

# Engine 6000

*The Saga of the King George V*



**O. S. Nock**



# ENGINE 6000

## The Saga of the King George V

Many books have been written about locomotive dynasties, some about individual classes, but this is a book about one single locomotive, one of the most famous steam locomotives that has ever run the rails. Its origin was unusual in that the general manager of the GWR wanted to have a locomotive that would beat all others; the civil engineer was ordered to improve his road so that a locomotive of such greatly increased weight and power could run; and then within weeks of its construction it was shipped to the USA to do some priceless publicity work for the British railways.

O. S. Nock tells the story of the *King George V* from personal acquaintance with many of the men involved in its design, construction and operation. He has travelled many thousands of miles behind it, ridden on its footplate on some of the fastest runs in Great Britain, and has studied the developments carried out on this engine and her class after World War II to keep a design that was then twenty years old in the forefront of British steam locomotive practice.

And then there are the latest phases of this great, unfinished story; the decision by the British Railway Board to include the locomotive among those scheduled for preservation; its languishing in Swindon shed, and then its sensational rescue and restoration through the enterprise of H. P. Bulmer Ltd of Hereford. In 1971, alone of all the preserved steam locomotives in Great Britain, the *King George V* was allowed to run the rails on British Railways once again; and Mr Nock once again rode on the footplate.

### *Jacket illustration:*

Cornish Riviera Express with Centenary stock (1935) in Sonning Cutting hauled by engine No 6000 'King George V' (from a painting by Victor Welch)











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## **THE SAGA OF A LOCOMOTIVE**







# ENGINE 6000

## THE SAGA OF A LOCOMOTIVE

O. S. NOCK

BSc, C Eng, FICE, FI MECH E



DAVID & CHARLES

NEWTON ABBOT



0 7153 5716 6

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## PREFACE

WHEN writing the preface to my book *Great Western Steam* I questioned whether there would ever be an end to books about the Great Western Railway; and now, when that book has reached no farther than the proof stage, here I am writing another! But engine No 6000 is a very special engine—perhaps the most famous that has ever run the rails, anywhere in the world. She was born, as it were, on the funeral pyre of another famous engine—*The Great Bear*. The fame of this latter was that of solitude, and confinement. *King George V* emerged in a greater blaze of publicity that had ever previously been accorded to a British locomotive; and after that publicity had died down, and the trumpets had ceased to sound on both sides of the Atlantic, engine 6000 settled down to a life of strenuous, trouble-free, revenue-earning service. And the latest phase of her career is proving as exciting as the earliest.

This has been an unusual job for me, and assistance has come in hitherto unusual places, in addition, of course, to that of my many friends on the Western Region of British Railways. I am especially grateful to Capt C. B. Short, of the Bristol City Line of steamships who, as First Officer of the *Chicago City* in 1927, held special responsibilities for conveying the *King George V* to and from the USA. I am also grateful to Messrs H. P. Bulmer Ltd, of Hereford, for many privileges since the engine has come into their care. But perhaps the greatest thanks I have to pay is to all those, who through their wisdom and their enthusiasm, have made sure that the saga of engine 6000 is still unfinished.

*Silver Cedars, High Bannerdown*  
*Batheaston, Bath*

O. S. Nock  
March 1972







## CHAPTER ONE

### *Change at Swindon*

NOT long after the end of World War I, Churchward called together representatives of the workmen at Swindon to tell them of his plans for post-war development. He had not proceeded very far when one of the men interrupted him, and told Churchward that they were not there to be *told*, an unheard of action in earlier days. The chief mechanical engineer was reminded that times had changed, and they were there to be consulted, not told. 'Yes' Churchward replied, 'Times have changed; it's time the Old Man got out!' Quite apart from the prospect of friction with the trade unions, there was an even more cogent reason why he should retire—although he was in excellent health, and as full of ingenious ideas as ever.

Churchward could be described as the last British CME of the Victorian era; for although his outlook was the very antithesis of reactionary, and all his major works belonged to the twentieth century, his status in relation to the board of directors and to his fellow officers was that of the great nineteenth-century figures of the railway world. Throughout his tenure of the supreme office at Swindon he reported directly to the board, and so far as status and responsibility was concerned his office was as great an autocracy as Webb's had been at Crewe on the LNWR. There had been one major attempt to change it, but from his seat at the board table he had decisively defeated this; and the appointment of Felix J. C. Pole as general manager of the company in June 1921 put a different complexion on things. This relatively young and extremely strong person-



ality was determined to bring the general manager's status into line with that on the other major railways—that of an unquestioned chief executive officer, with all the other executive officers reporting through him. Churchward felt it was not worth fighting the battle for autonomy yet again, and he retired on 31 December 1921, the eve of his sixty-fifth birthday.

To appreciate the subsequent trend in locomotive development at Swindon one must look to the personality of Churchward's successor, Charles Benjamin Collett. He too was a strong man, but in a totally different way. In view of the traditional pattern of personnel advancement in the CME's department of the Great Western, whereby men were trained for the senior posts as 'all-rounders', with experience in managing the out-stations, in locomotive running, in both the locomotive and carriage works, in addition to the Swindon drawing office, it is perhaps a little odd that the man chosen to succeed Churchward was wholly a 'works' man, and moreover one whose early training had not been in railways at all. But a war such as that waged from 1914-18 can play havoc with tradition, and Collett's outstanding ability in workshop production made it essential for Churchward to retain him at Swindon, whereas in normal times the clear indication that he was a likely CME of the future might have taken him to one of the senior divisional posts, such as Wolverhampton or Newton Abbot, to broaden his executive experience. Be that as it may, in 1919 he was appointed deputy chief mechanical engineer, while retaining his former post of locomotive works manager, until Stanier was appointed to the latter in 1920.

Some time before taking office Collett had become aware of the strength of personality and purpose of Felix Pole, and it was not in his nature to try crossing swords either with the general manager, or with his fellow officers. There was quite enough to do in keeping the mechanical engineering establishments up to the highest pitch of efficiency in the 'changing times', of which Churchward was equally well aware without any reminders



from the trade unions. That Collett was not to any extent an 'engine-designer' became well enough known in after years; but something 'different' in his outlook could possibly be discerned from the very beginning of his chieftainship. There had seemed an almost irrepressible urge for a new CME to begin almost at once by designing a new class of locomotive, larger than anything built by his predecessor, or differing considerably in its main features. Sometimes, as on the LNWR when Whale succeeded Webb, it was a matter of dire necessity; other transitions, such as Adams to Drummond on the LSWR, Maunsell to Bulleid on the Southern reflected a changed outlook. But Collett's *début* was singularly modest and unobtrusive.

At the time of Churchward retirement, Swindon had an order for twelve more Stars; but very little work had been done, and there would have been ample opportunity for Collett to make considerable changes had he so wished. There was all the more opportunity, for while the first two engines of the new batch were completed in May 1922, Nos 4061 and 4062, the remaining ten did not begin to appear until November 1922. Furthermore, although the period of wartime austerity was then past, and other railways were restoring pre-war painting styles and adornments, the Abbays were turned out in plain green, unlined, and with tapered cast iron chimneys. They were, in other words, a thoroughly workmanlike 'production job' with nothing in the way of outward adornments. They probably represented, more than any of his subsequent classes, what Collett thought a modern locomotive should look like. They were magnificent engines in traffic, and some of the best runs recorded up to that time fell to their credit.

It was then, however, that Sir Felix Pole, as he became in 1924, began to exert his influence on locomotive design. Under his enterprising management, traffic was increasing considerably. The principal express trains were loading more heavily and the operating department pressed for more powerful locomotives. Collett turned to the Churchward proposal of 1919, to build



Stars with slightly larger cylinders, and the No 7 standard boiler, as used on the 47XX class 2-8-0s. The civil engineer had at that time refused to accept the increased axle-load on the proposed enlarged 4-6-0, and he still refused to accept it in 1922. So Swindon had to make a compromise: enlarging the cylinders, and putting on the largest boiler that the weight restrictions would permit. This compromise was of course the Castle, the basic proportions of which delighted Sir Felix Pole in that they produced a locomotive with the highest nominal tractive effort of any passenger class in Great Britain—31,625lb. I think there is little doubt that all the gay trappings of pre-war years re-appeared on these engines at the instigation of Sir Felix Pole, and to the delight of all locomotive enthusiasts. The Castles were a great success, in every way; they handled heavier trains, they looked superb, and their technical performance when revealed in Collett's famous paper to the World Power Conference of 1924 startled the locomotive world.

Then Collett, quite unintentionally one would imagine, dropped his bombshell. He scrapped *The Great Bear*! In actuality that huge and beautiful engine had, for many years, been more of a liability than an asset to the locomotive department. She was precluded, by the civil engineer, from running anywhere on the line except between Paddington and Bristol, and it was difficult to fit her into any of the regular link workings to advantage. With one exception, the two-hour trains could be readily included in the Saint diagrams from Bath Road shed, and the remaining one, the 11.15am down, formed part of a Paddington-Plymouth 'double-home' turn, on which *The Bear* could not be used. By the end of 1923 her boiler fell due for renewal. This would have been uneconomic, so Collett did the apparently obvious thing: cut off her tail, made her into a 4-6-0 and put a *Castle* boiler on. Just to re-assure the accountants that she *was* a 'rebuild', he kept the old number 111, but put on a new name, *Viscount Churchill*, in honour of the chairman of the company. Then the fat was fairly in the fire!



Scrap *The Great Bear*?—oh no! Collett then learned to his consternation that although his new Castles had considerably out-distanced No 111 in nominal tractive effort, *The Bear* was still regarded by many Very Important People at Paddington as a mighty prestige symbol, the first Pacific in Britain, and only the third in Europe. Collett was asked, in as many words, what in Heaven's name he thought he was doing to commit such an act of iconoclasm. But his very logical explanation to Sir Felix Pole recoiled like a boomerang, not only on him but also on the chief engineer, whose weight restrictions were the prime cause of *The Great Bear* being so restrained in her activities. The great difference between the Churchward and the Collett approach to a major problem was then highlighted . . . not in public of course, but in the records that have subsequently been revealed. When Churchward had outlined his proposals for an enlarged Star in 1919 and had it vetoed, the immediate need was not there. Churchward was planning for the future and could afford to bide his time. But when Collett revived the proposal in 1922, and met with the same veto, it was another matter. He had, perforce, to compromise, and put on a boiler that was not in true proportion to the increase in cylinder volume he needed. He accepted the ruling of the civil engineer without question.

One could not have imagined Churchward doing so. There had been, many years previously, the classic case of his introduction of 70ft passenger coaches. In private discussion previously, the signal engineer had intimated that he could not accept them, because the intermediate wheelbase would be longer than his facing point lock bars, and would therefore permit a momentary release of the point locking, as each coach passed over. Churchward admitted the cogency of such an argument; but before making formal proposal of his 70ft coaches to the board, he took care to find out how many facing point lock bars there were on the routes where he proposed to run the new coaches, and was ready with an estimate of what it

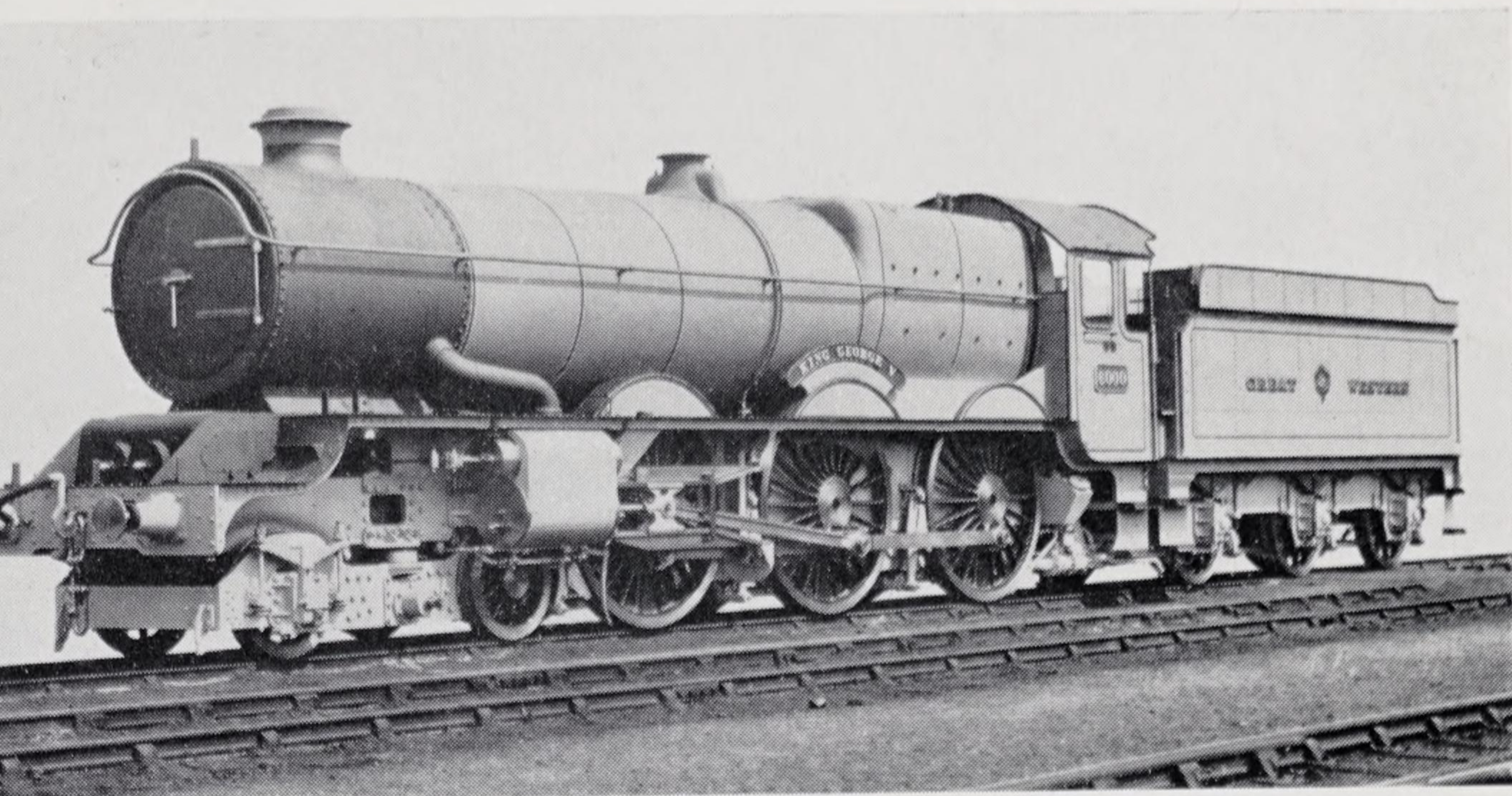


would cost to lengthen them. This enterprising little exercise convinced him that the cost of lengthening the lock bars was negligible compared to the economics in operation that would result from introduction of the 70ft stock. He was ready with his facts when the case was presented to the board, and the signal engineer was duly instructed to lengthen his long bars on the route concerned.

Faced with the possible veto on the use of the heavier engines when the motive power situation was becoming critical, one can quite well imagine that Churchward would have taken steps to satisfy himself of the 'background' that existed in the department of his distinguished colleague. As a man with an all-round railway outlook, Churchward was probably unexcelled in his day. His interests extended from end-to-end of the line, and he was quite ready to probe the whys and wherefores of restrictions placed upon his activities, and not accept them simply, without question. In Collett's time it was Sir Felix Pole who did the probing, and having succeeded in gaining supreme executive command of all departments, he was in an unrivalled position for doing so. It would have been highly interesting to have had a verbatim report upon the 'inquest' that followed the scrapping of *The Great Bear*!

