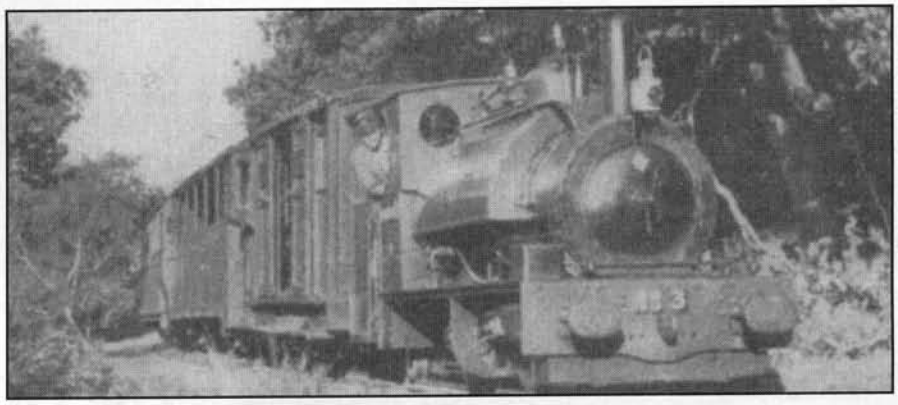
At first I thought that the engine was a King or a Castle, but as I drew nearer I saw that its steam pipes were straight, not curved. I had decided that it was probably a Hall, when I saw the long reversing lever and eight coupled wheels of a 47XX class 2-8-0. Sure enough, there was No 4701, just out of the factory, hissing at the head of her train and snorting occasionally as if impatient to be off. While I did not expect a slow journey-for this 2-8-0 was a 47XX, built to haul express freights—I did not anticipate that 4701 would go quite as well as she did. With coupled wheels equal in size to that of the speedy Manors, a firebox and boiler barrel as long as a Castle's, a diameter only slightly less than that of a King and a heating surface slightly larger, these machines are really speedy. That journey to Shrewsbury was one of the best I have ever had. Even the sparkling performances of the Kings between Paddington and Wolverhampton were dimmed by the efforts of this two-cylindered freight engine. It was unfortunate that the preceding normal service train should be running late or doubtless we should have passed 80mph. As it was, we had to put up with spurts in the 70's That was as fast as the engine could reach before all the pegs were on; the braked slammed on angrily, snarling wildly as the train slowed.

Churchward became the first British engineer to employ the 2-8-0 Consolidation wheel arrangement when he introduced No.97, the first of the 28XX class, which became the standard heavy freight locos of the GWR, 84 were built. The first of the nine 47XX class appeared in 1919, but still with the smaller boiler. In 1921, No.4701 emerged in the form with which we are familiar today. The cylinders are 19 by 30in., wheels 5ft. 8in., boiler pressure 225psi, tractive effort 30,460lb. (Although the 28XX had a smaller boiler and ½in. smaller cylinders, it also had smaller wheels, 4ft. 7½in., giving it a tractive effort of 35,380lb, not bad for 1903).

TEN YEARS OF THE TAL-Y-LLYN

Thanks to railway lovers, the little line which once hauled slate down from the mountains is carrying more and more passengers through some of the finest scenery in Borrow's Wild Wales. The story of its success is told by ROBIN ORCHARD.



Sir Haydn at Abergynolwyn.

AS the summer of 1950 drew to a close, so did the life of the *Tal-y-llyn Railway*. What happened to save the railway from this fate is by now common knowledge.

The railway has flourished a full decade since the grey clouds of 1950, and the future looks like clear skies all the way. This is, therefore, a good time to review the last ten years and see just what has been achieved by the group of enthusiasts who give up leisure and money so that the Tal-y llyn shall live on.

Nothing better reveals the progress made than a glance at the traffic figures. In 1950 it was claimed that the railway had had a good year, having carried 5,235 passengers; today the figures are more than 13 times that total.

In 1950 the track was merely rust filled ruts. Today, although not excellent by main-line standards, it is rapidly becoming better as newer and more suitable materials can be obtained.

At the beginning of the decade there were only two locomotives, or rather one and half, as No 1 had been out of service for some years and was merely a rusty, dilapidated shell. Now there are three locomotives in excellent condition. Another will be joining them this year, and the fifth will soon be overhauled.

The first locomotive on the company's list is *No 1 Tal-y-llyn* an 0-4-2 ST built in 1865 for the railway by *Fletcher Jennings Ltd of Lowca Works, Whitehaven*, Cumberland. It was returned to service in 1958.

No 2 Dolgoch, second of the two original TR engines, was also built in 1865 by *Fletchers;* it differs from No I by using an 0-4-0 WT with the rear axle set behind the firebox. This is the engine which will be returning to traffic this year. It worked on the railway for the first few years of the decade, and was withdrawn in need of extensive overhaul. *No 3, Sir Haydn* is another 0-4-2 ST. It was built in 1878 by the *Falcon Locomotive Works, Loughborough* for the *Corris Railway*. In 1951 it entered service on the *TR* following a period during which it had lain derelict after the closure of the *Corris*, in 1948. It ran until 1956 and has now been withdrawn for boiler repairs. *No 4 Edward Thomas* was built in 1921 by *Kerr Stuart Ltd*, for the *Corris Railway*. It was put into service on the TR in 1951 and has worked every year since. Today its appearance is slightly different from ten years ago because it has been fitted with an Austrian device called an *Giesl Ejector* which makes steam locomotives burn coal more efficiently. *No 5, Midlander* is a diesel used for works trains. The final locomotive, *No 6 Douglas,* was built in 1918 for the *Calshott Railway*. It entered service in 1955, and has worked continuously over the past few years. It is an 0-4-0 WT of a charmingly antiquated design.

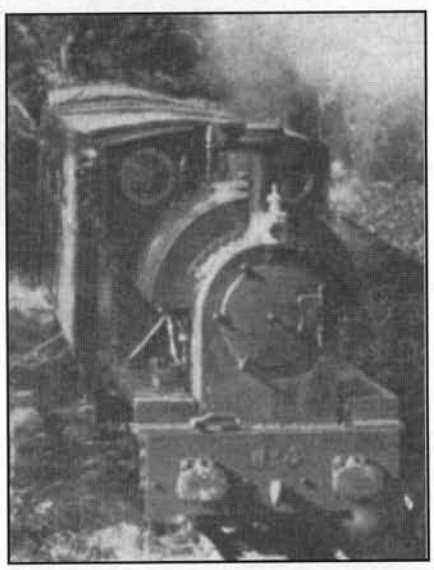
Ten years ago the passenger stock numbered five vehicles. Now it numbers 17. This means that every year another vehicle has been added. The western terminus of the line at Towyn Wharf has seen the most change. A little room has been built on to the back of the main office building for storing equipment. Next to it stands a new building cunningly disguised as an old one; it houses the narrow gauge museum, the largest collection of narrow-gauge relics in Britain. This alone is worth a visit.

Apart from these improvements, the buildings remain as they were. The track layout has altered; the old layout could never have coped with today's traffic.

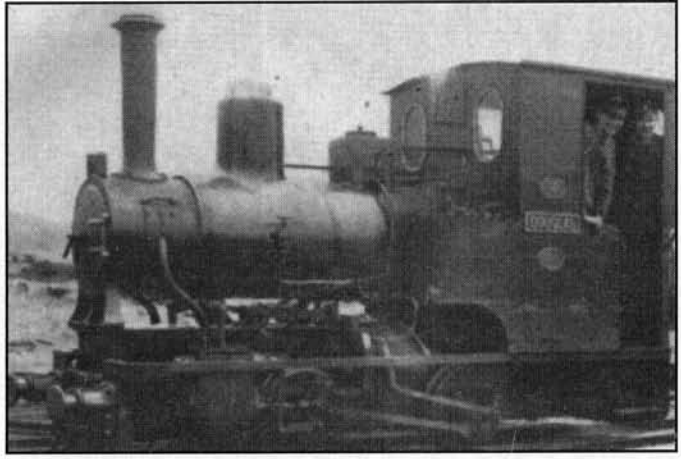
At Rhyd-y-ronen and Bryn-glas, little has changed. Apart from the loops to the west of the stations, and the posters, it would only require a change of costume for the scene to be thoroughly Victorian.

What of the future? The most important project is the proposed extension of the line to a point which will give better access to the beautiful falls and water courses of the Nant Gwernol. One day, perhaps, *Ta1-y-llyn* may be simmering beside Tal-y-llyn Lake.

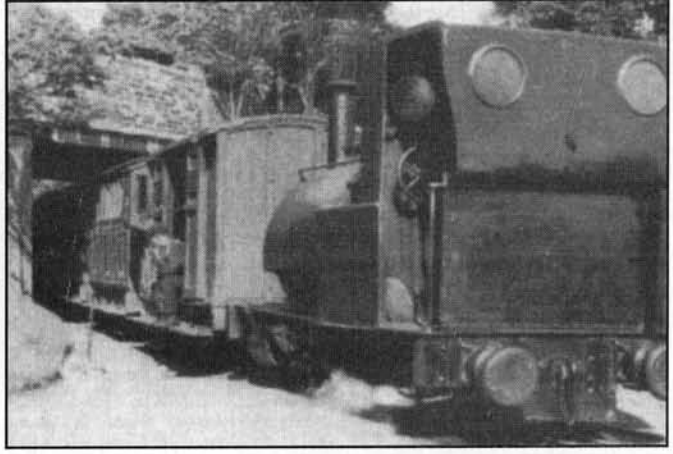
Whether this happens or not, one thing is assured—the success of the railway, provided that the level of financial and physical support is maintained. In four years' time the line is 100 years old. It looks all set to reach 200; yet ten years ago there seemed little likelihood that it would see 86. jWhat is more, the success has been achieved without the loss of any of the Victorian character of the line. The *Tal-y-llyn* can truly be called a little bit of Yesterday preserved for the pleasure of the Present



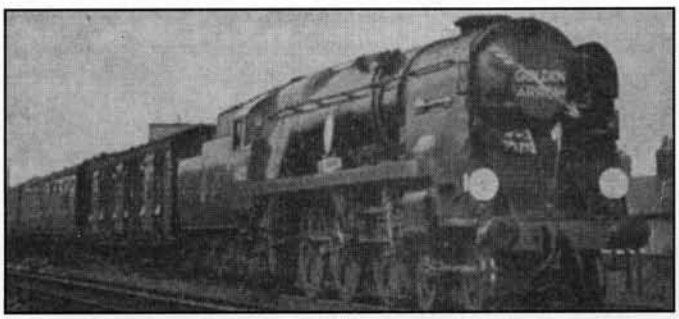
EDWARD THOMAS approaches Dol-goch.

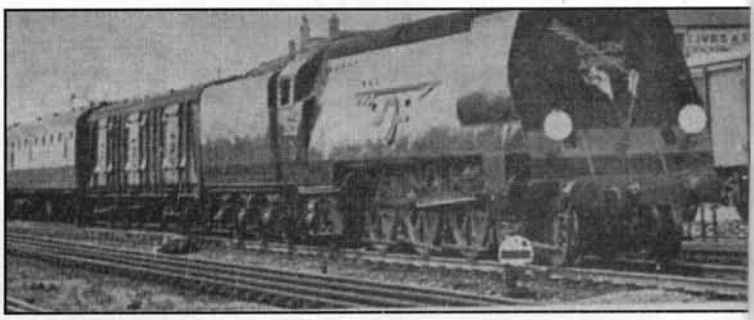


DOUGLAS at Towyn Wharf.

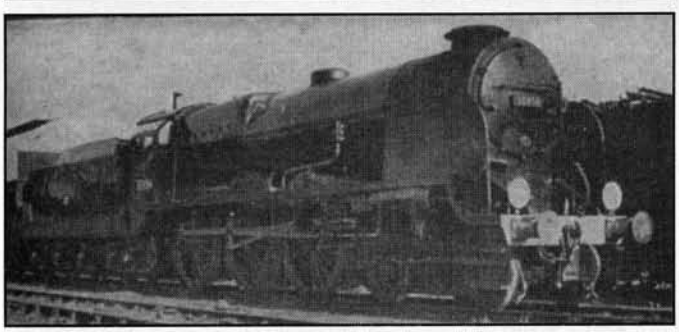


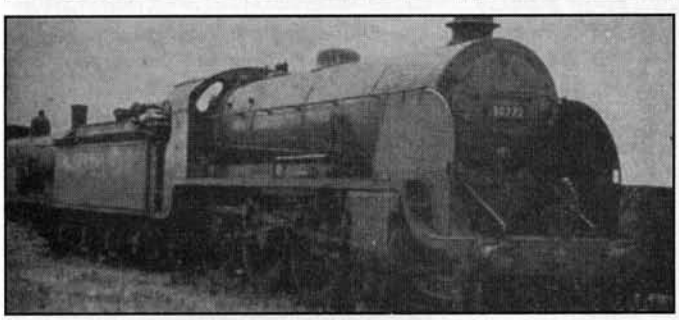
In the Thirties: TAL-Y-LLYN running into Wharf Station with the old stock.





CLAN LINE, Merchant Navy No.35028, leads through Tonbridge.

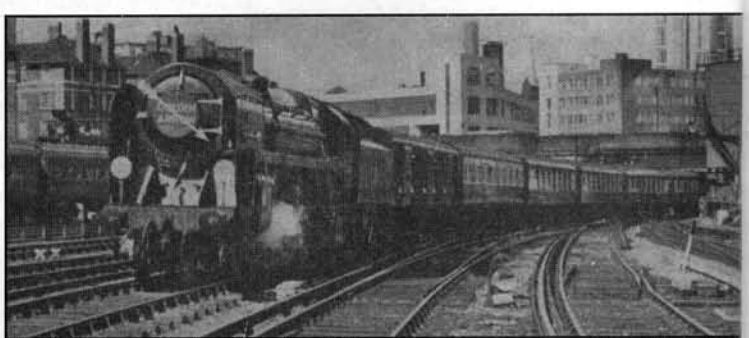


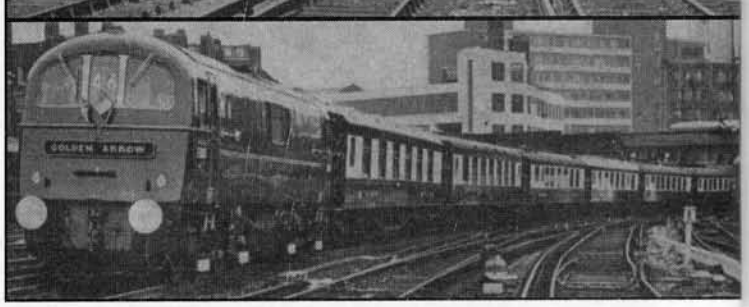


LEFT Top: Outside third rail in place. The engine is 34088, 213 SQUADRON at Tonbridge. Centre: LORD ST VINCENT was one of the regular pilots. Above: Before the 1939 war SIR PERCIVAL occasionally hauled the GOLDEN ARROW.

The GOLDEN ARROW

ROBIN ORCHARD pays tribute to a famous train which will no longer send plumes of smoke and steam over the fields of Kent.





Top: Here, leaving Victoria in 1954, is the Britannia IRON DUKE, immaculate as ever. Above: June 12 of this year (1961) was the first day of electric traction. The new ARROW leaves Victoria with E5015 at the head. (Picture by BR)

ON 15 May 1929, bronzed faced Kentishmen working in the hop-fields looked up as the sound of an approaching train reached a crescendo. The men had seen hundreds of trains before, but not this one. It was the Golden Arrow; destined to rank with the Trans-Siberian, Orient and Rome expresses as one of the most famous in the world. Over the past 32 years, with the exception of the war, the Golden Arrow has sped through the Kentish countryside, the steam loco at its head racing along and feeling vastly superior. Today, the train still speeds through Kent but it is the whine and hum of the electric loco, not the friendly chuff of the steam engine. The train is run in three parts: Victoria to Dover by British Pullman, across the channel by a railway-owned steamer, and from Calais to Paris by Wagon-Lits, bearing the French equivalent name, Fléche d'Or.

On 3 September 1939, the Golden Arrow ceased to run. It was not until 15 April 1946 that it re-appeared. The loco now boasted a headboard with the words Golden Arrow on it and a large golden arrow crossing them. In the centre of the buffer beam, the Union Jack and Tricolour fluttered bravely, while on the sides of the loco were a long arrow-shaped insignia. In 1951, a new rake of coaches was built to celebrate the Festival of Britain. When the train first steamed out of Victoria in 1929, the most modern Southern locomotives were allocated to it, Maunsell's Lord Nelson 4-6-0's. It is said that No.854, Howard of Effingham was the engine used on the first journey. They continued to do so until the outbreak of war. Occasionally a King Arthur would be called on to do the haul. When the service resumed after the war, the Nelsons had departed for the Bournemouth lines and it was the Bulleid Pacifics up front.

The Merchant Navy's were usually diagrammed to work it, but occasionally they would step down and let the smaller West Country and Battle of Britain classes show their paces. In 1952, the Merchants were robbed of the task for most of the time by two *Southern* Britannias, No.70004 *William Shakespeare* and 70014 *Iron Duke*. They worked the train exceedingly well and were usually kept in beautiful condition. Somehow they seemed to fit the new coaches better than the Merchants. Hurrying through Penge East with the chime whistle blowing, they were a sight to remember. Until 1954, the three *Southern* diesel-electric 1-Co-Co-1's, Nos' 10201-3 handled the service, but not consistently. Unfortunately, they were loaned to the *Midland* region for tests and have not been returned. In 1958, the Britannias were also sent to the *Midland*. The duty was returned to the *Southern* Pacifics, but the career of the Merchants on the train was destined to be short. By 1959, only one, *Clan Line*, remained unrebuilt. She worked the Arrow. When she finally left for rebuilding, the duty was given to the light Pacifics—usually rebuilt ones, which are slightly more powerful than the others. Then, on June 12, a year in advance of schedule, the Doncaster built 2552h.p. Bo-Bo No.5015 whirred into life, and the new era of the electric Arrow began. No longer will the Arrow thunder through the Kentish countryside, the steam locomotive raising the heads of the villagers with its urgent call. Now there will be a slight whirr, and then a rush, and the sound of dying rail beats as the new-look Arrow races for the coast.

The SHIRES and HUNTS

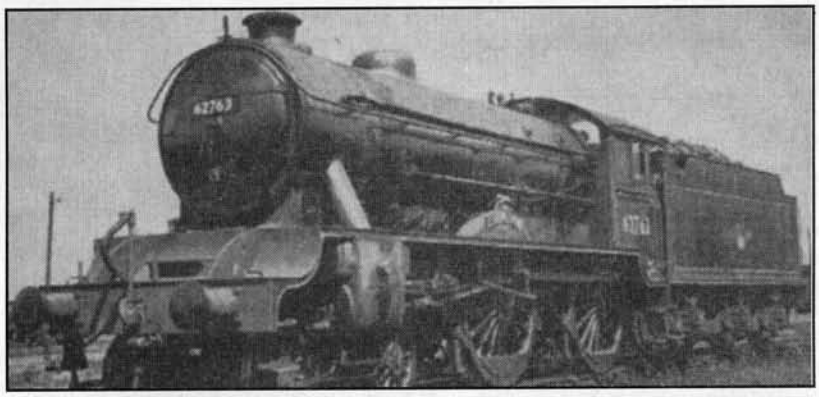
Sir Nigel Gresley's best-looking engines,

says ROBIN ORCHARD.

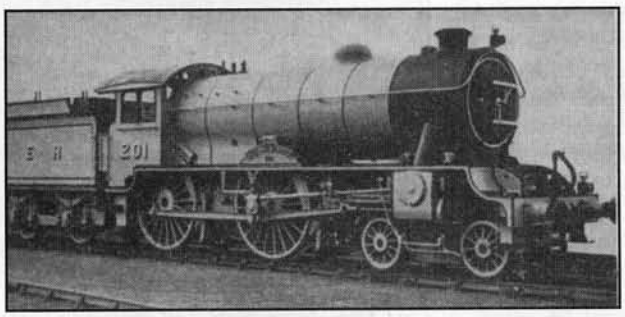
MANY railway enthusiasts consider *Sir Nigel Gresley* was the greatest railway engineer of all time. My opinion is that there are at least six men who could claim such distinction. There is no doubt that *Gresley* was a brilliant engineer and his locomotives are among the best, but he had no eye for styling. To me his engines are ugly. The boilers are too long and the footplating too high. I expect some readers will praise the lines of the A3 and A4 classes. I cannot agree that they have nice lines, particularly the A4's. I cannot conjure up any liking for streamlining. It makes locos look ugly.

Of all *Sir Nigel's* creations, I like best the D49 class 4-4-0's. Now they are, sadly, so few. Although they pass under the general designation of D49, there are in effect, two classes. The D49/1, which are named after British shires, and the D49/2, which are named after famous fox hunting packs. The *Shires* were introduced in 1927 and were intended for working express passenger traffic, with the exception of very heavy main-line trains. 36 were built but 2 were altered to Hunt specification. Four years later *Gresley* introduced the *Hunts*, which were basically similar to the Shires except for the valve gear, which was *Lentz* rotary cam poppet valves instead of Walschaerts. During the war, one of the Hunts, No.2768, The *Morpeth*, was rebuilt with inside cylinders, piston valves and *Stephenson* valve gear, rather like *Great Central* locos. It was the only example of the D49/4 class until its untimely end in the Starbeck collision of 1952. Today only three of the whole class are left. They are all Shires, all the Hunts have been scrapped, and possibly, while I am writing this, the remainder are on their way to the scrapman. The last three are; *Morayshire, Banffshire* and *Cumberland*.

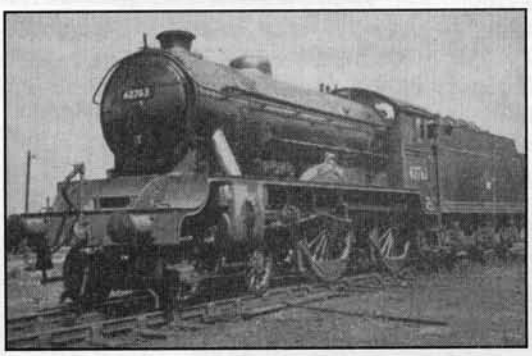
(Well, at least we know that Morayshire was saved, I had the pleasure of meeting Ian Fraser, who saved her from the scrapman, while he was staying in St. Albans. On the down side, I was thinking, rather sadly, during the last two articles, that today; flying the Flags in front of the Golden Arrow would be considered "politically incorrect," and as for naming locos after fox-hunting packs!)



