THE MARLOW DONKEY

THE MARLOW & DISTRICT RAILWAY SOCIETY

Edition
188
June 2025

Contents:

The Marlow Donkey

The magazine of the Marlow & District Railway Society

COMMITTEE

CONTENTS

Front Cover Photographs

Top: Swindon built 8F 48410 at St. Philips Marsh. 16 May 1957.
Photo: David Gardner Collection. Article page 5.

Bottom: Denver & Rio Grande Western EMD F9A 5771 restored to it's original EMD-designed livery at the Colorado Railroad Museum, Golden CO.
Photo: Mike Walker. Article page 11.

TIMETABLE

FORTHCOMING MEETINGS

Meetings are held in the Bourne End Community Centre. Wakeman Rd, Bourne End at 7.15 for 7.30pm or can be attended on-line on Zoom.

Thursday 19 June **CRICH NATIONAL TRAMWAY MUSEUM** Frank Bagshaw

Frank describes the National Tramway Museum founded in 1959 and located at Crich, in the Peak District. The museum contains over 80 trams built between 1873 and 1982 and is set within a recreated period village containing a working pub, café, old-style sweetshop and tram depots.

Thursday 17 July **RAILWAY ACCIDENT INVESTIGATION BRANCH** Ian Capewell

Ian is a Principal Inspector with the RAIB. He started as an Engineering apprentice with BREL before joining the BTP and the Metropolitan Police Murder Investigation Team (MIT). Ian was promoted and returned as the Head of Scenes of Crime for British Transport Police (BTP) managing the crime scene investigation and the forensic laboratory staff and Laboratory in London.

It was during this time (1999 to 2004) that he was tasked to manage the forensic scenes and body recovery at the rail accidents in Paddington (Ladbroke Grove), Hatfield, Potters Bar, Great Heck (Selby) and Tebay in Cumbria. He was also asked to become part of the Home Office Major Disaster Advisory Team (MDAT) providing advice on major disasters (including the Ufton Nervet train accident).

Thursday 21 August **AN EVENING WITH GERALD DANIELS.** Gerald Daniels

A proud railwayman 1954 - 1993

From Junior clerk to Environment Manager for Chris Green at NSE, Gerald has criss-crossed the three divisions of BR's Southern Region, culminating in nine amazing years when Area Manager Salisbury before crossing the Thames for the first time to work at Euston HQ.

Thursday 18 September **AN EVENING WITH OUR PRESIDENT** Mark Hopwood

Mark brings us up to speed with the latest developments at GWR and across the wider industry.

CHAIRMAN'S NOTES

At the risk of causing a major breakdown, I trust you have all being enjoying this wonderful spring weather which hopefully will continue into the summer giving the opportunity to get out and observe modern operations or visit a heritage railway or two. What ever you do, please remember to send in photographs of your travels for the newsletter.

Personally, I continue to find the modern scene and even the heritage sector of diminishing interest – perhaps it's because I'm getting old. On the 'main line' the increasing standardisation of equipment, whilst great for the industry, makes it rather boring for the casual observer whilst even heritage lines no longer have the appeal they once had as they become ever more commercialised.

That is why I've returned more intensively to modelling where it is possible to retreat into a world as we remember it. My Helland Wharf layout is becoming a regular fixture on the exhibition circuit, it's done one show already this year with the next, Larkrail in Bath in July. There are two further bookings for this year and a further three for 2026. I restrict myself to around three a year to avoid burn out.

One full size undertaking recently was the restoration of the Bourne End-Marlow train staff described overleaf.

This edition may look a little different. My 'free' use of Adobe Illustrator came to an abrupt end and I wasn't prepared to pay £24 a month to access it so this has been prepared in Word. I'm still developing my advance skills in this so please bear with me!

Mike Walker

SOCIETY & LOCAL NEWS

PREVIOUS MEETINGS

In March we welcomed Charles Roberts who recounted his 50 years of railway photography both in the UK and overseas. The talk featured some of his favourite images peppered with stories of running the gauntlet of shed masters, guard dogs, armed security staff and border officials to get that elusive picture.

Progress on the construction of the new P2 2-8-2 2007 *Prince of Wales* was the subject of April's presentation by Chris Ardy of the A1 Steam Locomotive Trust. Chris covered the history of the class before going on to explain the fund raising which has been carried out and the new buildings in Darlington where construction is taking place.

Don Woodworth gave us, as expected, an excellent presentation on US railroading in the 60s and 70s in May. This was the first time we'd tried having an overseas remote presenter. We did have a couple of issues at the start but we'd taken the precaution of having Don send us the presentation in advance as a back up so we were able to run it from the Society's laptop with Don providing the detailed narration remotely from the US. Attendance in the hall was, to say the least, sparse but there was a healthy number on Zoom including several members who normally attend in person – perhaps they took the view that as Don was going to be remote they could be too.

Sadly, despite considerable interest being shown following the talk last year, only four members turned up at Pendon Museum in April which was, to say the least, extremely disappointing. It was fortunate that we had not arranged any special access at the museum and does little to encourage us to arrange similar 'outdoor' activities in future.

CONTRIBUTIONS REQUIRED

My 'Pending' folder has once again been exhausted preparing this issue so once again I'm appealing for material for the September issue and beyond. Any aspect of railways is welcome from photo spreads of recent visits to in-depth historical features.

Please help!

One item that is missing this time is Martin Stoolman's popular series of memoirs. Don't worry, he's far from finished and it will resume next time.

BRANCH RENEWAL

The Marlow branch was closed for 9 days up to and including Easter whilst the latest stage of the track renewal programme took place. This time it was from where they left off last time, at the southern end of the embankment across Cock Marsh, over the Thames viaduct and up to the first points at Bourne End. Some minor fettling of the track within the station area also took place. It is not known if it is intended to relay this at a later date.

GBRf 66713 Forest City *stabled at Bourne End in connection with the relaying work on the first day of the blockade, 12th April 2025.*

Photo: Mike Walker

RESTORING THE STAFF

During the blockade we took the opportunity to restore the Bourne End-Marlow train staff.

The seed of this was sown in a video Geoff Marshall made with Mark Hopwood about the branch last year (https://www.youtube.com/watch?v=EWf8LkRtgX0) in which Mark pointed out that the brass nameplate from the staff had been stolen many years ago.

We thought it would be a nice gesture for the Society to supply a replacement as a thank you for all that Mark and GWR have done for the Society over the years. Having got Network Rail's agreement, Mark gave Steve Bailey, his Head of Project Operations, the task of liaising with us to get the necessary details to make the new plate.

Things then took a somewhat unexpected turn. Steve suggested it would be a good idea to go the whole way and restore the staff completely including its red paintwork that had largely worn off over decades of use.

Your Chairman's reaction was that it would be impossible given that the staff is, technically, in use 24/7, either locked in the Annett's key instrument at Bourne End or being carried on the train to Marlow and back. Steve then pointed to the April blockade as providing the ideal opportunity but again, your Chairman was sceptical that Network Rail would allow someone from outside the industry to walk off with a vital piece of equipment. "Leave it with me", said Steve and sure enough, Network Rail agreed!

The staff was therefore collected from a somewhat bemused member of Network Rail staff early on the first morning of the blockade and taken to the Chairman's residence for the work to be undertaken.

The first thing that became obvious on collection was that the 'business end' of the staff was wrapped with yellow and black hazard tape which was not apparent when the video was made. When this was carefully removed it was found the wooden handle was loose in the front (key) section but a substantial rivet would ensure the two parts would not actually come apart. Therefore, a substantial bead of Araldite was applied which has made the whole assembly rock solid once more.