Pole naturally wanted to know why the static axle-load on Great Western main lines had been limited up to that time to 19½ tons. The chief engineer, J. C. Lloyd, then revealed that ever since the time of J. C. Inglis, some twenty years earlier, new bridges had been built, and older ones strengthened to take an axle-load of 22 tons. In the spirit of narrow departmentalism that had characterised the GWR, with other departments as well as that of the CME, reporting to committees of the board rather than to the general manager, this decision had been kept secret, until the programme of strengthening or renewal was complete. One can understand that the civil engineer wanted to carry out his programme, but the upshot of this 'secrecy' was that the work was done haphazardly, as occasion arose in the various





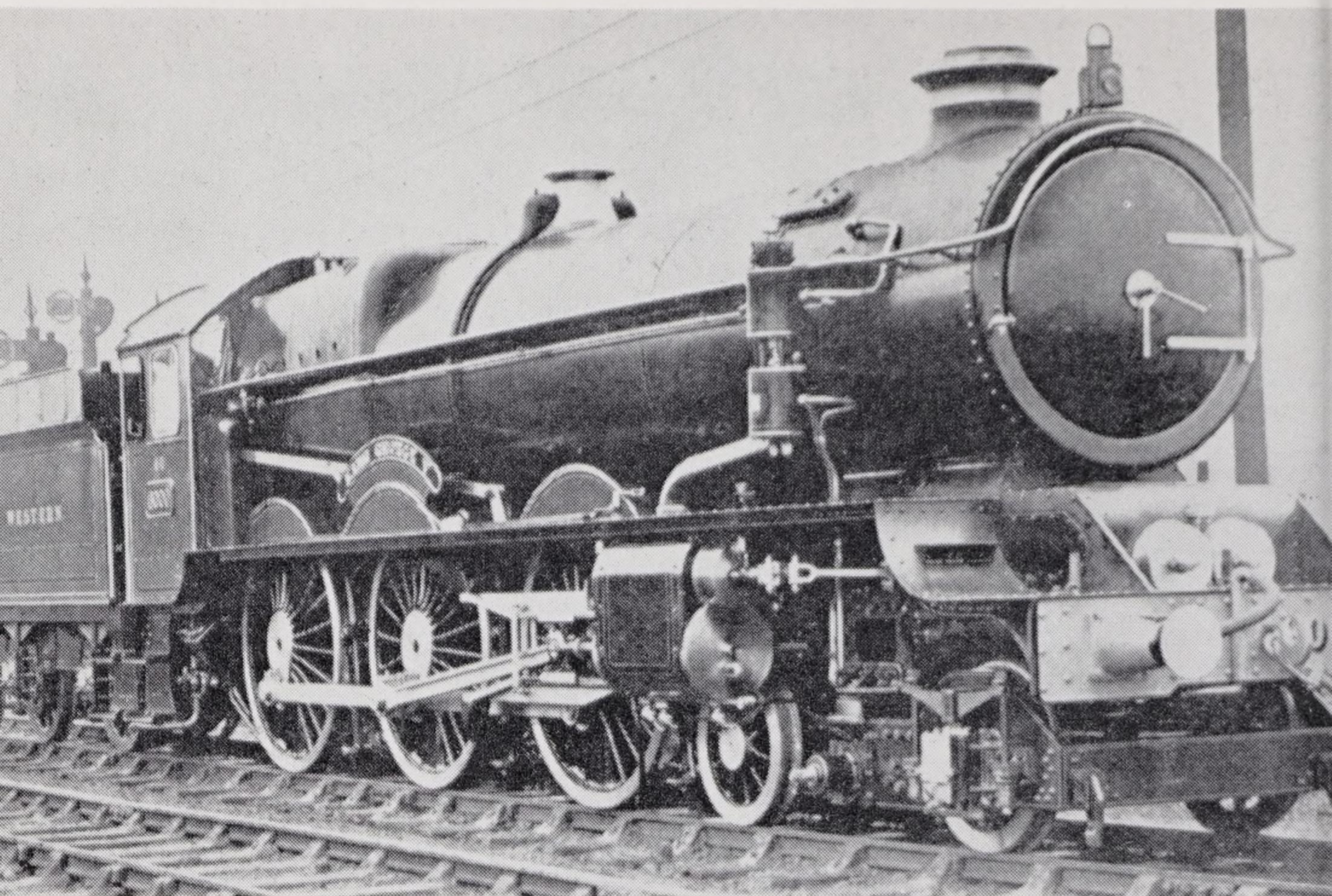
*Acknowledgements to: B.R. Western Region*

*Page 17 (upper) Official portrait, in grey, on completion at Swindon, June 1927; (lower) Right hand side, frontal view*



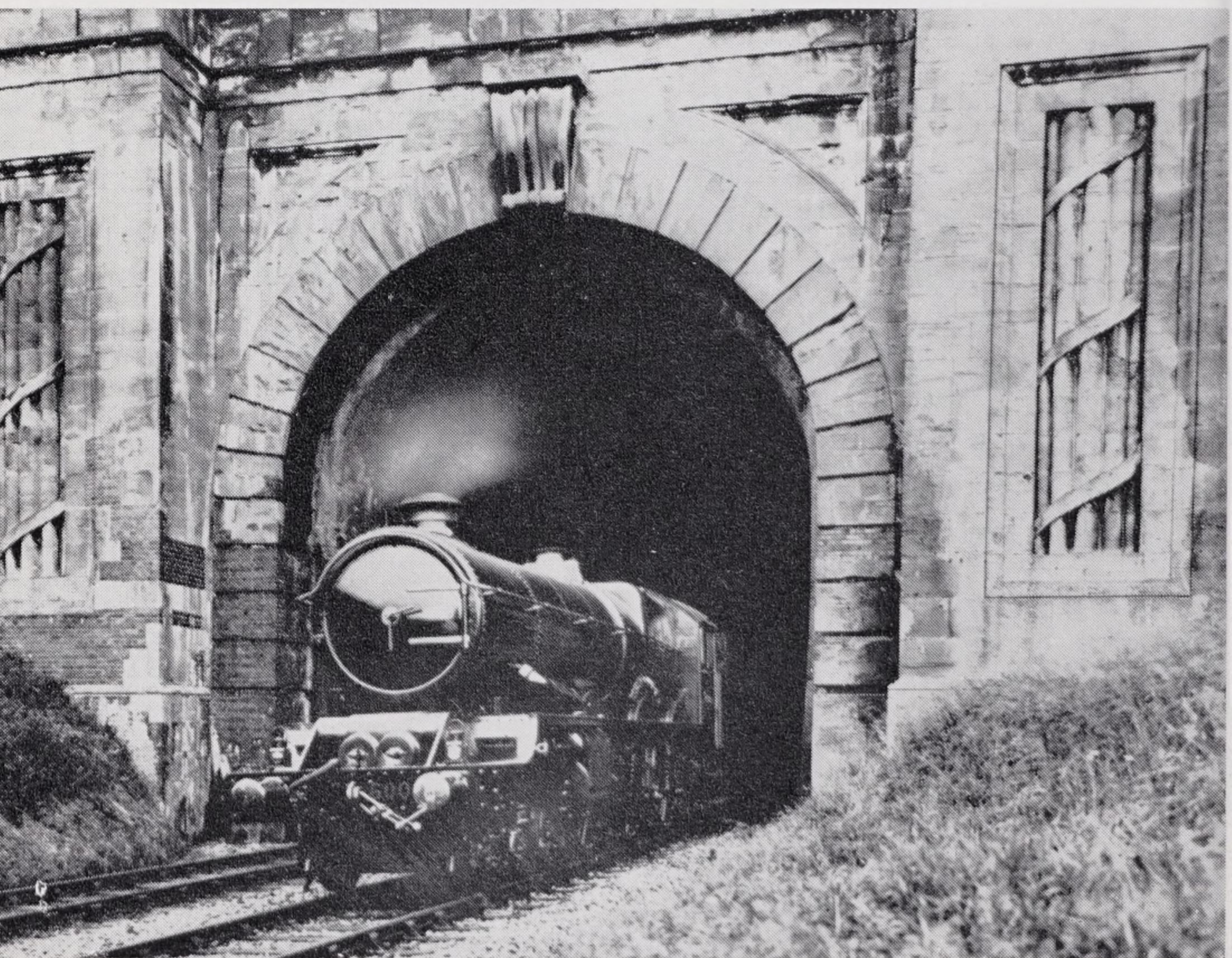
*Acknowledgements to: B.R. Western Region*





*Acknowledgements to: B.R. Western Region*

*Page 18 (upper) Ready for the American visit fitted with Westinghouse brake; (lower) Posed at the western end of Middle Hill Tunnel, Box, before going to the U.S.A.*



*Acknowledgements to: B.R. Western Region*



civil engineering divisions of the railway, and not as an overall programme, first to clear one line completely, and thus permit the use of heavier locomotives in one area.

There would be a natural desire to postpone the use of heavier locomotives for as long as possible; but while this suited the civil engineering department, it was not to the good of the railway as a whole. But there was another factor that helped to force the hand of the civil engineer. The researches of the bridge stress committee had shown that static axle-loading was of far less consequence in bridge loading than the effects of 'hammer blow'; and on the GWR the four-cylinder express passenger locomotives had a far less severe effect on bridges than the two-cylinder Saints. In view of this, and under pressure from Sir Felix Pole, Lloyd agreed to relax the axle-load on four-cylinder 4-6-0 locomotives to 22 tons, at once, over bridges that had been built, or rebuilt to the new standards set up by Inglis twenty years previously. The question then naturally arose as to how many bridges remained to be done on the principal express routes, and between Paddington and Plymouth only four remained. The need to get these bridges attended to became urgent in the eyes of Sir Felix Pole during the summer of 1927, for a reason that some people might think trivial, but was to him a matter of high company prestige.

Until then, the Castle class 4-6-0s had the highest nominal tractive effort of any passenger locomotive in the country; and the outward visible results of the locomotive inter-change trials of 1925 had shown that this 'paper' superiority was borne out in actual running against the much larger and heavier Gresley Pacifics of the LNER. Then the Southern Railway brought out the *Lord Nelson*, with a tractive effort of 33,500lb against the 31,625lb of the Castle. The publicity people at Waterloo proclaimed to the world, by every possible medium, that they now had the most powerful passenger locomotive in Great Britain. Sir Felix Pole was cut to the quick. The Great Western had lost the honour of having the first British Pacific and now



the Castle was surpassed. The fact that the *Lord Nelson* and its class could not, in their original condition, hold a candle to the Castles had not then been established. In 1926 all that mattered was nominal tractive effort. Pole cut through the mechanical versus civil engineering confrontation like butter. Lloyd was asked if he could accept  $22\frac{1}{2}$  tons, instead of 22, and on his agreeing to this he was told to get the four remaining bridges ready in time for the summer traffic of 1927; Collett was told to build the biggest locomotives he could with a  $22\frac{1}{2}$ -ton axle load, and also have them ready for the summer traffic of 1927. With the restrictions under which he had previously been labouring now swept aside, it was extremely interesting to see how Collett reacted.



## CHAPTER TWO

### *Cathedral to King*

THE opportunity of having a *carte-blanche* mandate to design a super-locomotive that would 'lick the pants' off any conceivable rival is the kind of thing every enterprising locomotive engineer dreams about. This is virtually what Collett had, in 1926, but it is doubtful whether he welcomed the opportunity so wholeheartedly as some of his contemporaries on other railways might have done. One immediately thinks of Churchward, and the extent to which he forged ahead of current ideas rather more than twenty years earlier. On the 'grouped' railways of Great Britain in 1926, the thoughts of the other chief mechanical engineers were extending far beyond a continuance of current practice. Maunsell on the Southern, was perhaps the least venturesome, but even so the *Nelson*, with its cranks at 135deg was something new. Gresley had for the last two years, been at work on his compound 4-6-4 with the Yarrow water-tube boiler, while on the LMS Sir Henry Fowler's four-cylinder compound Pacific had got to the stage of having the frames cut for the first engine.

That the two last mentioned projects ended in failure on the one hand and cancellation on the other, is aside from the point. The fact remains that both engineers were thinking far in advance of any existing practice. It can be argued that Collett, although given *carte-blanche*, was set on a very tight schedule. He was asked to have the new locomotives ready for the summer traffic of 1927. He had not the freedom enjoyed by Churchward in 1903, to build a few examples of his large new



locomotives for trial purposes, while the incomparable Atbaras and Cities carried the main burden of the traffic. Sir Felix Pole wanted a 'show piece' that would work hard and fast, at once. All the same, it is interesting to speculate upon how Churchward would have reacted to such a situation. Would he have gone for a Pacific, as Hawksworth did in the early 1940s? It is perhaps fruitless to try and guess. It is not until one has travelled far abroad and seen the kind of coal on which locomotives have been made to steam freely that realisation comes of the extraordinarily fortunate situation the British railways enjoyed generally up to the year 1939. The whole edifice of Churchward's practice up to 1914 was built on the foundation of high quality coal.

Yet Churchward was nothing if not a realist, and the prolonged coal strike of 1926 that compelled all the British railways to rely on supplies of poor quality continental coal laid bare the 'Achilles heel' of Great Western practice . . . the low degree of superheat standardised. In addition to that, of course, the relatively small fireboxes were far from ideal when using poor coal, while the jumper top to the blastpipe prevented the sharpening of the blast, when it could have been most useful for livening up a 'lazy' fire. However, the emergency passed and by the spring of 1927 good quality soft Welsh coal, in huge lumps, was once more being loaded on to the tenders of Great Western express locomotives. With no more than incidental variations, the quality of coal for the top-link turns was thenceforward maintained until 1939. How close to working on a tight-rope, Swindon really was is not generally appreciated. Stanier soon found out when he went to the LMS, while Gresley had already laid the foundations of his future practice when he applied an exceptionally high degree of superheat to one of Ivatt's large boilered Atlantics and subsequently modified the remaining eighty to correspond.

In all the circumstances it is easy to understand why the Swindon of 1926, under Collett's direction, came to play safe.



Collett himself was not an engine-designer. Stanier and Hawksworth were both men of ideas; but their one joint venture away from orthodoxy, in the form of a compound version of the Castle, was so peremptorily squashed by Collett that one can well imagine that working against time, in 1926, the design was based upon well-established lines. Thus, except in one point of detail design, which before it was perfected had a narrow escape from a major disaster, the new super-locomotive was pure and unadulterated Churchward. Every artifice to increase nominal tractive effort was built in from the outset: cylinder diameter increased to the maximum physically possible, stroke increased to 28in. This brought the tractive effort up from the 31,625lb of the Castle to 35,000. But so far as the comparison of dimensions is concerned, it is better to relate those of the new locomotive to those of the Star . . . a perfectly proportioned Churchward product. The Castle, as previously explained, was something of a compromise.

A DESIGN COMPARISON

	<i>4041</i>	<i>6000</i>	<i>increase per cent</i>
Cylinder Volume cu in	4600	5800	26.2
Heating surfaces sq ft			
Tubes	1687	2008	19.0
Firebox	155	194	25.1
Superheater	263	313	19.0
Grate Area sq ft	27.1	34.3	26.6

From the table, it will be seen that the boiler proportions of the new locomotives were closely similar to those of the Stars, considered in relation to the cylinder volume. Had the boiler pressure been kept the same, the 26 per cent increase in cylinder volume, bringing the tractive effort up to 35,000lb, would not have been worth the trouble of an entirely new design, and in any case it would have been surpassed by the LNER Pacific



No 4480 *Enterprise* which Gresley was at that time rebuilding with a new boiler, carrying a pressure of 220lb per sq in. So the pressure on the new GWR 4-6-0 was increased to 250lb per sq in. That put the nominal tractive effort up to 39,000lb, and in all confidence Collett took his proposals to Sir Felix Pole; but while the general manager agreed that such a figure as 39,000lb would put the GWR well ahead of any likely competition for some time, he was anxious to push the figure above 40,000. Collett explained that this could be done by reducing the coupled wheel diameter below the standard 6ft 8½in, and would involve an increased capital cost, for new patterns; but once Pole was assured that a reduction in wheel diameter, to get the tractive effort over the 40,000lb, would not affect the speed-worthiness of the locomotives, he told Collett to go ahead. With the diameter reduced to 6ft 6in the nominal tractive effort became 40,300lb and everyone was satisfied.

Then another factor intervened. One gathers that the directive, to have the first engines of the new class ready for the summer traffic of 1927, was not passed down the line from the chief mechanical engineer's office. Collett as a production man was not the type to be stampeded into a race against time, if the quality of the work was likely to suffer in the process; and in the ordinary way, one could quite imagine some digging in of the toes on his part. But then Sir Felix Pole came once again devastatingly into the picture, and a 'brief encounter' in 1925 had some startling repercussions. The opening of the first railway in the USA, followed very shortly that of the Stockton and Darlington in Britain; for it was in 1827 that the Baltimore and Ohio Railroad opened for public business. In the early 1920s the B & O had a president, in Daniel Willard, who had a strong sense of the historic, and he was determined that the centenary, in 1927, should be fitly celebrated. He therefore commissioned a distinguished American railway enthusiast of the day, Ed Hungerford, to collect data and relics, and to formulate proposals. The forthcoming celebration of the Railway Cen-



tenary in England, *the* centenary of all public railways, gave an unrivalled opportunity for the Americans to watch points, and so Ed Hungerford came to England in 1925.

In the course of the various pageants and other functions, he met Sir Felix Pole and confided in him that Daniel Willard very much hoped to include a British locomotive in the centenary celebrations of the Baltimore and Ohio. Pole was most enthusiastic, and to him a 'British' locomotive meant nothing but a Great Western! In 1925, Swindon locomotive prowess was on the crest of the wave. Collett had startled the locomotive world almost into disbelief by publication of the test results obtained with *Caldicot Castle* in 1924, and in the 1925 inter-change trials with the LNER the Castles *Caldicot* and *Pendennis* between them had seriously embarrassed the reputation of the Gresley Pacifics. In 1925, the Castles could well be claimed as the predominant British express locomotive class. When Pole readily agreed to send a Great Western locomotive to the USA in 1927, there was no doubt that a Castle was in his mind. But in just over a year, all had changed, and Swindon was launched upon the production of a Super-Castle. The news leaked from 'inside'. Dimensions were quoted in the local newspapers in Wiltshire, together with the interesting item that the new giants were to be named after cathedrals. This latter was a logical development in GWR locomotive nomenclature. After Cities, Courts, Abbeys and Castles, Cathedrals were a natural step.

