's seafront and beach from the Palace Pier to Black Rock close to Brighton Marina.

Magnus Volk opened the railway for public use on August 4th, 1883. From the outset it was an electric railway and to begin with operated over a quarter of a mile of 2ft gauge line running between the Aquarium and the Chain Pier. Electricity was supplied by a Siemens D5 50 volt DC generator which was powered by a 2hp Otto gas engine. The railcar was fitted with a 1½hp motor giving a top speed of about 6mph. By April 1884 the line had been extended to almost a mile in length and the gauge widened to 2 foot 8½ inches. Additionally, the operating voltage was increased to 160 V DC from a Siemens D2 dynamo powered by a larger Otto 12 hp gas engine. The line proved extremely popular with visitors to Brighton seafront and continued to develop with further extensions and in 1886 the addition of a third rail for power supply rather than the original arrangement of using the running lines for this purpose. The third rail power supply approach is still in use today and supplies current to the railway's 4 in-service rail cars 3 of which are over 100 years old having been built in the first decade of the 20th century. (Volk's Electric Railway Association, 2012)



Volk's Railway car No.9, built 1910.

The Volks Electric Railway was taken into local council ownership in 1938 and was initially leased back to the Volks family for the day-to-day operation until April 1st 1940 when Brighton Corporation took full control. In July 1940 the railway ceased operation for the duration of the Second World War and it was not until 15 May 1948 that the railway reopened to passenger traffic (Volk's Electric Railway Association, 2012).

In common with most preserved and heritage railway operations in Britain the railway currently has a very active volunteer supporters group known as "The Volk's Electric Railway Association" which was founded in September 1995.

The Volk's Electric Railway is therefore a very long surviving tourist railway which has become a heritage line simply as a result of the passage of time. It has experienced and thrived under both private and public ownership. After more than 125 years it continues to attract visitors to the seaside town of Brighton.

The Romney, Hythe and Dymchurch Railway

The Romney, Hythe and Dymchurch Railway (RH&DR) follows a section of the Kent coast in southern England. It differs from the majority of heritage railways in Britain because it was built as an entirely new railway and did not follow the route of a previously existing line which had been subject to closure. It is a 15 inch gauge railway equipped with one-third scale replica 1920s British mainline steam locomotives built especially for the line. The building of the railway was instigated in the mid 1920s by Captain J. E. P. Howey and Count Louis Zborowski, after their failed attempt to purchase the Ravenglass and Eskdale Railway in the English Lake District. Both men were known for motor racing and both were independently wealthy. The official opening of the RH&DR took place on 16th July 1927 with double track line running eight miles between Hythe and New Romney. In 1928 the double track route was extended to Dungeness via Greatstone providing a ride of 13.5 miles. Zborowski died in a racing accident before the opening of the railway and Howey continued to run the line until his death in 1963 (RH&DR, 2012).



Southern Maid at Dungeness. 10 September 2011.

Problems with lack of investment in rolling stock and infrastructure almost closed the line during the 1960s but a new group, headed by Sir William MacAlpine, took over in 1973 and there has been a good deal of investment since. As with other heritage

railways an external supporters organisation, The RH&DR Association, plays a key role in supporting the railway both financially and with volunteer staff throughout the year in various parts of the railway with practical help in both railway operation and fundraising. In common with the Brue Valley line, Norfolk, the RH&DR offer "Driver Experience Days" as one of their revenue raising activities, charging £275 for the one-day course including practical experience driving one of the miniature steam locomotives along part of their route. These courses are run in February, March, October and November, each course running with a small number of participants. The railway also offers an advanced course at £400 per session. (RH&DR, 2013) Clearly there is a market for relatively expensive railway heritage experiences.

Downpatrick & County Down Railway, Northern Ireland

The Downpatrick & County Down Railway is Northern Ireland's only standard gauge heritage railway and is based in the county town of Down. It was founded in 1985 with the intention of rebuilding the entire former Belfast and County Down Railway branch line to Ardglass. As with many heritage railway projects the United Kingdom it soon became apparent that this was a rather ambitious target for a small volunteer-based organisation and consequently the railway is being rebuilt as far as Inch Abbey and Ballydugan - both of which are on the former BCDR Belfast to Newcastle main line. The overall length of track available for running trains is relatively short but the configuration of the lines means that it is possible to carry out interesting and complex manoeuvres with the trains and locomotives. Train drivers, shunters and signalman can indulge in much railway activity, switching tracks, running round locomotives and using the line's "Railway Triangle" which connects the sections of the railway creating, what might be termed, a "Railway theatre" with which to entertain the tourists and railway enthusiasts. In other words, the complexity of the Downpatrick railway layout ensures that there is always something to see and that trains are engaged in more than just pulling coaches along a track in a single direction.