It was then a matter of sanding the wooden handle to remove years of greasy fingerprints followed by first a coat of wood primer, then an undercoat and finally a top coat of regulation Signal Red paint. After fitting the newly machined (with thanks to Julian Heard and his mates at Fawley) and engraved brass plate, the whole thing was given a coat of gloss clear varnish which hopefully will ensure it retains its pristine appearance for many years to come.

The completed staff was shown to members at the April meeting before being handed back to Network Rail well in advance of the planned reopening of the branch which occurred on schedule.

One thing both Steve and Network rail asked was if we had any idea of the age of the staff. Initially it was assumed it dated from 1954 when Marlow Signal Box was abolished and Staff & Ticket working replaced the former tokens. However, this was thrown into doubt when one of our members, Steve Sharp, revealed he had a Bourne End-Marlow staff in his collection. This has its plate which includes a large gap between Bourne End and –Marlow which is where the word South had been removed, Bourne End South Signal Box was abolished in 1956 and its responsibilities transferred to the enlarged North Box which became simply Bourne End Signal Box.

Therefore we now think the present staff dates from 1971 when Bourne End SB closed and was replaced by the manual ground frame and then migrated to the present setup when that was commissioned in 2008. But it remains a mystery as to why the staff was changed and its general condition suggests that the present staff is a lot older than 1971 so was most likely recycled from some other, unknown, location.

One last thing, we now have a largely unused tin of Signal Red paint which we are most unlikely to use so if any of you are involved in preservation, particularly in S&T, and can find a use for it do please get in touch.

Before and after. The staff as received (left) *showing the tape and scar where the nameplate was compared with how in now looks* (right)

Steve Sharp's earlier Bourne End (South)-Marlow staff.

GREAT WESTERN EIGHT COUPLED

2808 with square drop down front footplate, tall safety valve cover, parallel buffers and outside steam pipes at Westbury MPD on 2nd September 1953.

Photo: Peter Glenn

DAVID GARDNER continues his survey of GWR locomotive types with the 2-8-0 classes.

THE 28XX CLASS

The G.W.R was the first railway company in Great Britain to introduce locomotives of the 2-8-0 wheel arrangement. The first of these No. 97 which was designed by G. J. Churchward came out in June 1903. It had a low boiler pitch at 7' 5½" inches whereas later engines had boilers pitched at 8' 2". The barrel covering was in 5 sections while subsequent engines had four. It also had a small diameter chimney and was painted black with red lining. The tender had a 4,000 gallon capacity but looked very similar to the 3,500 gallon tenders fitted to most of the class. Nos, 2801-20 came out between September 1905 and December of that year. Another 10 were built in January and February 1907; then between March 1911 and April 1919 Nos. 2831-2883 were built. No. 97 was altered to a higher pitched boiler in April 1906 in common with the rest of the class and in December 1912 renumbered as 2800. The 28xx class were fitted with 4' 7 ½" wheels and pony truck of 3' 2".The wheelbase was 8' 9" + 5' 5" + 5' 5" + 6' 0" and they had a boiler pressure of 200-225lbs.

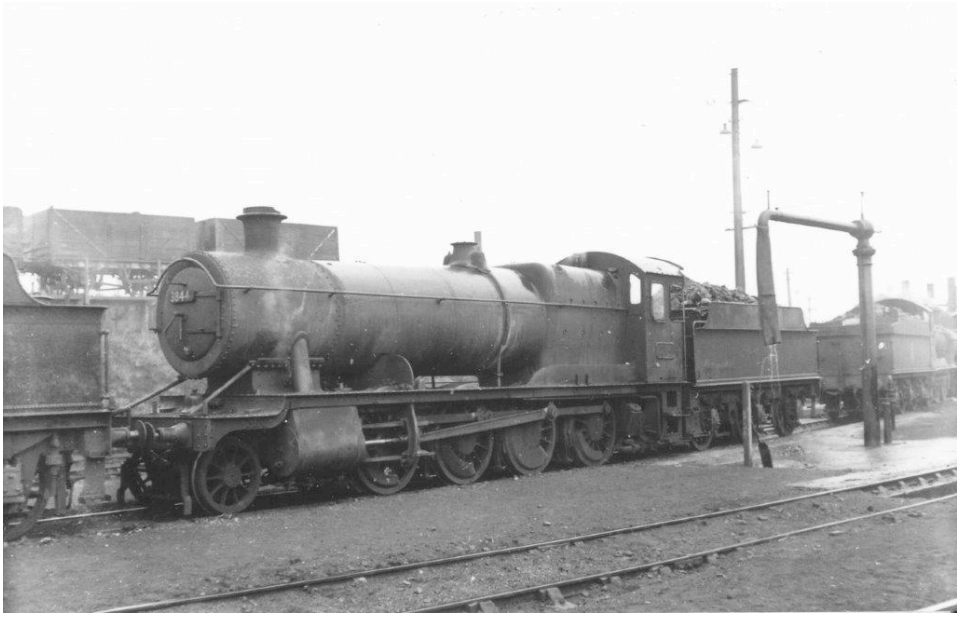
None of the first 31 of the class were at first superheated and apart from Nos 2822-5 all had short coned boilers and these continued in use with frequent boiler changes until at last in 1930 the short coned boiler was removed from No. 2882. ln March 1909, 2808 was superheated and all the others received superheated boilers by mid-1911 except 2827 which wasn't fitted until January 1913. The first to receive top feed was 2802 in May 1911 but this was mounted between the chimney and safety valve cover. Standard top feed appeared with 2850-5 in 1913. Earlier engines carried copper cap chimneys though plain cast iron chimneys were fitted by 1918 before these were replaced by standard taper type. The first 31 engines had a square drop end but from 2831 subsequent locos were built with curved front drop end. The 28xx class was a very successful design and 84 were manufactured up to April 1919.

ln January 1921, 2804 was tried out on the Glenfarg incline of the N.B.R. hauling a train of 590 tons up the mostly graded 1 in 75 and 6¾ mile incline.

Various modifications were carried out to the class over time but outside steam pipes didn't appear until the mid-1930s onwards during boiler changes but several continued in service with inside steam pipes until withdrawal. After nearly 20 years Charles Collett introduced his own updated version with side window cabs, Nos. 2884-3866 appeared between March 1938 and December 1942. They were fitted with fire iron tool covers in front of the nearside cab. Because of their late arrival those built during the war had plated over side windows.

It had been intended to build 60 further engines for overseas service but the order was cancelled after the fall of France in 1940 and eventually the Government favoured the LMS class 8F 2-8-0 several of which were built at Swindon factory anyway. Between 1945 and 1947 twelve of the original engines and eight of the later type were converted to burn oil fuel and given new Nos. in the 48xx series for 28xx type and 4850s for 2884 class. All were reconverted between September 1949 and January 1950.

Although the 28xxs were allocated to various depots throughout the region, the vast majority were stationed at



3844 showing the later style cab and cover for fire irons at Reading MPD in 1956.

Photo: A. G. Ellis

Welsh depots. For most of their GWR working lives these engines were painted in unlined green although during the war years many were turned out in plain black which was the BR choice for them on its takeover in 1948. Members of the class were sometimes called on to take over Summer Specials and could put in a good performance.

Withdrawals started in April 1958 with pioneer engine No. 2800 and ranks were rapidly thinned by 1960. 2818 was chosen to be preserved for the National Collection as it had a square drop end and inside steam pipes. Other Churchward 2-8-0s that have been purchased for preservation are 2807/57/59/61/73 and 2874. Of the Collett locos 2885 was put on static display at Moor Street Station, Birmingham. 3802 and 3850 were restored on the West Somerset Railway and 3822 at Didcot has been restored to its wartime appearance. Others purchased for preservation include 3803/14/45/55 and 3862.

