



# A GUIDE





## Introduction

This guide to the Learning Coach provides an overview of its conception as an education and exhibition facility, its known history, and some of the discoveries made during 2013 to 2017 while the coach was undergoing refurbishment and adaptation for its new role.

Documenting the story in this manner supports the *raison d'être* of the vehicle, that is, a facility to help educate and entertain anyone who wishes to understand something of our railway and social history.

The coach is owned by the Bahamas Locomotive Society (BLS), whose museum and workshop are located at Ingrow in the former goods shed, now the Engine Shed at Rail Story.

## The idea

In 2012 the Bahamas Locomotive Society applied to the Heritage Lottery Fund (HLF) for help to fund the overhaul of its 'Jubilee' class 4-6-0

express passenger steam locomotive No. 45596 *Bahamas*. A development grant of £5500 was forthcoming in order to conduct audience research on how best to take advantage of the planned work and operation of the locomotive, and so assist with a Phase 2 application.

One feature of this research was the recognition that the establishment of a formal learning programme for schools was important. This was supported by subsequent consultation with teachers, who were enthusiastic about having structured visits to the Society's museum and the adjacent Museum of Rail Travel. A barrier to establishing such visits previously had been the limited facilities to accommodate children, teachers, coats, bags, and the provision of suitable learning aids.

The idea evolved of converting a railway vehicle for this purpose and for it to become a focal point for school visits, with its location to be the 'dock'



*The coach, together with the 50-ton steam breakdown crane, leave the Dinting Railway Centre on route to the Keighley & Worth Valley Railway in 1990.  
photo: Joe Lambley*

siding between Ingrow station and the Society's museum, so having easy access direct from the station platform.

The Society had in its collection a Riding and Tool Van. This van, previously in use as a departmental vehicle for railway staff attending a breakdown or accident, was considered ideal for the intended purpose. Conversion of the tool storage area into a classroom and exhibition space, and refurbishing the three compartments, adjoining corridor and the toilets, to establish an office, a space for meetings and a store, was considered practicable. The result would be a mix of the modern – the classroom, with the vintage – the compartments. This would hopefully excite and inform school groups and other visitors alike in the best possible manner. By sensitively adapting the vehicle to its new role the notion was that a sustainable 'immersive learning environment' would be created, one that would be an important and attractive addition to the whole project to overhaul *Bahamas*.

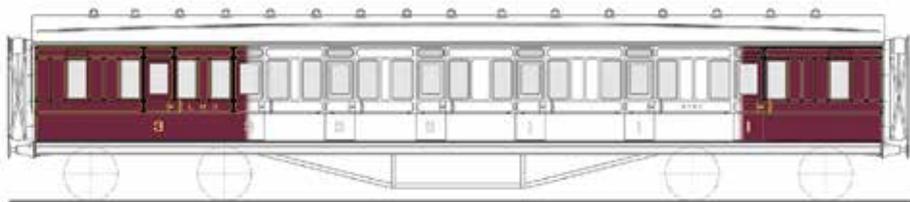
This concept was included in the Phase 2 application to the HLF and a budget of £30,000 was included to fund half of the expected cost of the renovation of the vehicle for its new function.

The award of a grant of £776,000 towards the *Bahamas* project, estimated to cost £906,000 in total, was advised in March 2013.

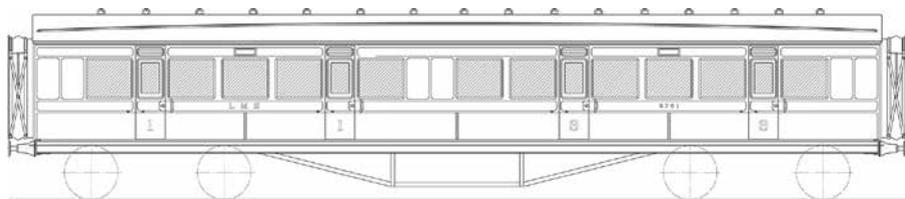
### **The vehicle**

The Learning Coach was built at the Wolverton carriage and wagon workshops in Buckinghamshire during 1924. These workshops were established by the London & Birmingham Railway in 1838 for the construction and repair of locomotives. In 1877 the locomotive work was transferred to Crewe and the workshops, then part of the London & North Western Railway (LNWR), took on the repair of carriages and wagons. By 1907 it was the largest carriage building and repair works in the country employing some 4500 staff.