Then it was the turn of Sir Felix Pole to throw a bombshell into the equanimity of Swindon works. A Great Western locomotive was to be sent to the B & O centenary celebrations in 1927. A Castle was no longer acceptable in his view; it must be one of the new ones. Furthermore, to meet the wishes of certain prominent American railwaymen it must not go there as an exhibition piece . . . it must run! K. J. Cook, who was then assistant locomotive works manager, has told me how the news was received at Swindon. His chief, R. A. G. Hannington, sent for him, and when he got to the office Stanier was there. He



was asked how the work was progressing. Very few drawings had then reached them in the shops, but the general outline of the new design was known, and Cook began to explain that in the light of the information they then had, he hoped to have the first engine of the class ready by the end of September. In the shops, they apparently did not know of Sir Felix Pole's directive that the class should be ready for the summer traffic! Anyway Stanier cut him short quickly enough, saying: 'Young man, she's got to be in the USA by August'. He then went on to explain that the exhibition was due to open on September 24, and working backwards from that date the engine had to be tried out in ordinary service at home, proved beyond any doubt, prepared for shipping across the Atlantic, re-erected as necessary, and steamed on unfamiliar coal ready for daily running in the exhibition. No wonder Stanier struck a note of extreme urgency.

As the preparations for the great celebration progressed in the USA, it was evident that visiting locomotives were to be given a very prominent place in the daily pageant. It was learned that the two great Canadian railways were sending examples of their latest power, and amid such a galaxy the new Swindon 4-6-0 would not merely be representing the Great Western Railway, she would be representing Great Britain, the very birthplace of railways. It was then, of course, that the name assumed an enhanced significance. *St Pauls Cathedral*, if that indeed was the name originally chosen for the first of them, would have expressed grandeur and dignity for British on-lookers; but to Americans it might more readily have been associated with St Paul, Minnesota, which after all had an important historical background so far as railways were concerned. So the idea was conceived of naming the new locomotives after the kings of England. After all, what more instant symbol of Great Britain could there have been than *King George V*. The Great Western already had a series of Kings, within the Star class; although the first of that series, built in 1909, *King Edward*, would undoubtedly be associated with the



reigning monarch, the rest took the Christian names backwards into history, with only one 'George', one 'Henry' and so on. Engine No 4027 *King Henry* could be referring to any one of the eight English kings. The new Kings on the GWR were to be more specific. The Stars 4021 to 4030 had therefore to be renamed.

## CORNISH RIVIERA EXPRESS

20 July 1927

Load to Westbury: 425 tons full

Load to Plymouth: 350 tons full

<i>Dist miles</i>		<i>Sch min</i>	<i>Actual m s</i>	
0.0	Paddington	0	0	00
			special stop	
9.1	Southall	11	16	19
36.0	Reading	37	41	57
53.1	Newbury	56	59	18
66.4	Bedwyn	69½	72	18
70.1	Savernake		76	20
95.6	Westbury	97½	98	58
108.5	<i>Milepost 122¾</i>		113	57
115.3	Castle Cary	120	120	11
142.9	Taunton	148	146	20
153.8	<i>Whiteball Box</i>		159	04
173.7	Exeter	179	176	43
193.9	Newton Abbot	203	200	43
197.8	<i>Dainton Box</i>	209½	207	08
202.5	Totnes	215½	212	50
207.1	<i>Rattery Box</i>	223	220	00
211.6	Wrangton		225	48
219.0	<i>Hemerdon Box</i>	237	234	01
225.7	Plymouth	247	242	26

Once they were alerted to the urgency of the task Swindon works did a tremendous job, and engine No 6000 *King George V* was completed towards the end of June 1927; and on 20 July, 'she' worked the Cornish Riviera Express non-stop to Plymouth. For the first time ever, a ten-coach train of 338 tons tare was taken without assistance over the South Devon line, and Ply-



mouth was reached in  $242\frac{1}{2}$ min;  $4\frac{1}{2}$ min early on the schedule then in force.

Although it was by no means a record, by the standards that were afterwards set up by the King class locomotives, the very first express run made by the *King George V* is naturally historic, and fortunately there was an expert observer on the train to record it in detail. The driver and fireman on this occasion were those selected to man the locomotive on its visit to the USA, driver Young and fireman Pearce, of Old Oak Common Shed. On page 27 is a log of the journey, as recorded by Mr Humphrey Baker. Because of a stop for engineering work at Friars Junction, near Acton the train was nearly 5min late on passing Slough; but by dint of some fine running with the full load of 425 tons the lateness had been reduced to  $1\frac{1}{2}$ min when the Weymouth slip portions was detached at Westbury. After that, with the load reduced to a gross tonnage of 350 behind the tender, it was easy.

This run was, however, the conclusion rather than the beginning of the brief sojourn of the locomotive in England, during the summer of 1927. After she had been satisfactorily run-in, on light duties around Swindon, her general working had been so free from trouble that there was time for her to be put on exhibition at many centres on the GWR, to raise funds for the 'Helping Hand' fund of the company, the activities of which were appreciated by so many members of the staff at times of need. The occasion when the *King George V* was put on exhibition at Paddington was vividly described by a representative of the *Great Western Railway Magazine*:

So great was the interest shown at Paddington station on July 1st that long after the advertised time for closing, hundreds of people stood in a queue, eagerly awaiting their turn to step on to the footplate of the most powerful locomotive in Great Britain. Nearly 3000 persons made an inspection, and, as it was impossible to admit everyone in the time allotted, many were turned away disappointed.



All day long there was a continual stream of visitors, and judging from the remarks overheard, a considerable number of engineers were among them. Many small groups of enthusiasts were to be observed with pencils and note books, taking notes and keenly discussing features of this latest product of Swindon Works. Those in attendance on the footplate were bombarded with questions, especially by young students of engineering.

Following the exhibition at Paddington a tour was arranged, embracing Reading, Taunton, Exeter, Newton Abbot, Plymouth and Swindon stations. At every one of these places large numbers were eager to view the engine, and visitors expressed keen appreciation of what was generally termed a beautiful piece of work. Engine drivers of former days left the comfort of their armchairs to inspect the latest and most powerful Great Western engine. At Exeter, one of these, a white haired old gentleman, mounted the footplate with the assistance of willing hands, and upon climbing down a few minutes afterwards was heard to remark regretfully that he was born too soon.

An incident worthy of record happened at Plymouth where a local resident in appreciation of kindness shown to him by the staff at North Road station, handed to the station master a Treasury note by means of which a number of poor boys in the district were able to view the engine!

Perhaps the most moving example of the pride in the engine generally felt by Great Western men was seen during the visit to Swindon. While some men had naturally taken a large share in the constructional work, others had, through their duties, contributed no more than a detail, or even part of a detail. Yet the men flocked to the exhibition, and proudly brought their wives and families to see the engine they had, in their several ways, helped to make. The *King George V* was indeed a symbol of that sense of 'pride in the job' upon which the Great Western set such store. All the company seemed to glow in the reflected glory of this mighty new tool. For myself, I cannot recall any locomotive being the recipient of such publicity on its first introduction. But as a motive power unit the *King George V*



was not really anything new; it was only a very much larger version of the Stars. However, one innovation, immediately noticed, was the design of the bogie, and that ironically enough was the one feature that was not absolutely right from the word 'go'. For the immediate present however the run with the Cornish Riviera Express on 20 July set the seal on the English preliminaries. Soon afterwards she was being prepared for crossing the Atlantic.



## CHAPTER THREE

### *The American Visit*

ON 3 August 1927, the *King George V* was loaded into the SS *Chicago City*, at Roath Dock, Cardiff. The shipping of such a large locomotive created something of a problem in South Wales. While the Liverpool and Glasgow Docks were equipped to load much larger locomotives for export to India, Argentina and South Africa, and they were dispatched intact, as deck cargo, the South Wales ports were designed primarily for the export of coal, and at Roath the largest cranes were of 70 ton capacity. Accordingly arrangements were made to separate the boiler from the engine framing. A special carriage of large timbers was built to act as a cradle for the boiler during the voyage across the Atlantic, and so, in company with the replica *North Star*, the *King George V* began its historic visit. K. J. Cook had supervised the loading at Cardiff, and Stanier had gone on ahead to prepare the way for the re-assembly of the engine at the Mount Clare shops of the Baltimore and Ohio Railroad. In the meantime the remaining five locomotives of the first batch, Nos 6001-6005, had gone into regular service on the West of England main line, and were immediately acknowledged to be immensely powerful and free-steaming locomotives.

At the same time there were reports of unpleasant rolling at high speed. This was something new for the Great Western. A Castle or a Star might give an isolated lurch, or roll; but the action of the Kings was apt to be more sustained and disconcerting. Then on 10 August, barely a week after the SS *Chicago City* had sailed with the *King George V* on board, high authority



was alarmed to hear, shortly after 11.30am, that the down Cornish Riviera Express was off the road near Midgham. The actual mishap was one of the luckiest escapes imaginable. Only the bogie came off, and although the train was travelling at about 60mph the derailment took place on plain line, and the driver was able to bring the train safely to rest. Had there been points or crossings in their path nothing could have prevented a very bad accident. In any case a most serious view was taken of it, and a full scale inquiry set up at Swindon. All the reports of rough riding were reviewed, and Collett immediately cabled Stanier in the USA telling him that the *King George V* must not do any main line running until permission was sent from Swindon.

In the meantime, the *King George V* had also been subject to rolling, but rolling on the high seas. Captain Short told me how, during a storm in mid-Atlantic, his ship had to heave-to in the middle of the night. The 5x5ft shorings had shifted from beneath the chassis, and it was feared that the engine might break loose; in pitch darkness he had to pick his way along the heaving decks among the lashings and wooden shorings, which fortunately held firm. Captain Short's striking painting of the *Chicago City*, of which he was kind enough to show me the original, shows how tiny the vessel was—only 285ft long, thirty-six years old at the time, and having a registered tonnage of only 1,478 tons.

While the peace of mind of all the senior officers had been sadly disturbed by the Midgham incident—and with good reason—if any news of it did reach the USA, it did nothing to damp the tremendous enthusiasm with which the *King George V* and the men of the GWR were welcomed. The Americans did not wait to see the engine. While the SS *Chicago City* was still at sea, the *New York Herald Tribune* printed this very friendly and enthusiastic article:

#### A DISTINGUISHED ENVOY

The Great Western Railway of England will send as an exhibit to the Baltimore and Ohio centenary this fall the first of its new King class of locomotive. Breathes there a man with soul so dead



that he doesn't thrill a little at such news? Especially when he learns that this engine, now under construction will be capable of a speed of eighty miles an hour, the most powerful locomotive ever built for an English railway.

Somewhere in the breast of every normal *homo sapiens* there stretches a chord that vibrates only to the sight of a fine locomotive. Even now, with airplanes and motors to bid against it in its own field of romantic interest, the steam locomotive retains its fascination. There are probably a number of reasons for this. We can think of two at least—its unusually demonstrative nature and its extraordinary beauty.

Man has devised no other machine that expresses its feelings so frankly and unmistakably. A locomotive sighs, it pants, it coughs, it barks; it emits impassioned shrieks, and mournful toots; it puts forth powerful staccato protests at hauling a heavy load or climbing a steep grade; it purrs ecstatically as it romps along the rails at a mile a minute; it can hiss and throb and snort and tinkle. And in addition to all these auditory forms of expression it has its visual signs, its plumes of steam spelling surplus energy, its belchings of black smoke denoting determination, its sparks at night registering passion.

This new English locomotive that is coming over, the first of its race to pay us a visit since the Chicago World's Fair in 1893, will bear the name *King George V* and be one of twenty, each bearing the name of an English monarch.

The SS *Chicago City* docked at Baltimore on 21 August, and it is really no exaggeration to say that from the moment of landing in the USA the *King George V* created a sensation. At first it was purely technical, in the B & O workshops at Mont Clare. The fine workmanship and *precision* of the entire locomotive took the Americans by surprise. The 'cleanness' of its exterior lines, the quality of the painting, and the restrained, yet beautiful colour scheme were things the like of which had never previously been seen on American railroads; while such details as the gartered coat-of-arms on the tender, and the regal name helped to create a tremendous impression, even before



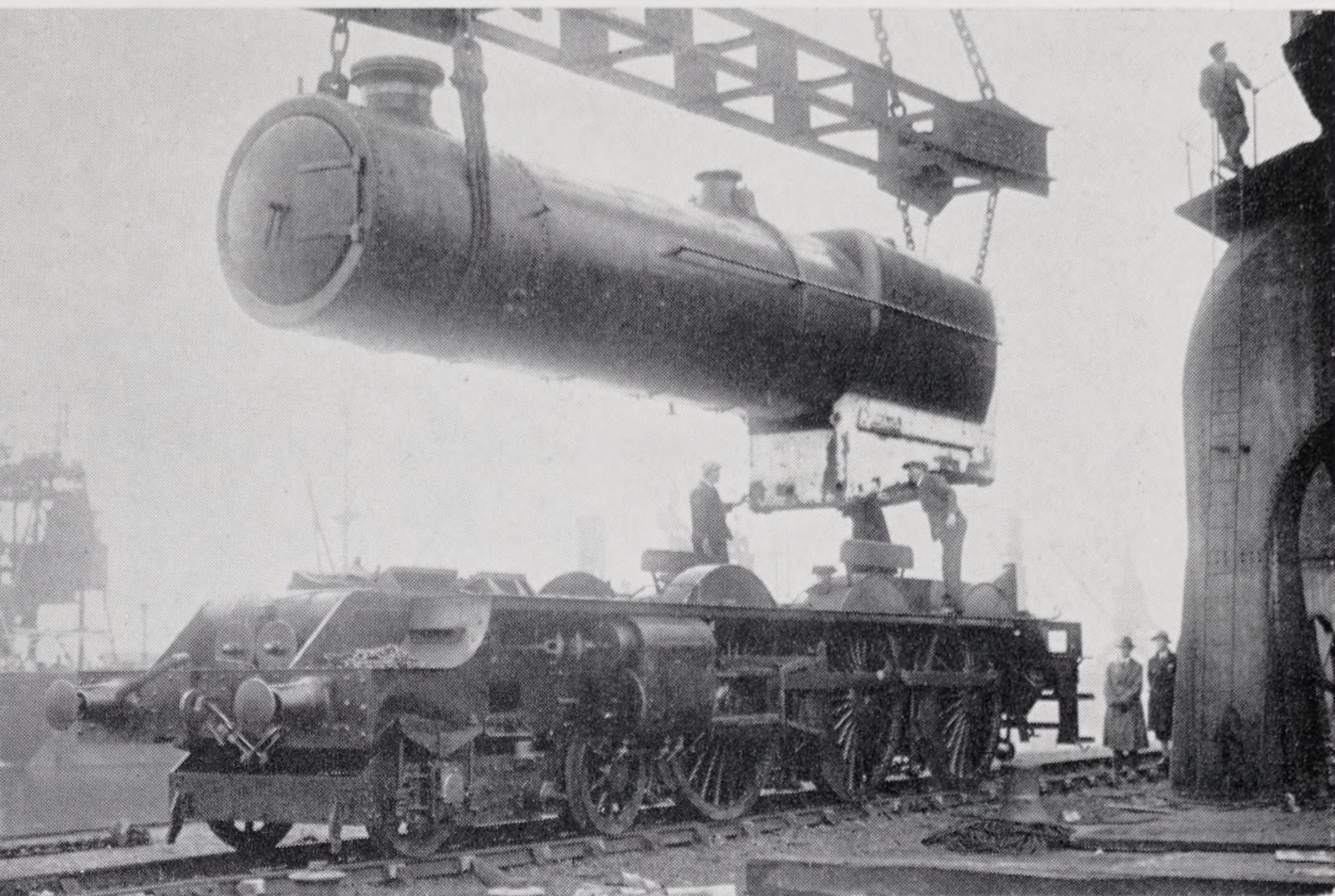
the locomotive came into the public eye. Stanier told afterwards of how many times he heard the comment: 'This is not a locomotive, but an automobile'!

The Baltimore and Ohio Railroad staged their centenary celebrations on the most lavish scale. A large tract of ground at Halethorpe had been taken, and the static exhibits were so arranged that their tracks connected to a loop line; and every day they steamed out in a pageant of locomotives, past and present, in front of the grandstand. In the exhibition proper, the *King George V* was supplied with ladders and stagings so that visitors could climb up and pass across the footplate; and driver Young and fireman Pearce were there to answer innumerable questions. While static, this splendid British exhibit was graced by the presence of Britannia herself, most regally portrayed by Miss Lilian Schueler, the daughter of one of the directors of the Baltimore and Ohio Railroad. In the daily pageant, in a charming gesture on the part of the Americans, the leading places in the parade of big modern engines were given to the visitors—*King George V* followed immediately by two Canadians. By an odd coincidence, the engine immediately following GWR No 6000 bore the number of the very next British locomotive to visit North America, No 6100. The Canadian engine carrying this number in the B & O centenary pageant was the huge new 4-8-4 of the Canadian National, named *Confederation*, and weighing 289 tons with her tender—more than double that of the *King*. I need hardly add that the British 6100 was the *Royal Scot*.