THE 47XX CLASS

Introduced by Churchward in May 1919, 4700 first appeared sporting a No.1 boiler but this was replaced with a standard No. 7 boiler two years later. Other members of the class from Nos.4701-8 were turned out by the Swindon Works between January 1922 and April 1923. When first built they were coupled with 3,500 gallon tenders but these were replaced by 4,000 gallon tenders in 1932/3. The 47xx class had 5'8" wheels and 3'2" pony truck, wheelbase 9' 2" + 6' 6" + 6' 6" + 7'6', and 225lb boiler pressure.

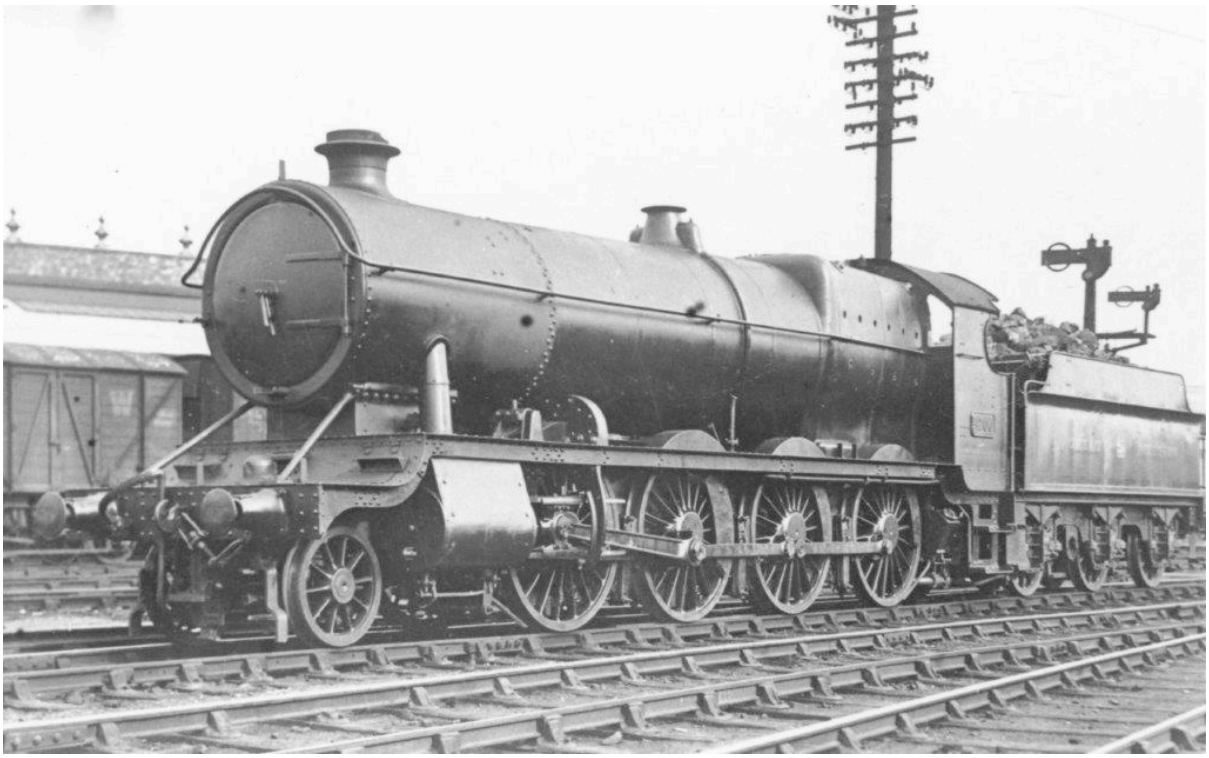
The class were built for use on night express freight between London and Wolverhampton and London and the West Country. Because of their size and weight the class was red routed. By 1938 Old Oak Common had five while there were two at Tyseley and one each at Exeter and Laira. The position changed again under BR when by 1954 there were seven at OOC and two at Bristol. Like the 28xx locos the 47xx were used on express passenger trains between London and the West Country during the summer months.

The class were painted in plain green although when 4700 was included in the Darlington Railway Centenary Celebrations in 1925 it was fully lined out. when they came into B.R. ownership all were at first painted in unlined black although 4702 was lined out in LNWR style. However by mid-1957 the engines were turned out in fully lined green livery.

Withdrawals took place between 1962 and 1964. None were preserved.

30XX CLASS: ex-Railway Operating Division

These 2-8-0s became known as RODs for short and were of similar design to the J. G. Robinson locos built by the GCR in 1911. However the RODs were fitted with re-railing jacks and Westinghouse air brake. They also had steel fireboxes. In all 521 were built between 1917 and 1919 but most of those built from late 1918 became surplus to war effort requirements



4706 with original 3,500 gallon tender at Exeter St. Davids on 24th February 1930.

Photo: H.C.Casserley

3016, ex-ROD 2028, at Old Oak Common circa 1935.
Photo: J. M. Craig

and therefore remained in Great Britain. All of the ones sent abroad were also returned and as there were too many for British Railway requirements some ended up in China and others in New South Wales, Australia.

The GWR purchased 20 of the newer engines and took on loan a further 80. Those that were purchased between May and July 1919 were given the numbers 3000-19 while the loaned engines arrived between July 1919 and September 1920. These 80 were returned to the Government in 1921/2 who then agreed to sell them at a lower price. The GWR then purchased 80 in 1925 at £1,500 each giving them the Nos. 3020-99 which included several of the previously returned engines. However 50 were found to be in poor condition so were patched up, painted black then put into service but after four months were withdrawn and moved to Swindon Dump. It was then decided to thoroughly overhaul thirty of the best. They were given GWR copper fireboxes and renumbered as 3020-49. The other fifty were given minor repairs, retained their steel fireboxes and either spruced up the paintwork or again painted black before being numbered 3050-99 then scrapped when no longer fit for traffic.

The ex RODs Nos. 3000-49 retained their original chimneys at first but these were later replaced with GWR chimneys of the 47xx type following works visits. Several had buffers replaced. The RODs had 4' 8" driving wheels and 3' 6" on the pony truck. The wheelbase was 8'4" + 5' 8 ½" + 5' 5" + 5' 11". Boiler pressure was 185lb.

Of the twenty engines Nos. 3000-19, Nos 3000/1 were withdrawn in August 1946, 3003 went in September 1947 and 3007 was withdrawn in November 1947. The rest entered B.R. service in January 1948 although eight did not see the year out. Interestingly No. 3005, one of those withdrawn in 1948 donated its frames to 3033 which lasted until May 1953. No.3014 was noted with a non-standard dome cover in June 1955 but was withdrawn in October 1955. Of the second batch of engines, Nos.3020-49, all but 3945 which was withdrawn in August 1947, entered B.R. service.

Black was the standard colour for these engines during BR days. Several of the withdrawn locos donated their tenders to other classes of engines, notably Collett Goods 0-6-0s and so outlasted their ROD engines by several years. The last RODs to be withdrawn were 3011/5 and 3024 in October 1958.

42XX CLASS 2-8-0T

After some consideration in 1905 regarding the construction of a 2-8-2T which was eventually set aside, the first of the 42xx class 2-8-0 tanks was built in December 1910. Given the No. 4201 it lacked top feed and had a small straight-backed bunker which was later enlarged. It was superheated right from the start and had a straight sided cast chimney, possibly with a copper plate cap. Production of the rest of the class started in

5241 (below left) with tall safety valve cover, outside steam pipes and square drop down front footplate compared with 5202 (below right) with footplate step over the cylinders and outside steam pipes, circa 1955 .