The amalgamation of the railway companies in 1923 and subsequent



*LMS 57ft corridor composite, D1694, built at Wolverton and introduced in 1924. The view above illustrates the compartment side and, below, the corridor side.*



nationalisation in 1948 saw the works continue with its rolling stock function until 1962 when new construction ceased and the works became a repair facility only. Part of the site continues in use for railway purposes.

When the workshops at Wolverton became part of the London Midland & Scottish Railway (LMS) in 1923 it came under the supervision of the LMS Chief Mechanical Engineer's department, whose Carriage and Wagon Superintendent was Robert W Reid. Reid implemented a production-line method of carriage manufacture for a range of new standard carriage designs. These were to be built at Derby, Newton Heath near Manchester, and Wolverton.

The Learning Coach was one of the first of the new designs. It was of the 57-foot side-corridor composite type and built to diagram D1694. Such diagrams provided a schematic view of the vehicle and included important dimensions and features so as to be a means of ready reference to a variety of railway departments.

As a composite coach – that is one with both first and third class

compartments – it was arranged with three 'firsts' and four 'thirds'. Each first class compartment accommodated six seats and each third class compartment accommodated eight. A feature of the carriage design was that every compartment was accessible directly through an external door in addition to a sliding door from the side corridor. This concept was typical of the period until later variations replaced the individual external doors with large windows and so leaving access to the compartments only from the corridor.

The operating department gave this type of coach design the generic code 'CPC'.

Construction of these standard coaches followed that of the previous railway companies and comprised a wood-framed body mounted on a steel chassis. The framework, manufactured from teak, was clad externally with mahogany panels with the joints covered by beading of the same material. The roof was formed from wood boarding, covered with canvas and suitably finished to make it weatherproof.

There were 201 of these coaches built to diagram D1694. The first 41 were ordered under Lot No.30 and constructed at Wolverton. The 'Learning Coach' was amongst the first ten built (Lot 30A) and entered service in October 1924. It weighed 29 tons and carried the LMS number 8761. This number was changed to 3515 in 1933 as part of a renumbering scheme implemented to integrate newly built vehicles with those from the former companies.

From new, this type of carriage was utilized on many of the LMS Railway's west coast mainline long-distance trains. They were subsequently moved to lesser routes when improved steel clad vehicles were introduced during the mid-1930s.

The colour of LMS coaching stock of this period was Crimson Lake, with the beading of the body panels lined with yellow and black to accentuate this constructional feature. The scheme was chosen by the Railway's officers following an inspection of former Midland and LNWR vehicles at Euston station in April 1923. Subsequent overhauls and repainting usually occurred every six or seven years. It

is likely that 8761 only received one repaint, and in a simplified manner, prior to the Second World War by which time it had received its new number of 3515.

During the War some of these coaches were converted for use in ambulance trains and it had been suspected that this coach might have been amongst them. However, no evidence has been discovered to substantiate this consideration. The War also inflicted excessive use on nearly all the railways' rolling stock and infrastructure. With minimum maintenance at this time, many vehicles such as these suffered external deterioration and so steel cladding came to be used to replace or part cover damaged wood panels. Much of the beading was also removed, and usually in an ad hoc manner, which did little to improve their appearance.

Following the nationalisation of the railway companies in 1948 the descriptive code was changed from 'CPC' to 'CK', but a significant visual change was the application of the new British Railways (BR) two-tone livery of cream and crimson. Those allocated



*A 57ft Corridor Composite at Birmingham New Street station in 1946.  
photo: M Whitehouse collection*



*Withdrawn from service in May 1958, this 57ft corridor composite coach, No.M3533M, in its crimson and cream livery, is awaiting conversion in to a Riding & Tool Van at Wolverton. Completed in the same period as No.3515, this vehicle became DM 395478, part of the breakdown train at Westhouses motive power depot in Derbyshire. photo: R M Casserley*

to the Midland Region gained the prefix 'M' to their numbers.