On his return to England Mr Stanier, as he was then, wrote thus of his impressions at the exhibition of the *Great Western Railway Magazine*:

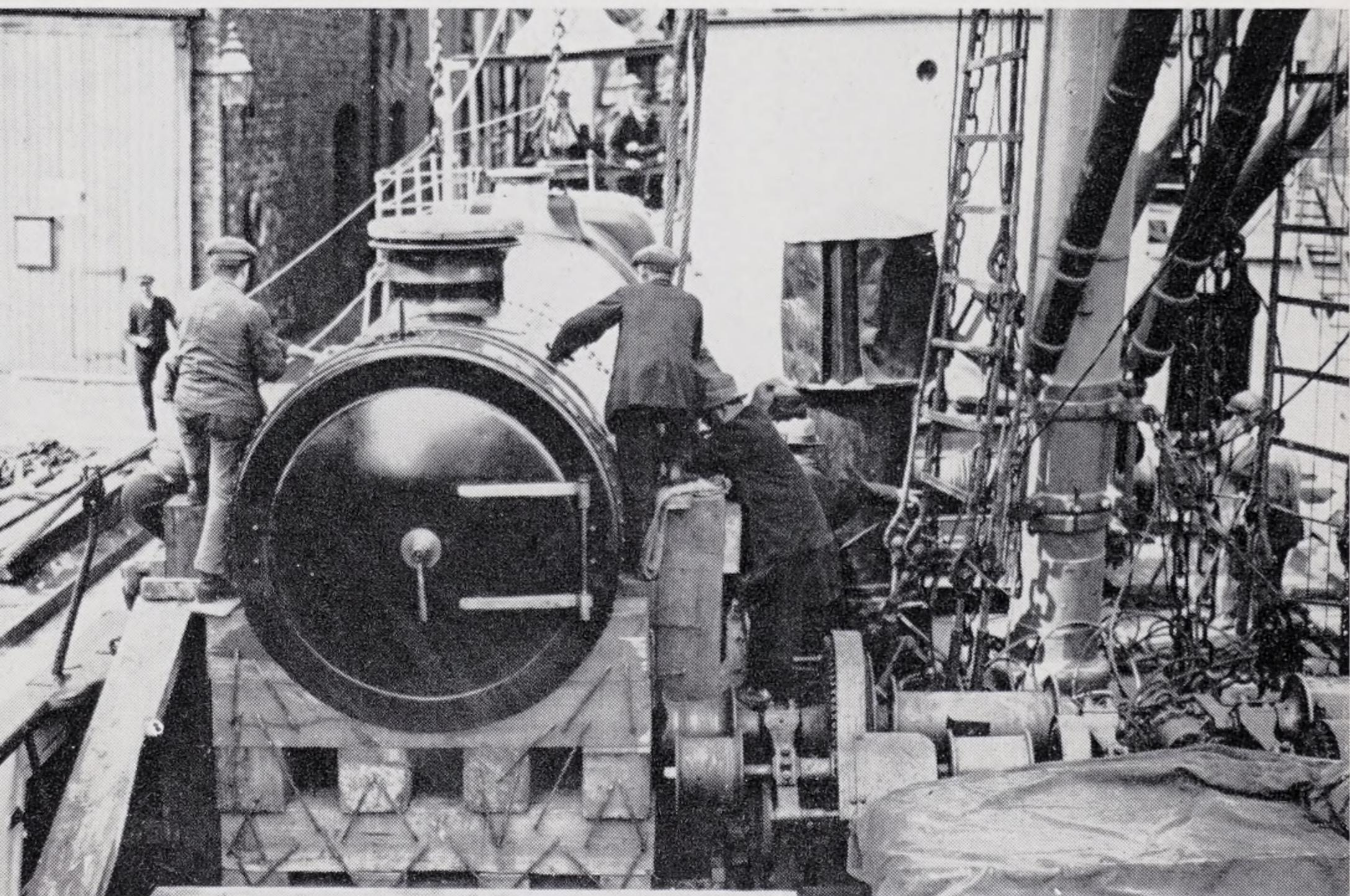
The two things that were asked by everyone who saw the engine were, 'Where is the headlamp, and why isn't there a bell?' It was exceedingly difficult for the average American citizen to appreciate that the railway in England is fenced from end to end, and is private property, and therefore not available for the general





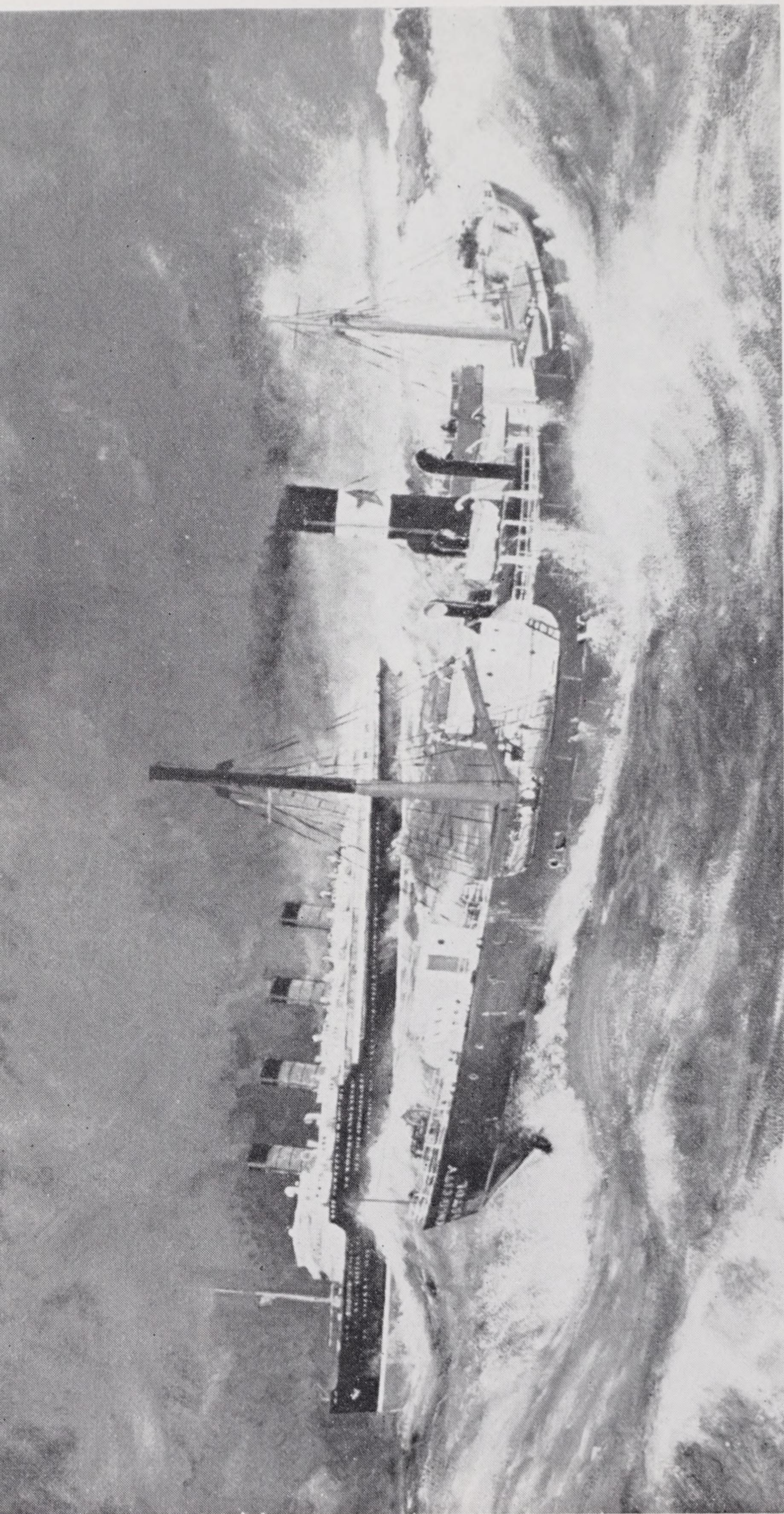
*Acknowledgements to: Capt. C. B. Short*

*Page 35 (upper) Cardiff Docks, August 1927 removing boiler from chassis; (lower) Strapping boiler, port side, aft well deck of the Chicago City*



*Acknowledgements to: Capt. C. B. Short*





*Acknowledgements to: Capt. C. B. Short*

*Page 36 The little ship that took the King George V to Baltimore, and brought her back. Reproduction of an oil painting by Capt C. B. Short, who was mate of the Chicago City in 1927*



public to wander on; also, that there are few grade crossings, and those which exist are protected with substantial gates that even an automobile would hesitate to take 'a chance' at, and not merely a pivoted pole as used in the United States.

A great many railroad officers visited the Exhibition and greatly admired the simplicity and workmanship of the engine. The vice-president of one of the railroads told his superintendent of motive power that he thought they would have to take a course of lectures on art during this winter, and study the meaning of 'line' and outline before they ventured on any new designs.

Among the many visitors to the engine was Mr. Henry Ford, who, after the pageant, came specially to the engine to have a short trip on the track. He commented on the smoothness of the working of the engine, and was very interested when he heard it was a four-cylinder engine. He had numerous photographs taken and said he intended to make a model of the engine.

One day, only about two years before his death I was visiting Sir William Stanier in his home near Rickmansworth. To the very end of his years his memory remained marvellous, and he told me of an incident that occurred during the exhibition that had not, so far, got into print. During the exhibition the engine was approached by a party of Americans led by a loquacious fellow who 'knew it all'. He went to some length to explain to his companions the working of the 'vaccum' brake. He can perhaps be forgiven for not knowing that on Great Western four-cylinder 4-6-0s the cross-head pump was inside. He concluded his lecture with a reference to this apparatus, and mistaking its whereabouts gave one of the outside valve chests a friendly pat. His well-meant though theatrical gesture ended in a yell—'Hell, its hot'!

The exhibition remained open until 15 October 1927, and after it was over Daniel Willard, President of the B & O wrote to Sir Felix Pole:

I doubt if I can tell you how greatly the *King George V* and the *North Star*—but more particularly the *King George*—contributed



to the success of our exposition. While some people in the United States have visited England, and are acquainted with the appearance of English railway equipment, of course a very large majority of our people have never been abroad, and to them an English locomotive, and particularly as beautiful a machine as the *King George*, was something of more than ordinary interest. You would have been glad, I am sure, if you could have heard the applause which greeted the appearance of the *King George* as she moved by the reviewing stand each day in the pageant.

I want to congratulate you also upon the very fine type of men who represented your Company and looked after the locomotive. They were all a fine lot of fellows, and our people were particularly impressed by the very skilful and intelligent manner in which Mr. Young, the driver in charge of the *King George*, handled the engine on the special experimental trip.

I was sorry that I could not personally go with the engine on the run which she made between Washington and Philadelphia, but other engagements on that date prevented me from doing so. I am told, however, that her performance was very creditable. Our own officers were very impressed by the smoothness with which she ran and with her good riding qualities.

This was praise indeed. The engine and her crew did an immense job of publicity for the British railways in general and for the Great Western in particular, and in recording this I must not on any account leave out of honourable mention the two splendid men from Swindon 'A' shop, chargeman fitter Fred Williams, and fitter William Dando, who accompanied this highly successful expedition. By the time the exhibition was over Swindon had partially resolved the difficulty over the bogie suspension, sufficiently for the engines 6001-5, to resume normal duties. Details were sent to Stanier, and he was able to get the modifications done in the Mont Clare shops of the B & O. Before passing on to what was perhaps the most remarkable phase of the American tour, I must refer to the bogie defect that caused the derailment at Midgham to engine No 6003. In a test at Swindon, it was found that a downward drop of



1½in relieved the wheel of all load, and there was thus little margin for defects in the track, consistent with the wheel loads remaining sufficiently to ensure adequate flange control. Coil springs were therefore introduced into the spring hangers to soften the springing. Although this was not the final arrangement, it was found sufficient to cure the rolling, and it was with this modification that the *King George V* embarked upon her road tests in the USA.

On 17 October, arrangements had been made for the engine to make a run of 272 miles: from Baltimore to Washington; then back from Washington through Baltimore to Philadelphia, and finally from Philadelphia to Baltimore. It was an extremely severe test for both locomotive and crew. Driver Young, of course, had a pilotman with him, but the road, the signals and the general atmosphere were strange, while his fireman had to contend with a hard gas coal, very different from that to which he was normally accustomed, and which formed large quantities of clinker in the box. This was no small problem on a locomotive of such specialised design as the King. The load was one of seven coaches; but 'seven' on the B & O was not exactly a Cheltenham Flyer load. They had an average tare weight of nearly 80 tons apiece, and made up a train of 543 tons! This was considerably heavier than the winter load of the Cornish Riviera Express, and then only carried for the first 95 miles of the journey. Coupled immediately behind the tender on this American test run was the dynamometer car, in which rode many senior officers of the B & O and also of the Pennsylvania, and the Delaware and Hudson Railroads.

The opening run, to Washington, began with a series of signal stops, and the first 11¾ miles to Dorsey, took 34¼min; but after that they got going in fine style, and covered the 29.6 miles from Dorsey to Alexandria Junction at an average speed of 57.3mph, with a maximum of 74mph. They arrived at Washington at 9.32am after having been on the road 63min, but then the train was turned on a triangle layout, and after a



break of not more than 22min they were off again, this time on a through working of  $132\frac{1}{2}$  miles, to Philadelphia. The accompanying table sets out full details of a remarkable run.

## WASHINGTON — PHILADELPHIA

Load: 7 cars, 543.6 tons Engine: 6000, *King George V*

<i>Distance Miles</i>		<i>min. sec.</i>	<i>Av. speed m.p.h.</i>
0.00	NEW YORK AVENUE	0 00	—
0.57	"F" Tower	2 30	13.6
4.68	Alexandria Junc.	8 20	42.4
7.49	Berwyn	12 00	46.0
12.83	Muirkirk	17 55	54.0
16.45	Laurel	21 45	56.5
19.87	Camp Meade Junc.	25 00	63.4
21.98	Jessup	27 00	64.0
24.37	Dorsey	29 10	66.4
28.79	Relay	33 30	61.4
30.54	Halethorpe	35 50	44.9
34.42	Carroll	40 55	45.6
35.30	Bailey	42 40	30.4
36.00	CAMDEN	44 55	
0.00		0 00	
1.44	Mount Royal	5 10	16.7
1.83	North Avenue	6 20	20.5
2.47	Huntington Ave.	8 25	18.3
3.40	Waverley	10 50	23.2
6.79	Bay View	15 40	41.8
13.14	Poplar	22 40	54.6
15.67	Cowenton	25 10	57.9
19.69	Bradshaw	30 15	47.3
21.34	C. N. Tower	32 40	41.3
23.62	Van Bibber	35 10	54.3
27.33	Belcamp	38 50	60.7
32.23	Aberdeen	43 50	58.8
34.11	Swan Creek	45 55	54.1
36.93	Havre de Grace	48 50	58.0
39.35	Aiken	53 40	30.1
44.83	F. H. Tower	59 50	43.5
47.80	Leslie	63 10	53.5



<i>Distance Miles</i>		<i>min. sec.</i>	<i>Av. speed m.p.h.</i>
52.56	Childs	69 05	48.3
53.80	Singerly	70 35	49.6
	Elks Mills:	w stp 6m 40s	
59.36	Newark	85 55	—
65.34	Stanton	92 40	53.2
67.69	W. J. Tower	96 05	41.5
68.51	Wilsmer	97 50	28.1
69.63	Elsmere	98 55	62.0
71.48	Wilmington	102 05	35.1
76.12	Silverside	108 20	44.5
82.42	Feltonville	114 40	59.7
84.63	Chester	117 20	49.7
91.34	Derby	127 50	—
95.02	East Side	133 15	—
96.51	PHILADELPHIA (Chestnut St.)	137 45	

The start, through the complicated yard layouts and station approaches that are so characteristic of North America, was slow, and the 4.68 miles to Alexandria Junction took 8min 20sec; but after that they did splendidly, despite a much greater fluctuation in steam pressure than would be normal on the GWR. It varied mostly between 240 and 215lb per sq in on the opening run to Camden. It will be seen from the log that the 25.86 miles from Alexandria Junction to Halethorpe took only 27½min. In this distance the gradients are rising to Muirkirk mostly at 1 in 250 or 1 in 300; undulating thence to Camp Meade Junction and then downhill on easy gradients to Relay, where a maximum speed of 73mph was attained.

It was however on restarting from Camden that engine and crew put up what was perhaps their most impressive performance. The gradient is rising at 1 in 79 through Howard Street tunnel and continues on this severe inclination for nearly 2½ miles. Here it was shown that the sure-footedness, characteristic of Great Western locomotives in general, was not lacking in the



new Kings, despite the very high nominal tractive effort. Driver Young started the engine in full forward gear, and slowly reduced it to 55 per cent. There was not a vestige of slipping and the speed rose to 23mph on the bank. A drawbar pull of 9tons was registered in the dynamometer car, and marking allowance for the 1 in 79 gradient the equivalent drawbar pull was nearly 60 per cent of the nominal tractive effort. No wonder the American engineers were impressed! They were equally impressed when the engine was run for long periods on 15 per cent cut-off. Note was also taken particularly of her smooth and quiet action, excellent riding qualities, and complete freedom from any tendency to nose or lurch. Another point that created comment everywhere was the almost entire absence of black smoke from the chimney, in striking contrast to all the Canadian and American engines—which smoked heavily even on making the exhibition round. An American observer suggested that this might be due to a more efficient design of firebox; but Great Western firemen were past masters in the art of avoiding the emission of black smoke, and I should imagine that this feature of the working of the *King George V* in America was due as much to the training and skill of fireman Pearce as to the design of the firebox.