David Gardner collection

Lens of Sutton

January 1912 with 4202 followed by 4203-9 in February 1912. Two more came out in March 1912, then 4212-21 were built between August and December. Another batch, Nos. 4222-31 were built in November 1913. Ten more appeared in 1914, Nos 4232-41, then ten more in 1916, nos.4242-51. Nos. 4252-61 were built in 1917. Nine more came out in 1919, Nos.4262-70,fifteen in 1920 Nos. 4271-85, ten more in 1921, Nos 4286-95, then another ten were manufactured between August 1922 and February 1923, numbered as 4296-4299/5200-5204, then 4200. The 42xx class had 4' 7½" wheels and 3'2" for the pony truck. Wheelbase was 8' 9" + 5' 5" + 5' 5" + 6' 0" and the boiler pressure 200-225lbs.

Production continued from June 1923 with 5205 onward to 5294 in October 1930 but apart from trial trips Nos. 5275 to 5294 never ran as 2-8-0Ts and 5255-74 were stored prior to conversion to 2-8-2 tanks. Oddly, a new batch of 2-8-0Ts, Nos 5255-64 were built in 1940 as replacements for earlier locos being rebuilt as 2-8-2Ts but this did not cover Nos. 5265-74 and fourteen of the 42xx class which seem to have been rebuilt as 2-8-2Ts on an ad hoc basis.

The 2-8-0Ts were built mainly for work in South Wales with only the odd few at other locations. Most were painted plain green in GWR days though the replacement batch may have been turned out in black which was also the livery under BR.

A few of the 42xx and 5239 have been preserved.

84XX CLASS: LMS 2-8-0

This class was introduced by William Stanier; an ex-GWR man, for use on goods services as a more efficient machine than the Beyer Garratts, Crabs, and 4Fs working particularly on ex-Midland lines. They were fitted with 4' 8½" driving wheels and 3' 3½" pony truck wheels. Boiler pressure was 225lb and the wheelbase was 8' 9" + 5' 6" + 5' 6" + 6' 3".

The Stanier 8F was adopted by the Ministry of Supply as freight locomotives for war service and an order for 230 was placed with various builders. Eighty 8Fs were built at Swindon Works between 1943-5 and numbered as 8400-79, then used by the G.W.R on loan until 1946/7. In the mid-1950s, 20 or so Swindon-built 8Fs now numbered as 484xx were transferred to the W.R. as replacements for the ex-ROD 2-8-0s.

The 8Fs were frequently called on to take charge of passenger trains particularly during the summer months. I remember travelling up to Paddington in 1964 when the London express was delayed and passengers were advised to catch the Marylebone DMU service but I sensed something interesting might turn up. I had quite a wait but eventually an 8F came along at the head of the express having replaced a failed diesel. progress was rather pedestrian to say the least but we got to Paddington in the end.

Several 8Fs have been preserved, one of which, No. 8431, was built at Swindon. One point of interest is that in 1957 B.R. purchased three 8Fs from Longmoor and these were overhauled at Eastleigh and numbered as 90733-5 but when the mistake was realised they were renumbered as 48773-5.

WD 8F CLASS: AUSTERITY 2-8-0

The original idea for a Standard Austerity 2-8-0 came in July 1942 when it was decided to prepare for an invasion of the Continent. Orders were placed with both North British Locomotive Company and Vulcan Foundry. They were designed by R. A. Riddles and the first engine WD 7000 was handed over to the Ministry of Supply by the NBL on the 16th January 1943. The Austerity 2-8-0s were not the first option; LMS 8Fs had been considered, but as large numbers were required, a cheaper and more quickly manufactured locomotive was required. In the end 935 2-8-0s were built and another 150 2-10-0s were built by the NBL Company. The driving wheels were 4' 8½ ", whilst the pony trucks were 3' 2" and were solid disc. Wheelbase: 8' 7" + 5' 3" + 5' 3" + 5' 9". Boiler pressure was 225lb. The boiler was parallel as distinct from the taper pattern of the L.M.S. 8Fs. The WDs were fitted with a large eight wheel tender which could carry 9 tons of coal and 5,000 gallons of water; necessary where supplies of water were restricted by conflict.

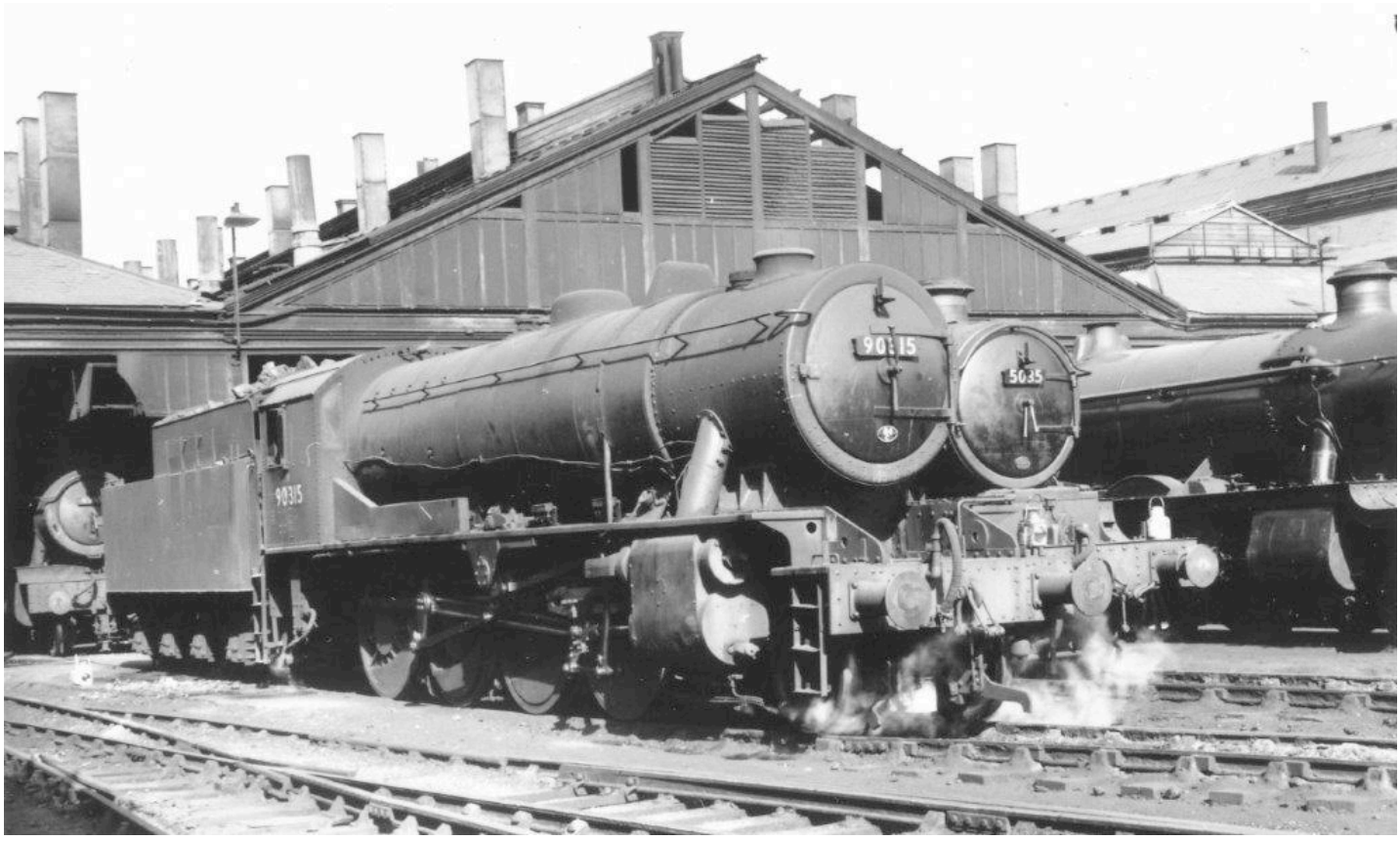
Many were sent overseas but some remained to work on British lines then after the war 533 2-8-0s were purchased by the British Transport Commission and also a further 200 that were inherited from the LNER. Only 25 of the 2-10-0s were taken over and all went to Scotland and the far north west of England. Typically, Western based engines were fitted with a taller top feed, later covered with a casting but technically put them out of gauge for other regions. Another addition was a fire-iron compartment on the offside, despite the tender being fitted with tool rails. Needless to say the covered tool compartment was rarely used.