The introduction of the new BR all-steel coaches in the mid-1950s heralded the demise of these old wood-bodied types. When M3515 was finally withdrawn from service in July 1958 it was one of five of the same type selected for conversion for use in breakdown trains.

The conversion was undertaken at Wolverton. It was completed by the end of 1958 and identified by its departmental number of DM395470, before its allocation to Southport in January 1959. The conversion included the removal of all the first-class and one of the third-class compartments to provide an open space for the stowage of tools, jacks, and other breakdown equipment. Of the remaining three third-class compartments, one was enlarged and modified to become a kitchen, one assigned for the use of the breakdown crew, and one assigned for use by the District Locomotive Superintendent,

who also had access to his own toilet. An additional toilet was provided for use by the rest of the breakdown crew.

When the Southport depot closed in 1966, the vehicle was moved to Northwich in Cheshire. Here it remained until, when due for scrap in 1981, it was gifted to the 8E Association to enable this group of enthusiasts to use it as a base for the support and servicing they offered to visiting steam locomotives. It was formally handed over to them in March 1982. The group removed some of its breakdown fixtures and fittings, gave it a repaint, fitted bunks and undertook other superficial work to make the vehicle suitable for their use.

Following the closure of the Northwich depot in 1984 the van was no longer required and was offered for sale. A BLS member purchased the van and had it moved to the Society's Dinting Railway Centre near Glossop in Derbyshire, where it arrived in 1985.



*Above - the Riding & Tool Van at Oakworth in 2012, showing some of the deterioration as a consequence of its 12 years stored beneath wagon sheets. Below at RRNE, Shildon, in September 2013 with the external refurbishment underway.*



Here it worthily complemented the Craven 50-ton steam breakdown crane and became a store for lifting equipment and tools, when not otherwise used as a Santa's grotto during Christmas festivities!

Following the closure of the Dinting Railway Centre in 1990 the van, together with the majority of the BLS collection, moved to the Keighley & Worth Valley Railway where it was put into store at Oakworth.

### **Refurbishment**

The idea of utilizing the vehicle as an education facility depended upon its external refurbishment to ensure it would remain weatherproof and look attractive. Rail Restoration North East at Shildon was asked to provide a quotation for the work, and this figure was added to the Phase 2 bid of the HLF application. The announcement of the HLF award allowed the van to move to Shildon in August 2013.

The van was visually restored to its riding and tool van appearance and returned to Ingrow in January 2014, having cost approximately £37,000.

Its conversion to departmental use in 1958 and subsequent life following railway service, had removed many of its original features. BLS volunteers undertook the internal renovation and care was taken to examine the structure, components and fittings while the task was underway. This helped provide many clues to its former appearance and history.

Perhaps the most significant was, during the work at Shildon, when one of the original mahogany panels bearing the LMS identity was discovered beneath an area of the outer steel cladding. This was removed to become part of the current exhibition.

Its later departmental role was demonstrated by the survival of lettering denoting its allocation to



*The original waist panel as revealed on removal of the steel cladding.*



*The coach as delivered from Shildon, January 2014. photo: David Smith*

Southport, and subsequent removal of a layer of paint revealed the remains of its prefix 'MPM' (Motive Power Midland).

Internally, many of the detail wood components, such as the ventilator flaps on the doors, or the backs of panels, had been stamped or signed with the names of the craftsmen who had made the items at Wolverton in 1924. Names so noted include: G Dunkley, A Powell and E Barnard.



Notable amongst these is George Dunkley, whose name appears on the majority of the remaining panels fitted into the coach. Ancestral research indicates that George, who was born in 1881, would have been aged 41, living in Newport Pagnell and married with three children when he was helping with the construction of this coach. He retired in 1947 and died in 1954.