Running round, ex CIE 141 (B) Class Bo-Bo Locomotive 146, 1962 General Motors 0-4-4-0 locomotive at Downpatrick, 4 August 2012.

The Downpatrick & Co. Down Railway is a not-for-profit society as well as a registered charity and museum. It has a membership of just under 200 people from all over the world. For a heritage railway in the United Kingdom this is a relatively small membership but it must be remembered that the Downpatrick railway has been developed and operated during a period of considerable political and community difficulty in Northern Ireland. The railway earns revenue from the fares per trip, but also relies upon private and public donations and membership subscriptions. Major restoration projects and museum development tasks usually require grant aid.

The Downpatrick Railway is therefore, another example of a heritage railway in the United Kingdom, which has developed from the desire of a few enthusiasts to recreate a section of railway as it once was. They have done this from the discarded remains of a line that had been closed as no longer needed for passenger or freight service. These volunteers have taken what were redundant track and buildings and developed them into significant assets, helping to further Northern Ireland's tourist industry and at the same time provide opportunities for volunteers to contribute to

the wider society as well as develop their skills and indulge their passionate enthusiasm for railways.

The Tua line

The Tua line was a metre gauge railway line in northern Portugal. It was opened in 1887 and closed in 2008. It was a wonderfully scenic narrow gauge railway line running north from a junction at Foz Tua, connecting with the main Douro line from Porto. The track of the Tua line occupies a narrow ledge, which is hewn into the valley side and follows a route along the banks of the Tua River to the town of Mirandela, some 55 km from Foz Tua. The line once extended another 79 km as far as the town of Bragança, making it the longest of all the narrow gauge railways in the area north of the River Douro. It was originally operated by Companhia Nacional de Caminhos de Ferro (CN) until 1947 and the nationalization of the Portuguese railways. From 1947 until closure, it was operated by CP, the Portuguese national railways. The section of the line from Mirandela to Bragança was closed in September 1991, although a small section from Mirandela to Carvalhais was reopened in 1997 by the Mirandela council to provide a local metro system.



E81 2-6-0T Kessler 1886, photographed by Alan Orchard in 1968

The line from Foz Tua to Mirandela was closed as a result of a serious accident during 2008. The majority of the permanent way was still extant in 2012, with only a small section of track having been removed from the area approaching the tunnel near Foz Tua. The Tua Valley is soon to be blocked by a hydroelectric dam. This is being built for EDP, the Portuguese national power company, at a cost of €162.3 million, near Foz Tua. A proportion of the Tua Valley narrow gauge railway line will be lost to the floodwaters of the dam when it is completed towards the end of 2014 although this is understood not to be a large portion.

The Tua Valley line was considered by many railway enthusiasts to be a very special railway. The unique combination of narrow gauge steam traction, a relatively long run of track and extraordinarily beautiful settings made for a magical railway experience. Trains on the line were hauled by steam locomotives until the 1980s when they were replaced by diesel rail cars (Organ, 2010). A variety of steam locomotives were used on the line including Kessler 0-6-0T, Kessler 2-6-0T and Henschel 0-4-4-0T Mallet. After the withdrawal of steam diesel traction was provided by CP Class 9020 locomotives and Série 9300 and Série 9500 Diesel railbuses and whilst these lost the allure of steam at least they kept the routes open for rail traffic until closure in 2008.

Echoing the railway experience of Britain in the 1960s, the recent economic austerity in Portugal has led to a major reduction in the size and extent of the CP railway network and consequently many kilometres of track have been closed. In the case of the Tua Valley line, accidents were cited as the reason for closure, on the basis that the track was in poor condition and that the costs of repair were too great to warrant the expenditure.

The Tua Valley line has therefore been closed due to economic and possibly political reasons as well as the civil engineering problems associated with the construction and future operation of the hydroelectric dam at Foz Tua. Currently, there is work going on to develop and construct a centre to preserve something of the memory of the railway heritage at Foz Tua. This is an extremely important project to assist with the preservation of an essential part of the history and cultural experience of the area. However, it is the current intention that this exhibition should not feature any of the old locomotives or track. It is possible that this approach may miss out on the potential for attracting specifically railway heritage-based tourism and particularly so

from the extremely dedicated global community of steam traction enthusiasts who will travel huge distances and spend significant sums of money in pursuit of what they would consider as "special" railway experiences.