Swindon built 8F 48410 at St. Philips Marsh on 16th May 1957. This locomotive is one of those fitted with Western type brake ejectors capable of raising 25" of vacuum compared with the standard 21" hence the pipe work on the side of the smokebox and boiler.

David Gardner collection

When first taken over by the BTC the engines carried their War Dept. numbers in the 77xxx and 78xxx series as well as the 708xx. Those purchased by the LNER were numbered in 3xxx series, increased to 63xxx by BR before all were renumbered in the 90xxx series. It was rare to see a W.D. loco, Dub Dee as they were known to train spotters, in anything other than filthy condition and they generally plodded along with very long coal trains.

Although several lasted up to 1966/7 none are preserved because they tended to be unloved. However one 2-8-0 originally No.79257, then Netherlands Railway 4464 was sold to Sweden S.J., becoming No. 1931. It was purchased for use on the Keighley and Worth Valley Railway, returning to Britain in January 1973. It was restored and renumbered as 90733. Unfortunately, the tender was shortened to six wheels during its years abroad.



90315 with Swindon modifications and showing the fire iron tool cover at Swindon in 1960.

Photo: M. L. Boakes

S160 USA Class: 2-8-0

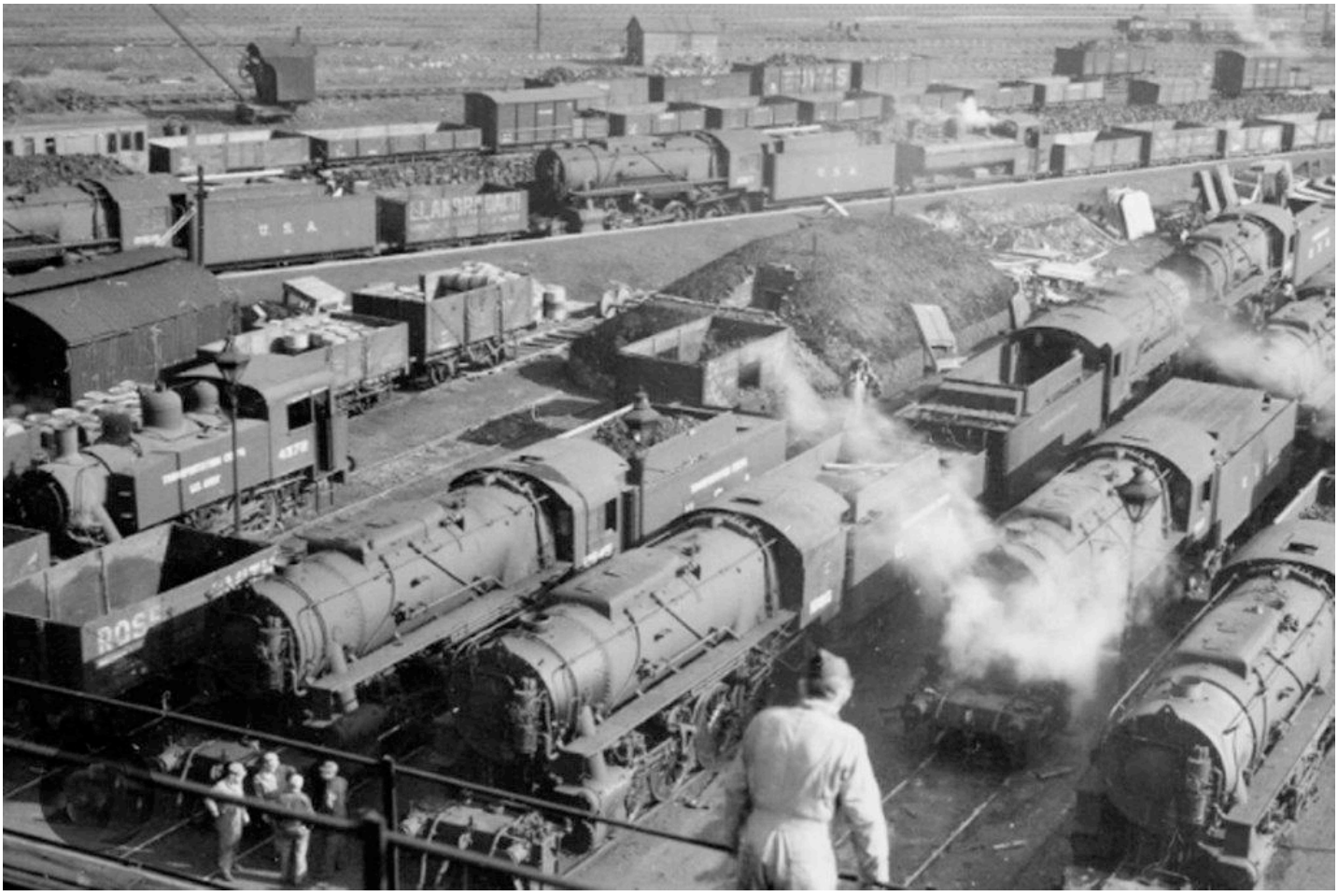
These engines were built by ALCo, Baldwin and Lima for use in Europe after D-Day and were shipped from the USA to Cardiff Docks, though others went to Liverpool and Birkenhead. The first to arrive were on 27th November 1942 and No.1609 is believed to be the first to be landed but 1604 was the first to be put into service, being handed over by Col. N. A. Ryan of the US Army to Lord Leathers, Minister of War Transport, at Paddington Station on 11th December 1942. By May 1943,184 had arrived and eventually 402 were delivered and put on loan to various British railway companies. Due to the risk of submarines sinking ships at least eighteen were lost at sea, although six of these were lost when Norwegian whaling factory ship, *Svend Foyn* hit an iceberg on 19th March 1943 and sunk the following day along with locos No. 2034-8/40. These engines were built to the British loading gauge like the USA 0-6-0Ts. They had driving wheels of 4' 9" with 2' 9" pony wheels, wheelbase of 7' 9" + 5' 2" + 5' 2" + 5' 2" and 225lbs boiler pressure.

The GWR had 174 S160s on loan all through 1943 and early 1944. They were USA Transportation Corps Nos. 1601-24/8/32/9/41-9/51/4-6/8-65/81-4/7-9,1749/57, 1835/41/77/80/1/3/4/91-9, 1900-2/9/10/3-5, 2096/8, 2100/2/3/9/10/2/6/8/22/9-45/7-51/9/64/5/7,2267/9/70/9/80/90/4,2312-/8/9/23/4/6/7/38/9/49-54/7-60/8/9/75/7, 2403-5/7/8/10/22/4/ 30-5/8-43/50. They were allocated to 28 depots around the system.