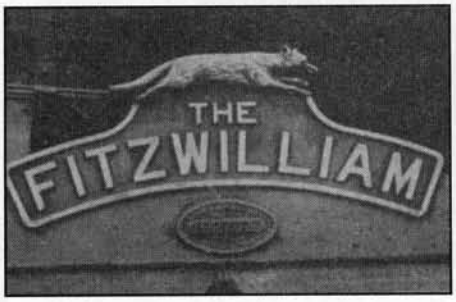
The first of the class, No.234, YORKSHIRE,. It is painted in the green livery in use on the LNER in 1927 and compares with the later style of 1932, which can be seen in the picture of BRAHAM MOOR.

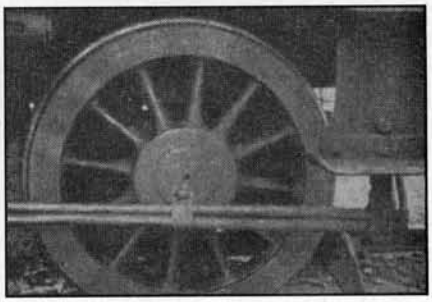


The original Hunt class, No.201, later 2736, BRAHAM MOOR. It was in LNER green when the picture was taken, but later it was demoted to BR black.



THE FITZWILLIAM, No.62763, the only member of the class fitted with Reidinger rotary valve gear.





Twilight of the steam age. by ROBIN ORCHARD

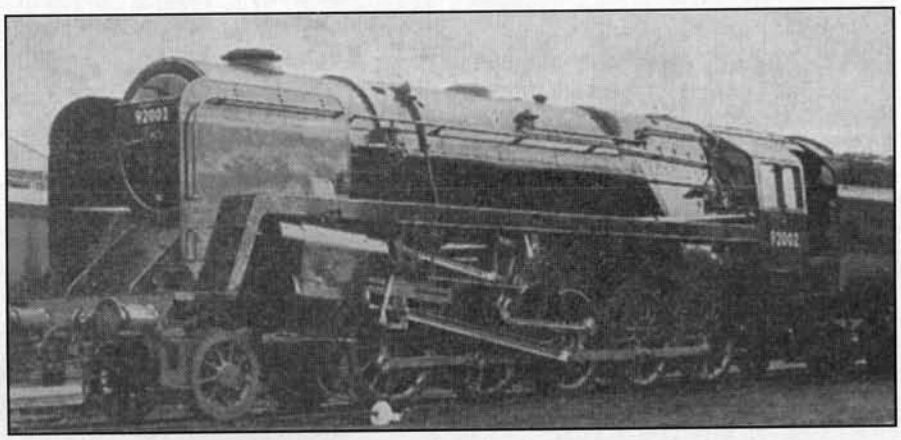
Photos by BRIAN WESTERN

I THINK it is true to say that, since the war, no other loco has caught the imagination of the general public, the railwayman or the railway enthusiast so much as the 9F class 2-10-0's. The first of the class, No.92000 appeared from the depths of Crewe in 1954. From that date, Crewe and Swindon built 250 more, culminating in *Evening Star*. Ten were built with the *Franco-Crosti* boiler, making a total of 261. As one would expect, the class are not identical. As originally built, all had single blastpipes and chimneys. From No.92183, they all had double blastpipes and chimneys, and since 1957, six of the originals have been altered. Three years ago (1958) three of the class were selected for experiments with the *Berkeley* mechanical stoker and a special tender. The coal in the tender is picked up by a screw in a trough which passes it through a crusher. It is transported by other screws up to the firehole door where it falls on to a deflector plate, and is then shot to the appropriate part of the firebox by steam jets. It does not affect the normal firing position which can be carried out on a short journey, or if the stoker breaks down. One of the biggest problems with mechanical stokers in Britain is the coal. Often, these days, lumps of rock and even scrap iron find their way into the tenders and the crusher mechanism cannot cope with them. But, I have not heard of any reports that the stokers have been removed, so possibly they are working well.

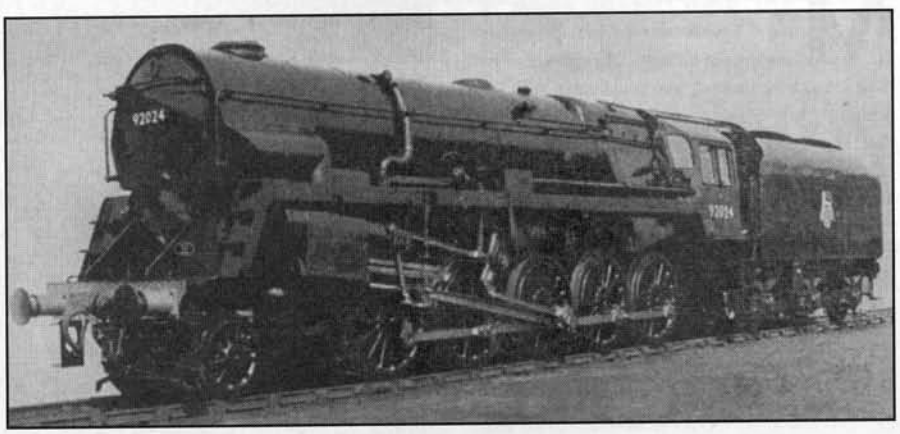
As mentioned earlier, ten of the class, Nos'92020-9, was fitted with the experimental *Franco-Crosti* return-flue boiler. The exhaust was placed on the right-hand side about halfway along the boiler. A normal chimney was placed at the front, but was only used for lighting up. As the device was purely experimental, it was so arranged that, should the idea not prove a success, the loco could work on the orthodox principle without the need for a costly boiler replacement.

Although the *Franco-Crosti* boiler was not a great success, the engines fitted with them did considerable work, particularly on the Wellingborough-Cricklewood coal trains. Over the past 18 months, as the engines have been scheduled for overhaul, the *Crosti* pre-heat arrangement has been sealed off. The 9F's still look the same except that the exhaust now comes out of the normal place. Five different types of tender are provided, to suit duty/route requirement. On some routes—the *Southern*, for example—it is necessary to carry more water than coal because there are no water troughs.

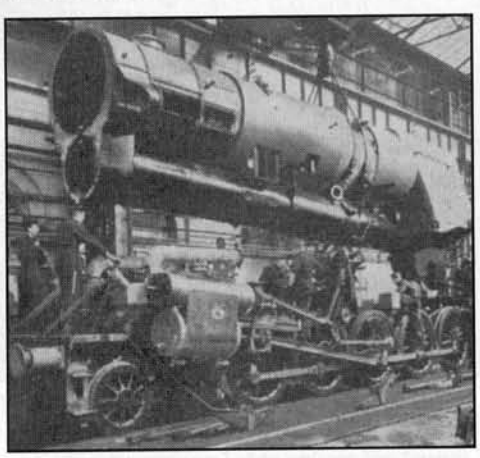
When the withdrawal of these fine engines becomes necessary, as it will in years to come, *Evening Star* will not be scrapped, for it is the intention of the *BTC* to preserve her.



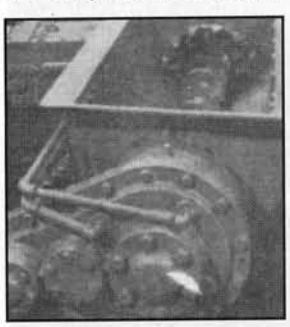
How the 9F first looked, with the single chimney. Picture by courtesy of BR.



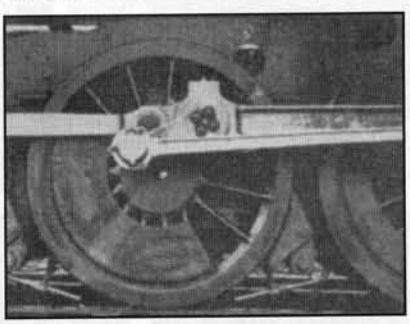
Side-exhaust system of an engine with a Franco-Crosti boiler. The tender is BR1B. BR Picture.



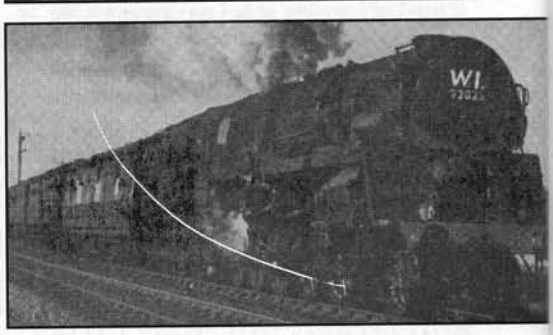
Pre-heat boiler is lowered into the frames; the pre-heat section itself is clearly seen. BR picture.



Collecting trough, crusher, motor and gearbox of the Berkeley stoker. BR picture.



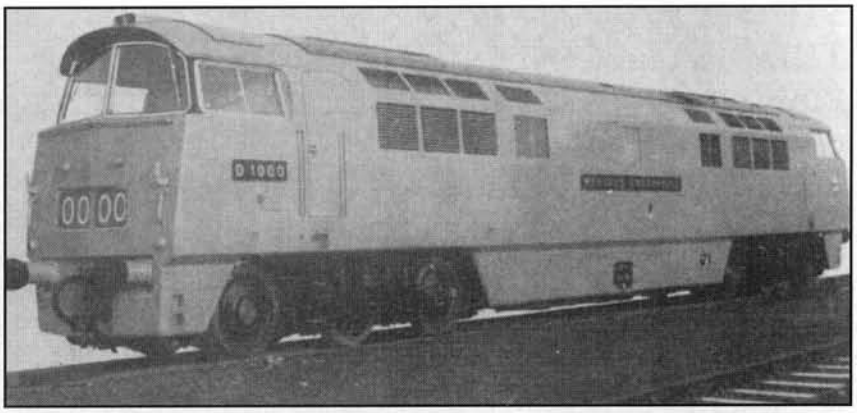
Centre wheel is flangeless.



No.92023 with Franco-Crosti boiler and side exhaust (later blanked off) leaving Hurlford, near Kilmarnock in Ayrshire, on 16 October 1955. Photo by K.K. McKay

These new engines are better - looking

Diesel-hydraulics of the Western Class, styled to the recommendations of the BTC design panel, please the eye more than the first electro-diesels, says ROBIN ORCHARD



IN 1958 the first of the Swindon built B-B diesel hydraulics, the Type 4 Warships, entered service. Since then their number has steadily increased until today over 60 are at work.

They are built by Swindon and the *North British Locomotive Company*. Apart from the first three and one experimental unit, the whole class is rated at 2,200 h.p. A medium-power class of hydraulics was introduced in the middle of last year, the Type 3 *Beyer Peacock Hymeks*. But there was a need for a unit more powerful than the *Warship*, yet not so high that it would enter the Type 5 category. For over two years it has been common knowledge that, as soon as the construction of the Warships was far enough advanced, work would begin on the new C-C unit. Just before Christmas the first pair was released for trials, but the details have been kept secret until now.

The new units, known as the *"Western"* class are striking to the eye and are undoubtedly one of the handsomest designs to be seen on Britain's railways. The design panel of the *BTC* played a considerable part in their exterior styling, and there is little doubt that their neat and attractive lines are mainly attributable to this.

A pair of *V-12 Bristol Siddeley Maybach MD 655* tunnel engines provides the 2,700 h.p. These engines are generally similar to the MD 650 used in the Warships but they develop 1,350 h.p. at 1,500 r.p.m. instead of 1,100 h.p. They are also capable of uprating to 1,440 h.p. Single-stage exhaust gas turbo chargers provide the pressure charging; the chargers are inter-cooled. There is a speed control like the one on the *Hymeks*, pneumatic and infinitely variable. The maximum tractive effort at 30 per cent adhesion is 72,600 lb. and the continuous tractive effort at 14.5 m.p.h. is 45,200 lb.

The unit is the first British-built hydraulic to have six-wheeled bogies with all axles driven. The drive comes from the engine through a cardan shaft to an L6-30rV Voith-North British hydraulic transmission unit, as used on the Type 4 *North British Al A-A 1 A* Warships. From there it goes by another cardan shaft to the *Stone-Maybach* gearbox, and then finally by three separate cardan shafts to the three final-drive mechanisms on each axle.

While the driver is able to brake the train and the locomotive simultaneously with the *Laycock-Knorr* vacuum-controlled straight air brake, he can also switch it to brake the unit only.

Altogether 74 of the units have been ordered. Thirty-five are to be built at Swindon under the direction of *Mr. R. A. Smeddle*, the Western CME, and the other 39 at Crewe, under *Mr. A. E. Robson*, CME of the London Midland Region.

The first of the units is *D1000 Western Enterprise*. This engine has been painted experimentally in desert sand colour. The second engine, *D1001 Western Pathfinder* is decked experimentally in maroon. As yet there is no news of which colour will eventually be chosen. Let us hope that it will not be green.

Southern electro-diesel

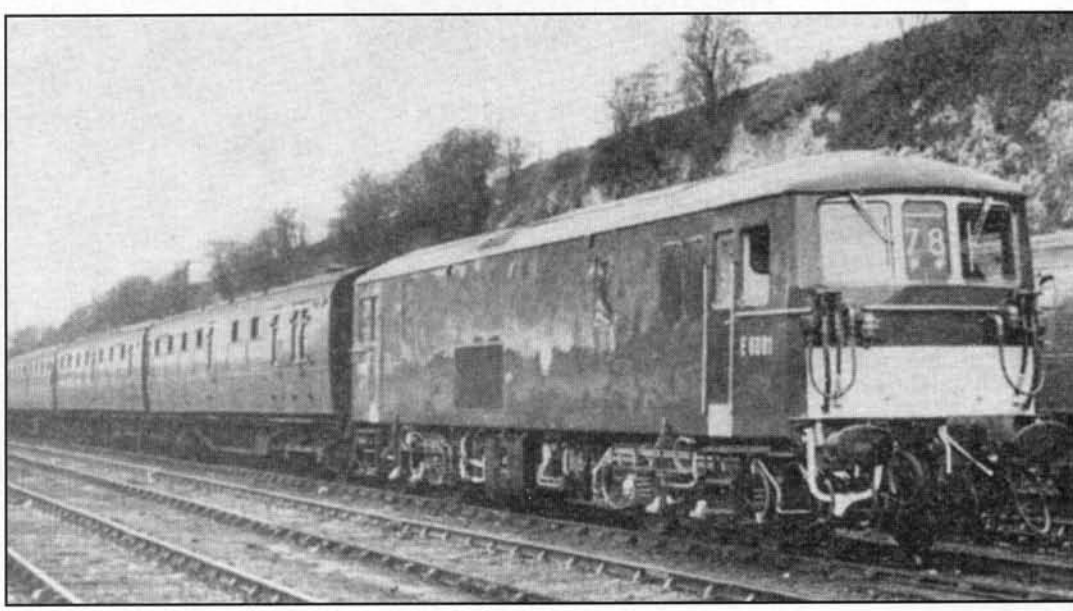
The most versatile diesel locomotive to be built for *British Railways* has begun tests on the *Southern Region*—the electro-diesel, a locomotive equally at home on electrified or non-electrified sections. It is not a high powered unit in either form, because it is primarily intended for the lighter medium weight duties and as a supplementary unit to the main-line diesel or electric locomotives. In straight electric form it develops 1,600 h.p., comparable to the Type 3 diesel-electrics on the region, or the three *Southern Railway* Co-Co electrics, 20001-3. When it is running as a diesel-electric, it develops 1,000 h.p., equal to the power of an *English Electric-Vulcan Foundry Type 1 B o-B o*. Its versatility is further increased by its ability to be coupled to any of the region's diesel or electric units as well as to multiple-unit trains and Continental rolling stock-the *Southern Region* moves considerable numbers of wagons brought over from the Continent on the Channel ferries.

The excellent *English Electric 4 SRKT* engine, as used in the Hastings and Hampshire multiple units supplies Diesel power. The four axle-mounted motors are of standard design.

When the unit is switched from electric power to diesel, the collecting shoes are automatically raised, although it is possible for the driver to lower them for a brief period while the train is diesel-hauled to discover if the section is carrying current.

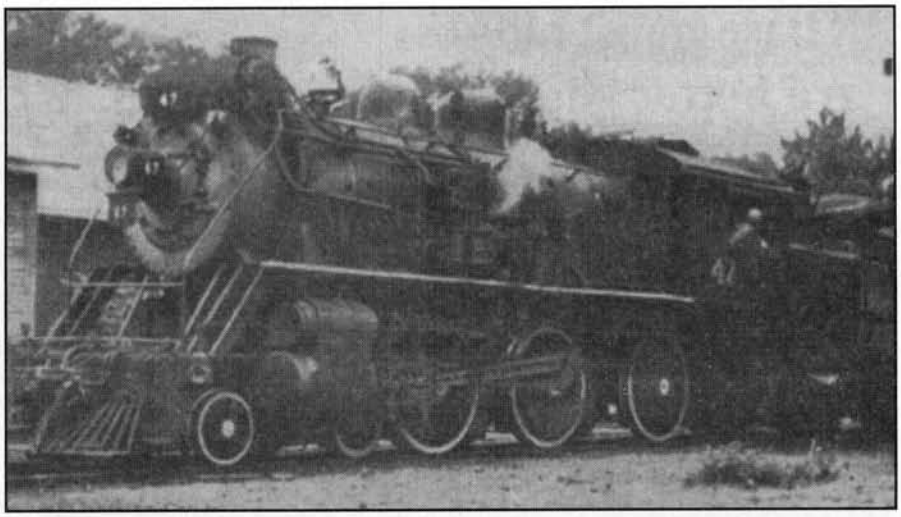
Two sets of controls are fitted, one for each form of power. Both controllers have an additional lock-off position. It is impossible to start one unit unless the other is switched off. If the unit, for example, is running diesel and the driver wants to change to electric, he moves the diesel lever to lock off and then releases the electric lever from the lock-off position. It is impossible to unlock a lever until the other lever is locked. Besides the normal control positions and the lock-off, the electric controller has other positions including run-up series, parallel and weak-field for working multip1e-unit stock.

I hope that somebody will change that awful livery soon. Why can't the electro-diesels be painted blue like the a.c. electrics?



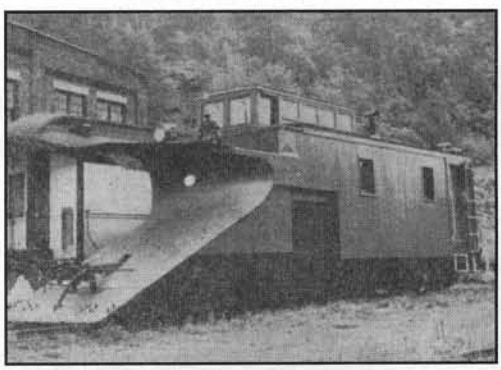
STEAM DIES HARD IN THE UNITED STATES

EDWARD BOWNESS meets a devotee of steam and rides with him on the footplate of one of his many engines



Mr. Blount's 4-6-4 tank.

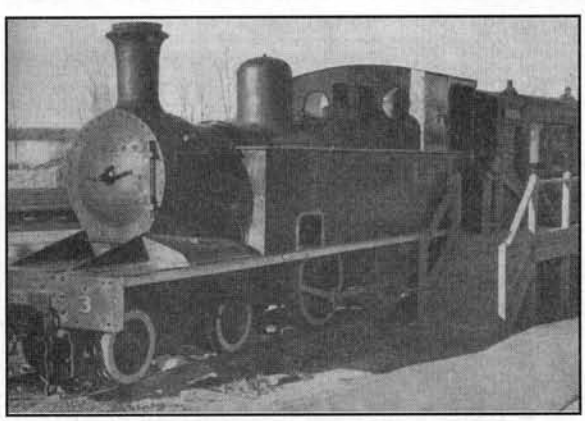
IN MODEL ENGINEER for January 12 last year (1961) I read the announcement of a "Cavalcade of Steam Power" consisting of 40 locos, which were to be seen at Bellows Falls, Vermont. This being just under 100 miles from Weston on the outskirts of Boston, where my wife and I were staying with relatives, we decided to have a pleasant day's outing and see them. The day was fine and the country beautiful; but on arriving at Bellows Falls, all we could find was a deserted siding with only an old snow plough and the shell of an old passenger car. However, a notice on one of the buildings in formed us that "the steam loco and train" had been transferred to Bradford, New Hampshire, about 35 miles further on. No mention of the "cavalcade". By this time, it was 4.30 pm, but we went on and found the train was running and was due in 15 minutes. While waiting, I had a chat with *Rupert W. Wonsche*, who was in charge of the small station. He told me that the owner of the engine and train was a wealthy business man, *Mr. F. Nelson Blount*, who makes a hobby of buying and preserving old steam locos. He already owns about fifty which are located in various states, and most of them are still in running order. In 1955, *Mr. Blount* purchased the railroad at *Edaville, Mass.*, about 40 miles south-east of Boston, which he now operates. This is a very popular centre and we might have seen more there than at Bradford. Another railway, which I understand to be owned by *Mr. Blount*, is the *East Broad Top RR*, a narrow gauge line at *Orbisonia. Pennsylvania*, about 60 miles east of Harrisburg. However, to return to our visit. The train arrived, with its hooter blowing and bell ringing. It consisted of a big 4-6-4 tank engine and two passenger cars, with *Nelson Blount* at the throttle. He is a licensed locomotive engineer and on my being introduced by *Mr.Wonsche*, explained my connection with MODEL ENGINEER and my interest in steam, he at once invited me up to the footplate. In conversation he told me that trains and steam locos had been his lifelong hobby, and that he hoped ultimately to hand over his locos to the State to be kept for posterity. I believe he has roots in Ireland, as he said that, during a visit there in 1959, he bought an old tank engine from the *Tralee and Dingle Railway*. The loco at Bradford was built in 1912 for the *Canadian National RR*, the passenger cars were built at Laconia in 1890 for the *Boston and Maine RR*, and



A snow plough at Bellows Falls, Vermont.