It is interesting to note that, albeit from relatively anecdotal data, the steam railways of Portugal and in particular the narrow gauge lines, are very much sought after by railway enthusiasts. Recent sales (October and November 2012) on the Internet auction site eBay, of 35mm slides and black-and-white negatives taken during the late 1960s to mid 1970s, depicting steam locomotives in action on the narrow gauge lines, have been fetching prices as high as £25 for a single 35mm slide and, this is by no means an isolated incident as a number of separate transactions have been observed by the author in this price region. Similarly, books recording the days of steam on the Portuguese narrow gauge railways also reach high prices; at the time of writing (November 2012) on Amazon.com paperback copies of "Narrow Gauge Railways of Portugal" by W.J.K. Davies are on offer from £120 for a second-hand copy to £245 for a new copy. This book is not a particularly large volume although it is well illustrated and is very specific about its subject coverage. Such prices and interest in old photographs and relatively recently published, but clearly sought after books, suggest that there are a number of enthusiasts around the globe who have both the money and the desire to engage with their interest in Portuguese narrow gauge railways.

Indeed, in the United Kingdom, in addition to the more than 150 heritage railways there is a thriving business of heritage rail tours operating on the standard gauge national railway network. Private companies organise special excursion trains hauled by both steam and diesel locomotives, which are often supplied from heritage railway fleets, to take groups of enthusiasts on special railway journeys around Britain. Some of these rail tours focus on making journeys over particular sections of track, which are not normally available to the public, or using specific heritage locomotives to haul the trains. Others, follow a slightly different model concentrating on a luxury nostalgia market rather than the dyed-in-the-wool steam enthusiasts.

For example, Venice Simplon-Orient-Express Ltd operate the *British Pullman* and its sister train the *Northern Belle*, (Venice Simplon-Orient-Express Ltd., 2012) as well as the renowned *Venice Simplon-Orient-Express* itself. They offer departures from London Victoria, Birmingham, Manchester and many other cities and towns

throughout the United Kingdom. As a specialist railway heritage-based business they have a particularly interesting business model, which relies on high-quality, upmarket and beautifully restored Pullman carriages in which travellers are treated to excellent restaurant meals and superb service. Clearly, there is a significant market for this version of railway heritage as the operation is scheduled to run over 280 train journeys in 2013. They charge between £240 and £495 per seat for an experience lasting between three and five hours depending upon the route. In 2013 they will charge over £1000 for a journey from London to Cornwall and back with two nights' hotel accommodation and champagne lunches served on the train during both the outward and return legs of the journey.

Surely, it should be possible to package the railway enthusiasts' love of steam engines with the breathtaking countryside of Portugal; it's wonderful food and superb restaurant service with the world-famous and deeply historic port wine industry? It should also be possible to integrate the narrow gauge steam railway network into this package to develop a specialist and high-quality tourist business for the region.

Almost all of the requisite elements are already in place. There is a wonderful modern airport at Porto; excellent metrolink from the airport into the centre of Porto; some superb hotels in Porto itself; existing broad gauge lines from Porto along the wonderfully scenic Douro Valley; historic rolling stock exists for the route; the immediate vicinity of Foz Tua has an important Port wine Quinta; the new hydroelectric dam at Foz Tua will be an impressive piece of civil engineering; the narrow gauge railway track running up the Tua Valley, from just to the north of the dam to Mirandela alongside the hydroelectric dam lake, is still in place and potentially functional; several 1 m gauge Mallet locomotives and their associated historic rolling stock still exist and could be reasonably easily restored to fully functioning condition. What is missing is the connection to draw this all together and that is the geographical focus of the railway junction at Foz Tua itself which requires some development and potentially reconnection with the 1 m gauge line to Mirandela. This could be relatively easily achieved with the use of a cable-operated inclined plane to bypass the hydroelectric dam.

Railway enthusiasts form a global community of some considerable size and many of them are willing to spend significant sums of money in order to pursue their great

passion. It is very interesting to consider that within the next 5 to 10 years it is very unlikely that there will be any remaining steam hauled railways operating anywhere in the world other than as tourist attractions. Consequently, we may see the first age of steam coming to complete and final close very soon. However, based upon the considerable experience of heritage railways in Great Britain it can be seen that there is a great deal of continuing interest in the recreation of steam locomotion and the railways on which they run. However, as Chris Skow of Trains & Travel International (Grabar, 2012), observed...

“Railroad museums and tour companies may continue to keep the old steam trains on hand for demonstrations, posterity or simple nostalgia. But for true rail fans, that’s like seeing an animal in the zoo. To see the old iron horse in the wild, on the other hand — what rail fans call “live steam” — is worth a journey of thousands of miles.”