As built, the S160 2-8-0s had only one water gauge glass, the valves for which were of wheel screw down type, unlike the plug cock type used on British railways. It was therefore not immediately apparent if the top or bottom valves were open or closed. Further the valve for closing the top of the gauge glass was situated on a manifold above the back plate where it was one of a row of similar wheel top valves. It was thus possible to turn off the top gauge glass valve in error for another valve. When the gauge glass valve was closed the water level remained stationary in the gauge leading to a possible collapsed fire box/boiler explosion as at Honeybourne with No.2403 on 17th November 1943. However there were other incidents of this nature at Thurston on 12th January 1944 and at South Harrow on 30th August 1944 as well as various places throughout Europe, North Africa, lndia and Korea. So worried were they about these boiler explosions that the SNCF got rid of their S160s as soon as possible.

None of the S160s returned to Britain after the war but Polish State Railways had a large number which continued in service until the 1980s at least. It was therefore fortunate that the Keighley and Worth Valley Railway bought PKP Tr 203.474 which arrived there in November 1977. It has since been restored to working order as USA Transportation Corps 5820 and known as 'Big Jim'.

USA 2131, a Class S160 2-8-0 built by ALCo (works no.70613) in 1943, at an unidentified location on the Great Western during the war.



A remarkable view of Ebbw Junction shed taken in March 1944 with no fewer than six S-160s present along with a S100 tank and a GWR Pannier.

PAINTING THE *Streamliners*

Don Woodworth's presentation in May gave an insight to the many varied liveries to be found on America's railroads half a century ago. Here, MIKE WALKER examines their origins.

At the start of the last century US passenger trains were, with a few notable exceptions, pretty dull. Steam locomotives were black, sometimes with graphite or silver smokeboxes, whilst the cars were either dark Pullman green or Tuscan red.

As the country started to emerge from the Great Depression in the early 1930's thoughts turned to bold new lightweight trains powered by the new generation of Diesel locomotives being promoted by a new upstart company; the Electro-Motive Corporation (EMC) which had recently been purchased by the mighty General Motors.

The railroads were anxious to establish a bold image for these new trains. The first two, both of which appeared in 1934, had liveries designed by their railroads. The first, the Chicago, Burlington & Quincy's *Zephyr* was built by the Budd Company using its new shot-welded stainless steel construction and was left unpainted - looking stunning. The other, Union Pacific's *City of Salinas*, had Pullman-Standard bodywork of conventional riveted steel construction which carried a livery designed by the UP: Armor Yellow with a chestnut brown roof and skirt separated by red lines. Both companies expanded their fleets and continued the liveries although UP swapped the brown for Harbor Mist Grey in the process creating the livery that company uses to this day with only minor changes.

Other railroads weren't so organised. The Atchison Topeka & Santa Fe (the 'Santa Fe') placed a pair of box-cab EMC Diesel locomotives into service in 1935 on its Chicago-Los Angeles *Chief* which were painted in a blue livery. For 1937 they planned to introduce a new streamlined called the *Super Chief* with stainless steel cars built by Budd and locomotives supplied by EMC.

Crews had expressed concern over the crash-worthiness of the box-cabs so EMC moved the driving cab back and raised it above a stylish nose which was created with input from GM's automotive styling and design department. But, the question remained of what livery the new train should carry. The cars were simple, following the Burlington's example they would be left in gleaming unpainted stainless steel but what about the locomotives? The Santa Fe wanted something eye-catching but wasn't sure how to achieve it.

Ever eager to assist, EMC offered the help of the GM styling team which was accepted. GM stylist Leland A. Knickerbocker (yes, really!) was given the task and sat down with a render of the new locomotive and applied scarlet paint across the nose and cab followed broad red band along the length of the loco.

He then added a yellow line and a thinner black line. The rest of the body would be stainless steel. The artist's impression was shown to Santa Fe management and immediately accepted. Thus was born the 'Warbonnet' livery which would serve the Santa Fe (modelled by E1A/E1B 7 at San Diego above) for the rest of its existence and started EMC's involvement in livery design.

Other railroads soon started to take advantage of EMC's offering and Knickerbocker along with another stylist, Paul A. Meyer, were seconded from the GM automotive division to EMC for a retainer of $55,000 a year - quite a sum for the late 1930's.

Among their earliest creations was a scheme for the Chicago Rock Island & Pacific's *Rocket* (right, top) which incorporated some elements of the Warbonnet including the stainless steel side panels. In truth, this livery actually originated in 1937 on a small batch of model 'TA' 4-axle locomotives which were unique to the Rock Island which not only debuted the livery but also the nose styling that would grace the early E series models. Another noted industrial designer, Raymond Loewy, also had an input into the design of the nose and livery.

Another stunning livery was this purple and silver scheme (right) created for the Atlantic Coast Line's *The Champion* which is one of your writer's favourites. This introduced the 'bow wave' on the nose which would become a regular theme in EMC created liveries and in this case the silver was paint, the panelling being ordinary steel.

A very similar scheme in red and yellow was applied to ACL's rival, the Florida East Coast's *Henry M Flagler* whilst a bitter chocolate and orange version was adopted by the Illinois Central for the *Panama Limited* plus many other variations on the E units.

A significant development was the unveiling of the model FT in 1939, the first Diesel locomotive designed to challenge the supremacy of the large steam locomotives that headed the nation's freight trains.

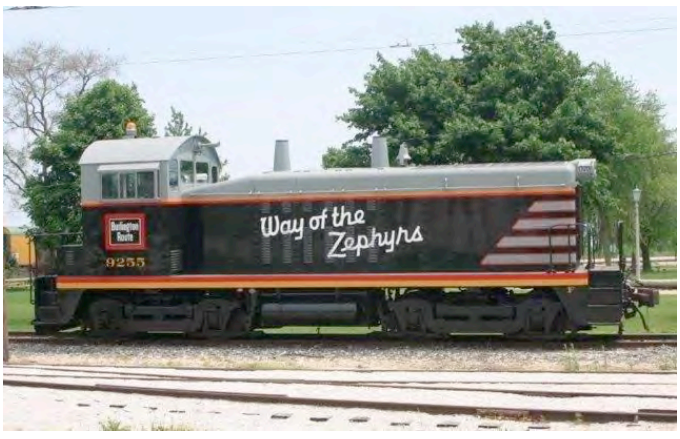
A four unit (A-B-B-A) 5,400hp demonstrator was built and sent on a nationwide tour which proved it could indeed replace even the mightiest steam locomotives. The A (cabbed) units featured a new, shorter nose dubbed the 'Bulldog' and the style department created a Pullman Green and Old Gold livery which included a variation of the bow wave with a thin gold line below the cab windows.

Orders for the FT flooded in not least from the Santa Fe who found it ideal for working freights across the deserts.

The livery style created for the FT demonstrator set of 1939 proved very popular with many variations appearing on both E and F series units in the post war era. Three examples are shown here with Boston & Maine F7A 4266 displaying that company's chosen maroon and gold version (top left) whilst the Lehigh Valley adopted a brighter 'Connell Red' with Pullman Green striping (top right). Note both added additional striping which was a popular choice. The Denver & Rio Grande Western adopted a slightly different arrangement of stripes (right) in black on silver and 'Grande Gold'. Later the four stripes were replaced by a single thicker one between the two colours. GM reorganised its corporate structure in 1942 in which EMC became Electro-Motive Division (EMD) and as business boomed post war the styling department expanded with a whole team being kept fully employed until well into the late 1950's.

The styling team's work wasn't confined to the glamorous E and F units, they also created schemes for the humble switchers.