Some of the features added during the 1958 conversion were removed and considered to have no suitable re-application. Once recorded, objects such as sinks and mirrors from the toilets were passed on to similar organisations in exchange for items useful for this project.

One object recovered during the refurbishment was found to pre-date the vehicle's construction. This is a ventilator flap which had been installed in one of the toilet cubicles during the



*This vent flap assembly, removed from one of the toilet cubicles in 2015, was fitted to LNWR coach No 117 when built in 1906.*

conversion work in 1958. The flap is of LNWR manufacture and was the type usually fitted above the window droplight in each compartment door.

Although the coach interior had, over the years, received refinishing coats of varnish and paint, removal of some components revealed samples of the original red mahogany finish to the corridor and compartments and the medium-oak finish to the toilet cubicle. Careful removal of layers of paint revealed signage from different eras. The toilet doors had both LMS and BR lettering to denote their purpose – BR era transfers were discovered noting the risk of leaning from an open window, or the misdemeanour of pulling the communication cord, and sign-written notices indicated the location for the storage of jacks in the tool space. One of the door hinges was stamped LNWR indicating how standard features crossed over into its successor company.

Concurrent with this ‘house detective’ approach to investigating its history, primary sources were consulted to establish further facts. A visit to the NRM’s Search Engine archive at York found original drawings for both the as-built arrangement and its conversion in 1958. The ‘Order for New Stock’, dated 20<sup>th</sup> January 1958, includes No. 3515 amongst the five noted for conversion and details

all the components used to complete the task.

Secondary sources, such as Essery and Jenkinson’s book, *The LMS Coach*, and the *Railway Carriage and Wagon Handbook* by Sanders, have also been an aid to comprehending the appearance of the coach, and the changes it underwent during its working life.

Such observations helped to provide an understanding of how this coach originally appeared and the changes made during its working life. This knowledge assisted with the renovations, although the restoration of the third class compartment was hindered by scarcity of information for some components removed in 1958. While every effort was made to maintain accuracy when making replacement parts, it is considered this compartment can best be described as ‘indicative’ of its original condition.

In order to re-create an appropriate appearance of the mahogany panelling, various books on wood finishing were consulted in order to understand the methods described by Essery and Jenkinson in *The LMS Coach*. A variety of traditional and modern techniques were used to produce a result that appears sufficient to support the ‘indicative’ description.

Original material was utilised as much as possible and this was



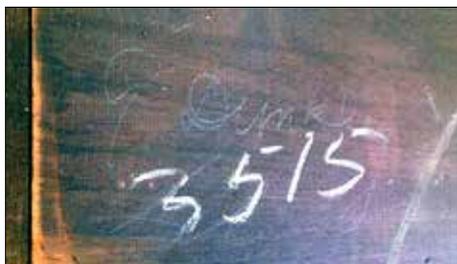
*The original varnished wood finish and lettering have been exposed beneath the maroon coloured paint on this toilet door. This panel is preserved and has been reinstated on the door into the store from the corridor. It has been reversed so that this side faces the store room.*



*Sign-written notice for Barrett quick-acting jacks. This indicated their location against one of the sliding door encasements in the tool space, when the vehicle was in used in breakdown trains.*



*The top hinge of one of the compartment side doors indicating how such standard features were utilised in different eras.*



*The rear of a panels for one of the sliding corridor doors which shows George Dunkley's signature in pencil, together with the later addition, in chalk, of the coach number.*



*One of the vent flap surrounds fitted above the corridor door droplights. Removal of layers of paint have revealed the BR era 'Caution...' labels.*