Edward Bowness joins Mr. Blount on the footplate.

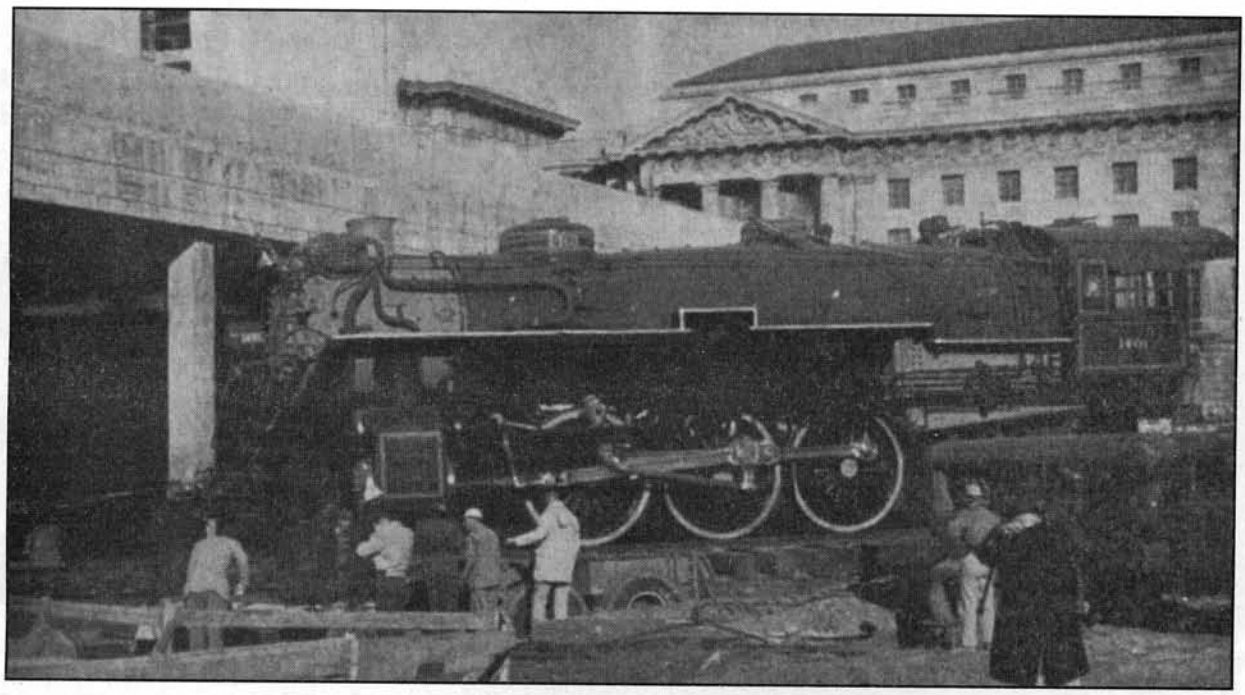
The 4-4-0 tank engine which Mr. Blount bought from the Tralee and Dingle Railway in Ireland.



retain their original bright yellow. The train runs regularly between Bradford and Lake Sunapee. When I left, Mr.Blount presented me with a pass entitling me and my family to travel free over the line for a year, signed by himself and his vice-president. When I went to America, I realised that I was too late to see the big steam locos that had always impressed me. Although I travelled thousands of miles and visited 21 states, I saw nothing but diesels on any of the railways, even the shunting was done by diesels.

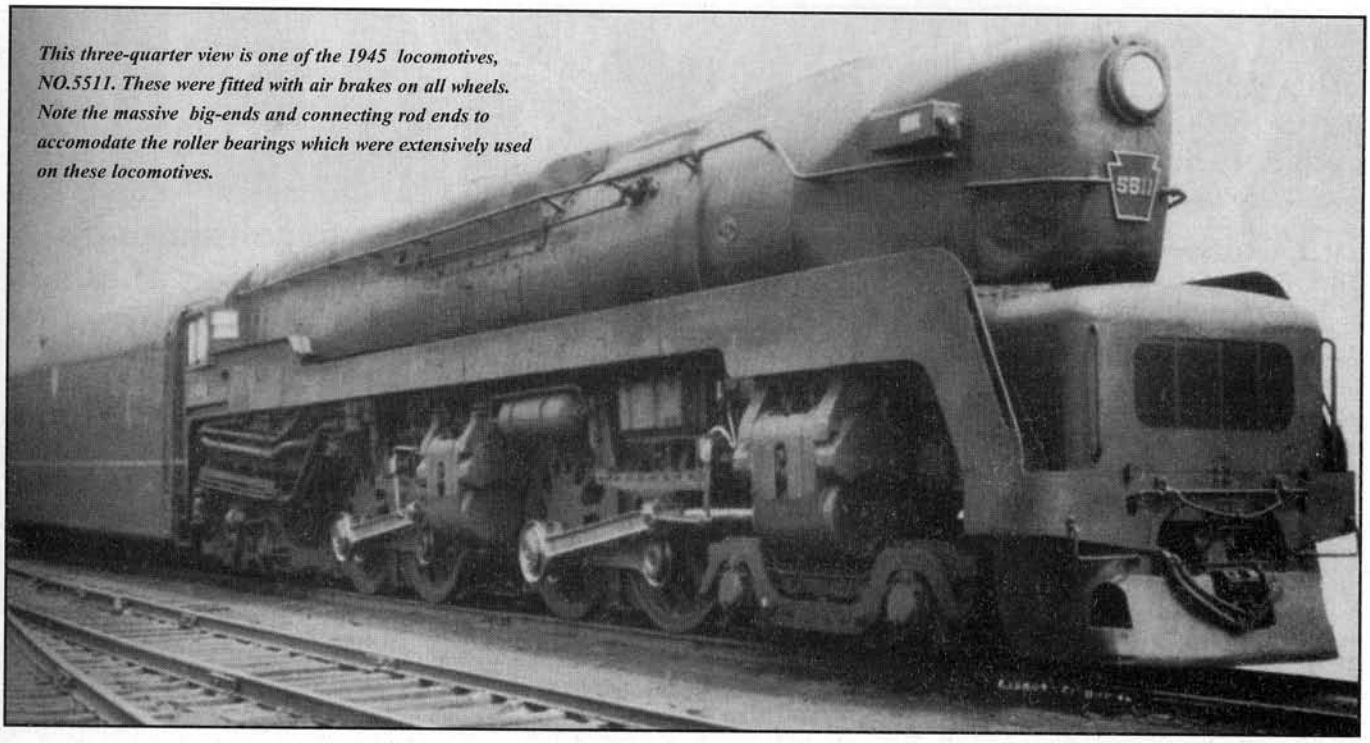
GIANT ENTERS SMITHSONIAN – They had to build the annexe first, reports W.C. DAVEY

Several years ago, the *Southern Railroad* in the United States presented a Pacific locomotive to the Smithsonian Institution in Washington. The engine has been kept in storage until the museum could house it. Now a large annexe is being built on Constitution Avenue, and the loco has been given a place on the ground floor. It was taken in recently, a section having been left open for the purpose.



PENNSYLVANIA T1 CLASS. R.M.E. describes a class of 4-4-4-4 steam locomotives built for express passenger service on an American railroad

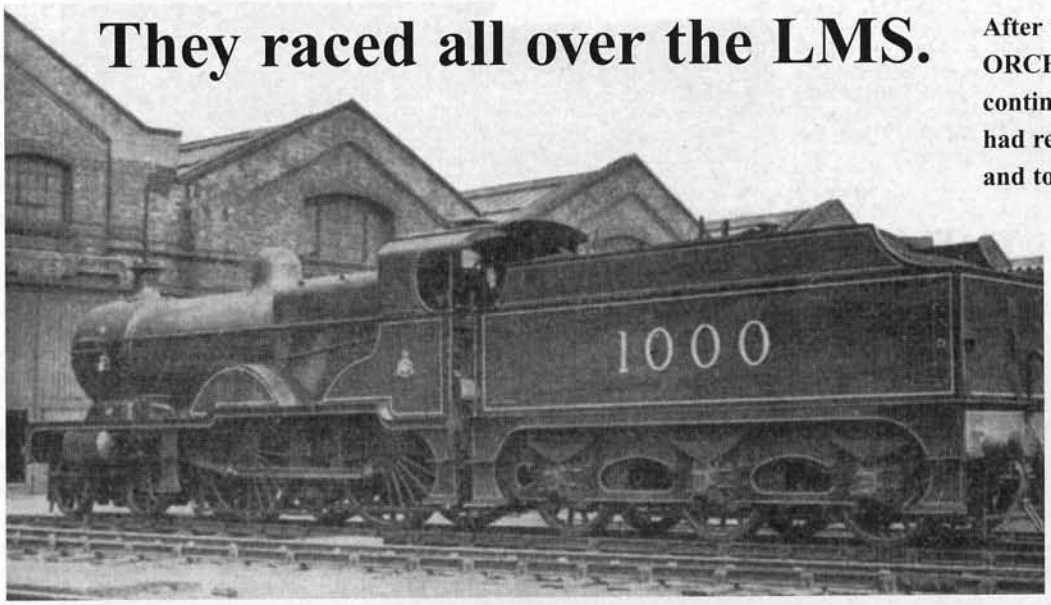
Early in 1939, the *Pennsylvania RR* had delivered a most unusual express passenger locomotive which had the driving wheels divided into two separate groups on a long rigid frame. This was No.6100 which had a wheel arrangement of 6-4-4-6. It was intended that it should haul 1200 tons at an average of 66mph. Owing to excessive weight, it had to be restricted to the 280 mile Crestline-Chicago section. With lighter loads, speeds up to 120 mph were claimed, but never authenticated. In 1940, the *PRR* ordered two more "duplex" locos similar to No.6100 but with 4-4-4-4 wheel arrangement and lighter axle loading, Nos' 6110 and 6111. The cylinders were 193/4 by 26in., with *Franklin poppet* valves, driving wheels were 6ft. 8in. and the boiler pressure 300psi, giving a tractive effort of 64,700lb. Despite their great promise, they did not prove altogether reliable in service, they were very prone to slipping and the *Franklin* valve gear gave trouble. When in good condition, they put up some fine performances and there are numerous records of 100 mph with 900 ton trains. In 1944, the *PRR* took the rather risky step of ordering 50 almost identical engines, Nos'5500-24 being built at *Altoona*, and Nos'5525-49 by *Baldwins*, and these were delivered in 1945/6. Various modifications were carried out to try and improve reliability, and at least one of the engines was converted to piston valves, and some had their cylinders reduced in size to try to overcome the slipping problems; but with the rapid advance of diesel locos, their lives proved to be very short.



This three-quarter view is one of the 1945 locomotives, NO.5511. These were fitted with air brakes on all wheels. Note the massive big-ends and connecting rod ends to accomodate the roller bearings which were extensively used on these locomotives.

They raced all over the LMS.

After the war, says ROBIN ORCHARD, the Compounds continued to run well. But they had reached their last phase, and today only one remains.



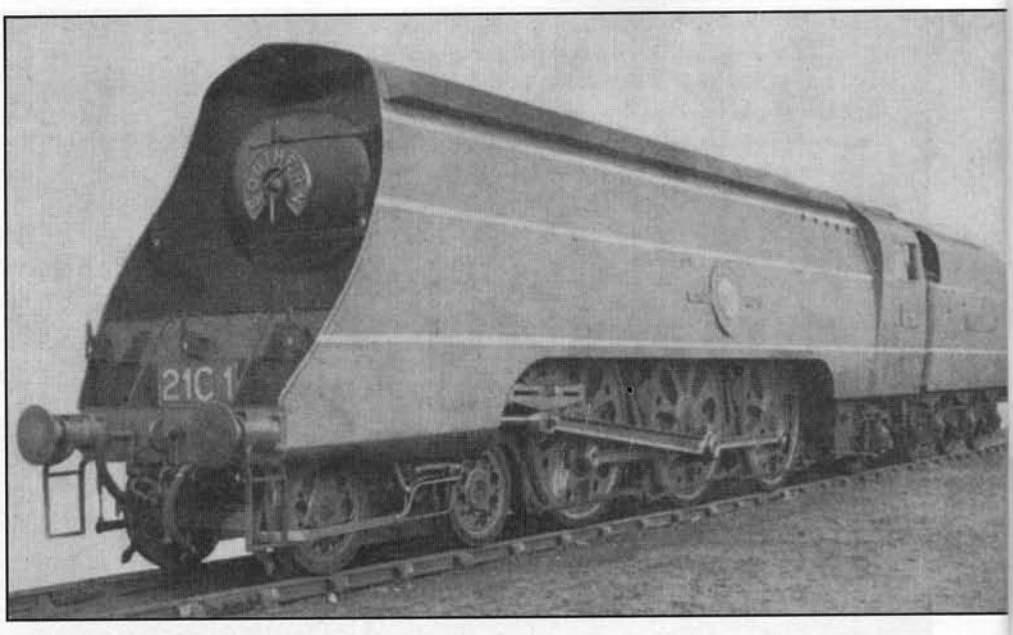
DAY-IN, day-out, during the thirties the Compounds raced all over the LMS section. Even when the more powerful Scots, Patriots, Jubilees and Black Fives got into their stride the Compounds could compete favourably on the same schedules. But train loads were increasing and, as was only to be expected, the compounds gradually lost the main links. But, oh, how they worked the other duties! It was not until the war that they really felt the pinch. During those dark days they became sadly neglected and run down. They needed a little more maintenance than a simple engine, and in war-time the extra effort could not be spared. Once the war was over they were better maintained and once again began to do excellent work, but their days were numbered. It may surprise some of you that it was as long ago as 1948 that the first of them were scrapped. Surprisingly, four of the original engines remained in service until 1951 when together with another fifteen were withdrawn and all were scrapped except 41000, which was stored at Crewe, awaiting preservation. By 1959 only 29 remained out of 240, by 1961, only two. In August 1961, 41168, the last of the line was cut-up. The Crimson Ramblers were dead...almost. In 1959, old 41000 was overhauled for preservation. She was restored to Midland livery, but instead if being placed in a museum, was kept in working condition for hauling enthusiasts' specials. Her first duty was the SLS special from Birmingham to Doncaster and York on 30 August 1959. Since then she has run many such trips; I hope she will continue to work for many years. During her 49 years in service she covered 13/4 million miles. Returning the engine to her original condition would have been too costly, but it was possible to make her as she had been after the 1914 rebuilding. She carries the number 1000 and the livery of that period.

BULLEID'S BRILLIANT PACIFICS

SEAN DAY-LEWIS WRITES OF A FAMOUS LIVING DESIGNER AND HIS LOCOMOTIVES.

IT is now a little over 21 years I since the first *Bulleid* Pacific, *Channel Packet* of the " Merchant Navy " Class, went into service with the *Southern Railway*. But the impassioned and partisan controversy surrounding these brilliant engines continues as furiously as ever.

Bulleid himself has described his Pacifics as " the last English high speed locomotives to be built by private enterprise in an atmosphere in which engineering progress had free play."



Look at the word "Southern" on the front and then compare it with the similar feature in one of the pictures on page 83. Some railwaymen thought that the shape resembled an inverted horseshoe, and for the comfort of their superstitious minds the circle was closed.

Now that *British Railways* have committed themselves totally to electric and diesel traction his significance as the last genuine innovator of the steam age can be appreciated. His engines were new in every detail and, unlike those which came after, did not merely mirror traditional practices.

Oliver Vaughan Snell Bulleid was born at Invercargill in New Zealand, and brought-up in Wales and Lancashire. His family intended that he should read for the Bar in New Zealand and he already had the sailing ticket in his pocket when a rebellious cousin at Doncaster took matters out of his hands and apprenticed him to *H. A. Ivatt* of the *Great Northern.*

He took to his work with ease and was quickly recognised by *Ivatt* as an outstanding apprentice. Later *Bulleid* drew even closer attention to himself by marrying his chief's daughter.

After experience in France, *Bulleid* returned to the *Great Northern* and eventually became *Sir Nigel Gresley's* assistant on the *LNER. Gresley* was the master mind, but *Bulleid* made a significant contribution to the silver age of the East Coast route, which culminated with *Mallard* and the world speed record for steam.

In 1937 he succeeded *R. E. L. Maunsell* as Chief Mechanical Engineer of the *Southern* and prepared a critical report on the steam stock. It was not given an enthusiastic welcome by a management preoccupied with electrification schemes, and the new chief had to fight a lone battle against odds from the start.

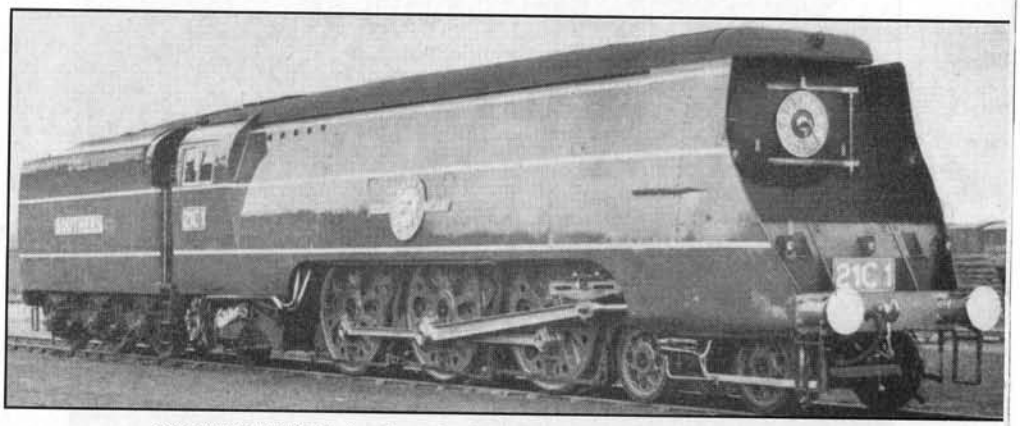
The first need was to improve the timings of the unsatisfactory Lord Nelson 4-6-0s on the Dover and Folkestone boat trains. The Merchant Navy Class was designed for this specific task, but when *Channel Packet* appeared in 1941 this service was in abeyance and the new engine started work on the Southern's West of England line, assisting the hard pressed *King Arthur 4-6-0s.*

Its qualities soon became evident to all travellers lucky enough to live between Salisbury and Exeter during the war years A locomotive which imperiously hauled a fully-loaded 20-coach train over the severe gradients of this line was clearly an improvement on anything the *Southern* had known.

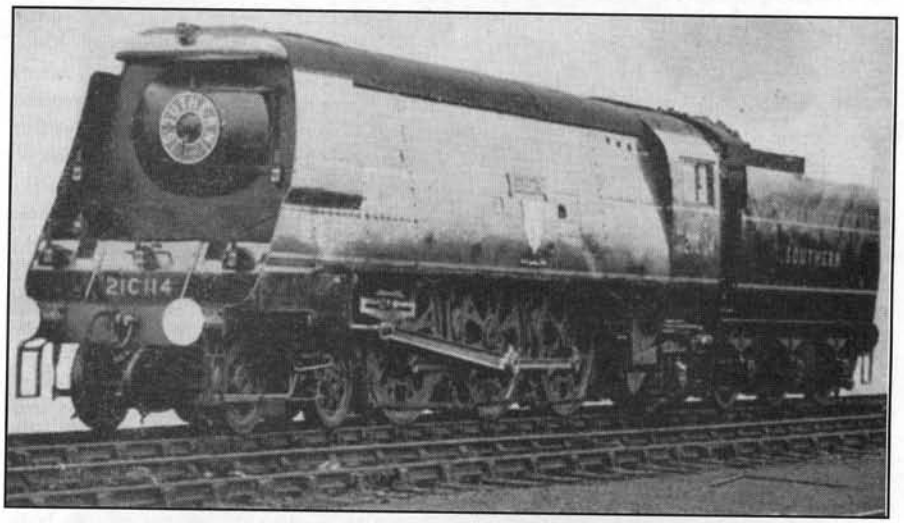
Before *Bulleid* left the *Southern* in 1949 he built 30 Merchant Navy engines and 110 of the lighter West Country and Battle of Britain loco motives. If none of them has ever captured *Mallard's* record it is only because the designer regards such exercises as frivolous. Their boilers were an outstanding asset and their power output, as revealed in the Locomotive Exchanges of 1948, created something of a legend.

Against this can be placed high fuel consumption and the inaccessible chain-driven valve-motion. *Bulleid* does not believe that engineers should strive for accessibility, but should see that everything works so well that it is unnecessary. Unfortunately, this motion did not work perfectly and the designer himself now describes it as " a step in the right direction, badly carried out."

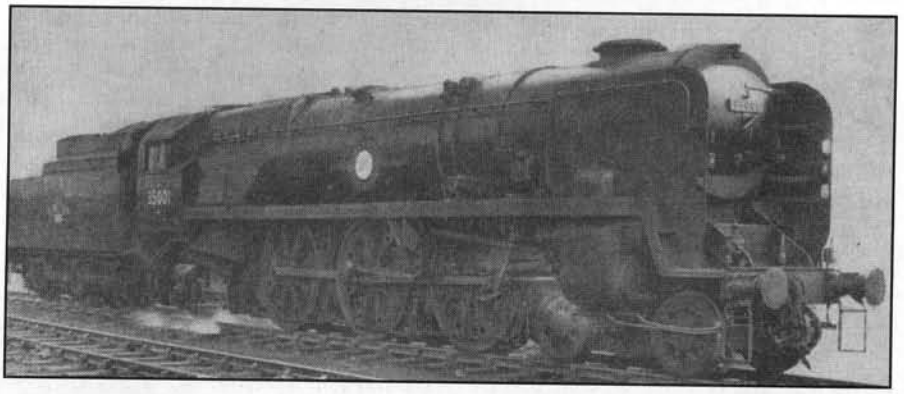
His intention was to produce a locomotive able to work long mileages without attention at running sheds. Even the famous " air-smoothed " casing on the outside was designed so that the engines could be cleaned quickly at automatic plants.