One could continue discussing points on that memorable day's running for page after page; but they merely emphasise the profound impression made upon some of the most eminent United States locomotive engineers of the day. There was an amusing incident at Baltimore, before the locomotive was loaded on board ship for the return journey to Cardiff. The only floating crane capable of handling the engine was privately owned and very competently operated by an Irish family. But when the time came for loading, it was found that the crane could not be used, because the entire crew was in gaol, for being drunk and disorderly! How authority was persuaded to release them is not disclosed; but released they were, and the engine and tender, together with the replica *North Star* was safely



loaded. The big engine carried several mementoes of the trip, including the famous bell. This bears the inscription

PRESENTED TO LOCOMOTIVE KING GEORGE V  
BY THE  
BALTIMORE AND OHIO RAILROAD  
IN COMMEMORATION OF ITS  
CENTENARY CELEBRATIONS  
SEPT. 24 - OCT. 15  
1927.

There are also the cab-side medals, shown in the photograph (page 46). The engine was hailed before her arrival in the USA as a distinguished envoy; her reputation certainly soared to a crescendo of acclaim before she returned to England.



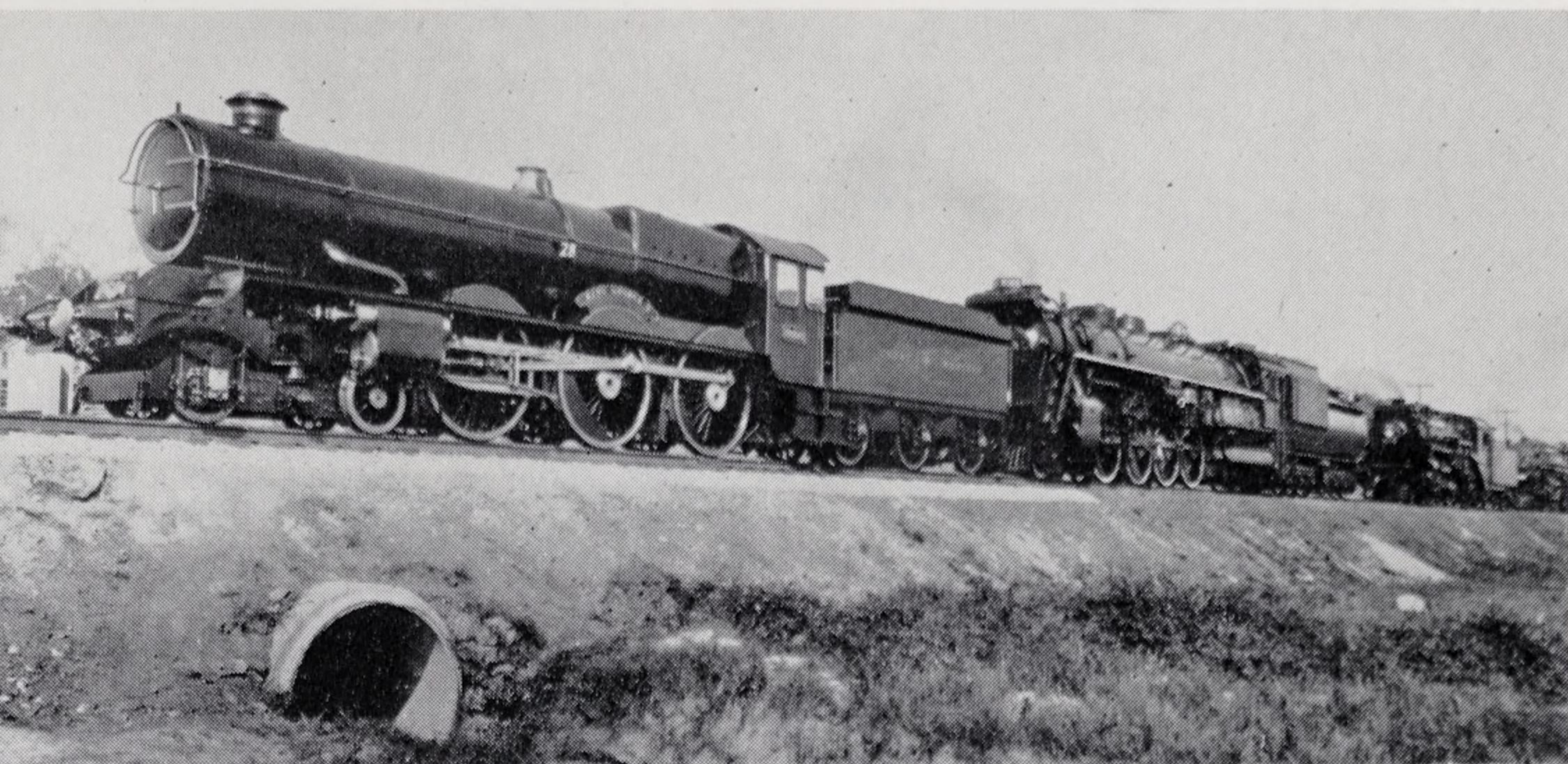
## CHAPTER FOUR

### *The King of Railway Locomotives*

ENGINE No 6000 returned from the USA in November 1927 to find the class, of which she was the pioneer, basking in the greatest blaze of publicity that has ever been accorded to any British locomotive class, before or since. It is true that there was some pretty strong opposition from Euston, where a publicity leaflet issued on behalf of the then new Royal Scots was prefaced by a quotation that ran: 'greater than the people, or the Kings, we are everything on earth, but Gods'. But while all railway enthusiasts welcomed the advent of the long delayed new express locomotive type of the LMS, no one took seriously any claim it may have had to challenge the supremacy of the Kings.

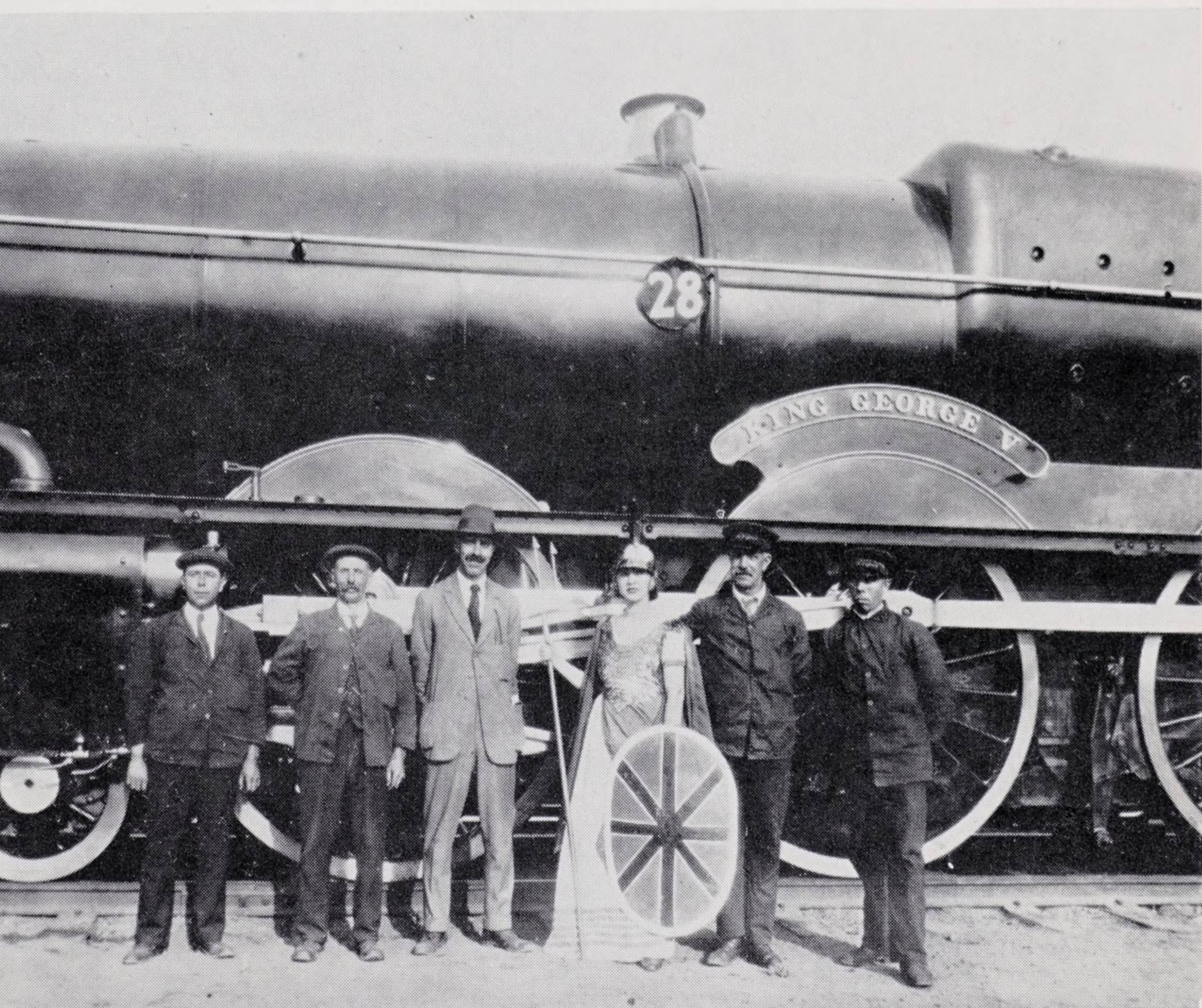
Few British enthusiasts will be familiar with the splendid booklet issued in the USA at the time of the Baltimore and Ohio centenary, entitled *Great Western Railway of England, 1837-1927*, which was the result of some ultra-high speed production work by the publicity people at Paddington. Naturally the *King George V* featured prominently in this booklet, and there were official photographs of the engine taken at Swindon shortly after construction. But one of the most interesting items in this production was the juxtaposition of two views of trains emerging from Box Tunnel. One was an early drawing showing a broad gauge locomotive; the other showed the *King George V* 'in the same location'. Actually the latter was taken at the neighbouring, but equally impressive western portal of Middle Hill Tunnel. One can certainly applaud





*Acknowledgements to: B.R. Western Region*

Page 45 (upper) Baltimore, 1927. The *King George V* heading the parade of locomotives; (lower) a group at Baltimore. Left to right: Fitter W. Dando, Swindon "A" shop; Chargeman Fitter, F. Williams; Mr. W. A. (afterwards Sir William) Stanier; Miss Lilian Schueler (*Britannia*); Driver W. Young, Old Oak Common; Fireman Pearce, Old Oak Common



*Acknowledgements to: B.R. Western Region*





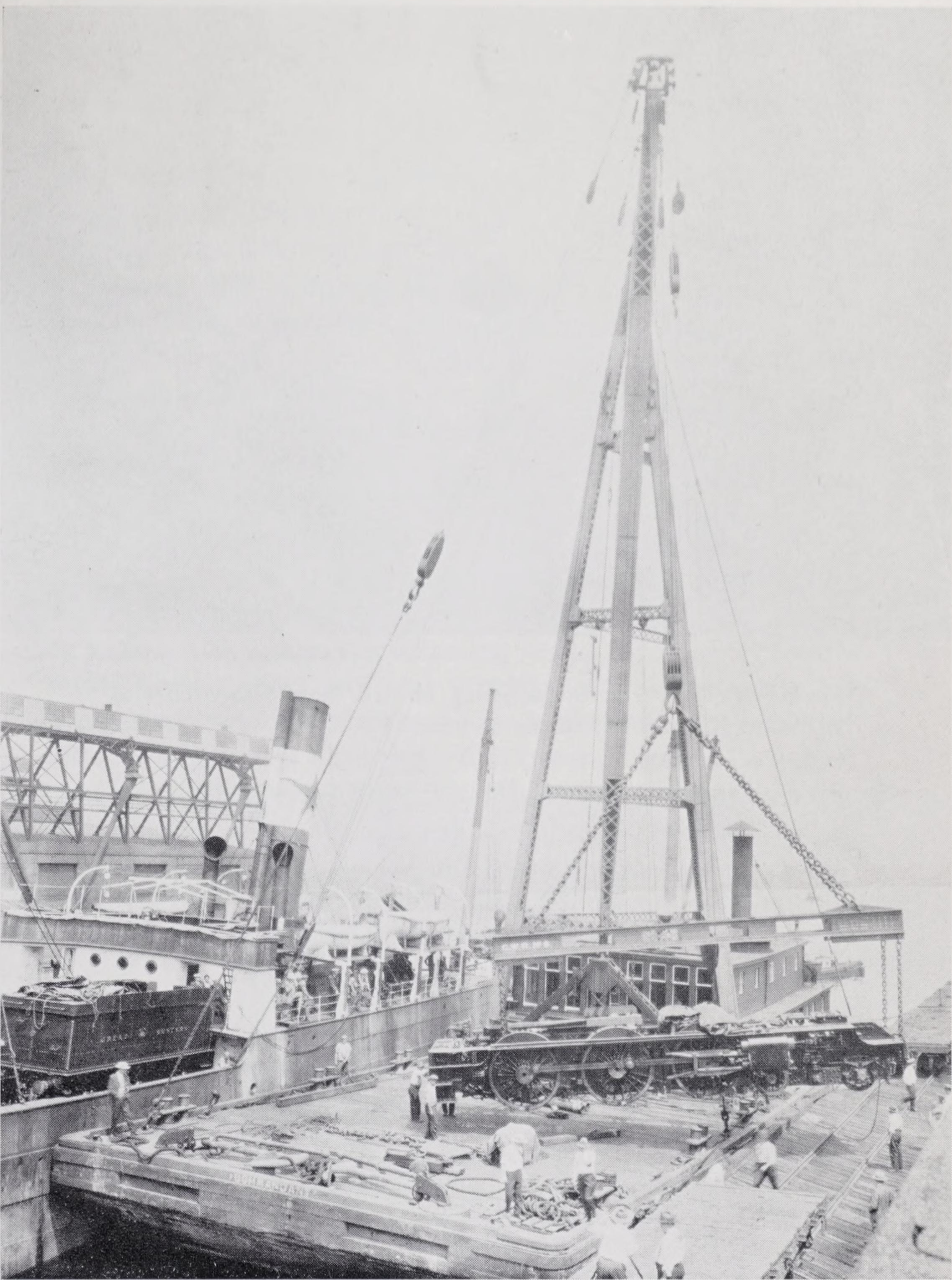
*Acknowledgements to: B.R. Western Region*

Page 46 (upper) The commemorative medals award to the King George V; (lower) The presentation bell