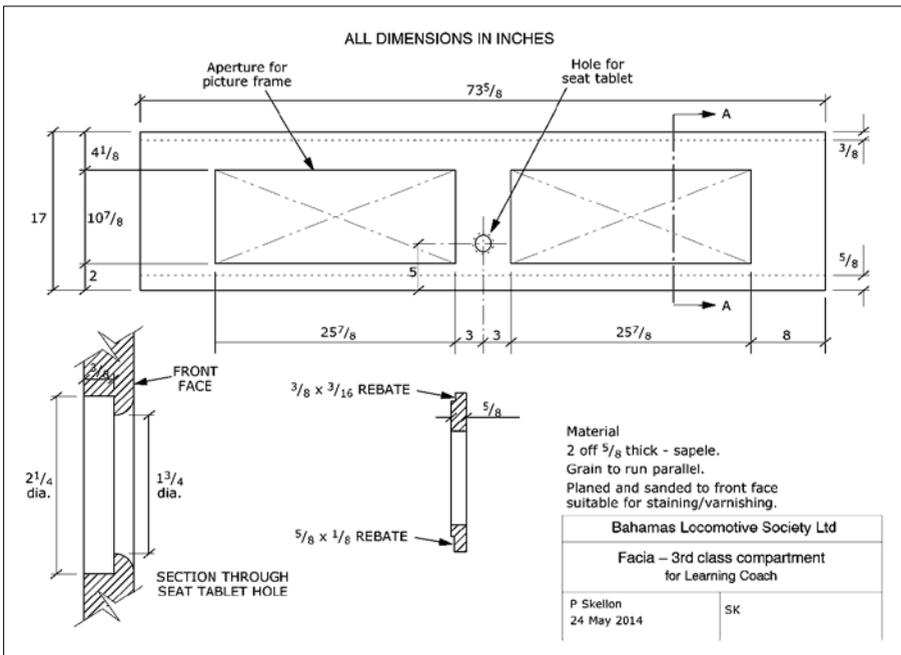
stripped to bare wood prior to re-finishing. New wood (sapele rather than mahogany) was used only where no effective repair was possible.

The finishing process incorporated three coats of water-based dye, one coat of grain filler, one coat of sanding sealer, one coat of spirit dye, and two or three of coats of satin polyurethane varnish. The satin finish was chosen to 'tone down' the appearance and reduce unforgiving blemishes in the original wood. The application of this finishing process was considered successful, but only as the project was nearing completion!

Various websites were consulted as an aid to research. Of note are those of the LMS Carriage Association, whose information sheets for bending wood and manufacturing luggage rack netting were most useful, and the Bluebell Railway, for information onquette for upholstery.

Understanding the technique of antiquing (or Venetian bronzing) of brass fittings was less straightforward. The process of copper plating followed by copper 'oxidizing', using a solution of potassium sulphide and ammonium chloride was discovered in the *Railway Carriage and Wagon Handbook*. Experimenting with this method was only partially successful, and it was when antiquing fluid (of which selenious acid is the active ingredient) was found to be commercially available, that the bronzing process became a simple and less hazardous job.

In order to complete the task within the five-year time limit set by the HLF it became essential to use contractors for some of work. New wood panelling and other details, such as mouldings, were manufactured off-site to drawings, and electrical contractors were brought in to establish the basis



of the electrical wiring and fitting of lights in the classroom space.

One innovative solution to overcome non-availability of original material was that chosen for the compartment window blinds. A Wolverton drawing of the blinds in the NRM archive specified a blue and gold shell-pattern tapestry. To have this manufactured for the quantity required would have been too expensive. The alternative was to have photographic images printed onto 'wind mesh'. Used commercially for outside signage, wind mesh is flexible, printable, and although it reduced the amount of daylight into the compartment it was found to be to a level that was acceptable. These blinds also had the advantage of re-creating the idea used in railway publicity pictures, whereby a landscape scene was photographically inserted into position on the initial print so as to obscure the usual background of railway sidings. The subsequent copy created a more idyllic image for publicity purposes.

The images chosen for this application were considered more for their social history rather than any idyll. Unlike the platform-side window blinds, those for the corridor side are

non-operational and only dummy 'pulls' have been fitted.

The use of blue and gold colours for the original blinds gave consideration that a similar colour may have been used for the moquette upholstery of the seats, although no evidence has been found to substantiate this. In the event, and in view of the practicality of upholstering only two compartments, a sufficient quantity of moquette to a design used by the LMS, but of a later post-Second World War period, was obtained from the Severn Valley Railway. The re-upholstery of the seats was another task out-sourced.