CHANNEL PACKET after the casing had been modified. [BR PHOTO]



West Country class locomotive No.21C114, BUDLEIGH SALTERTON. BR Photo



In an earlier age *Bulleid's* experiments would have been consolidated and he would have received due credit for the best features of his locomotives, which solved some problems for the first time. But the Pacifics were hardly ever used to the capacity which he intended and now 90 of them have been rebuilt in a conventional form which gives them a less exciting but also a less mercurial performance.

With a speed limit of 85 m.p.h. imposed between Salisbury and Exeter, the original design is scarcely necessary, though the *Southern* drivers sometimes turn a blind eye to the limit even now. Recently on the down Atlantic Coast Express a Merchant Navy touched 104 m.p.h. between Axminster and Seaton Junction, and even after the seven-mile climb to Honiton Summit (four miles at 1 in 80 or slightly steeper) the train was travelling at barely less than a mile a minute.

O. V. S. Bulleid meanwhile surveys the scene calmly from his retirement at Exmouth. He makes no exaggerated claims for his steam engines and is just as proud of his modernisation of *Coras Iompair Eireann*, the Irish Transport Company, which he carried out after leaving the Southern.

No.30586 taking water at Penhargard on the way to Wenford Bridge quarry.

Oldest Locomotives in regular Service.

G. NIGEL KING writes of the three surviving Beattie well tanks which live a fairy-tale existence trundling clay wagons through the beautiful woods of the Wenford Bridge line.

Shunting meditatively in Wadebridge sidings.

In the heart of Cornwall lies a lovely, secluded, thickly wooded valley, threaded by the river Camel and the *Bodmin and Wadebridge Railway*. The railway has a unique place in railway history. It was opened in 1834 from Wadebridge to Wenford Bridge with a branch to Bodmin, and plans were made to extend the line from Wenford Bridge through Camelford to the east, to form part of a trunk route into Cornwall. The *LSWR* eventually reached Wadebridge in 1899.

Today the Bodmin to Wadebridge section is operated as the "main" line, carrying a passenger service, and the Wenford Bridge line is the branch, its main duty being to transport china clay. No passengers have ever officially been carried to Wenford Bridge as the population of the area is negligible and the extremely sharp curves prevent normal passenger coaches from negotiating the track.

It is these tight radii, however, which give the line its special interest today, for the only engines that can twist their way around the bends without damage to themselves or the track are the *Beattie* 2-4-0 well tanks—a type originally introduced in 1863 for the London suburban traffic from Waterloo.

From 1884-90 three of the engines were reboilered and fitted with small cabs for working to Wenford Bridge. By the turn of the century they were the sole survivors of the class and they have remained so ever since. They were all built by *Beyer Peacock Ltd,* whose engines seem to last forever, and are now numbered 30585-7. Nos 30585 and 30587 were built in 1874, followed in 1875 by 30586, which is distinguished by prominent rectangular splashers. These locomotives weigh 37 ton 16 cwt, have a working pressure of 160 p.s.i., 16½in. x 20in. outside cylinders, and 5ft 7in. dia. driving wheels. They were rebuilt by *Urie* in the early Twenties and again in the Thirties by *Maunsell.*

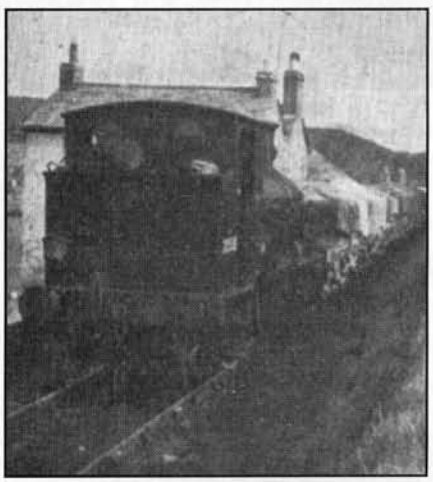
On a sunny morning, I arrived at Wadebridge station with seven fellow railway enthusiasts for a brake van trip on the train to Wenford Bridge, due to leave at 9 a.m. To our dismay we found that the train had left at about 7 a.m. as two trips were being made to Wenford Bridge that day, the intermediate working being from Boscarne Junction, where interchange is made with the *Great Western* line to Bodmin Road. Arrangements were made for us to travel to Dunmere Halt by passenger train to pick up this working. Before leaving we had time to look around the shed at Wadebridge, where we found No. 30587 was out of steam. No. 30585, however, was very busy shunting in the station, looking very smart and in excellent mechanical trim. With her 5ft 7in. driving wheels, the exhaust beats seemed very slow for shunting purposes, and it was amusing to note the power classification " OP " stencilled above the number on the cab sides, although these engines have not worked passenger trains regularly for over 60 years.

At Dunmere we waited by the ungated level crossing where the Wenford Bridge line crosses the main Bodmin-Wadebridge road. Soon after 11 a.m. No 30586 appeared from Wenford Bridge with 19 loaded 13-ton china clay wagons and two brake vans—one for our party. The maximum load is 20 loaded china clay wagons: no mean load for these small engines round the very sharp curves. All the wagons were vacuum brake fitted and were left at Boscarne Junction to be worked to Fowey for shipment.

Around noon No 30586 had assembled her train to work back to Wenford Bridge, the load being 11 empty china clay wagons and the two brake vans.

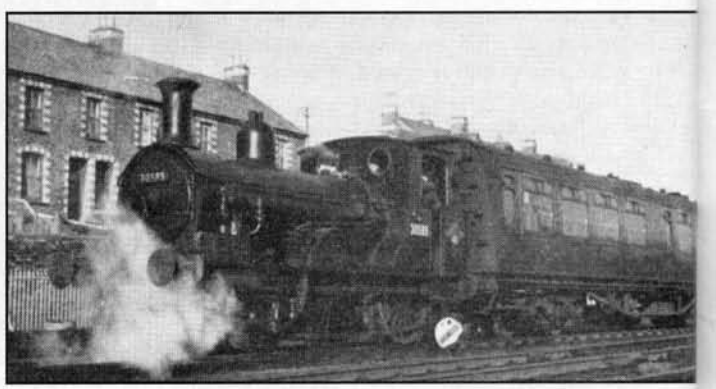
For the first 3½ miles to Helland Bridge, it is a fairy-tale railway, as it twists and turns beside the river, deep in the woods. In the heart of this fascinating stretch the train ground to a halt beside a small wooden water tower, fed by a nearby spring. This stop gave us the opportunity to photograph the train, seemingly lost in the woods.

Beyond Helland Bridge the line emerged into a pastoral valley for the 4¾ miles to the terminus at Wenford Bridge, which is 12 miles from Wadebridge and 266 miles from Waterloo—a remote outpost indeed. Half a mile short of this is the source of most of the line's traffic—a large china clay works.



Nineteen loaded china clay wagons and two brake vans stretch into the distance behind No 30586 as it waits for the road to Boscarne junction.

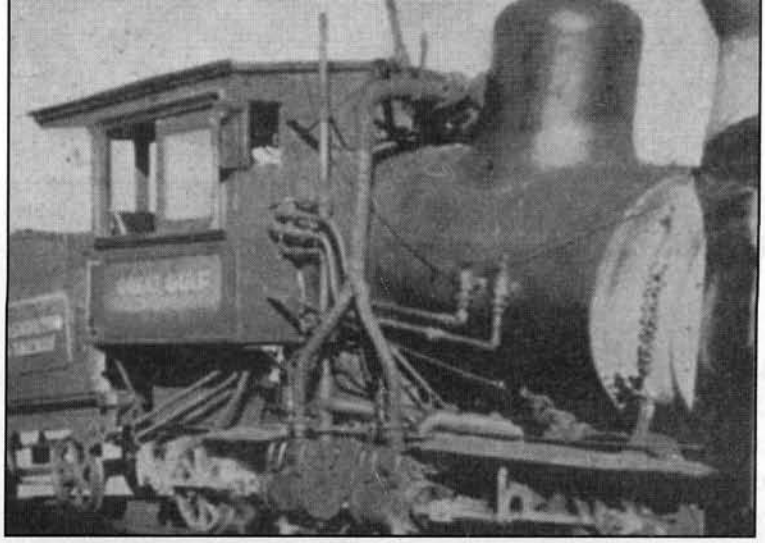
At Wenford Bridge connection was made with a cable operated line to a Cornish granite quarry. This is now disused, although the rails are still in place. After some shunting we left here at 2 p.m. with one van and the two brake vans, for Wadebridge, where we found No 30585 still hard at work shunting. It had been a memorable visit to a lovely line, worked by quite irresistible little locomotives.

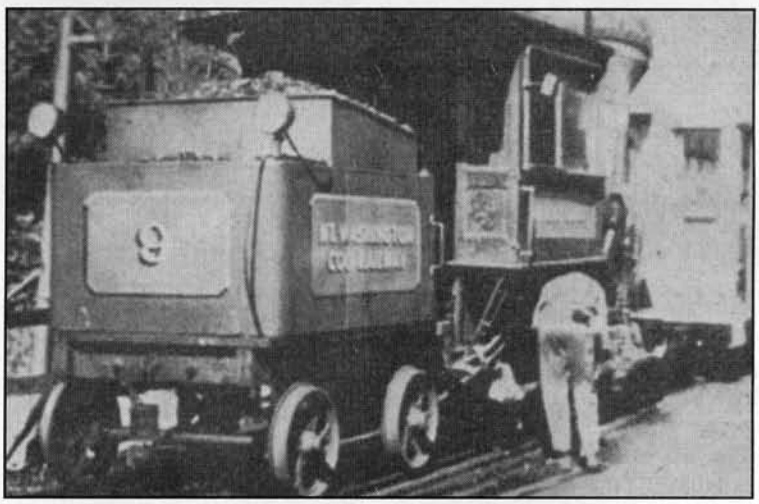


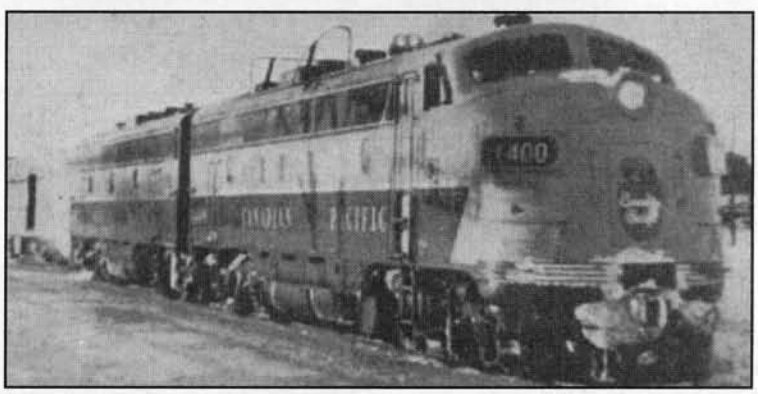
With a soft flurry of steam No.30585 pulls a modern coach into the siding at Wadebridge.

OLD AND NEW IN NORTH AMERICA

ONE ENGINE CLIMBS A MOUNTAIN; THE OTHER CROSSES A CONTINENT. ROY COLLETT FROM ABINGDON SAW THEM BOTH







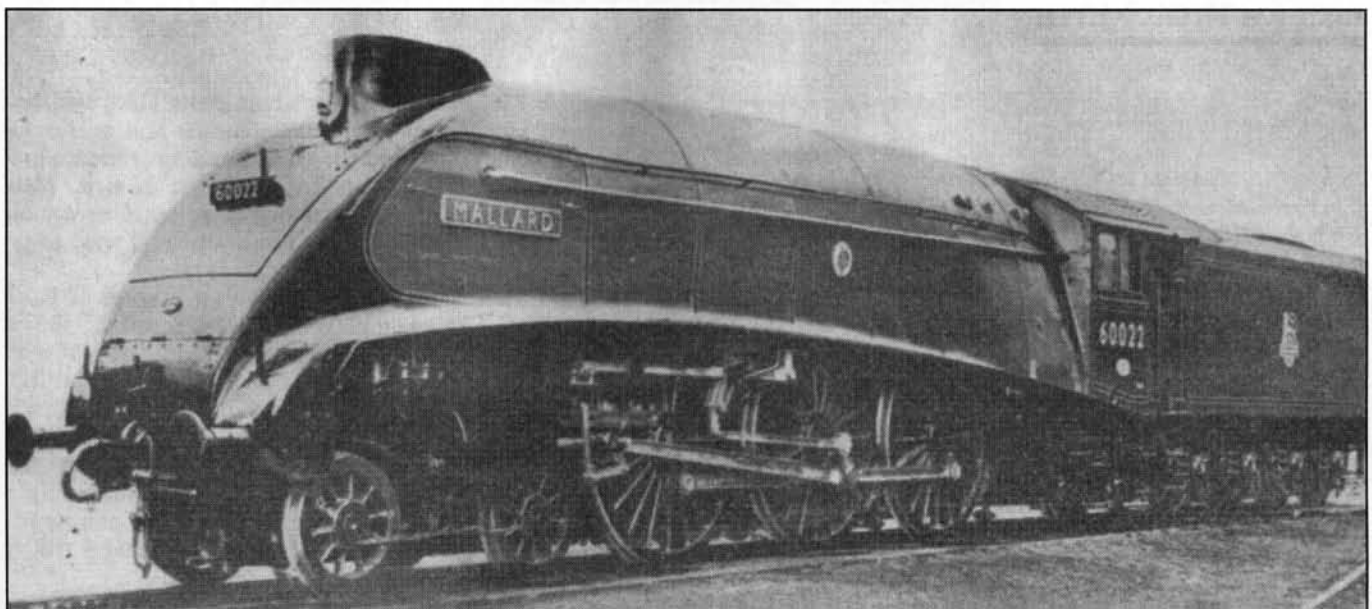
Readers may be interested in these two contrasting types of locomotive in North America. The steam loco hauls tourists to the summit of Mount Washington in the Presidential range of the White Mountains, Hew Hampshire. The 3¼ miles of track must be among the steepest in the world, some sections rise 2ft. vertically for every 5ft. forward. It is a single track with points midway to allow the trains to pass. Here passengers can disembark and observe an interesting optical illusion. The train appears to be in a horizontal plane, while the passengers seem to be leaning over at an acute angle!

On the summit, 6,288ft. up, the view across the New England countryside is superb. Going downward, the engine travels in reverse, and the guide-cum-guard-cum-point operator, is kept busy manipulating the brake. All in all, it is a memorable trip, if a grimy one owing to the extravagant amount of smoke from the chimney. There is also an auto route to the summit, but no staunch subscriber to the M.E. would deign to use it. The diesel is the Canadian Pacific's crack *Canadian* which runs between Montreal and Vancouver. It is eastbound for Montreal, and is standing in Chalk River Station, Ontario, the alighting point for the atomic energy plant on the Ottawa River. (Sounds really idyllic).

In the days of steam, Chalk River was a refuelling stop, but with diesel engines this service is no longer required.

There are six *Canadians*. Three travel East and three West. The trip takes three and a half days.

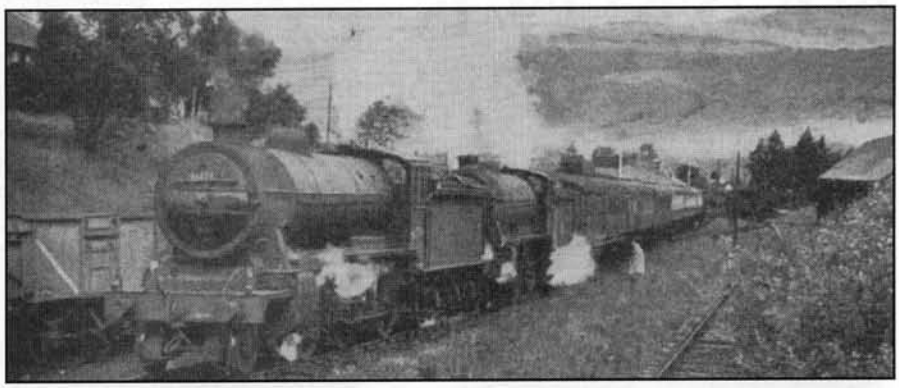
Place of honour *Mallard*, retired after a million and a half miles of service, is to rest in a place of honour. The 168 ton engine and tender was taken last month (1964) to the Museum of British Transport where it will be the largest exhibit on show in the Hall of Fame. Mallard has been restored to garter blue livery under the direction of Mr. John H. Scholes.



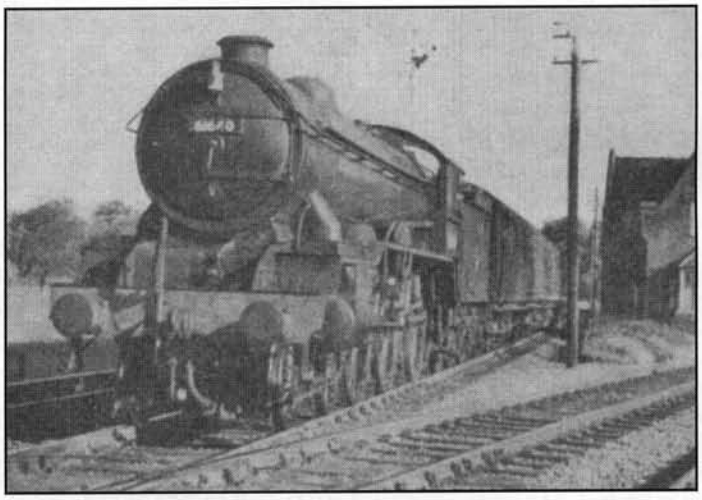
September 1962

Three thousand gone —so far

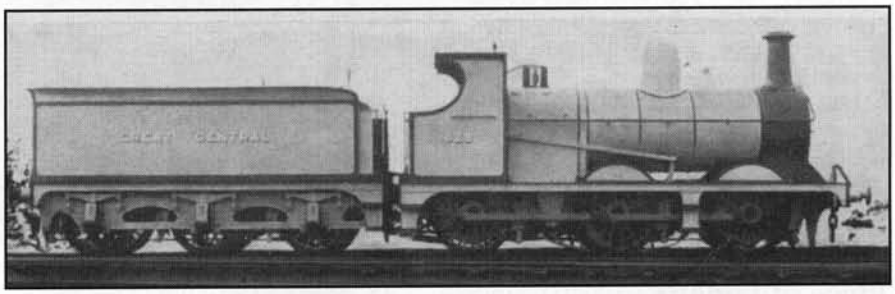
ROBIN ORCHARD BEGINS A GENERAL SURVEY OF THE ENGINES WHICH HAVE VANISHED IN RECENT YEARS FROM THE RAILWAYS OF BRITAIN.



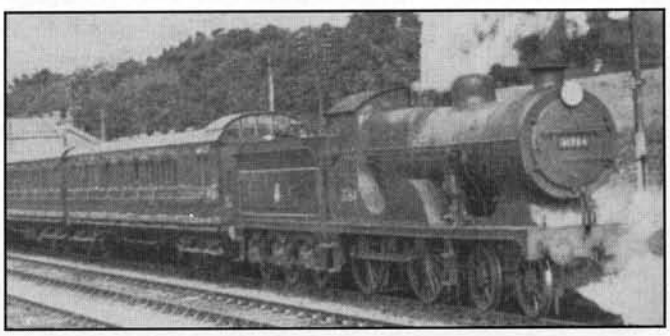
It is 1951 and two Scottish K2-2 Moguls are leaving Cranlarich in the Highlands. E.R. Morten took the Photo—which is reproduced, together with J.A. Colley's picture, by courtesy of the RAILWAY MAGAZINE.



No.61640, SOMERLEYTON HALL, one of the Sandringhams, photographed by J.A. Colley at Shepreth Junction, Cambs., in May 1957.



These GCR 0-6-0s became the LNER J10s. Here is a picture of one of them in the GCR livery.



No.31764 L class 4-4-0 at Crowhurst in Sussex during the 1950s. The birdcage coaches, like the Ls, have now gone.

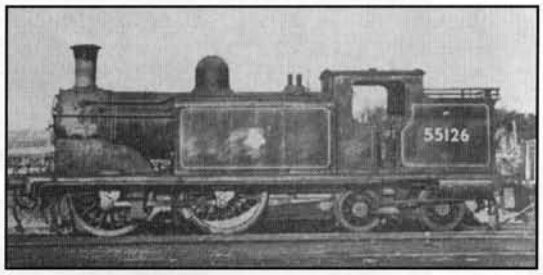
DURING the two and a quarter years that this series has been running in M.E., over 3000 of our steam locomotives have been scrapped and 61 separate classes have become extinct. Altogether 28 classes of tender engine have gone, the largest locos to be scrapped were the A2-1 and A2-2 class Pacifics, these were the two guinea-pig classes of Pacific, *Cock o' the North* and *Earl Marischal*, (after receiving the *Thompson* treatment). Of the 21 classes of 4-6-0 in service 28 months ago, four have vanished—the H15s of the *Southern*, the B12s and B17s of the *Eastern* and the B16-1s of the *North-East*. The last engine to survive was 61572, one of the B12/3s. On withdrawal, she was not scrapped as some enthusiasts hope to buy her. We now turn to the *Sandringhams*, built as successors to the 1500s. It is ironic that the last B12 should have outlived them. The Sandringhams were introduced in 1928 and a further batch in 1936 for the Great Central section, "the footballers". Two of these were rebuilt in 1937 with streamlining, for working the East Anglian, 2859 *East Anglian* and 2870 *City of London*. Four classes of mogul have gone; the K2-1, K2-2, K4 and K1-1, all used in Scotland. The highest casualties have been amongst the 4-4-0s, where no fewer than 14 classes have fallen. The Dukedogs, T9s Compounds, Glens Claud Hamiltons both sets of Directors, the Hunts, and the Shires. About 200 of the engines scrapped in the past two years were 4-4-0's, five I have not yet mentioned, are the *North British* Scott class and the *Southern* E1, D1, L and L1 classes. The 0-6-0s are traditionally the maids-of-all-work on the railways. Four types have gone, the O1 and C2X of the Southern and J21 and J10 of the *Eastern*. ***(The C2X was the basis for LBSC's 5in. gauge Minx)***.