Perhaps therefore, this might suggest that those associated with the Tua Valley line, should consider memorialising or re-creating the line not simply as a tourist railway but as a narrow gauge steam railway line very close to a genuine, working railway. This would have several significant advantages firstly, the locomotives and rolling stock would not need to be in pristine “tourist” condition and merely using the locomotives and rolling stock exactly as they were originally intended could create a more authentic atmosphere. Indeed, although it is not steam operated, the model for this could be the Island Line on the Isle of Wight, UK, where 1938 built third rail electric London Underground rolling stock is used in normal service by South West Trains who run the non-tourist railway from Ryde Pierhead to Shanklin. The company maintain the rolling stock and use them as was intended when originally built. The line provides a well used transport service to the local population using rolling stock over 70 years old and yet the line maintains some of the best reliability and timekeeping in the whole of the British railway system. Certainly, this experience suggests that if used correctly, old equipment may not be a hindrance to be efficient operation of a transport system and can create a nostalgic atmosphere. This approach has proven to be an effective formula on the Isle of Wight.

The recent railway closures in Portugal present a significant opportunity for the

development of a very special railway heritage destination. Many of the elements needed to create this are still available and have not yet been removed or destroyed. A narrow gauge steam railway centre at Foz Tua with a viable connection to the Tua Valley line could provide a "must visit" destination for railway enthusiasts around the globe. It has the potential to be among the absolute best in world railway heritage.

References

Bailey, D., 2013, *steamlocomotive.info* available at:

<http://www.steamlocomotive.info/country.cfm?which=portugal>, last accessed 1 February 2013

Brue Valley Railway, 2012, *The steam train driver experience*, available at:

<http://www.bvrw.co.uk/events/driver-experience.asp>, last accessed 1 February 2013

Grabar, H., 2012, *Countdown To the Last Steam Train*, available at:

<http://www.theatlanticcities.com/jobs-and-economy/2012/10/hunt-last-steam-train/3582/>, last accessed 1 February 2013

Heritage Railway Association, 2011, *Minister of State praises railway heritage sector at Westminster reception*, available at:

http://www.heritagerrailways.com/med_newsArticle.php?Minister-of-State-praises-railway-heritage-sector-at-Westminster-reception-7, last accessed 1 February 2013

IWSR, 2012, *Heritage Lottery Fund Award £970,000 Grant to Isle of Wight Steam Railway*, available at:

<http://www.iwsteamrailway.co.uk/news/latest-news/338-heritage-lottery-fund-award-p970000-grant-to-isle-of-wight-steam-railway.html> , last accessed 1 February 2013

Jones, R., 2012, *Beeching 50 years of the axeman; modernisation of British Railways*, Mortons media group, Lincolnshire, United Kingdom

Mitchell, V. and Smith, K., 1998, *Great Railway Eras. Isle of Wight Lines, 50 Years of Change*, Middleton Press, Midhurst, West Sussex, United Kingdom.

Network Rail, 2013, *Our legal and financial structure*, available at:

<http://www.networkrail.co.uk/asp/713.aspx>, last accessed 1 February 2013

Organ, J., 2010, *Portugal Narrow Gauge from Porto to Pomerio*, Middleton Press, Midhurst, West Sussex, United Kingdom.

RH&DR, 2012, *History*, available at: <http://www.rhdr.org.uk/pages/history.html> last accessed 31 January 2013

RH&DR, 2013, *Steam Driver "drive a train" Experience Days*, available at:

http://www.rhdr.org.uk/pages/driver_experience.html, last accessed 1 February 2013

Robinson, John S., 2007, *The annual TRPS Council Meeting report, 2006*. Talyllyn

Railway Company, available at: <http://www.talylyn.co.uk/internal/arrc-07e>

Rowe, D. Trevor, 1970, *Continental Railway handbooks Spain and Portugal*, Ian Allan, London

Talylyn Railway, 2012a, *Haydn Jones buys the quarry and railway*, available at: <http://www.talylyn.co.uk/history-haydn-jones>, last accessed 1 February 2013

Talylyn Railway, 2012b, *The first preserved railway*, available at: <http://www.talylyn.co.uk/history-preservation> last accessed 1 February 2013

Venice Simplon-Orient-Express Ltd., 2012, available at: : http://www.orient-express.com/web/uktr/british_pullman_train.jsp

Volk's Electric Railway Association, 2012, *A brief history of Volk's Electric Railway*, available at: <http://www.volkselectricrailway.co.uk/>, last accessed 31 January 2013