Some of these were based on the schemes applied to the contemporary cab units such as the Maine Central which used a green and gold version of the Boston & Maine livery with which company it was affiliated. The B&M had switchers in the maroon and gold version. A common switcher scheme incorporated side stripes at the nose end, stripes and a thinner stripe near the top of the hood (bonnet) below the cab windows. A basic version of this is modelled by Apalachola & Northern 710 (bottom left). The Chicago, Burlington & Quincy didn't have stainless steel bodies on its switchers but it did adopt this more colourful version of the EMD scheme (below).



Branding such as the 'Way of the Zephyrs' was typical of the kind of slogans applied by many railroads, Union Pacific's 'We Can Handle It' being a well-known example.

During the 1940s EMD's competitors had all introduced what became known as 'Road Switchers', locomotives that basically combined the switcher type layout with a heavier frame for main line use. They could be driven bi-directionally and had a short hood which could house a steam generator for passenger service. Such locomotives became popular and EMD had to play catch up. Its first attempt, the BL2 (top right), was a commercial disaster as it adapted the bridge-truss construction of the F series resulting in a loco that crews complained offered poor visibility and was very difficult to work on. Only around fifty were sold.

In response, chief engineer Dick Dilworth set about designing a locomotive "so ugly no one would buy it" which became the GP7, the first of a long line of "Geeps" that were one of the most successful types ever offered. The prototype, 100 (right), wore another scheme created by the styling department that went on to be adopted by many customers with variations. This included the SD series which was basically a stretched version of the GP riding on 6 wheeled trucks, initially for applications where a higher tractive effort was required.

An example of an early GP7 in an EMD created livery is Aberdeen & Rockfish 205 (below) built in 1951 and still carrying its original paint 46 years later. Apparently, some of it had been removed only weeks before this picture was taken during an attempt to remove several years of accumulated dirt. Too strong a cleaning solvent was used!

The role of the styling department diminished over the years as railroads sought simpler, cheaper liveries. Plain black became a popular choice for many especially on switcher and road switcher types exemplified by the likes of Norfolk & Western and Penn Central which were all black apart from lettering whilst others such as the Illinois Central attempted to liven things up with a white line or two, something that originated with the Styling Department..

The Styling Department was finally closed in the early 1960s but not before it had played an important part in creating America's Colourful Railroads of the post war era.

Of course, the railroads didn't purchase all their locomotives from one source and obviously most wanted a common livery to adorn their fleets. As a result, it became commonplace to see EMD created liveries applied to their competitors products such as the Santa Fe 'Warbonnet' and Rio Grande schemes appearing on ALCo PA's as modelled by ATSF 76 (right). Whether on not EMD got any payment for this is unclear but probably not.

REVERSE MOVEMENT AT FRODSHAM

Tim Edmonds

Arriva Trains Wales 175116 pulling into the up platform at Frodsham with the 10:50 Manchester Piccadilly to Bangor on 16th October 2012. The two-storey part of the station building in the centre is the original that was moved backwards, subsequently the lower extensions have been added on both sides.

All photographs by the author.

A short article by the late Gordon Biddle describing the physical movement of the entire station building at Frodsham backwards by 6ft 3in was published in the *Journal of the Railway & Canal Historical Society* March 2005 edition (although the title describes the movement as 'sideways'). This was in connection with adding new goods facilities on the up side while increasing the width of the down platform, work carried out in 1889-90. This fascinated me and, following a stay in Liverpool in 2012, I took the opportunity to call at the station on my way home and take a look. At Easter 2024 a family holiday based at a cottage in Frodsham renewed my interest and prompted me to see what else I could learn about this remarkable event and its background. Although there is inevitably some overlap, I do not want to repeat too much of what Biddle wrote, particularly his excellent summary of the technical details of how it was done. For those interested in reading it, the March 2005 Journal is available to download from the RCHS Journal Archive: <https://rchs.org.uk/journal-archive/>. Biddle's article is on pages 34 and 35. I will concentrate on the nature of the station site and what survives, illustrated with contemporary maps and recent photographs.

The main building at Frodsham is on the down side and has been unstaffed since 1976. It has lost its platform awning, but the

Frodsham station building from the site of the down goods yard on the same day, showing how the ground falls away steeply towards the Church Street underbridge at the bottom of the approach road. The replacement brick supporting walls on this side of the station must have been considerably higher after the move than the ones they replaced

building is maintained in good condition and at the time of my 2024 visit was occupied by two businesses, a hairdresser and a beauty parlour. Each platform has a bus-type shelter. The trains calling there regularly were Transport for Wales hourly services between Chester and Manchester Piccadilly, some extended to/from Llandudno Junction, Holyhead and Manchester Airport, and Northern services between Leeds and Chester via Manchester Victoria. There were also some Northern trains direct between Chester and Liverpool Lime Street via the Runcorn curve. Alas, my attempts to take the family on a day trip to Liverpool via the latter route foundered on adverse weather overnight, which resulted in slippages that caused the cancellation of the train we planned to catch. This necessitated a hasty drive to the Park-and-Ride at Hooton to go by Merseyrail through the tunnel instead.

Frodsham station was built by the Birkenhead Lancashire & Cheshire Railway and opened on 18 December 1850. In 1852 the BL&CR amalgamated with the Chester & Birkenhead Railway to become the Birkenhead Railway, owned jointly by the GWR and the LNWR. On the down platform the station was provided with a two-storey Tudor-styled building built of brick with local Helsby sandstone edgings, gable-tops and window/door surrounds. The ground floor contained the booking office and waiting room, plus a living room for the Station Master and his family, whose other accommodation was on the first floor. The front and back walls extended slightly beyond the end walls, but the two single storey brick wings at each end date from after the station was moved. A small building was provided on the up platform.

The station layout at Frodsham was restricted by the extent of the level site. To the East the line entered a steep-sided rock cutting at the station throat, crossed by a footbridge carrying a public footpath. Beyond this the cutting led to the short Frodsham Tunnel. To the West the ground sloped down and the railway continued on an embankment with a bridge over Church Street. I have been unable to find a photograph old enough to show what the station looked like in its first 40 years, but the clip from the 1882 OS 6in map shows three short sidings on the down side, with one serving what appears to be a goods shed shown as contiguous with the station building. Three short sidings are marked on the up side. Each of these small yards was reached via a separate approach road on either side of the running lines. To the South was an area of undeveloped level ground, but to the North the land sloped down towards Church Street and Main Street.

When the goods facilities became outgrown by the needs of the traffic it was decided to build a new yard and goods shed using the adjacent undeveloped land on the up side. At the same time, it was decided to increase the width of the down platform to 12ft, since at its narrowest point the clearance between the station building and the platform edge was only 5ft 9in. However, doing this by slewing the tracks would reduce the area available for the new goods yard, while dismantling the buildings and reconstructing them would be hugely disruptive, so an alternative solution had to be found. The man who had to provide an answer was Robert Edward Johnston (1841-1913), the Birkenhead Railway's Engineer-in-Chief. He was a Civil Engineer who spent his entire career with the railway, first as apprentice to George Douglas, then as his assistant before succeeding him in 1863. In 1866 he took charge of all the GWR/LNER joint lines in the Shrewsbury district. On his retirement in 1908 he had completed 53 years' service.

The view from the footbridge over the rock cutting immediately East of Frodsham station on 16th October 2012. On the left is the substantial new goods shed of 1889-90, on the only extensive level ground adjacent to the station, while the rest of the goods yards on both sides have inevitably become car parks

Northern 195013 and 195025 arriving at Frodsham with the 15:43 Leeds to Chester on 8th April 2024. The original up sidings were in the overgrown area below the rock face to the right of the footbridge. Both platform shelters have been replaced since 2012 and a bike rack has been added on the up platform.