It is the tank engine that has suffered most in the past two and a half years. The small shunting tank has been cut unmercifully as the number of diesel shunters has risen. Suburban and branch tanks, some of them big and very handsome, have passed to the scrap-heap quickly because of the rapid introduction of diesel railcars, the pruning of unremunerative services, and the wholesale electrification of various parts of the country. Over 30 classes of tank have gone, and over 20 of them were smaller than 0-6-2Ts. Among the larger were *NER* 4-8-0T, T1, *GCR* A5 and *LNER* A8 4-6-2Ts. The 4-4-2Ts are also on the brink. When this series began there were four types, now only one remains the C16 of the Scottish. The three that have gone are the C15s of the Scottish, the 0415s of the *Southern* and the last of the old *Tilbury* tanks on the *Midland*. The 0415s were, of course, the *Adams* radial tanks used on the Lyme Regis branch. In ten years time, according to *Sir Steuart Mitchell*, member of the *BTC*, steam will have been eliminated from BR completely. Roughly, this means that over the next decade a thousand locos must be cut-up every year. In M. E. of 1972, someone may well be writing about the end of locos built in the '50s and '60s. For this article, the period of the mid-1930s is recent enough.

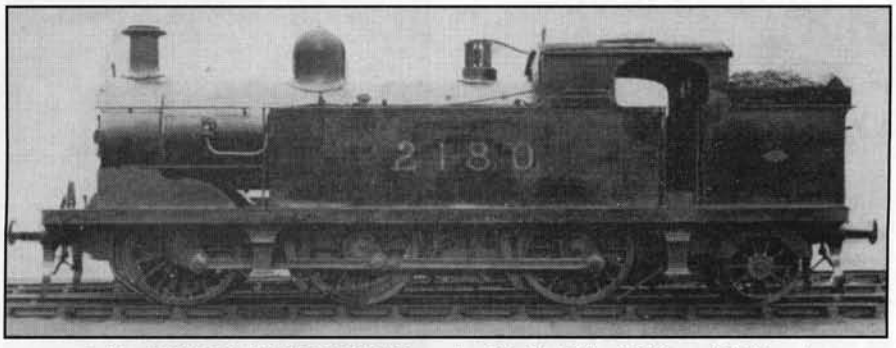
It was in that period that *Stanier* gave the *LTSR* a tonic by designing a series of 3-cylinder 2-6-4Ts expressly for the system. Anyone who travelled on the commuter trains in those days will tell you how well they went. They soon followed the old *Tilbury* 4-4-2Ts into oblivion. Electrification made them redundant. One sweep saw the end of 20. Fortunately, one of the engines is to be retained by the *BTC* for preservation. Where it will finally come to rest is as yet unknown to me. The only six-coupled tank on the *Western Region* to disappear over the past two and a half years was the 3103, five non-standard 2-6-2Ts. During the same period, the last 2-4-2Ts in service on BR disappeared, the *L&YR* engines built by *Aspinall. The L&Y* built more than 300 of them over the years. Of the nine classes of 0-6-2Ts on service in 1960, three have gone for ever. They are the N5 and N10 from the *Eastern Region* lists and the Tilbury 0-6-2Ts in the *Midland* numbering. No.41891 had two claims to fame. It was the last 0-6-2T in service on the *London Midland Region* and also the last LTSR loco in *BR* service. The highest mortality rate amongst tank engines has been in the 0-6-0T classes. No fewer than ten have become extinct, four each from the *Southern and Eastern* lists and two from the *Midland*. Three of those in the *Eastern* numbering were old *NER* engines, J71, J73 and J77, the fourth was ex-*GER* J68. In 1948, the *Southern Region* inherited 126 0-6-0Ts from the old SR. All of them, with the exception of the 14 USA tanks, dated from the late 19th and early 20th century. Today (Nov.'62) there are only 30 left in service. The two largest classes were the *LBSCR E1s* and the *LSWR G6s*. The other two that have gone are the SECR R1 and P classes. From the *Midland* region two have gone, both were the last of their class, one was from the old *North London* line, the other a L&Y Klondyke. Of the 0-4-4Ts five classes have gone, all from the *Midland lists*.

It's not all gloom and doom however, some have escaped, the O2s that were sent to the I.o.W. are still in service, at the moment. Two of the P class are at the *Bluebell* line, as is the *North London tank*, another is at the *Kent and East Sussex Railway*, who also have an R1.

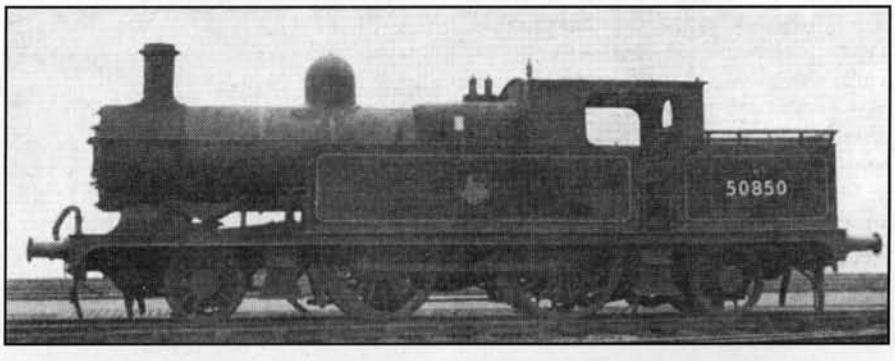
What of the future? I think the coming year is likely to see the end of at least another 60 classes. On the Western, the Kings and 4700s will probably go along with most of the tanks. The *Southern* should lose the Lord Nelsons and King Arthurs, together with most of the remaining tanks. From the *LMR* it is probable that Princess Pacifics and Patriots will be scrapped together with the 1912 and 1928 2P 4-4-0s, the 3F 0-6-0s, *Fowler* 2-6-2Ts and 4-6-2Ts. The *Eastern* should see the disappearance of the O and J series, the N2s and N7s and K2 2-6-0s. I believe that 1063 will also see a significant drop in the medium size tank and mixed traffic engines. As far as express engines are concerned, it is difficult to prophesy. Are they to be kept and given more freight duties, while the mixed traffic engines are scrapped, or vice versa? I think there will be a compromise, and that Pacifics, Moguls and Consolidations will be cut, leaking a hardcore of 4-6-0s.



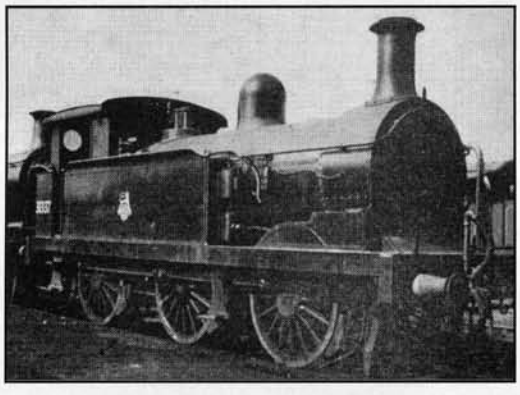
Sunlight falls on the rusty limbs of a 65 year-old tank, last of the 1897 batch of Caledonian 0-4-4Ts.



Original LTSR 0-6-2T CORRINGHAM, repainted by the Midland Railway. (BR Picture)

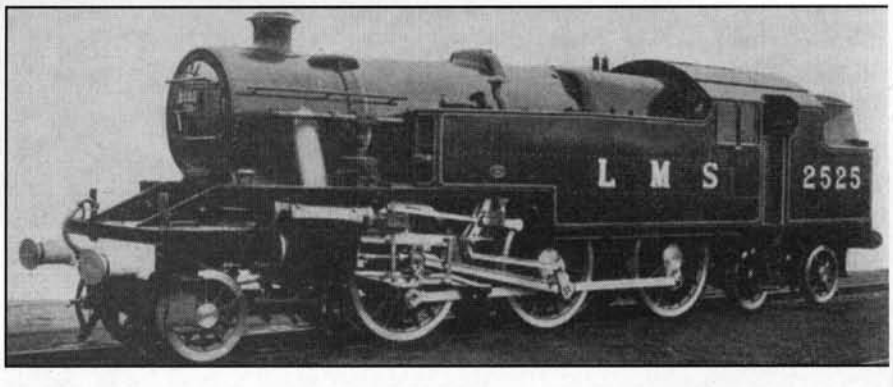


Last L&Y Railway 2-4-2T in service—and last engine with this wheel arrangement to be operated by BR. (BR picture)



R1 0-6-0T No.31337, one of the engines which were employed on the banking of boat trains at the harbour in Folkestone.

BELOW: One of the fine Stanier three-cylinder 2-6-4Ts introduced in the 1930s for working the LTSR system. *(Photo. by BR)*



CENTENNIAL CELEBRATION COLLECTION

December 1962

The invincible Castle

By ROBIN ORCHARD
C.B. COLLETT'S DESIGN WAS A NOBLE PERFORMER

THE train pulled slowly away from Swindon platform. To the passengers it was just another journey. What a surprise awaited them!

It began to accelerate and the speed crept up and up. By Shrivenham, a mere 52 miles out, passengers were being jostled along at a merry 80 m.p.h. There was no let up. On the slightly falling grades, speed continued to rise. Didcot flashed in and out of view the wheels clattering over the joints at more than 90 m.p.h. The speed stayed continuously above the 90 mark. Through Cholsey and Goring, there was a slight check to 89 m.p.h. for the troughs! Then back to 90 for Pangbourne and Tilehurst. The train slowed a little as it raced through Reading, and then over the next 35 miles the pace gradually wound down to 80 m.p.h. Finally, it ran into Paddington having completed the 77.3 miles from Swindon in 56 minutes 47 seconds. A start-to-stop average of 81.68 m.p.h.

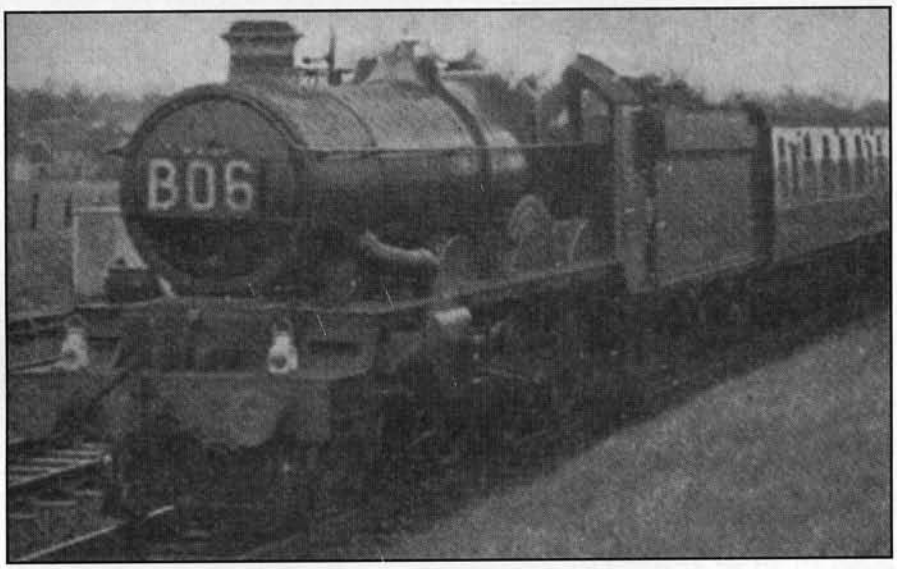
The date? Not 1962 but 1932. Thc engine? Not a Warship, but a Castle. June 5, 1932 was the memorable day when 5006 *Tregenna Castle* threw the *GWR* to the top of high-speed rail travel. It was the era of the Cheltenham Flyer; the great days of the *GWR.*

Today *Tregenna Castle* is but a memory, for like many of her sisters in this famous railway class, she has run her last journey.

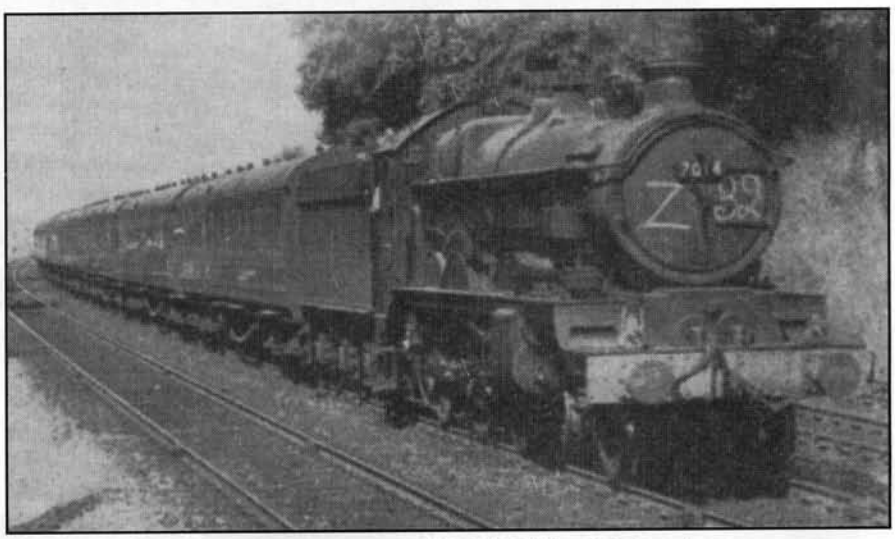
But let us go back to 1923, the year that the Castles were born. The *Stars* were then the premier GWR locomotives. Deep in Swindon works plans were afoot to produce a larger engine based on the successful Star. *George Jackson Churchward*, designer of these wonderful machines, was no longer at the Wiltshire railway town, but he had left behind his able assistant *C. B. Collett*. He was a brilliant man who could take Churchward's fine engines and produce still better results. The Castles were the first of his express engines.

The first of the class was the famous 4073 *Caerphilly Castle*. She left Swindon in August 1923, herald of a long and distinguished line

The completion of 4082 in April 1924 coincided with a very historic occasion, for on April 28, their Majesties King George V and Queen Mary visited Swindon works. The King drove 4082 from the works to the station, an event that was commemorated by brass plaques fitted to the cab sides. For *Caerphilly Castle*, 1924 was an easy year. Most of the time she stood on the GWR stand at the Wembley Exhibition, across the gangway from one of Nigel Gresley's crack Pacifics.



West to shores of romance.



No.7014, CAERHAYS CASTLE drifts quietly through.

Funeral train of King George VI. Engine was BRISTOL CASTLE, but WINDSOR CASTLE was on the nameplate.

ATC equipment was fitted. The GWR showed great foresight in fitting this, but how long it took the rest of the country to see the light.

One of the events of the year, as far as the Castles were concerned, was the exchange trials between the GWR and the LNER. The LNER sent three-cylinder *Gresley Pacific No 4474* to the GWR, In return, they received 4079 *Pendennis Castle*. The trials were held to discover not only what the engines could pull, but how economical they were. They lasted for a fortnight, during which the locomotives worked a variety of trains over varying distances.

Some of the results were staggering. The Pacific sailed over the South Devon "mountains" in a fashion unsurpassed by the GWR, The Castle showed that a "little" engine could haul the heaviest train out of Kings Cross and up through the tunnels not only without slipping but in far less time than anything the LNER could attain.

It was the *Castle* that came out on top in fuel consumption too. *Gresley* was very impressed by the results and various slight modifications, based on *GWR* practice, were later made to his Pacifics.

The GWR were cock-a-hoop over the results and immediately replaced *Caerphilly Castle* at the Wembley Exhibition with *Pendennis Castle*.

In three years the Castles rose to become the best of *C.B. Collett's* engines. Even the massive Kings which Collett was then planning did not become all-rounders like the Castles.

During 1926 No 5000 *Launceston Castle* was loaned to the *LMS* for tests between it and C. J. Bowen Cooke's *ex-LNWR Claughton class 4-6-0s*. The Castle worked over the Euston-Crewe and Crewe-Carlisle lines, with the Claughton working the alternate turns. Once again, the Castle recorded phenomenal fuel economy.

When the war ended and life returned to something like normal, the construction of new Castles resumed.

More new Castles were built in 1948, and 7007 was re-christened *Great Western* in recognition of the fact that it was the last locomotive constructed by the old company. On the centre splashers it carries the old *GWR* crest.

For all the 1948 engines new names were found. The last of the batch, No 7017, was named *G. J. Churchward* after the famous designer. It was a pity that C. B. Collett was not so honoured as well.

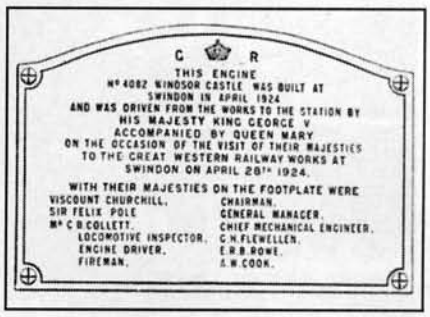
With the ten new engines built in the following year, a return was made to the displaced names. For the very last of all, No 7037, *Swindon* was chosen. The nameplate was unveiled by HRH Princess Elizabeth, and the name commemorated the jubilee of the Borough of Swindon.

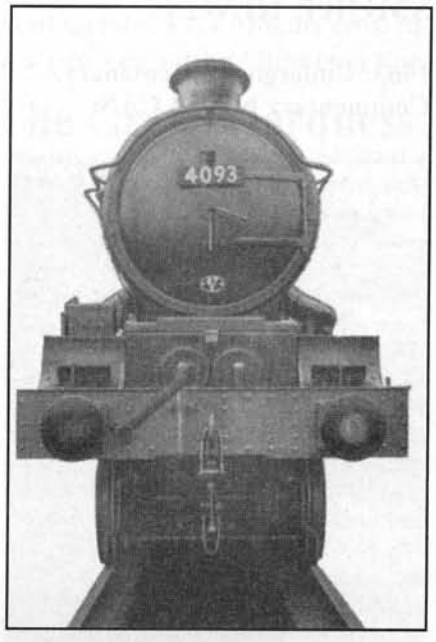
February 6 1952 was a black day: King George Vl died suddenly at Sandringham. His body was brought from the country to London by train—duties like this have long been the prerogative of the railways—on February 11. The train was hauled from the local station to Kings; Lynn by Sandringham class 4-6-0 61617 *Ford Castle*, and thence to the capital by Pacific No 70000 *Britannia*. For the last journey, over the Western Region to Windsor, the engine selected was 7013 Bristol Castle, but the name on the plate when the train left Paddington on February 13 was *Windsor Castle*. It was more fitting that *Windsor Castle*, with its royal associations, should be used, but at that time this engine was being overhauled, and so the plates were transferred, for the journey, to Bristol Castle.

Wardour Castle, the name bestowed on 5066, was replaced in 1956 by *Sir Felix Pole*, in memory of the former GWR chairman.

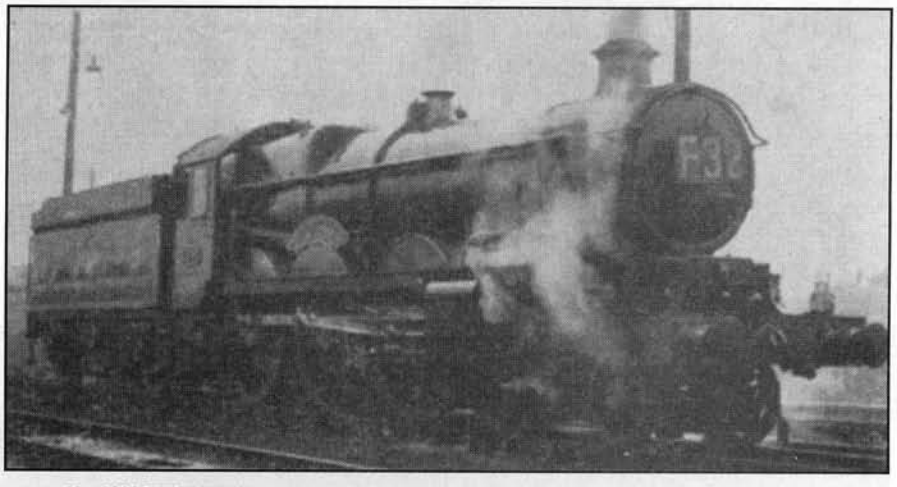
The Castles never became a complete class; for before the last of them were built the first scrappings had been made.

The first of the class to be scrapped was No.100 *A1 Lloyds*, which went early in 1950, two more in 1951 and No.111, *Viscount Churchill* in 1953. Between 1957 and 1962 another 60 were cut up, but *Caerphilly Castle* has been restored and presented to the Science Museum.

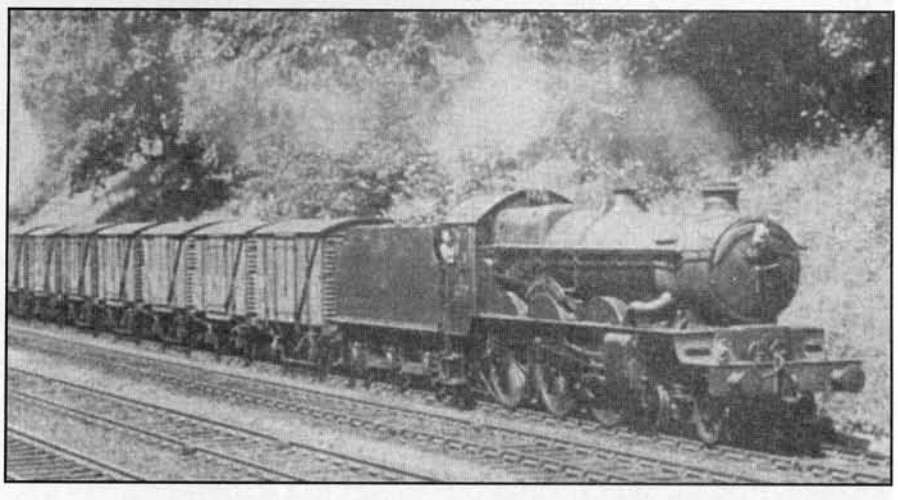




No. 4093 DUNSTER CASTLE in final guise—mechanical lubricators, double chimney, four-row superheater.



No. 5082 SWORDFISH at Old Oak Common, London, before she was destroyed by the torch.