*Acknowledgements to: B.R. Western Region*



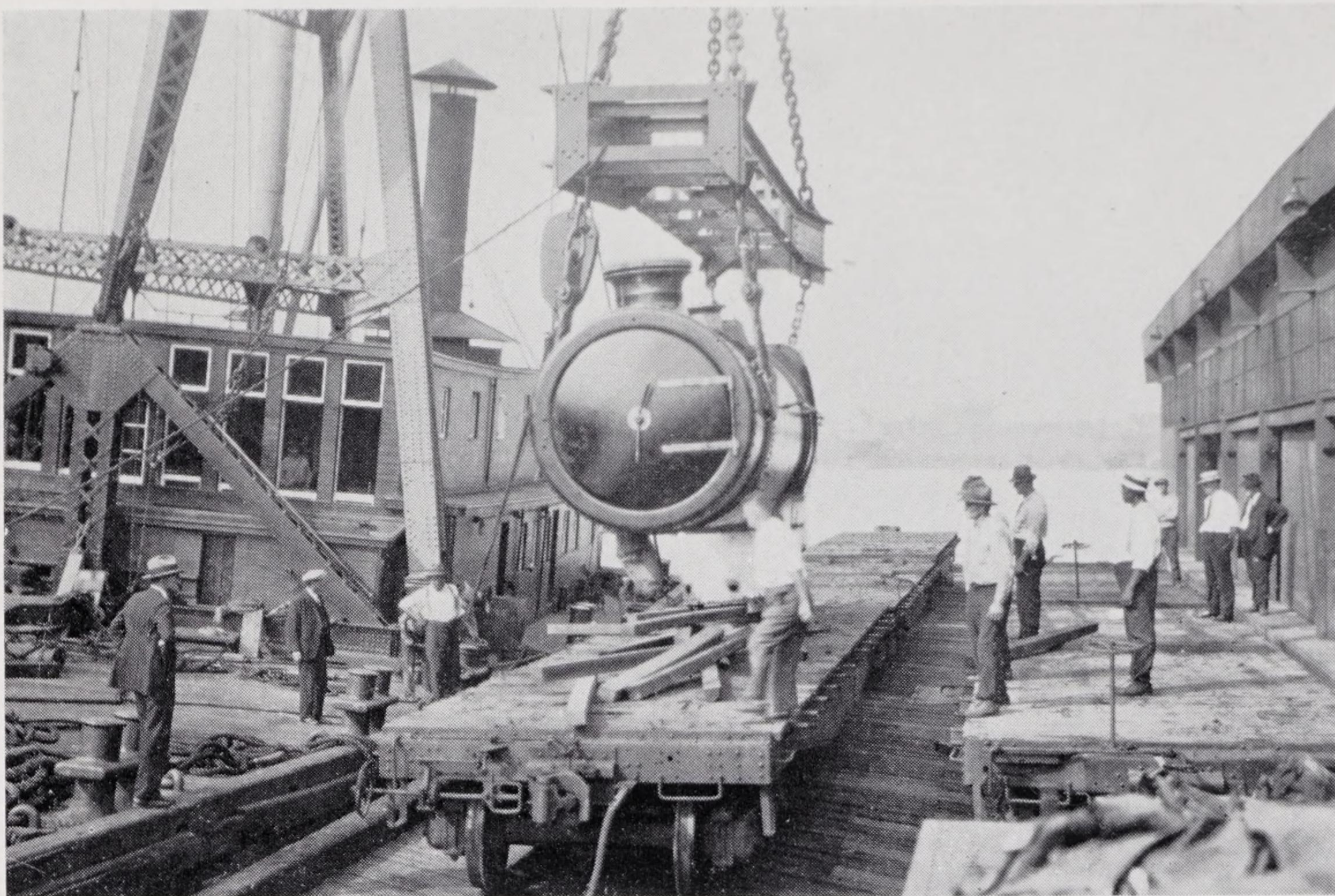




*Acknowledgements to: Capt. C. B. Short*

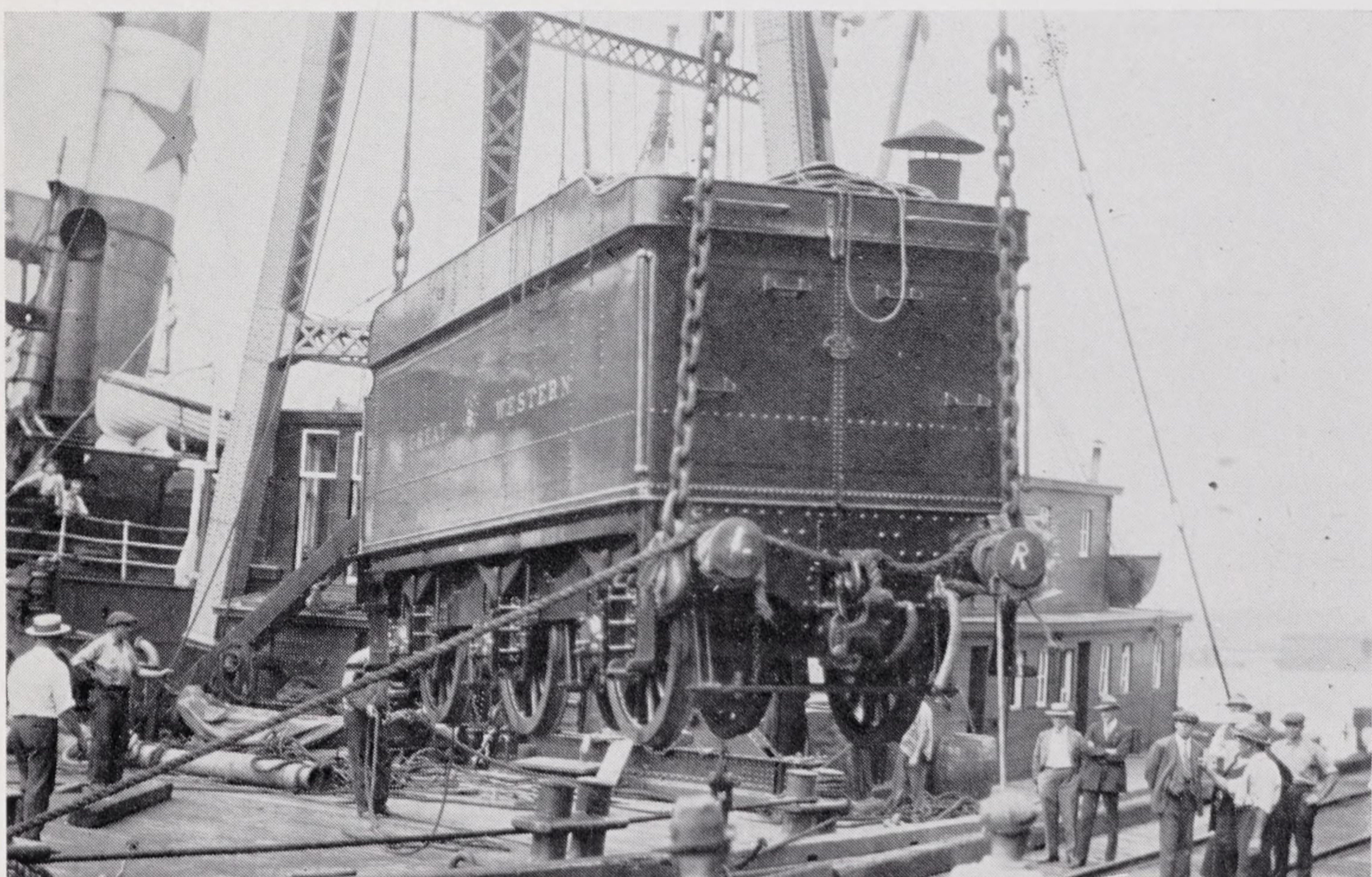
*Page 47 Loading at Baltimore for the return journey: November 1927*





*Acknowledgements to: Capt. C. B. Short*

*Page 48 (upper) The boiler going aboard the Chicago City at Baltimore; (lower) The tender on the crane*



*Acknowledgements to: Capt. C. B. Short*



the enterprise of the management, who having very little time to spare still contrived to work the engine down to Box, and pose her for a picture that was to appear in a booklet less than a month later. The photograph is interesting as it is one of the very few taken out on the line, when the engine was not carrying the famous bell. It was purely a posed picture, because at that time, and for some nine months afterwards, King class locomotives were not allowed to run through Bath. Strengthening of the viaduct just beyond the station had not been completed.

It was on 3 November 1927, that the Great Western Railway inaugurated the famous series of half-day excursions to Swindon Works, the ‘birthplace’ of the *King George V*. So great were the advance bookings that although arrangements were made to run the train in two portions, bookings had to be suspended two days before the trip. The response to this enterprising excursion was a little embarrassing to the locomotive department, because not only had arrangements to be made for conducting hundreds of visitors round the works, but an added attraction had been advertised, that the train would be hauled by a locomotive of the King class. The train expanded into two before bookings were suspended, and at that time the GWR had only six engines of the class. Of those six, one was on its way back from the USA, and two more were needed for the down and up Cornish Riviera Express; so it was cutting things fine to spare two more for the Swindon runs. For the record, the engines used on those historic first excursions, of which many more were run subsequently, were No 6001 *King Edward VII* and 6003 *King George IV*. The fare from Paddington was 5/- return, and more than 700 passengers travelled. Moreover, the great majority seemed to be men in middle age. Photographs taken of the participants being ushered from the station to the works show a smartly dressed assembly, mostly in bowler hats and trilbys—very far from the gathering one would see on an enthusiast’s special of today.

The first excursion was repeated on 10 November, and this



had an added interest, for one of the trains, again powered by engine No 6001 *King Edward VII*, was manned by driver Young and fireman Pearce, just returned from their visit to the USA. One would imagine they found the Swindon excursion, with a load of about 350 tons, a mere holiday outing after that dynamometer car test run. These very popular 5/- excursions were continued for some little time, and the first recorded occasion on which engine 6000 was used is worth putting on record, not so much as evidence of the tractive power of the locomotive but in recognition of the intensely sustained interest that continued as a result of the publicity campaign run from Paddington. The ten-coach trains were run more in view of the need to have manageable parties in the works rather than from any lack of locomotive power. This run, which is set out in the accompanying log, had a very leisurely start, and speed had not greatly exceeded 60mph by the time Uffington was passed; but from Challow until the first of the signal checks came, 50.7 miles, to West Drayton, were covered in 43mins 1sec at an average speed of 70.8mph. It is interesting to reflect that after the exploits of engine No 6001 in the early summer of 1953—a quarter of a century later!—we should have not been altogether surprised if similar times to those in the accompanying table had been made with a train of 800, not 330 tons. Such was the tractive capacity built into these remarkable engines.

Engine 6000 made her first appearance at Bristol on 15 May 1928, to work the 11.45am up two-hour non-stop to Paddington, via Badminton. The ban on the working of these engines via Bath had not then been lifted, and they could not be diagrammed to three double-home turns in the London-Plymouth link, the 11.15am and 6.30pm down from Paddington, and the 3.50pm up mail from Plymouth, the engine from which continued on the 7.35pm from Temple Meads to Paddington. So far as No 6000 was concerned, apart from London-Plymouth workings via Westbury, when more engines of this class were available she began to take her part on the one Old Oak



5/- RETURN EXCURSION: SWINDON-PADDINGTON

Load: 10 cars 316 tons tare, 330 tons full

Engine: 6000 *King George V*

<i>Dist</i> <i>Miles</i>		<i>Actual</i> <i>m s</i>		<i>Av speed</i> <i>mph</i>
0.0	SWINDON	0	00	—
5.7	Shrivenham	9	05	37.7
10.8	Uffington	13	50	64.5
13.4	Challow	16	12	66.0
16.9	Wantage Road	19	12	70.0
20.8	Steventon	22	31	70.7
24.2	DIDCOT	25	21	72.2
28.8	Cholsey	29	23	68.8
32.6	Goring	32	31	72.5
35.8	Pangbourne	35	13	71.2
38.7	Tilehurst	37	38	71.8
41.3	READING	39	54	69.3
46.3	Twyford	44	17	68.4
53.1	Maidenhead	50	03	70.8
58.8	SLOUGH	54	48	72.0
64.1	West Drayton	59	13	72.1
—		sigs		—
71.6	Ealing	68	37	47.9
—		sigs		—
76.0	Westbourne Park	74	22	56.3
77.3	PADDINGTON	77	38	

Common turn to Wolverhampton—the 9.10am down from Paddington and the 2.35pm up. In the summer at any rate, the latter was one of the hardest jobs on the Birmingham service, having intermediate stops at Leamington and Banbury within a schedule of 2hr 5min from Snow Hill to Paddington, and often with a load of nearly 500 tons. In ordinary service on these trains engine No 6000 seems to have escaped the meticulous attention of that very expert band of train-logging friends in the West Midlands, Messrs A. V. Goodyear, C. Manison, and J. C. Keyte; but for special occasions she remained the veritable ‘flagship’ of the GWR locomotive fleet, always in demand for any special occasion.



It was typical of the Great Western publicists of that era to 'cash in' upon the fact that the GWR formed one link in the fastest existing passenger service between London and New York. The calling of transatlantic liners at Plymouth gave the Great Western a substantial 'edge' upon the Southern in this respect, because liners berthing at Southampton almost invariably called first at Cherbourg, to facilitate their continental European traffic. It was certainly an imaginative touch to put the inscription 'London-New York via Plymouth' on the headboards of an outward-bound Ocean Liner express from Paddington; and to haul this train engine No 6000 was selected—which better! It was a constant source of gratification to Sir Felix Pole, in his last years as general manager, that the American connection with the GWR, which he had fostered from 1925 onwards should have remained so strong. The *King George V* had been back in England for barely six months when he received a letter from Mr C. W. Galloway, vice president of the Baltimore and Ohio Railroad, which read as follows:

It might interest you to know that we have just finished a locomotive with water-tube back and eliminating entirely stay bolts. This engine was designed by Col. George H. Emerson, our Chief of Motive Power and Equipment, and was built at our Mt. Clare shops, Baltimore. I am enclosing you a photograph of it. You will note we have copied the front end from the *King George V*, and we endeavoured to copy the stack, but do not believe we got that quite right in the shape of the copper top. I might trespass upon you to impose the request, if you have a plan of this stack, to send me one that we might copy it correctly.

You will also note that we have endeavoured to eliminate all the trimmings usually found on the exterior of an American locomotive, and with the exception of the two air tanks for the automatic brakes we have concealed everything. The air pump is between the frame opposite the centre of the two back drivers.

The photograph of that very handsome Baltimore and Ohio Pacific, the *President Cleveland*, with its copper capped chimney,



hung for many years in the famous dining room on the down main-line platform at Swindon, with a suitably engraved tablet of inscription on the frame. One day in the early spring of 1952, in another connection altogether, I met Sir Felix Pole at Swindon. Then, sad to relate, he was totally blind. He had with him one of the youngest of his grandsons, and before proceeding to the main business of our meeting he asked me to lead him to the dining room, and to the picture of the American locomotive. ‘There you are’ he said, and then to his grandson: ‘Now read to me what it says on that brass plate?’ And that delightfully childish treble voice told us once again how the picture of the *President Cleveland* came to be in Swindon.

In those early days, the *King George V* had indeed become a legend on both sides of the Atlantic. Bassett-Lowke turned out a remarkably faithful and very cheap ‘O’ gauge model, naturally including the American bell. I have one of them myself. Another owner, whose entire family participated in the running of his model line, had this to say of the famous engine:

From the moment *King George V* came into our possession, much as it was loved for its own sake, the prototype haunted the children’s imagination like some fabled deity. One day, they told each other with bated breath—one day, if they were lucky—they might ‘truly’ see the real *King George*. And here I may relate how, after we had settled in Devon, the miracle at last happened. Having to change trains at a junction some few miles from our own town, we walked up the platform to see what engine had hauled us thus far. But to see is not always to believe! There, on the splash-boards of the locomotive, were letters that spelled *King George V*! There, mounted on the buffer beam, as faithfully reproduced in the model, was the American engine bell presented to this illustrious steam monarch when it toured the United States! Could we trust the evidence of our senses? While, however, we were still blinking incredulous eyelids the golden moment was further gilded. Under the very gaze of the station master, who must have been known to interpret the spirit rather than the letter of the bye-laws, the driver, moved by our homage, asked David



if he would like to step on to the foot-plate for a minute before the guard waved his flag. David was on the engine, peering with awed surprise into the cavernous length of its furnace, before we—or himself—realised it; and I followed at my own invitation. We descended begrimed and oily, and it happened, as things will happen in this contrary world, that I, who have to be dragged into an outfitter's or tailor's shop before I will replace a tattered garment was wearing a new Overcoat for the first time. . . !

I may add that the 'David' of this story is now the kindly publisher who commissioned this book.

The legend of *King George V* grew. In the Christmas holidays of 1928, or more correctly just after New Year, the Crusaders Union planned to pay a visit to Swindon works. It was to be organised on the same lines as the periodic 5/- half-day excursions from Paddington. The date was to have been 3 January 1929; but there was consternation both among the organising members of the crusaders and the GWR, when they received more than *two thousand* applications from schoolboys all over the country. In view of such interest and enthusiasm it was agreed by all that no application should be turned down and that the excursion should be spread over three days.

In this way it was possible to avoid disappointing anyone, because when the trip was first advertised it had been announced that the special train would be hauled by the *King George V*. The actual number of passengers conveyed was 1,970, and, whereas for the earliest 5/- trips roughly 700 a day had been conveyed in two trains, on 3, 8 and 10 January only one train was run. The locomotive department had by that time ample confidence in the capacity of the Kings, and trains of twelve and thirteen coaches were run with the utmost facility. Although by that time details had appeared in the railway press of heavy load performances by the Kings on the West of England service, and on the Birmingham line, engine 6000 had so far escaped the gentlemen with the stop watches. But Cecil J. Allen was a leading figure in the Crusader's Union, and the runs of 3, 8 and 10



January 1929 were fully recorded. Together they provide a fine record of the performance of the engine, on an almost level road.

A schedule of 80min start-to-stop had been laid down for each direction of running, and this of course was considerably harder in the down direction, which is slightly, but almost continuously against the collar. As it worked out, not the slightest difficulty would have been experienced in keeping time with these heavy trains had it been possible to keep the line entirely clear; but this, after all, was only a half-day excursion, albeit rather a special one. On the down journey there was a semi-fast train from Wolverhampton to Weymouth that had a margin of only 7min ahead at Swindon. On the first two runs this train was running late and caused delay; but on the third its driver was urged to 'get a move on' by instructions telephoned to Oxford, and the special got such a clear road as to reach Swindon  $4\frac{1}{2}$ min early. On all three occasions top link engine crews from Old Oak Common shed were on the job. Contrary to what is sometimes believed, the Kings like other Great Western express locomotives did not have regular drivers, and Old Oak men in particular worked a diversity of locomotive classes in their wide ranging duties.