Johnston devised the solution at Frodsham and in 1898 he published a paper in the *Proceedings of the Institution of Civil Engineers* describing how moving the station building backwards was achieved. I am grateful to Dr Nick Higton for his assistance in obtaining a view of this document, which contains drawings that clarify some details of the original station building. Johnston describes how he built a temporary timber structure from below the ground floor on a foundation of old sleepers and used this to move the 400-ton building bodily backwards on greased sliders using jacks. The timbers included bearers which were locked in position on the station walls using timber 'needles'. It was designed to ensure an equal distribution of weight so that door and window openings would not be distorted.

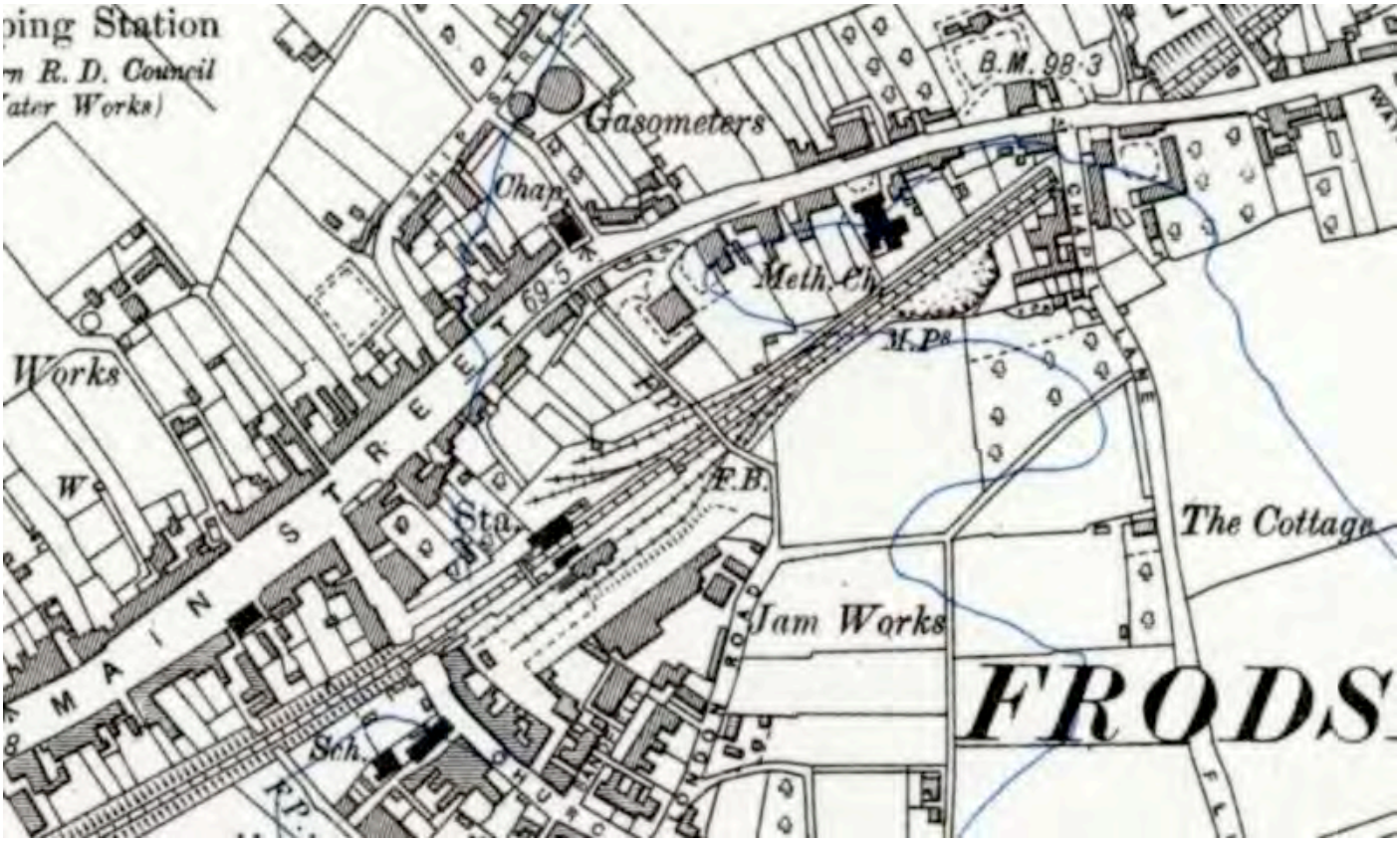
Moving the building was done on a Sunday, but Johnston does not tell us which one! Movement was carried out using eleven bottle screw-jacks lent by none other than F W Webb, presumably from Crewe Works. The ground between the building and the down platform wall was removed and the jacks were laid horizontally between timber packing and the end of the timbers under the building. Operators were stationed two to each jack and gave a quarter-turn simultaneously on a signal from the foreman. At intervals, the jacks were run back and repacked as the station was moved. The job was completed after 11 hours without a pane of glass in the building being broken and with booking of passengers continuing during the process.

This method of moving a brick and stone building horizontally seems to have been a unique case in Britain, possibly anywhere – unless you know otherwise. In follow-up correspondence in the July 2005 RCHS Journal, Biddle noted that when the height of the platforms at Chepstow had been raised in 1877, the station was jacked up by 22in, and that this was done using wooden 'needles' in the bases of the walls. Of course, there the jacks operated vertically. He also mentions a proposal in 2005 to move the keeper's cottage at Whitebridge Crossing, just North of Stone, back from the main line, but I can find no evidence that this was ever done.

The 1882 OS 6in map of Frodsham station (Above), surveyed in 1873-4, showed its restricted position between the road bridge and the rock cutting leading to the tunnel. The goods facilities comprise three sidings on each side of the line West of the cutting. Next to the passenger station there is what may be a narrow goods shed accessed by one of the sidings.

Maps from the National Library of Scotland.

The 1912 OS 6in map of Frodsham (Below), revised in 1908, shows that the old up goods sidings have gone completely, replaced by two long sidings in the new goods yard, one passing through the new goods shed. There is a long headshunt in the cutting towards the tunnel. The down yard still has three sidings, but the one adjacent to the platform has been replaced by a new one under the rock face. The shed by the platform has been replaced by a another building, possibly a goods office.



BRANCH 'BOXES

The recent renovation of the Bourne End-Marlow train staff presents an opportunity to recall the former Signal Boxes on the Marlow branch.

Marlow's 'Box dated from 1902 when it replaced an earlier 'Box. It had 16 levers and was located on the Up side at the station throat. It closed in September 1954.

In 1914 the line between Bourne End and Marlow became the first on the GWR to be operated using the Tyer's Electric Key Token equipment.

Bourne End South Signal Box was located in the 'vee' of the junction and dated from 1892 when the signalling along the entire Maidenhead to Oxford branch was upgraded.

It had 55 levers and originally the door and stairs were at the opposite end but were relocated in the early 1930's to be more convenient for the signalman when exchanging the tokens.

The South 'Box was closed in January 1956 and quickly demolished.

Bourne End North Signal Box also dated from 1892 and originally contained 15 levers and a wheel for the level crossing gates but was extended at the Wycombe end in the winter of 1955-6 to accommodate 44 levers and was renamed simply Bourne End Signal Box. The gates were replaced by full barriers in November 1967.

The 'Box closed in August 1971 with a ground frame working the remaining two points. That was upgraded to a Ground Switch Panel in 2008.