Time's changes: 5014 GOODRICH CASTLE working a freight.

SMOKE RINGS

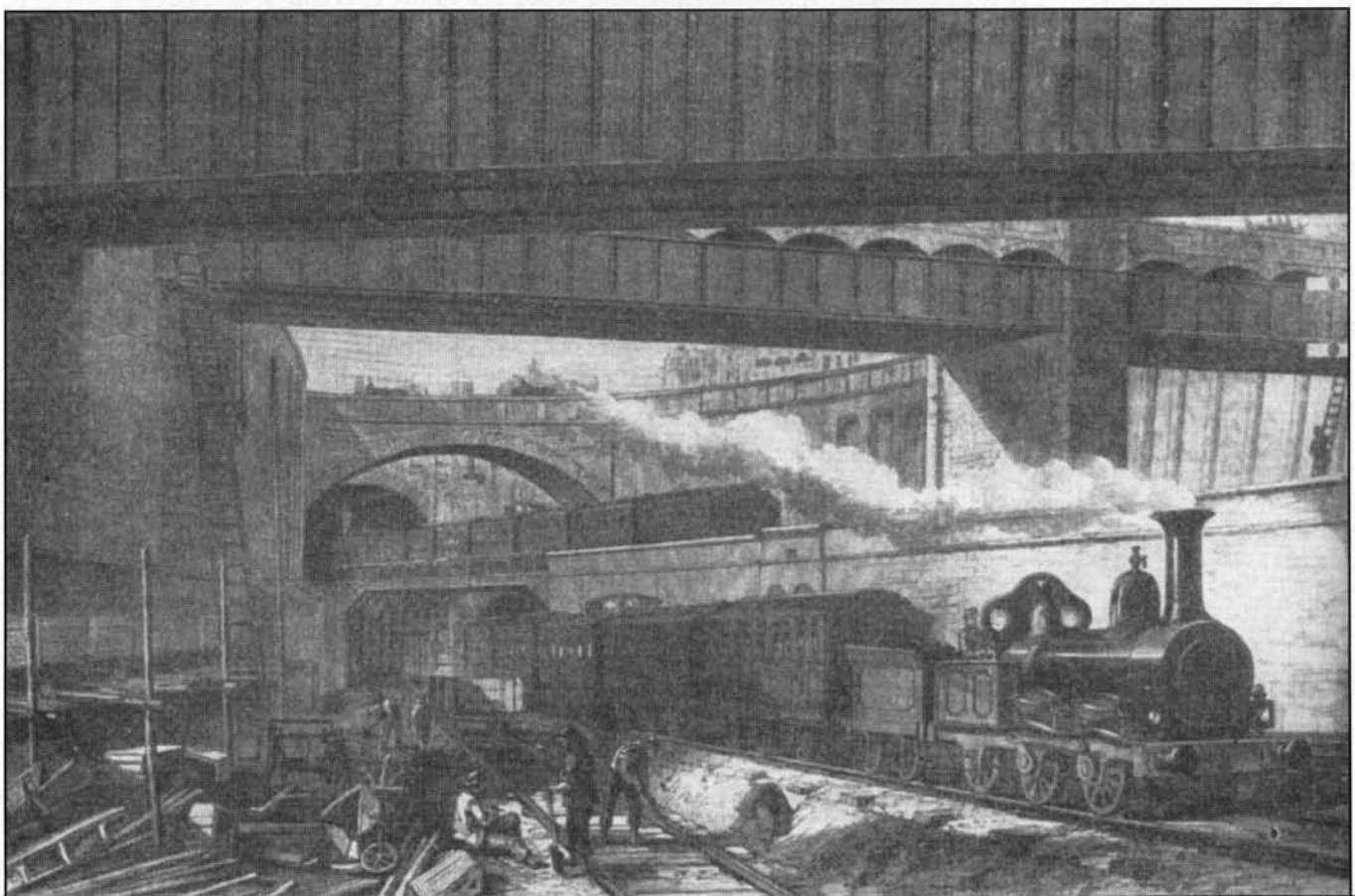
1963: Undergound Centenary.– Commentary by VULCAN

First and last—No.23 closes the parade, pushed this time by a four-car "silver train"

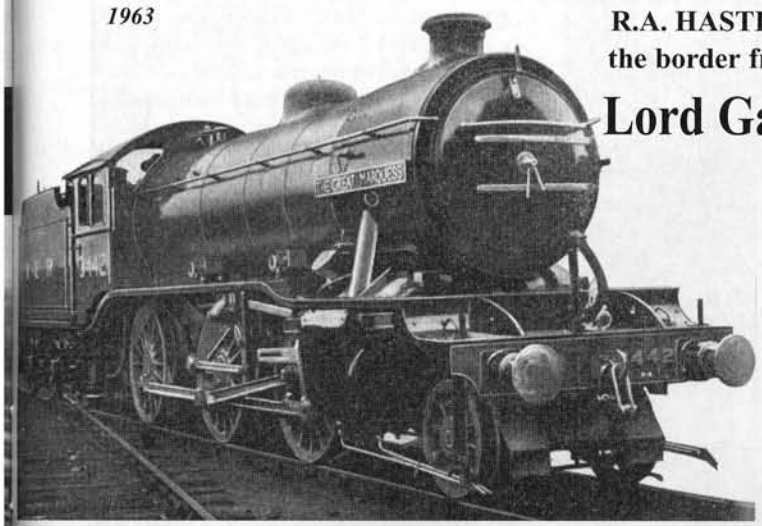
A THOUSAND people sat in the stand at Neasden Depot in May watching the trains go by. Fittingly heading the roll-past was the 97-year old No.23, a veteran A class Metro steam loco, which served the Circle Line until electrification in 1905. Subsequently it did leisurely duties on the Brill branch in Bucks., then on engineers trains. In 1948, The Old Girl, as the locomotive was affectionately termed, was withdrawn, restored and sent to the Transport Museum at Clapham. Four early bogie coaches, from the first batch to operate on the main Chiltern services, were hauled by an E class 0-4-4 tank. The coaches are now owned by the *Bluebell Line*. *John Lyon* is one of four electric locos preserved from the fleet which hauled compartment stock on the Aylesbury run (converting to steam at Rickmansworth) before the electrification to Amersham and the introduction of the A60 "silver trains". *John Lyon* was in magnificent livery at the head of its six-coach train. And so went the parade, giving us an hour's nostalgic journey into the past—there was F class stock, first introduced in 1921 and still in use in East London, then P class (first with regenerative braking); several classes of tube stock, and the modern A class with its fluorescent lighting and rubber suspension—showing the progress in moving London's millions over the past century.

One hundred years through the earth. A few months before the *Metropolitan Line* began its first public service in 1863, *Gladstone* made a preliminary trip with other notables in an open contractors wagon. Did he realise, I wonder, in making the short journey from Paddington to Farringdon, that he was looking at the first few miles of what was to become, 100 years later, the most complex underground railway system in the world…Pushing the Metro on to Moorgate created a traffic hazard and to keep the two services clear of each other and allow *GN* trains easy access to Smithfield depot, the tracks were quadrupled back to Kings Cross, and the *GN* metals were passed under the Met lines so that they emerged 16ft. lower at the approach to Farringdon. They thus ran alongside Smithfield depot, which lies between Farringdon and Aldersgate. Subsequently, *Midland* trains also reached Moorgate, plunging into the London clay to the north of St. Pancras, and joining the GN lines south of Kings Cross; providing one of the quickest exits from the City for commuters on the St. Albans line.

Eastern end of Clerkenwell tunnel where the Great Northern metals dive under the Metropolitan just outside Farringdon Station. A new concrete bridge replaced the old iron structure a few years ago.



1963



R.A. HASTINGS tells how the last of Gresley's K4 Moguls crossed the border from Scotland to begin a new era on the Middleton line

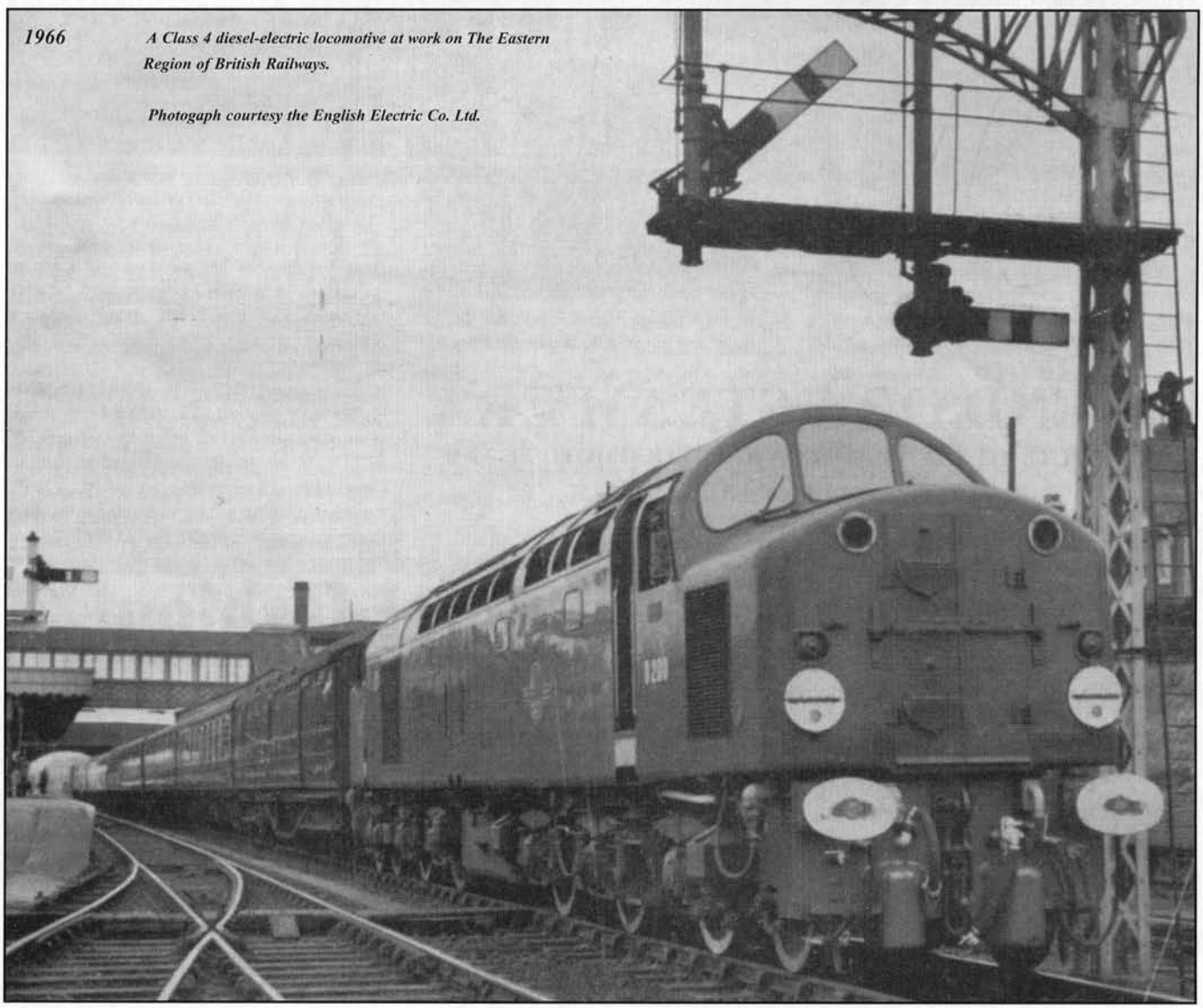
Lord Garnock buys The Great Marquess

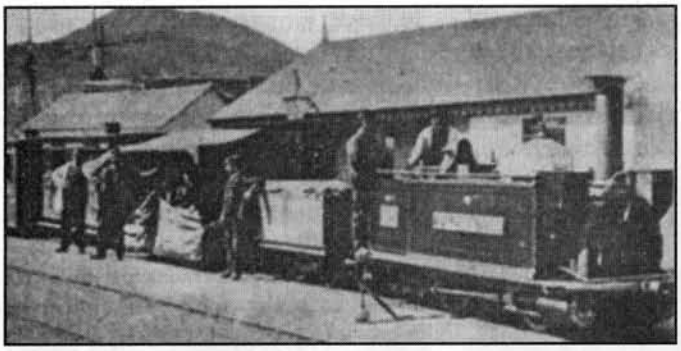
IT is clear that *The Great Marquess*, the last of *Gresleys* splendid K4 Moguls, which has been bought by *Viscount Garnock*, is going to be well looked after. Her own line is being rebuilt and a new shed constructed. *Viscount Garnock* will put her to useful purpose on his *Middleton Railway* in Yorkshire, and occasionally on excusions. *The Middleton Railway*, measuring four miles, is the oldest railway in the world, Said *Lord Garnock*. It started operating under a charter of 1785 and is the only railway now in its third century. The K4s are certainly the most powerful 2-6-0s in Britain, and probably in the world.

1966

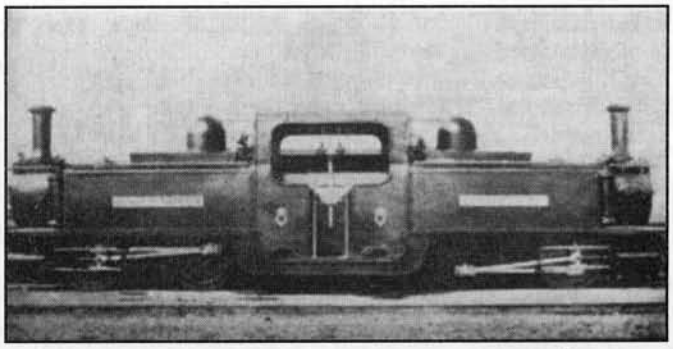
A Class 4 diesel-electric locomotive at work on The Eastern Region of British Railways.

Photogaph courtesy the English Electric Co. Ltd.





Portmadoc harbour station: late 19th century.



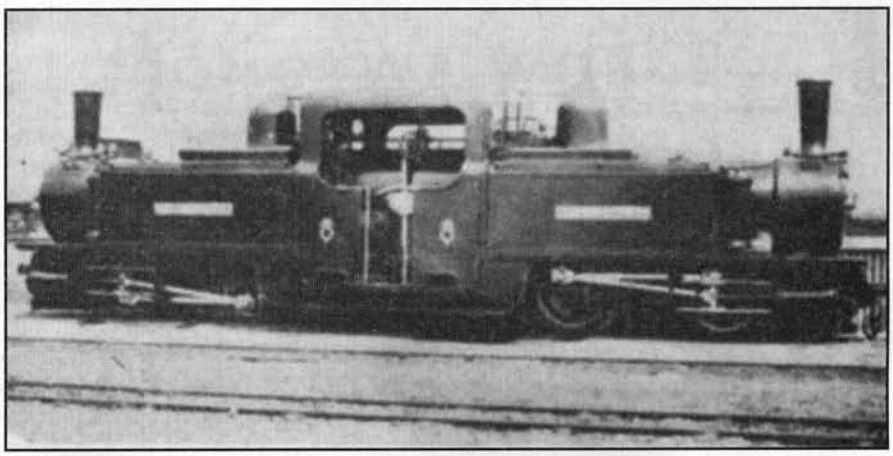
"Merddin Emrys," built at Boston Lodge Works 1879 and still in service.

Festiniog railway. ALTHOUGH narrow gauge railways are not directly connected with model engineering, there is no doubt that many of our readers are keenly interested in the efforts of enthusiasts to keep them in service.

This year marks the 20th anniversary of the closure of the *Festiniog Railway*, one of the most interesting of the narrow gauge lines in North Wales. It was in 1954, after some three years of difficult and frustrating negotiations, that the *Festiniog Railway Society* began to emerge, and the efforts of this society culminated in the railway company passing into new hands, and in the re-opening of the first mile of track in 1955. *The Festiniog* is notable for the two double-ended *Fairlie* locomotives, unique in this country today. The first *Fairlie, Little Wonder*, was introduced in 1869, the two engines working today were built in 1879 and 1885 respectively. The railway was also one of the first in the world, of any gauge, to operate bogie passenger coaches.

In its heyday, the railway carried around 150,000 tons of freight—mainly slate from the Blaenau Ffestiniog quarries—and 160,000 passengers a year. Today, the line is worked as far as Tan-y-Bwlch; but now the sights of the Company and the Society are set further ahead in promoting an extension to Ddaullt and beyond to Blaenau Ffestiniog itself.

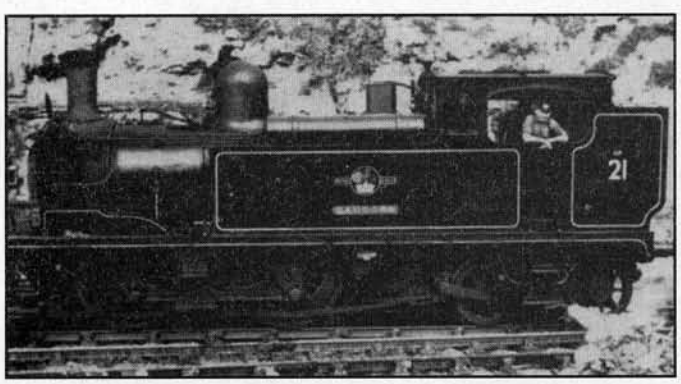
(I wonder how many folk, reading this back in 1966, thought that they would succeed in getting to Blaenau? Personally I never doubted, "they've got no chance," I said, with all my customary insight.).



"Livingston Thompson," re-named "Taliesin" and later, "Earl of Merioneth." Still in service.

1967: END OF A STEAM ERA

A TRIBUTE TO THE ISLE-OF-WIGHT LOCOMOTIVES AND THEIR CREWS BY DON YOUNG.



THIS is a tribute to steam locomotives and their crews, as under the current modernisation scheme, steam operation ended on the Island system on December 31, 1966. So ends a chapter in local history extending continuously from 1862.

The line between Ryde Pier Head and Shanklin is due to re-open before Easter with operation by renovated Underground stock of 1929 vintage with the promise of better service; time alone will tell. The last Brighton "Terrier" left the island in 1949 and our Editor has already ensured their place in model loco history. Similarly, the E1 goods engines, which became extinct in 1963, were recorded by the camera of *Brian Western*. We are therefore concerned with the remaining clan of O2s, built by *Adams* at Nine Elms in 1889 and 90 for the *LSWR*. They were transferred to the island between 1923 and 1948. Cylinders 17½ by 24in., wheels 4ft. 10in., tractive effort 12,672lb. (Some 18 locos were running, on and off, in 1963,. Don gives a full list and comments, but again, space does not permit. See [133/221]). No.14 *Fishbourne*. The oldest engine of the class on the island and probably the oldest engine in the world to run in regular service on 4ft. 8½in. metals. ...etc.

We now arrive at the last few weeks of operation. As my efforts with the camera have been disappointing to say the least, the assistance of Guard *Ron Childs* was sought, with the results depicted; thank you *Ron*. It was very interesting noting the manner in which the crews left Shanklin for the last time, some put on a brave show with a whistle symphony and dare it be said, with one or two fog detonators nicely positioned for effect. So the day arrived and we wondered if No.14 would reappear to take the final train. *Mr Davis*, the locomotive foreman at Ryde informed me that it was his hope that No.14 would be able to assist with No. 1215 on the LCGB Special from Ryde Esplanade to Shanklin which would be double-headed.

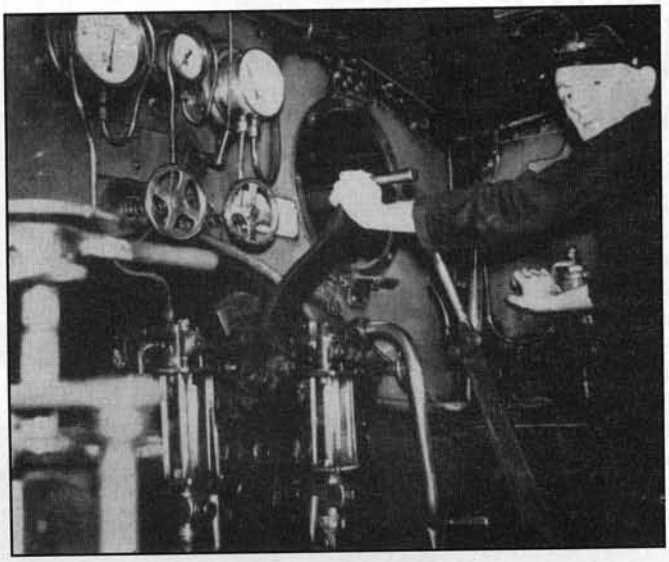
When viewed at the shed No.14 looked very dirty. Arriving at Ryde St.Johns shed, I was met by an "armed" guard as some "enthusiasts" had been removing souvenirs. It was through this stupid action that a team of volunteer cleaners had to be refused admission to polish some engines for the last day. Since I had a pass, I was granted admission. There were Nos. 24 and 31 coupled together, in fairly clean condition, ready to work the LCGB special and, lo and behold No.14, not quite as clean, having already been out, waiting for her next turn. The Special was worked efficiently but without any spectacular performance. We now move through the rest of the day of crowded trains up to the very last. Due to work on Ryde Pier, each train had an engine at each end, so at approximately 2110 No.14 left St.Johns station at the rear of her train. The Portsmouth boat, as so often happens, was approx. 20 minutes late, so I took the opportunity to check the footplate occupants. In addition to the driver and fireman, there were firmly encamped the Island MP, a BBC commentator, Mr. Davis and A.N. Other, how could a decent run be made under these conditions, coupled with the fact that the engine had lain untouched for over two months? I returned to my compartment and glumly awaited departure, which took place in a crescendo of fireworks, detonators, whistling and cheering around No.2150. Away we went sedately through the tunnel to Ryde St.Johns, where the rear engine was removed. The start from St.Johns was a bit more heartening, after a few beats the old lady primed slightly and had trouble finding her feet, but the slipping was well controlled and we got away quite smartly. Driver Harbour held the reins fairly tightly up through Whitefield Woods, giving her a sharp burst over the top so that the train ran swiftly into Brading. Leaving Brading the engine slipped momentarily in full gear, she was immediately notched up and we were away to a really fast run to Sandown, the exhaust beat nice and crisp with a slight crackle, (who said No.14 was on her last legs?) We left Sandown up the gradient with exhaust blasting again, then the sparks really flew, *Driver Harbour* let her go and leaving the regulator well over after passing Lake bridge, it was lineside cheers all the way to Shanklin. The return trip was full of emotion and of course mostly downhill, so we arrived almost back at St.Johns and for me the end of the journey when some hooligan pulled the communication cord. I slipped away quietly and home, with the satisfaction that No.14 had given of her best.