Wasley, who was in charge on 3 January, was a splendid engineman. I had a number of excellent runs with him myself, and he made a grand start, and showed at once that a King could run at well over 70mph on level track with a load of 510 tons. Having passed Reading nearly 3min early the rest was easy, until the concluding check prevented strict time keeping. Ruddock, who officiated on 8 January, was later to make the 'Record of Records' with the Cheltenham Flyer in 1932. He made a remarkably steady run, keeping the speed between the narrow limits of  $64\frac{1}{2}$  and 67mph over the entire 53.3 miles from West Drayton to Uffington. The last run was a magnificent performance with an average of exactly 70mph from Slough to Didcot, and a notable maximum speed of 74mph on dead level track near Pangbourne. Runs like these, in the varied



methods of handling by the individual drivers, were certainly second to none in British locomotive performance records at that time.

## CRUSADERS UNION TRIPS: PADDINGTON-SWINDON

Engine: 6000 *King George V*

<i>Date</i> <i>Load tons E/F</i> <i>Driver</i>			3-1-29 476/510 Wasley	8-1-29 436/460 Ruddock	10-1-29 436/465 Wimhurst
<i>Dist</i> <i>Miles</i>		<i>Sch</i> <i>min</i>	<i>Actual</i> <i>m      s</i>	<i>Actual</i> <i>m      s</i>	<i>Actual</i> <i>m      s</i>
0.0	PADDINGTON	0	0    00	0    00	0    00
1.3	Westbourne Park		3    30	3    25	3    30
5.7	Ealing		9    05	9    20	9    25
9.1	Southall	12	12   35	12   55	12   55
13.2	West Drayton		16   30	17   00	16   50
18.5	SLOUGH	21	21   00	21   45	21   25
24.2	Maidenhead	27	25   55	27   10	26   25
31.0	Twyford		31   45	33   25	32   20
36.0	READING	39	36   15	38   05	36   40
41.5	Pangbourne		41   15	43   05	41   20
48.5	Cholsey		47   45	49   30	47   10
53.1	DIDCOT	56	52   15	53   40	51   10
56.5	Steventon	60	55   35	56   55	54   10
60.4	Wantage Road		59   30	60   35	57   45
63.9	Challow		63   00	63   55	61   10
66.5	Uffington		65   35	66   25	63   45
			sigs	sigs	—
71.6	Shrivenham		72   35	71   50	68   45
				sig stop	
77.3	SWINDON	80	81   35	81   20	75   25
<i>Principal speeds mph</i>					
	Slough		72½	67	71½
	Reading		67	65	69/74
	Didcot		62	65	71½
	Uffington		60	64½	64½
<i>Net times</i>		<i>min</i>	77¼	77¾	75½



On the homeward run I have tabulated only the third of the three journeys. On 3 January driver Wasley was stopped by signal at Wantage Road, after several preliminary checks. This put the train nearly 8min late through Didcot, with only 47min left to cover the remaining 53.1 miles. He did well to pick up 4½min, averaging 67mph from Didcot to Ealing, with this 510 ton train. Driver Ruddock was running 2min early at Maidenhead, but then became involved in fog delays, and was 3min late into Paddington. On the third run, however, driver Wim-

CRUSADERS UNION EXCURSION: SWINDON-PADDINGTON

Load: 12 Cars, 436 tons tare, 465 tons full

Engine: 6000, *King George V*

Driver: Wimhurst

<i>Dist</i> <i>Miles</i>		<i>Sch</i> <i>min</i>	<i>Actual</i> <i>m s</i>	<i>Speeds</i> <i>mph</i>
0.0	SWINDON	0	0 00	—
5.7	Shrivenham		9 00	60
10.8	Uffington		13 50	65
13.4	Challow		16 15	—
16.9	Wantage Road		19 15	70½
20.8	Steventon	21	22 40	71½
24.2	DIDCOT	25	25 30	71½
28.8	Cholsey		29 30	72½
			sig slight	65
35.8	Pangbourne		35 35	69
41.3	READING	42	40 20	71½/68
46.3	Twyford		44 40	70½
53.1	Maidenhead	54	50 15	72½
58.8	SLOUGH	59	55 00	71½
64.1	West Drayton		59 30	69
68.2	Southall	68	63 05	68
71.6	Ealing		65 55	—
73.0	Acton		67 10	—
			sigs	
76.0	Westbourne Park		70 50	—
			sigs	
77.3	PADDINGTON	80	74 20	—

Net time 72¾ mins



hurst got a clear road until east of Acton, and made this splendid run I have tabulated. Again, it will be seen from the log, it was the notable evenness of the speed, a little above or a little below 70mph throughout from Uffington to Southall that made for such excellent times. Although the trains concerned were, from the passengers' point of view cheap (very cheap!) half-day excursions, they were nevertheless 'show' occasions, and in each case chief locomotive inspector Robinson rode on the footplate.



## CHAPTER FIVE

### *Performance: an Analytical Study*

It is now time to set aside all this publicity, the glamour, and the adulation lavished upon the King class locomotives by a remarkably high proportion of the railway enthusiast fraternity, and get down to a serious analysis of their work as motive power units in day-to-day traffic. This I cannot do from data recorded with the one engine *King George V*. To substantiate and establish the position of the design in locomotive history, the record of the class as a whole must be reviewed, and particularly during the twelve years 1928 to 1939 when they were running in the conditions for which they were designed. The analysis can however be very appropriately initiated by a study of a typical run on the Cornish Riviera Express made in July 1929 with the *King George V*. The log of this journey is set out in the accompanying table.

The first thing that will probably strike a younger reader is my use of the adjective 'typical' to describe it. Those who were recording train speeds in that glorious 'St. Martin's Summer' of Swindon steam locomotive performance, from 1954 to the last days of steam, would probably agree that to pass Reading in 35½min and clear Savernake summit in exactly 68min was pretty exceptional with such a load as 510 tons. Indeed, when the very severe dynamometer car tests of 1955 were carried out, and engine 6013 was driven hard from Paddington to Newton Abbot, the time to Reading was 35min 58sec and to Savernake 70min 4sec. But to revert to what was truly a typical King performance on the Cornish Riviera Express in the years prior



to 1939, the first point to be noted is the rapid start out of the platform at Paddington, with a time of less than 3min for the 1.3 miles to Westbourne Park.

The purists would say that the strict validity of such a starting time would depend upon where the recorder was travelling in the train. Certainly a fourteen-coach train, composed entirely of 70ft stock, would be 980ft long, and a passenger in one of the leading coaches would be about 0.15 miles on his way to Plymouth. But even if that starting distance were reduced to about 1.2 or even 1.1 miles, a time of less than 3min represents a pretty powerful start. As if to emphasise that *King George V* was making no more than a typical start for that period, I have another run before me in which *King Henry IV* took no more than 2min 37sec, with a 505 ton train. In leaving Paddington however, once the train was lifted off the mark, the subsequent acceleration was no more than moderate, and the train was 9 miles on its way, on level track, before the speed topped 60mph. This also was quite typical, and was the technique always used when Great Western four-cylinder 4-6-0 locomotives were starting 'cold'.

#### CORNISH RIVIERA EXPRESS

Engine No 6000 *King George V*

Load to Westbury, 14 coaches, 479 tons tare 510 full

Load to Plymouth, 11 coaches, 378 tons tare 405 full

---

<i>Dist</i>					
0.0	PADDINGTON	0	0	00	—
1.3	Westbourne Park		2	55	—
9.1	Southall	11	12	00	60
18.5	SLOUGH	20	20	20	73
24.2	Maidenhead	25	25	00	72
31.0	Twyford	30½	30	50	69
36.0	READING	36	35	15	*
37.8	<i>Southcote Junction</i>		37	20	56
53.1	NEWBURY	54	51	35	62
66.4	Bedwyn	67	64	05	64
70.1	Savernake		68	00	52
75.3	Pewsey		72	55	75



<i>Dist</i>			p.w.s.	15
—			76 10	—
78.8	Woodborough		80 05	55
81.1	Patney		89 00	82
91.4	Edington		92 40	*
95.6	WESTBURY	94	99 30	*
101.3	FROME		108 45	50
108.5	<i>Milepost 122<math>\frac{3}{4}</math></i>		114 35	82/60*
115.3	CASTLE CARY	116	124 00	72 (max)
125.7	Somerton		sigs	
137.9	<i>Cogload Junction</i>	137	134 45	55
			sigs	
142.9	TAUNTON	141 $\frac{1}{2}$	139 55	57
150.0	Wellington		147 25	54
153.8	<i>Whiteball Box</i>		153 20	26
158.8	Tiverton Junction		158 25	72
170.2	Stoke Canon		167 30	81
173.7	EXETER	171 $\frac{1}{2}$	170 20	60*
178.4	Exminster		174 45	68
188.7	Teignmouth		185 30	47*
193.9	NEWTON ABBOT	195 $\frac{1}{2}$	191 20	*
195.7	<i>Milepost 216</i>		194 10	45
196.7	<i>Milepost 217</i>		195 55	32
197.7	<i>Dainton Box</i>		198 25	20
202.5	Totnes		204 40	52 (max)
205.3	<i>Tigley Box</i>		210 20	25
207.1	<i>Rattery Box</i>		214 05	32
209.4	Brent	218	217 35	45
219.0	<i>Hemerdon Box</i>	230	228 30	60
223.8	<i>Laira Junction</i>		233 20	68/48*
225.7	PLYMOUTH	240	237 00	—

\* Speed restrictions  
Net time 233 Min

What they could do when really warmed up is shown by a remarkable collection of recordings on the 3.54pm express from Banbury to Paddington, made by the late A. V. Goodyear. When travelling on that train, it was his practice to find a seat or a stance in the corridor towards the rear, and as near as possible to Milepost 86 $\frac{1}{4}$ , which is on the platform at Banbury;



he then clocked exact miles from the start. On one such occasion *King George V*, with a load of 430 tons, took 2min 46sec for the first mile; then, in sequence, came miles in 77, 66,  $61\frac{1}{2}$ , and  $58\frac{1}{2}$ sec, taking the speed up to  $61\frac{1}{2}$ mph in 5 miles from the dead start. But again, vigorous as this was, it was no more than typical. Goodyear's records include twelve other runs with Kings, and in comparison with the 7min 9sec of *King George V* for those first 5 miles, his notes show a variation between a slowest of 7min 38sec and a fastest of 6min 44sec. The loads varied between 405 and 510 tons. Even with maximum tonnage trains, the speed was up to 57 or 58mph at the conclusion of that first 5 miles. On the heaviest loaded run of all, the time over the first mile was one of the fastest namely 2min 37sec. That ten different engines of the class were involved in the making of these records is enough to indicate the consistency of the performance. In addition to No 6000 the other engines concerned were 6001, 6005, 6007, 6011, 6013, 6021, 6025, 6027, and 6028—all stationed at Old Oak Common, with London crews.

Reverting now to the tabulated performance of No 6000 on the Cornish Riviera Express, the log shows that although the acceleration between Westbourne Park and Southall was comparatively gradual compared to the Banbury starts, the speed continued to rise steadily, and reached a maximum of 73mph on level track at Slough. This again was an average performance. With 500 ton trains the speed was not often below 70mph at Slough, and I have a record of No 6020, with a 505 ton train reaching and sustaining  $76\frac{1}{2}$ mph. Until the advent of the Gresley Streamlined Pacifics of the A4 class in 1935, there were few, if any, occasions of 500 ton trains being hauled at 75mph on level track in Great Britain. In working the down Cornish Riviera Express, and other maximum-load West of England trains the usual speed in the neighbourhood of Slough was about 70 to 72mph; but this was in the early stages of a long run. There are other instances in the concluding stages of

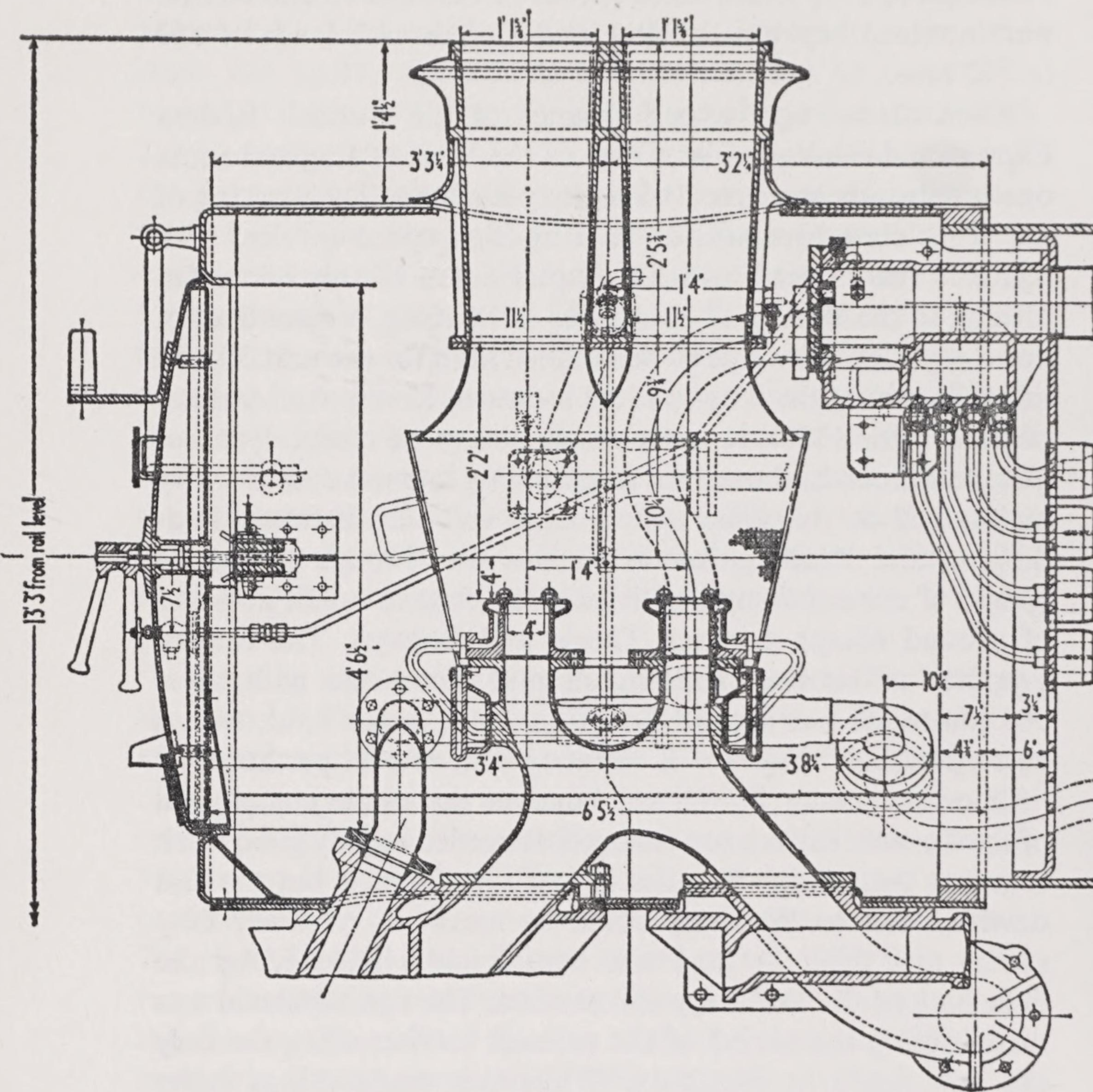


eastbound journeys, when King class engines had worked up from Plymouth, and were running non-stop from Exeter to Paddington, 173½ miles, when speeds of between 75 and 80mph were attained between Reading and Slough with loads of 550 to 570 tons.

When discussing the performance of the Cornish Riviera Express and other popular trains on the West of England route one is naturally concerned with heavy loadings. The working of the King class locomotives in ultra-high speed service, with lighter trains is dealt with in chapter seven of this book. On turning to the Berks and Hants line at Reading, locomotives of down expresses continue to be steamed hard for the next 30-odd miles, in taking the long gradual ascent to Savernake. A study of runs in the 1930s, in comparison with more recent dynamometer car records, shows that the steaming rate was continuously maintained at the same approximate value as between Paddington and Reading, and while this was enough to sustain speeds of around 72mph on level track, it gave uphill averages of around 65mph between Theale and Bedwyn. The rate of evaporation between Paddington and Savernake with these 500 ton trains was around 27,000 to 28,000lb per hour, with a corresponding firing rate of about 1½ tons of coal per hour.