Of the other compartments, both of which had been modified during the 1958 conversion, that converted for use as a kitchen was stripped of all its original fittings and rebuilt for use as an office.

The compartment intended for use by the District Locomotive Superintendent had been altered to provide access to a separate toilet cubicle, and the seats had originated from a first class compartment. The decision was made, therefore, not to restore this compartment but to renovate it in a sympathetic manner and utilise the space to further the



*One of the compartment seat backrests showing the arrangement of spring and webbing support, and the backing material, prior to covering with moquette.*

educational role by incorporating digital and other media. Sponsorship from Mortons Media was forthcoming to help fund the equipment and the provision of access to the digital archive of the *Railway Magazine*, thus offering a useful research facility.

### **Exhibition**

As the refurbishment of the coach progressed, the design of the exhibition was contemplated. The topics finally chosen were: histories of *Bahamas*, the coach, and the industry and transport of Ingrow.

An additional topic was the role of animals in railway life. This was considered as a way of capturing the attention of children, and so the artist John Wardle was commissioned to provide suitable illustrations for the classroom activity tables.

An outline of the responsibility of a railway guard was also added to help interpret the location of the guard's area, a facility installed in 1958.

Finally a simple explanation and description of a train was included.

In the writing and design of the exhibition care was taken to ensure a range of readability and style throughout, and the use of colour to help provide a stimulating space for both young and old.

Three-dimensional exhibits have also been provided where considered to help interpretation of the subject. Some of these are interactive and take the form of miniature carriage doors with operating 'droplights'. Queries are presented in the open 'window', and answers provided when the window is closed by pulling on the strap.

### **Cost**

In total the cost to convert the coach for its new educational role was approximately £69,000, £30,000 of which came from the HLF award, with a further £7,000 coming from specific donations or sponsorship. The remaining £32,000 has been funded directly from BLS funds.

Although a charge is made to visiting school parties and for other similar activities, it is intended that the exhibition will be a free-to-access attraction for those visiting the railway. It is hoped that visitors will be willing to offer donations to offset the development costs and future operating and maintenance expenses.

### **In use**

The classroom was sufficiently ready to accept its first visiting school party during 2016. These have continued and are proving to be popular and successful.

School children are able to benefit from a range of subjects aligned with science and mathematics (the STEM topics). These are delivered by a small group of educational facilitators who are employed for this purpose.

During 2017 a Science Club was formed with the aim of attracting children on Saturday mornings throughout the season. The idea is to further some of the work provided during school visits and, more importantly, to provide an enjoyable community venue where local children feel comfortable and secure in a space they can consider as theirs; one in which, in years to come, they may feel inclined to return and volunteer on the railway.





photos: Liz Lynch

## Summary

The creation of the Learning Coach has not only provided a means to help educate and interpret something of our railway and social history, but also ensures that the vehicle has a working future.

Of its type it is the earliest Wolverton-built coach of the LMS period. Only one other example is known to survive. It is, therefore, an example of a railway passenger vehicle of its time, one now rarely found or easily accessible.

The choice of the name Learning Coach has proved to be somewhat prophetic, for there has been plenty of learning by those who have been involved in its regeneration. By sharing these experiences and creating new opportunities to learn, the coach - now in its third incarnation - is expected to provide a practical, entertaining, and lasting legacy.



## Further reading:

*The LMS Coach – 1923 – 1957*, R J Essery and D Jenkinson, Ian Allan, 1969.

*Railway Carriage & Wagon Handbook*, L I Sanders, Locomotive Publishing Co. Ltd.

Bahamas Locomotive Society Ltd

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Ingrow Loco Museum, Ingrow Bridge, South Street, Keighley, West Yorkshire. BD21 5AX

Website: [www.bahamas45596.co.uk](http://www.bahamas45596.co.uk)  
Registered Charity No.259626

☎ 01535 690739

email: [info@ingrowloco.co.uk](mailto:info@ingrowloco.co.uk)  
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