(There's always one, although it sounds, on this occasion, as if there was more than one! What a pity).

1972 (This is the first of a short series Don did on preservation and since it was on the IoW I thought it appropriate).

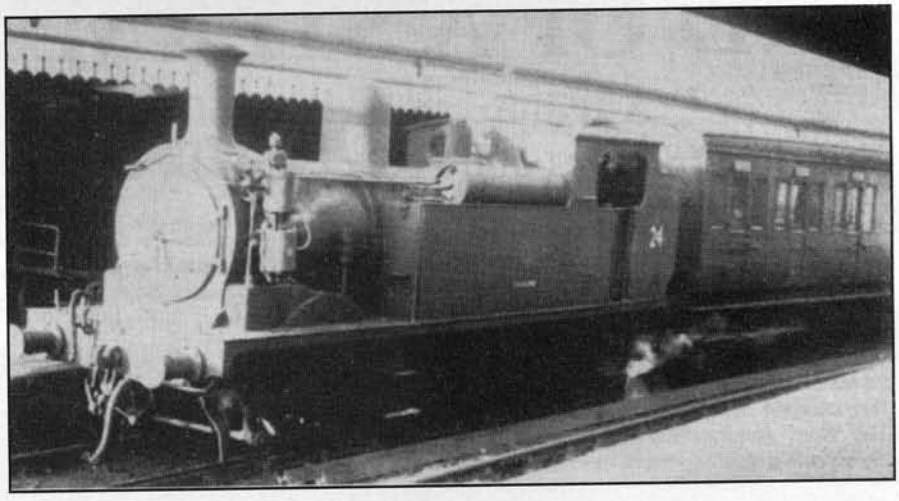
LOCOMOTIVE PRESERVATION.

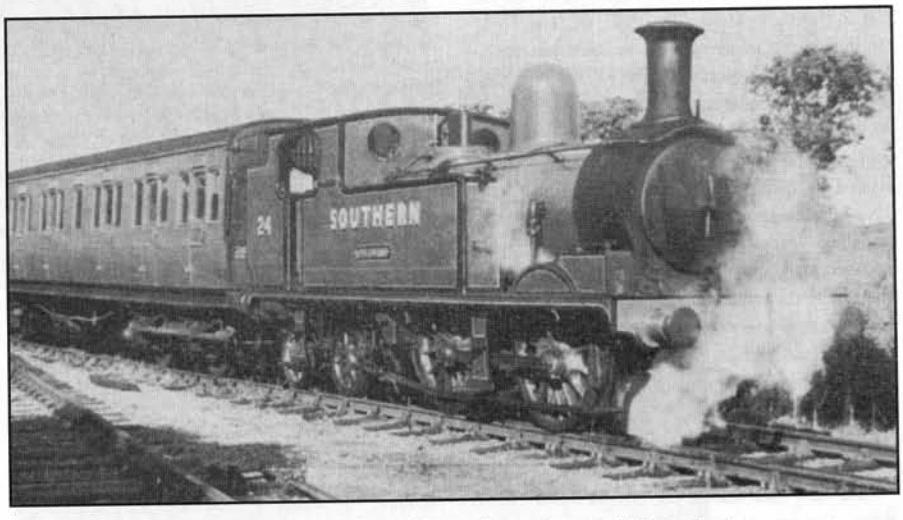
In 1972, yours truly has been able to visit many more depots than usual. Pride of place, as always must go to the Wight Locomotive Society; they have one of my favourite Class O2s, No.24 *Calbourne* in their care. The railway centre at Havenstreet is fast becoming a major tourist attraction. The year started with a serious permanent way drainage problem, now largely overcome. The 0-4-0 saddle-tank loco *Invincible* sailed through its boiler test, but *Calbourne* provided a real headache, with a crack in the bottom of the barrel. This was successfully welded, and she provided a good passenger service every summer Sunday. A diesel was acquired during the year, together with two Pullman coaches, and the stud was further strengthened in December by a Barclay tank. A quite healthy picture on the surface, but there are serious problems ahead. Calbourne is now a sedate 81 years old, still in very good order, but old age is creeping up relentlessly. This winter she is having a very extensive refit. Cab, side tanks and boiler are being removed, to allow refitting of the horns and axleboxes. A marathon programme; yours truly ought to be involved with the problems instead of writing about them.



This photo gives a good idea of the cab fittings in the ex-LSW 0-4-4 tank loco.

BELOW: No.24 Calbourne. The last engine of the series to have a refit.





Class O.2 No. 24 "Calbourne" eases six coaches out of Havenstreet.

LOCOMOTIVE PRESERVATION

by Don Young.

The first visit was to Bridgnorth, headquarters of the SVR. The stud of locos in running order and in process of being restored was most impressive. In the former category were locos of *LMS* origin; classes 2,5 and 8. Also a *GWR Collett* 0-6-0, No.3205. **(This loco has since gone west, geographically speaking, and now resides at the West Somerset line, well worth a visit)**. The *SVR* seems assured of a sparkling future, with plenty of schemes for expansion in the pipeline.

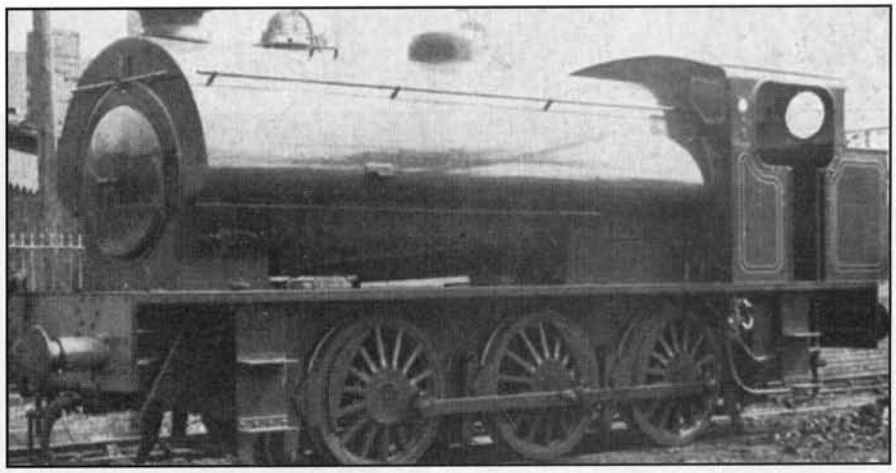
After Bridgnorth, the Standard Gauge Steam Trust at Tyseley was a bit of an anti-climax, at first sight, No.777 *Sir Lamiel* and No.925 *Cheltenham* were stored in the open and in a deplorable state. It being a non-open day there seemed little chance of a look inside until one of the members appeared. We were allowed in for about 15 minutes to examine a veritable treasure house of steam. The two "star" engines are *Kolhapur* and *Clun Castle*. Almost restored were a pair of LT pannier tanks, ex-GWR 7752 and 7760. But three engines riveted my attention; these were the class T9 No.120, a GNR saddle tank, J52, No.1248 and L&Y 2-4-2T, No.1008. The verdict must be that Tyseley is well worth a visit.

The same can be said of our next location, the GWR museum at Swindon. There is much to see, all tastefully displayed, not to be missed. Staying on GWR territory, the next visit was to Didcot. There were signs saying "This way for *Blue Peter*, a magnet that naturally drew me in that direction. With the exception of Castle class No.5051, *Earl Bathurst*, which was in appalling condition having only just been rescued from Barry, the engines were in excellent condition, *Burton Agnes Hall* being particularly notable. We emerged once more, to find a 2-6-2 "Prairie" tank coupled to a pair of rail motor coaches. Again, the engine was a credit to all concerned and No.6106 completed a wonderful afternoon with a crescendo of noise. The consensus of opinion, yours truly excepted, was that the GW engines outshone *Blue Peter*.

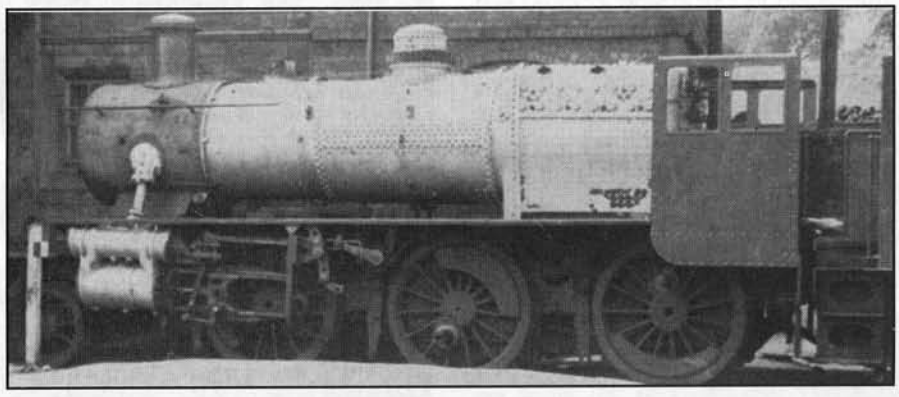
The scene has changed dramatically, for we have now moved on to former NER territory, to visit the *North Yorkshire Moors Railway*. We arrived at Grosmont, only minutes before the train was due to leave. Motive power was in the form of the huge boilered J27 0-6-0 tender engine, No.2392, built in 1923. At 12.55 we were away, part of our entourage being the Goathland Hounds. The train almost immediately entered the double tracked tunnel, leaving the tunnel, the lovely dale scenery unfolded. Meanwhile we were travelling ever upward on a gradient of 1 in 49, made worse by many sharp curves, when it was possible to photograph the engine almost broadside on from the last of the four heavy coaches! The exhaust beat gave further evidence of the hard fight that No.2392 was having to put up. At Goathland, the hounds detrained and we set off for the present terminus at Ellerbeck. (The line now goes to Pickering. Due to fire risk, steam haulage may be restricted during dry periods).

The last visit was to the *Keighley and Worth Valley*. The present stock list should have readers reaching for their maps to plot an expedition to Howarth and Oxenhope. A rebuilt "Royal Scot," two Class 5s, a BR 2-6-4T Class 4, A BR 4-6-0 of Class 4 (I think), an LMS 4F and a Midland 1F built in 1880. In contrast comes a *Wilson Worsdell* designed 0-6-0 tank, *Joem*. The design was prepared in 1898, but *Joem* was built in1951, praise indeed for the original design. Two engines particularly attracted my attention. The first was the ex-LMS Class 2 tank No.41241, for the reason that I worked on her sister 41242, at *Eastleigh* back in 1954. The other was No.957, a former L&Y 0-6-0 by that much-underrated engineer, *Barton Wright*.

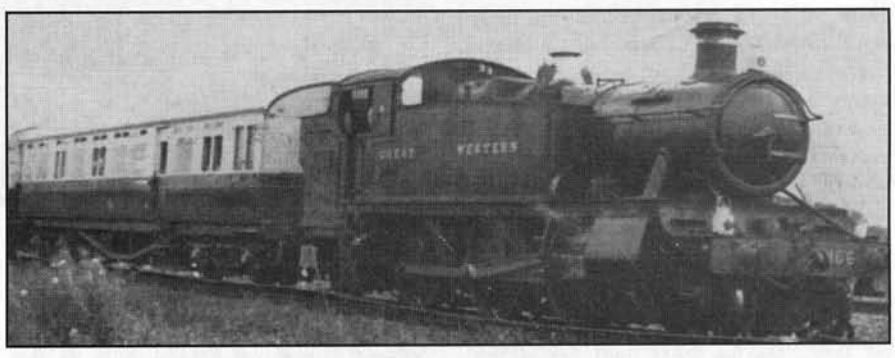
Let me conclude with two apologies. The first is to all the railways visited in not being able to do them full justice. The second is to the private owners, whose engines help keep preserved lines running, and who received no mention in this text.



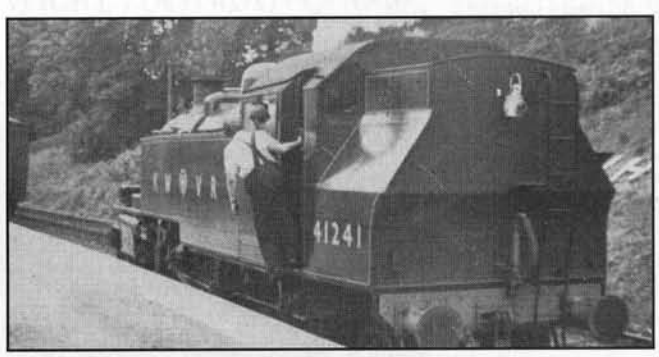
0-6-0 saddle tank at Bridgnorth



Ex-LMS Class 2, 2-6-0 locomotive being restored at Bridgnorth.



2-6-2 tank No.6106 hauls a special train at Didcot.

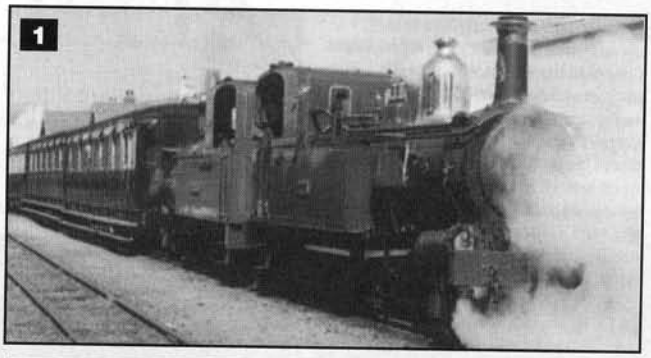


Ex-LMS Class 2, 2-6-4T shunting at Oxenhope.

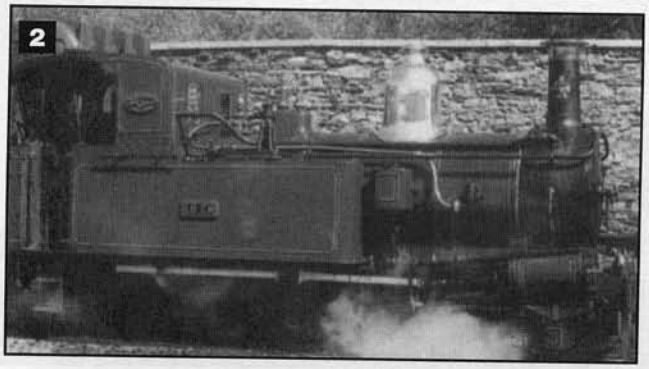
TED'S TRAVELS

THE ISLE OF MAN

1993: **Your editor continues with his account of a brief visit to the L.o.M. to explore some of the delights of this transport enthusiasts paradise.**



1: The top of the line at Port Erin; our train had engines Loch and Maitland running bunker to bunker for the return trip.



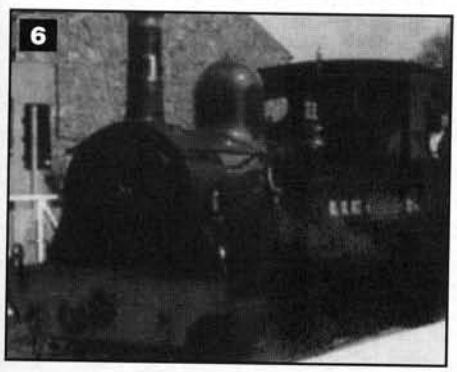
2: Loch poses for the camera just outside the loco shed and works at Douglas, these Isle of Man locos have classic lines and are always immaculately turned out.

Humbled by a train ride

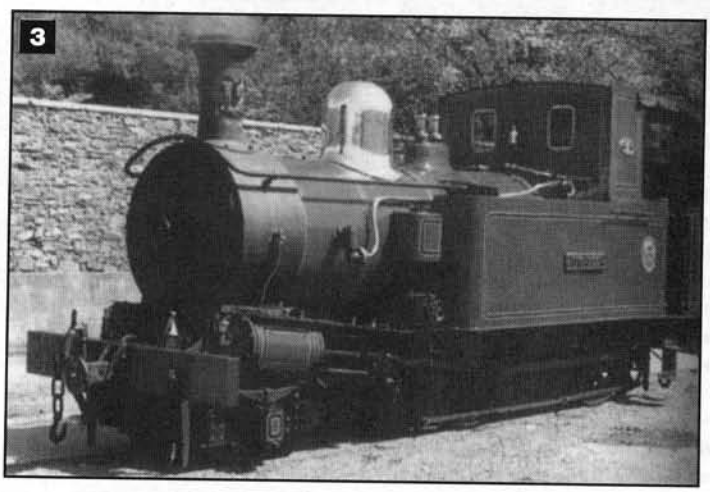
Next morning I had been invited to travel on a special double headed train from Douglas to Port Erin. On arrival at Douglas station, I found our engines, *Loch* and *Maitland*, setting on to the train. Maitland had previously been shipped by low loader to Laxey to work on the tramway as part of the celebrations. Precedent had been established for this when steam locos were used during the building of the line. On her return, she had purposely offloaded 'wrong way round'. Double headed, this provided a unique opportunity, on a lovely spring morning, to ride the line with the engines chimney to chimney. They made light work of the crowded eight-coach train, attacking the steeply graded line in spirited style. A bus load of enthusiasts trailed us and we soon got used to rounding a bend to be faced with a bank of photographers and video enthusiasts, all recording the set-up. Trains have not been seen in this configuration for 60 years and I felt proud to be participating in such an historic event.

When we arrived at Port Erin the engines and crews took some well earned refreshment. This gave the passengers the opportunity to briefly enjoy this delightful little town, or glimpse the exhibits in the railway museum. As befits the railway, the collection included many of the older style platelayers' tools, hand powered rail drills and rail cutting saws, together with a selection of locos, rolling stock and documents commemorating events in the history of the island's railway system. Deciding to change compartments for the return trip, I joined an elderly lady with her grandson. Chatting whilst waiting for the off, in response to my remark that this was an historic train she brought me, and all the other enthusiasts, down to earth with her remark, "Its just my regular train. We love the steamers, but we're only using it to go into town for the shopping and to return." This chance encounter restored the context of the railway—many enthusiasts had gone to considerable trouble and expense to witness this historic train on the move, and yet here was someone with her grandson, regarding the event as their normal everyday transport which, of course, is the primary purpose of the railway. How lucky are those brought up surrounded by this lovely, lively transport system. [171/92].

5: A photographers heaven: Caledonia makes way with the train up a fairly steeply graded portion of the line. With that dark smoke cloud it was relatively easy to chart the trains progress.



6: After a brief stop, Caledonia leaves the yard at Ballasalla some 8½ miles from Douglas.



3: Engine No.12, Hutchinson. She was rostered to bring up the next train after our double headed run.

Famous Locomotives of the World

BRITISH RAILWAYS (LMR) CLASS 7P 4-6-2 LOCOMOTIVE.

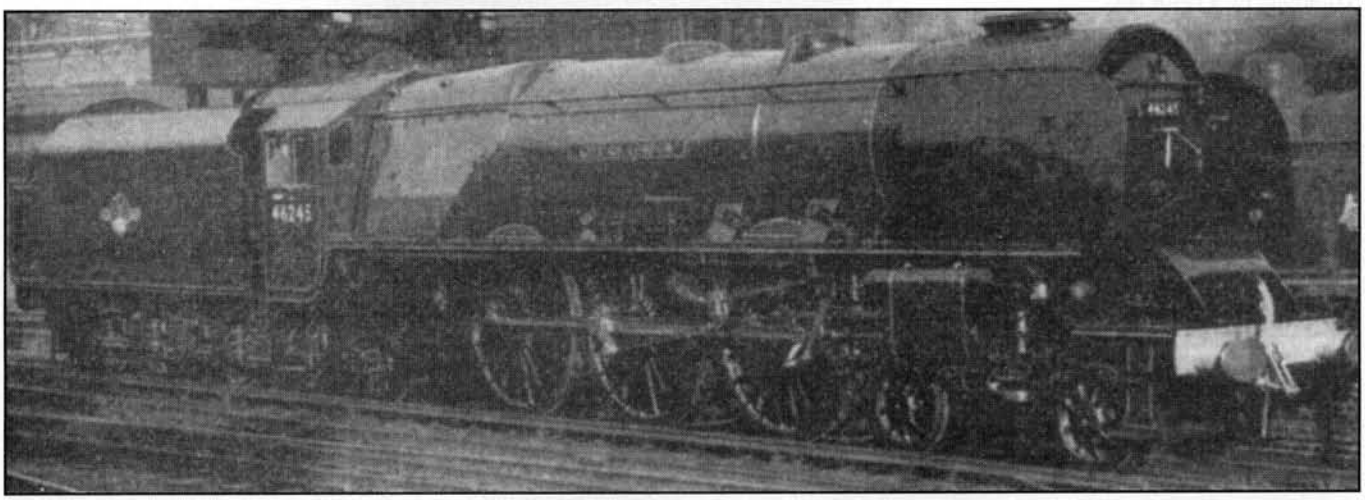
In 1933, the ex-LMS Railway put into service its first two pacific type locomotives, Nos 6200-l, to the deslgn of W. A. Stanier (later Sir William Stanier). These engines were a complete breakaway from previous Midland practice, following Swindon ideas on many points although a wide firebox and outside motion were adopted.

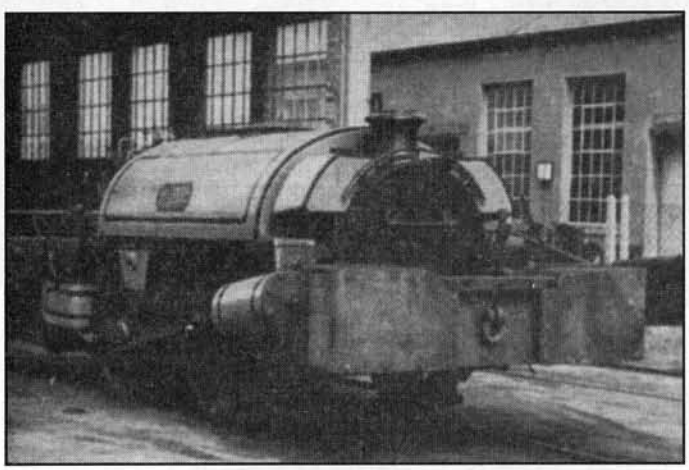
Four years later, improved Pacifics were built with larger wheels, bigger boilers, and detail improvements.

Further modifications; were made by Mr. H. G. lvatt just before thc railways were nationalised, and the leading particulars of thc later engines, as seen in my photograph, are as follows: driving wheels 6 ft 9 in.; cylinders (four) 161/2 by 28 in.; piston valves 9 in. dia., maximum valve travel 71/32 in. by two outside sets of Walschaerts gear.

Boiler working: pressure 250 p.s.i. heating surface 2,807 sq. ft., super-heater 830 sq. ft. (Nos 46256-7—979 sq. ft), grate area 50 sq. ft, tractive effort at 85 per cent WP 40,000 lb.

The performances set up by these fine engines are too well known to set down here, and although their showing in the 1948 trials was a little disappointing, they are still regarded as one of the best high-speed steam locomotives in Britain.—R.M.E.





SIXTY-FIVE IS TIME TO RETIRE

Beckton No 25, an unusual gas works engine, is to be preserved by the Industrial Locomotive Society

AFTER 65 years, locomotive No. 25 of the gas works at Beckton, seven miles east of Liverpool Street Station, is to be preserved. The engine has been taken over by the Industrial Loco-motive Society, through the co-operation of the North Thames Gas Board and the Bluebell Railway Limited.

No. 25 is in excellent mechanical and external condition. She spent 64½ years at Beckton Gas Works and in April last was moved to Southall Gas Works as a spare engine.

Visitors to Beckton Gas Works were surprised and amused at the appearance of the "Jumbos"—the local nickname given to the class of which No 25 was one.

The first of the class was ordered by the Chartered Gas Company, Beckton, and was built by Neilson and Company as No 3097 in 1883. She was num-bered 14 in the Gas Company's stock.

No. 16 of 1885 was also built by Neilson as No. 3451. At the same time an order was placed for a similar locomotive with Black Hawthorn and Company of Gateshead. The engine (No 865) was delivered in 1886 and numbered 17. After the company had changed its name to The Gas, Light and Coke Company, two more engines of the class were constructed. Both came from Neilson and Company, No. 4250 in 1890 and No. 5087 in 1896. They became Nos. 21 and 25. No.14 was scrapped in 1935. The remaining four survived to be taken over by the North Thames Gas Board in 1949.

The engines were designed to pass through the restricted entrances to the horizontal retort houses. Besides having no cabs, they were much restricted in overall height and were about 6ft 6in. to the top of the chimney. Their saddle tanks covered the boiler barrel only and did not extend over the smokebox or firebox. The cylinders were steeply inclined with valve chests above, and the valve spindle was operated by a rocking shaft driven by link motion between the frames. Single slide bars, together with the inclined cylinders, kept the more important works clear of damage from piles of coke by the lineside.

Hand and steam brakes were pro-vided, but it is not known whether the steam brake was fitted originally. Central sandboxes were placed ahead of the trailing wheels, and two more boxes fixed to the smokebox sides supplied sand to the leading wheels. The buffers were of the standard Beckton pattern-oak blocks faced with steel plate and beam. The engines were given Ross Pop valves by the late 1920s and it is assumed that they originally carried spring balance valves.

For the past thirty years at least, their livery has been apple-green, with a wide band edged on both sides by a white line. Coupling and side rods were in vermilion. The preservation of No 25. at Sheffield Park will provide a permanent example of a design peculiar to Beckton Works.—J. B. LATHAM.

LIGHT RAILWAY IN A BREWERY

J.D. TOWNSEND
DESCRIBES THE UNIQUE RAILWAY SYSTEM OF ARTHUR GUINESS

IN 1882 the brewery of *Arthur Guinness Son & Co. (Dublin) Ltd.* saw the arrival of the first of I9 narrow gauge locomo-tives that were to form the motive power on a unique and fascinating railway system. This system was to continue in operation until May 1965, when the last of the 22 in. gauge locomotives was in steam, since then the curtailed railway system has been worked solely by 12 diesel loco-motives and will continue to do so until the whole system becomes obsolete in a few years time.

The problem facing the brewery by the 1870's was to design an internal transport system that could convey ever increasing quantities of malt, spent hops, spent grain, casks and hop pockets about the works, and could connect the three main levels of the brewery premises which are built on sharply rising ground on the south bank of the River Liffey.

In I872 *Samuel Geoghegan* joined the engineering staff, and in the following year construction commenced on the railway system and was completed by 1877 with eight miles of 1ft 10in. gauge and two miles of 5ft 3in. gauge (the standard Irish gauge). In 1875 *Geoghegan* was appointed chief engineer, and it was due to his genius that the unique features of the railway came into being.

In the year *Geoghegan* became chief engineer, the first of the steam locomotives was introduced, and by 1878 five locomotives were in operation. The gradual increase in the weight of the engines because of the increasingly heavy loads reached a climax in 1882 with the building of a 7½ ton engine designed by *Geoghegan*. The remaining 18 locomotives of this design were built by *William Spence, Cork Street Foundry and Engineering Works, Dublin*, the last of the class being constructed in 1920.

The *Geoghegan* locomotives have many interesting and unique features and were far ahead of their time in conception and many points of design. Basically they are four-wheeled tank engines of 7 ton 15 cwt in full working order. The overall length is 11 ft, width 4ft 6in. and total height 6ft, but the wheelbase is only 3ft 0in. to allow for working over very small radius curves. For example a spiral tunnel of 2½ turns designed by *Geoghegan* to lift the railway 25ft within the confines of the works has a radius of 60ft and a gradient of 1:39 and this itself is a most interesting feature of the system.

The boiler was of a marine type and was an early example of the use of this variety on narrow gauge railways. The two cylinders are 7in x 82 in. stroke and are mounted horizontally above the boiler, readily accessible for maintenance along with the *Stephensons* valve gear and crankshaft. The bearings for the crankshaft are mounted directly above the trailing wheels in vertical slideways; these bearings are attached to the trailing axleboxes by vertical connecting links in such a way that both can move in unison to take up any irregularities in the track. The vertical coupling rod and rear section of the horizontal coupling rod are one unit, and are connected to the leading end of the horizontal coupling rod by a pin joint, giving the necessary flexibility in the drive. The axles are mounted in sleeve bearings, in turn mounted in spherical bearings, to allow for a rolling motion of the locomotive. The bearings are supported from leaf springs and are outside the wheels within the main- frames.

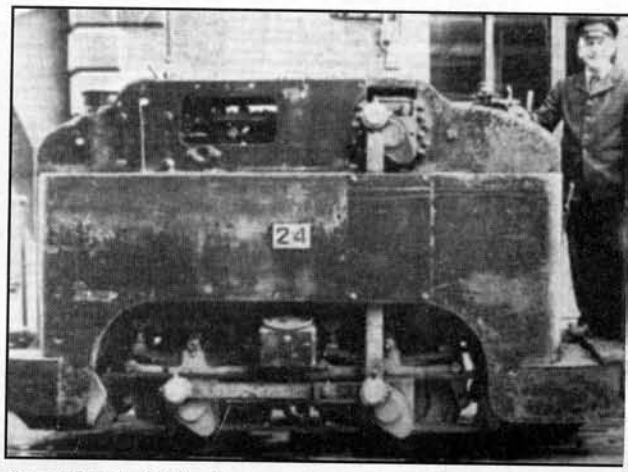
But the most interesting feature of the *Geoghegan* locomotives must surely be their ability to be converted for working on 5ft 3in. gauge. Thus they have a dual purpose. This ingenious and unique idea was effected by the provision of broad gauge haulage wagons or "converter bogies" into which the 1ft 10in. gauge locomotive was lowered. Prior to the arrival of broad gauge locomotives, all movement of wagons between the brewery and Kingsbridge goods station of the *Great Southern Railways* was carried out by these, and even after the end of steam power within the brewery three converters were still in existence. These had all been built by *William Spence* and were able to haul up to 13 broad gauge wagons. They weighed 8 tons and had an overall length of 16ft 6in.

The narrow gauge locomotive was raised and lowered into position by a hydraulic hoist, later converted to electric, a bridging shackle being quickly secured to the engine by four pins. When lowered between the frames of the broad gauge vehicle, the driving wheels rested upon narrow rollers which in turn were geared to the wheels of the converter bogie which could thus be propelled along as a broad gauge geared locomotive.

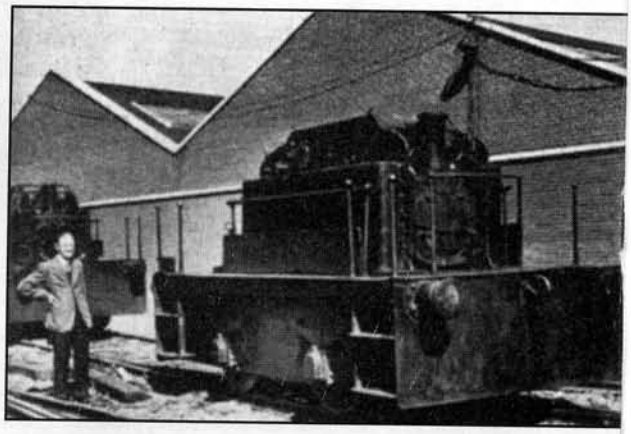
There are still nearly 300 narrow gauge wagons in service on the railway system although at one time there had been over 600 in use. An unusual type of coupling bar is used which is suitable for both pushing and pulling round the exceedingly tight curves.

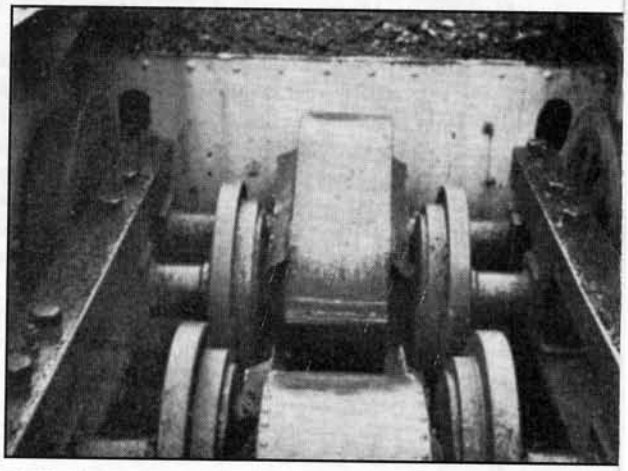
Until the advent of the diesel locomotive at the brewery these steam locomotives were the standard type in use for over 6o years, but by the beginning of the Second World War their maintenance had become uneconomic and in latter years their number was reduced to five until they finally stopped work in May I965. They were superseded by the twelve 7 ton, 37 h.p. "Planet" type diesels built by *F. C. Hibberd & Co.*

Messrs. Guinness have now very generously agreed to present the narrow gauge locomotive No. 23 and the broad gauge converter bogie No.3 to the *Brockham Museum of the Narrow Gauge Railway Society. No. 3* will be the only example of this type of vehicle to be preserved and No. 23 the only example to be steamed, showing the full flexibility of this unique system and the method by which it is operated.



Locomotive No. 24 showing unusual arrangement of motion. Photo: Arthur Guiness Son & Co.





Inside of converter showing rollers. Photo: W.W. Deller

CONCLUSION—The thoughts of Jim.

Here we are at the end of my second magnum opus. It was different to the Miniature Locomotive collection. I thought, initially, that it would be much easier, bur I was wrong. When I said, in the introduction, that the articles would form a history of railway practice from 1898 I had not fully researched the post-war period. From 1904, when *C.S. Lake* began his series, the only problem was what to leave out! But from 1940, the news was very sparse and after the war there was no return to the topical reporting on the railway scene, no replacement for the late *Mr.Lake*. Just the occasional mention in "Smoke Rings," the 1948 nationalisation hardly raised a ripple. I suspect that editorial policy had reverted to sticking to models and leaving dedicated reporting to the appropriate journals. Those reports that did pop up, I have included, and I think they reflect the happenings of the time; the new BR Standard Locos, the early diesels, the decline of steam, etc. I was unable to find reference to the later diesels, the 125s, the APT, electrification, long-welded rail, etc., but I suspect that the readers of this effort will be well aware of those events and it is the early days, with which some may not be quite so familiar, that are fairly well documented. Two events which were not covered, and I was a bit disappointed since they were, so to speak, at the bottom of our garden, were the *LMS* three coach diesel multiple unit in 1939, (not like *Mr.Lake* to miss something like that!), and the *LMS* diesels 10,000 and 10,001 in 1947/8. (I remember the diesel unit very well, the *LMS* used to run a "theatre train", one and sixpece (7½p) return, including the underground fare to the West End, and we used to go to the Palladium, "in those far-off days before the world turned lank and sour." Around June 1939, they had this unit on display at St. Pancras so you could walk through it. It was a bit like a tube train, with sliding doors, but rather more luxurious upholstery, a forerunner of the DMU. On Saturday mornings we used to splash out a penny for a platform ticket to see it go through the station. If we were a bit flush we might even print our names in aluminium strip for another penny. Can't remember why I indulged in all this expense when I could see it from the garden for nothing! I am told it caught fire a couple of times and was scrapped after the second conflagration. Does anyone else have any recollections?.

I mentioned, in the introduction how I watched the trains go by and I found in *Railway Magazine* a photo, taken during the loco exchanges of an "O1" class engine passing the engine shed at St.Albans. If you could only turn your head to the left, you would be able to see the platelayers hut and the end of our garden.

When I was looking through the index, compiled by *Geoff Wilkinson and Malcolm Mitchell*, I found references headed *"Locomotive Library,"* which included Robin Orchard and *R.M.E.* I assumed that *Robin Orchard* was doing a latter day *C.S. Lake.* Although he did include the odd topical comment, like where the locos were currently situated, or which ones had been scrapped, it was really, as I said earlier, more of a *"Locomotives Worth Modelling"* with photos.

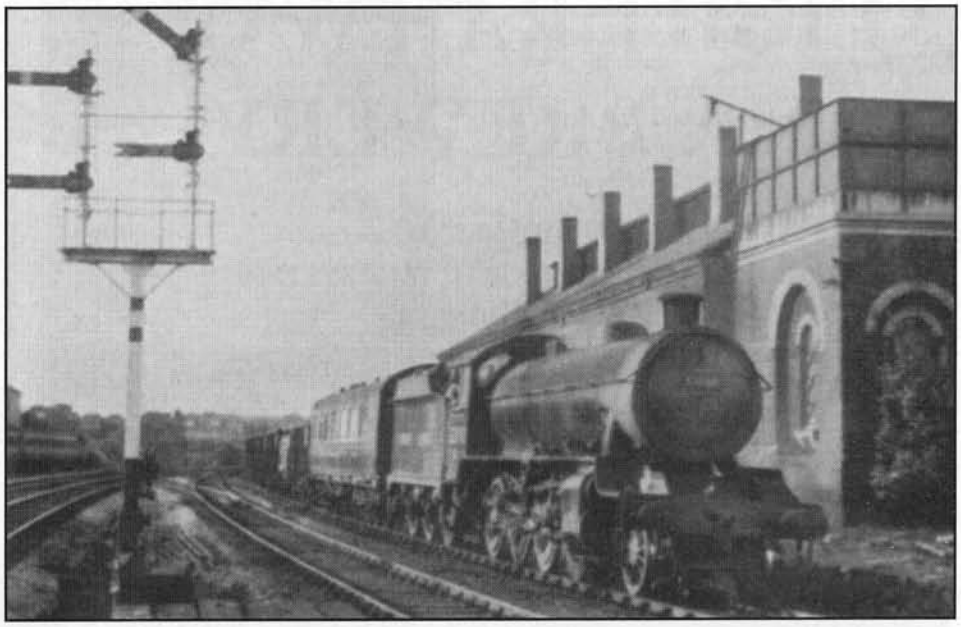
That having been said, they are a joy to read and the detail pictures, taken by *Brian Western*, could be of great help to anyone building one of the locos in the series. I strongly recommend anyone with access to the volumes to read the articles in full.

Shakespeare says, at the end of Henry V, "Thus far, with rough and all-unable pen, our bending author hath pursu'd the story. In little room confining mighty men, Mangling by starts the full course of their glory." Whilst not for one second comparing myself to the bard, or even his gardener, I do feel guilty of having to butcher some beautiful pieces of writing due to the lack of space. I wish to apologise to all those "mighty men" whose work I have been forced to present in a shortened form.

As with my previous effort, it was not until I really studied the subject, that I discovered how little I knew! I hope that you enjoy reading this as much as I enjoyed writing it, even though it was hard going at times. I have tried to maintain a balance of companies and countries, unfortunately there wasn't room for all. One of the things that I noticed during this compilation was that, although UK designers spent a lot of time looking at loco design in other countries, and occasionally trying out certain innovations, we seemed to have a remarkable knack of not being able to make things work that seemed to work very well in the areas from whence they came. I must admit that I always tended to look down my nose at "ugly foreign locos," with, (as *Reginald Gardiner* says on that old record, "Trains", c1934), "three of everything." Our engines looked so much better. However, when I look at the figures for some of those "funny looking engines" I can't help thinking that perhaps there is more to engineering than aesthetics. I also wonder, what might have been, looking at that fantastic *Algerian Railways Super-Garratt,* a steam "125" maybe. Or the *Union Pacific* turbo-electric of 1939, apart from being oil-fired, at least had the turbine running at a constant speed, which (so I am told) is their most efficient mode, made to operate as remote control units, you could have one at each end of the train, even more "125". The *Chesapeake and Ohio* had a similar device but burning pulverised coal with an automatic stoker, even more attractive. Suppose "Authority" had had enough faith to persist with Leader, perhaps it might have solved a lot of problems. (I know it's a lot of "pie in the sky," and I don't have the engineering ability to make such sweeping statements, but having read of so many designs whose main fault appears to be that they were "ahead of their time", I hope you will forgive a bit of self indulgence, but I am sure that most of us must have said "if only" at some time.

Coming down to earth, I am sure that if the *LMS* had possessed a fleet of *"Super-Garratts"* in 1939, they would have suffered the same fate as the Algerian ones, failures due to lack of maintenance. If they had problems keeping the compounds up to scratch during the war, due to their slightly higher maintenance level requirement, how would the *Garratts* have fared with their electrically operated valve-gear?

It's all academic now, but we have our memories to sustain us, and there are many excellent preservation lines where we can go and enjoy a bit of the past. Those visited in 1972 by the late *Don Young* are still thriving and, as he foresaw, have extended their sphere of activity. In particular, the *SVR*, which when we first visited it, only went as far as Hampton Loade, now goes through to Kidderminster. There are many others, too numerous to mention individually, but all worth a visit. ●



T.H. Watts

Toton-Brent freight train, with dynamometer car attached, passing St. Albans, on July 21, 1948, headed by "O1" class 2-8-0 Locomotive No.63789. *Picture by courtesy of Railway Magazine.*

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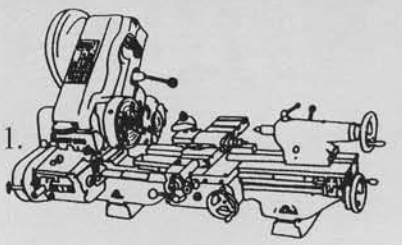

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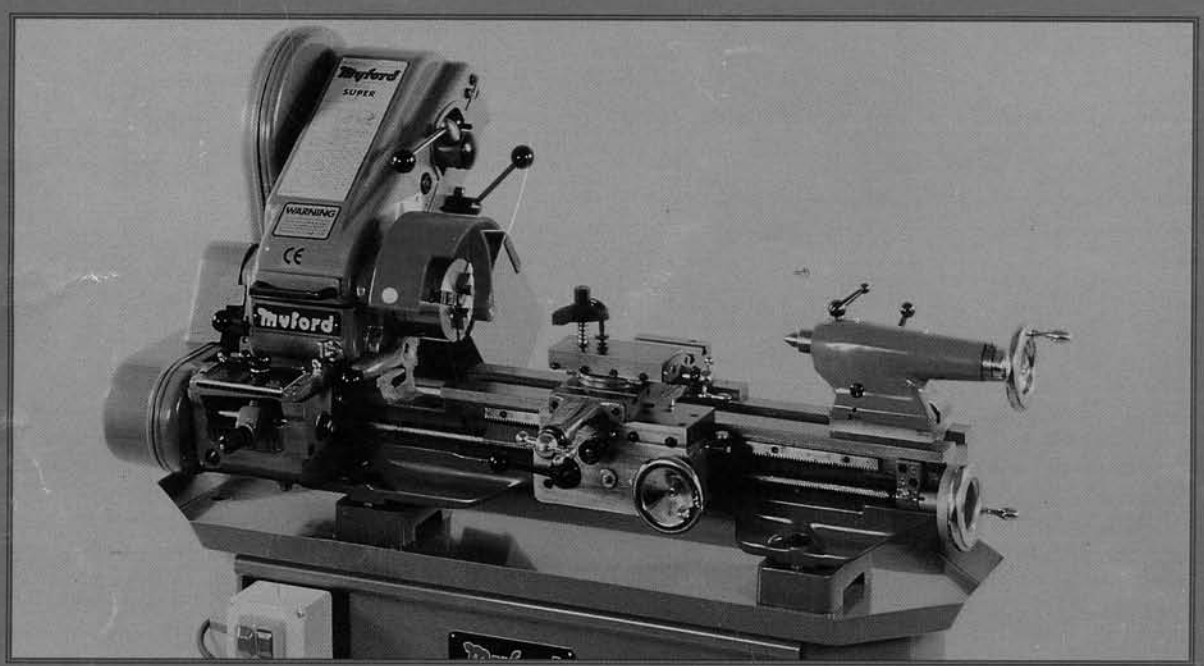

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