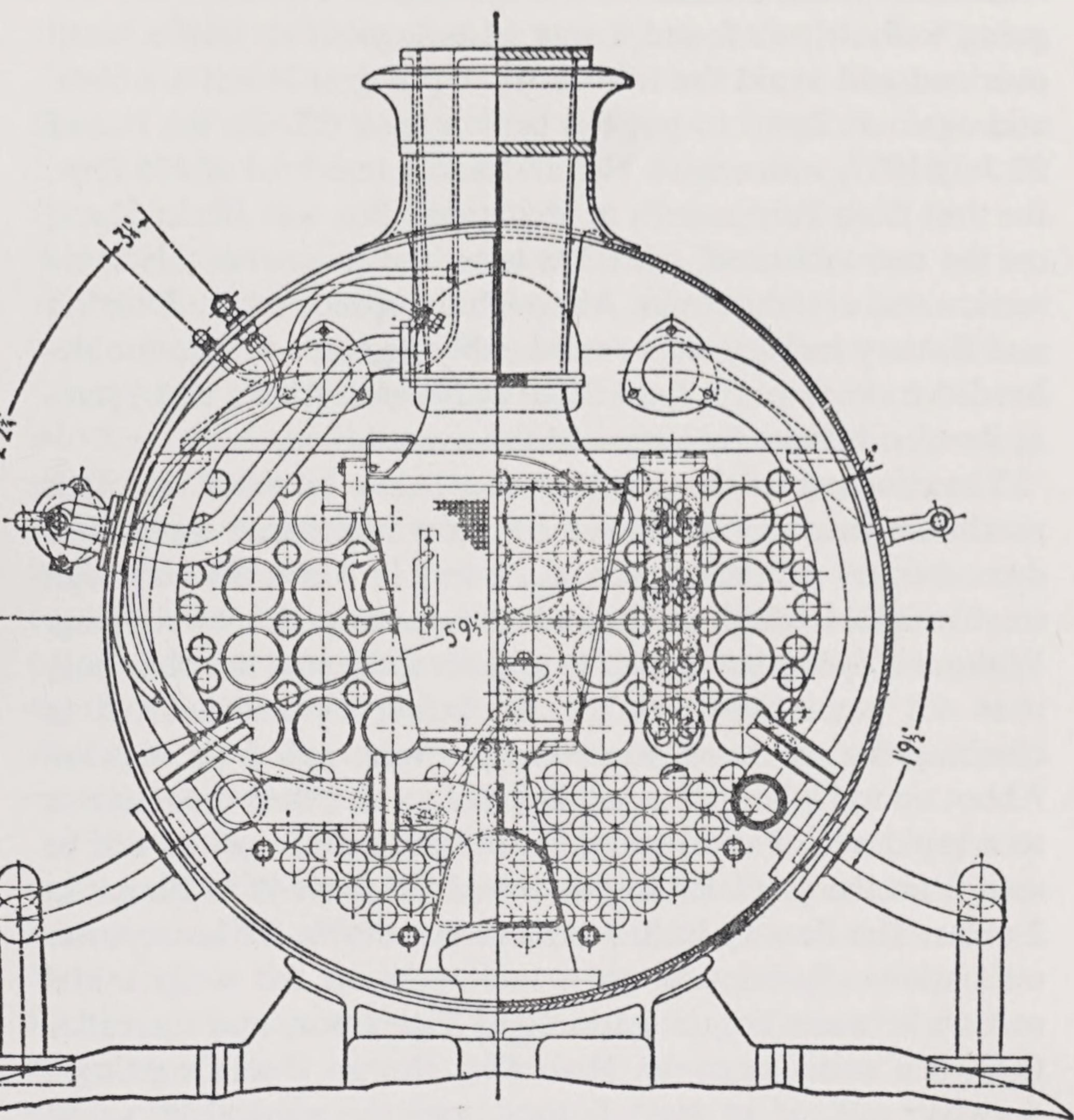
Once Savernake was passed however the whole complexion of the Cornish Riviera run changed. It needed mighty good work to cover that initial 70 miles in less than 70min, but the fast downhill run to Westbury could be made on relatively easy steam, and then the load was considerably lightened by the detaching of the Westbury slip portion. The run tabulated was made during the period of the summer service, when the only slip was made at Westbury. While this made things easier between Westbury and Exeter, it was usually much harder on the final stretch over the South Devon line. It will be seen from the log that the tare weight of the remaining part of the train was 378 tons—18 tons over the official maximum for a King west of Newton Abbot. It will be recalled that on the second





The final development: layout of the smokebox with twin orifice blastpipe and double chimney. Fitted to No 6000 in December 1956.







ever run on the Cornish Riviera Express made by a King, on 22 July 1927, the tare load was almost the same, and a stop was made at Newton Abbot for a bank engine. But when all was going well, drivers found it was advantageous to take a small overload and avoid the trouble of stopping at Newton Abbot, and again at Brent to put the bank engine off. On the run of 22 July 1927, with engine No 6001 and a tare load of 375 tons, the time from Teignmouth to Hemerdon Box was 45min 52sec; on the run tabulated, with 378 tons, the time over this same section was exactly 43min. Although the speeds on the Dainton and Rattery inclines were considerably higher, with the double-headed train stops of 2min 55sec at Newton Abbot and 1½min at Brent substantially increased the overall time.

The climbing of the South Devon banks by the Kings with maximum load trains, provides a most interesting study, and demonstrates another aspect of the way in which the very high tractive effort could be utilised without any risk of slipping. Without a dynamometer car to register the actual drawbar pull, it is not possible to estimate the power output involved in climbing the short, but exceedingly severe, pull from Newton Abbot up to Dainton Tunnel. Drivers pressed their locomotives to a rapid acceleration to get a 'run' at it, and then as will be seen from the tabulated log the speed fell from 45 to 20mph in 2 miles. The Rattery incline is more favourable for horsepower estimations. Speed falls to a minimum on the steep initial section between Totnes station and Tigley box, and thereafter there is a smart recovery. Here *King George V* was exerting a drawbar pull of at least 8 tons, and the equivalent value, making adjustment for the work being done against gravity on the weight of the engine and tender, would have been between 11 and 12 tons. The nominal tractive effort of the locomotive is 18 tons, so that the pull was almost 60 per cent of the nominal maximum—a very high figure, and probably indicating that for a few miles the engine was going practically 'all-out'.

Climbing the Hemerdon bank, on the east bound run, I have



logged another of the Kings working that indicated maximum effort for about one mile. In the Paddington-Plymouth non-stop run of the Cornish Riviera Express one could witness, therefore, several different facets of maximum King performance. Firstly there was the clean vigorous start from rest; then came the hour of sustained fast running at a high steaming rate, between the Western suburbs of London and Savernake summit, and then the relatively easy central part of the journey. It is true that this latter includes the severe climb from Taunton up to Whiteball summit; but, on the run tabulated, the train was then running so comfortably on time that the ascent could be taken easily. On the dynamometer test run of March 1955, to which reference has been made earlier, the high rate of steaming normally sustained only as far as Savernake was continued throughout to Exeter and, with a load of 420 tons, the time between Milepost 122 $\frac{3}{4}$ , the summit point in the Mendip country, and Exeter was only 56min 3sec, against 61min 35sec on the run of the *King George V* tabulated. The respective average speeds over this length of 65.2 miles were 70 and 63.7mph. This central section was regarded as an essential margin for recovery in ordinary service.

The running of maximum load trains on the West of England service, and the consistency with which the Kings did the job, was nevertheless only one manifestation of the puissance of the class. Before the introduction of the Kings, before even the Castles were more than about twenty strong, some of the most experienced and critical observers of locomotive running considered that the finest performance to be witnessed anywhere in the country was maintained between Paddington and Birmingham. Although the earlier engines of the King class were put on the West of England service, others went later to the Birmingham route, and by the summer of 1928 they were in regular, if at first limited, service. With the exception of the 9.10am down from Paddington and the balancing turn at 2.35pm from Wolverhampton all the principal expresses on this



service were worked by engines and men from Stafford Road shed, Wolverhampton. The No 1 link of enginemen, who worked the London expresses, were by long tradition a most expert and professional body of men—drivers and firemen alike. These trains were operated as single-home turns, a round trip of 246 miles, and normally the engines were not re-coaled in London.

The physical nature of this route differed considerably from that of the West of England. Viewed broadly, it was a switch-back, with the disadvantage of having junctions or curves requiring considerable reduction of speed at the foot of some of the worst inclines. The smartest scheduled speed was that of the down non-stops between Paddington and Leamington, 87.3 miles in 91min, and this was observed by the heaviest and most difficult train on the service, the 6.10pm from Paddington. I do not know of any occasion when *King George V* worked this train. It was exclusively a Wolverhampton turn, and a London engine would be put on only in emergency. But some of the running on this train could well be described as phenomenal. Because of the switchback nature of the route, and the consequentially fluctuating demands upon the boiler (and the fireman!) drivers could steam their engines for brief periods at higher rates of evaporation than could be sustained indefinitely. Such a technique requires skill in enginemanship and perfect team work between driver and fireman; but as I have stressed earlier, the Wolverhampton men of that era had a quality of their own, and some of the performance they secured from the Kings was peerless.

To appreciate fully the extent of these spells of exceptional power output—all at relatively high speed—we must revert for a moment to the standard maintained with the 500 ton Cornish Riviera Express between Paddington and Savernake. The steam rate was around 27,000 to 28,000lb per hour for about 65 to 70min, and the firing rate roughly  $1\frac{1}{2}$  tons per hour. The drawbar horsepower, corrected where necessary, for gradient



was between 1300 at about 55mph to 1150 at 75mph; and by any standards of computation that was absolutely first class work. Now on the Birmingham route, while the normal scheduling did not require anything greatly in excess of this, even for brief periods the incidence of one or two temporary speed restriction could cause a considerable loss of time. The Wolverhampton No 1 link enginemen however made it almost a point of honour to run punctually if at all possible, and there were times when they used the capacity of the King class locomotive to astonishing effect. The running on this route during the 1930s was exceptionally well documented; for, in addition to the observations of Goodyear and his friends, there was the late G. P. Antrobus, who for many years travelled nearly every day between Paddington and Leamington by the 6.10pm express. From this wealth of recorded data I have selected six runs showing how the Wolverhampton drivers caused King class engines substantially to exceed theoretical predictions.

<i>Engine No</i>	6005	6017	6017	6008	6008	6008
<i>Load tons gross</i>	380	425	445	505	505	510
<i>Speeds mph</i>						
Gerrards Cross bank	68	66	56	58½	56½	54½
Saunderton	61	61	54½	53½	52	51½
<i>Calculated equivalent dhp</i>						
Gerrards Cross	1501	1583	1440	1525	1447	1410
Saunderton	1642	1815	1785	1761	1694	1676

These examples relate to ascents of the Gerrards Cross and Saunderton inclines, with the speeds attained and sustained in the first instance on a gradient of 1 in 254, and in the second on 1 in 167. In studying the accompanying table, which includes calculations of the equivalent drawbar horsepower in all six cases, it must be borne in mind that the measured drawbar horsepower under steady steaming conditions at an evaporation rate of 30,000lb of steam per hour was 1500 at 55mph and



1370 at 60mph. The figures actually attained on the Gerrards Cross and Saunderton inclines speak for themselves.

In climbing the Gerrards Cross bank the trains were no more than twenty miles out of London, and thus still under the effects of a 'cold' start. Yet even so the engines were being steamed at around 30,000lb per hour—the first two at well over 60mph. But the climbing of the Saunderton bank, following the regulation slack through High Wycombe, was in some cases quite phenomenal. In the case of engine No 6017 on first run, the basic '1370' at 60mph was stepped up to no less than 1815, an increase of 32 per cent. And this, if you please, was an augmentation of an effort that by British Railways' standards required the employment of *two* firemen. It is true that the ascent of the Saunderton bank lasted for no more than 5 or 6 minutes; but the extent to which the basic optimum performance of a King was temporarily exceeded is yet another testimony to the strength of the design, and the sterling quality of the men who handled them.



## CHAPTER SIX

### *The War and its Aftermath*

EVEN to those of us who had a grandstand view of much that went on during the war years, with only an occasional glimpse 'back-stage', a re-reading of one's own personal notes, and searching through the scanty published data of the time, suggests some weird convulsive nightmare, so utterly changed were so many of the established traditions of the GWR. Inevitably also one must necessarily refer to the history of the King class as a whole, because the way in which the entire group was pooled makes the tracing out of *individual* sagas virtually impossible. For the first twenty months of the war Collett was still in the chair at Swindon, continuing in office, indeed, until he was seventy. And despite the increasing calls upon Swindon works for production of munitions, the Kings, and the majority of the Castles too, were maintained in first class condition. Some of them became very dirty in the course of their various duties; engine cleaning became a thing of the past in most sheds, but mechanically there was little or no deterioration in standards of maintenance.

In the tasks they were set to undertake, however, it was a vastly different matter. Even before the actual declaration of war the classic pattern of Great Western express passenger train service had been terminated overnight when resources were concentrated upon the evacuation of the children from London and other large cities; and when that was completed the first wartime passenger train service was not merely a shadow of its former self on some routes. It simply did not exist. As things

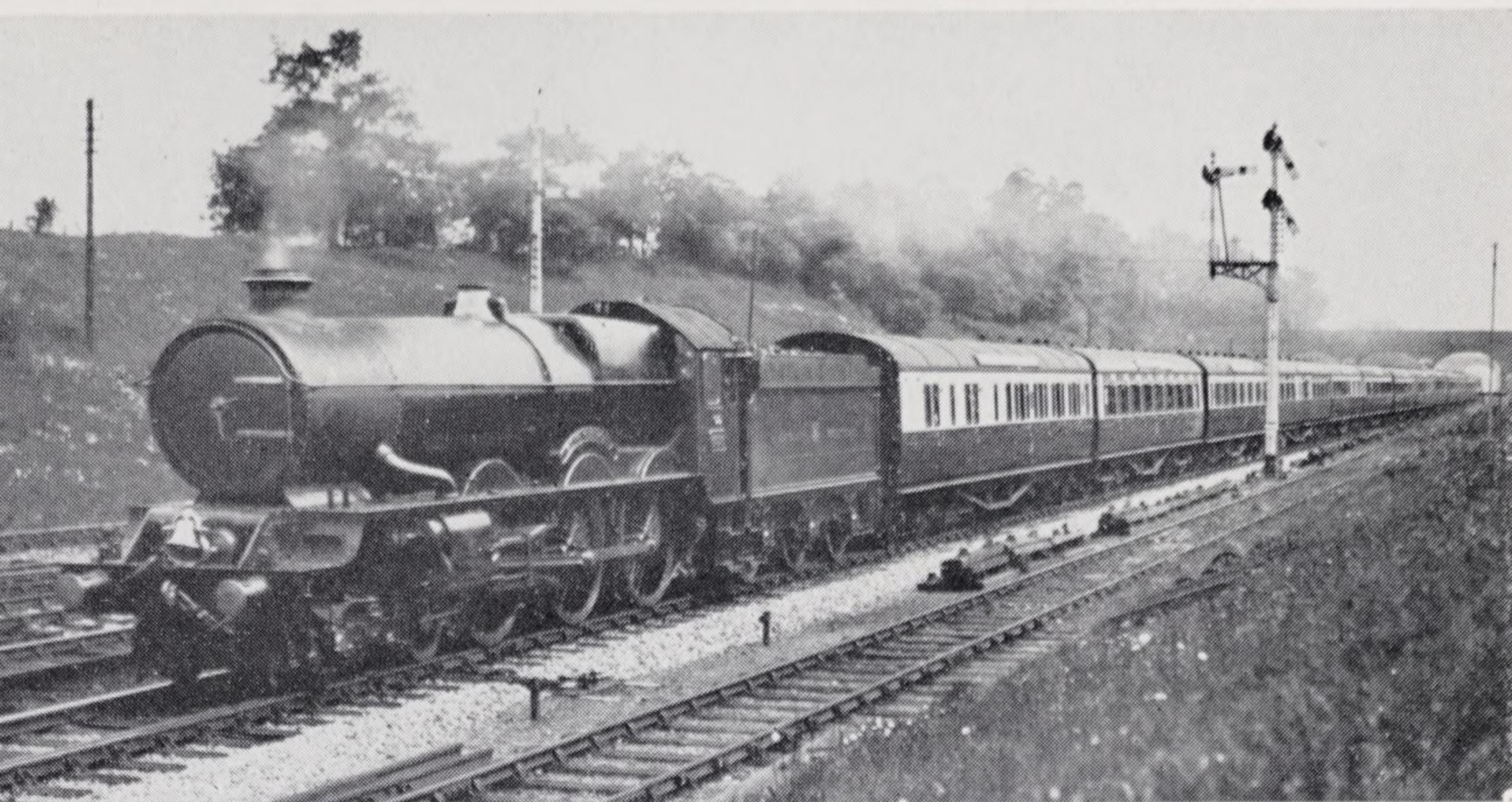


began to settle down, late in the autumn of 1939, into something of a pattern that would suffice (or was thought would suffice!) it became evident that the peacetime allocation of such specialised units of motive power as the Kings did not match up to the altered pattern of service. It was clear that there were too many of them in London, and in view of the heavy traffic in naval personnel to and from the West country, a deployment began almost at once. Three engines of the class went to Bristol, while *King George V* himself and No 6002 *King William IV* were transferred to Exeter in the late autumn of 1939.

Exeter had not been a top-link shed since the early years of the twentieth century, before the opening of the Westbury route to the West of England in 1906. In 1939, it was not even an engine changing or a remanning point. But in war-time service, the locomotives stationed at Exeter, Newton Abbot and Laira were to a large extent pooled; and one can imagine that 6000 and 6002, which were later joined by No 6004, were no more than nominately based at Exeter, for things like inspection, boiler washout and so on, and that they worked in with Newton Abbot and Laira turns. Later in the war, indeed, No 6000 was officially stationed at Laira. Whatever tonnages were taken east of Newton Abbot, it was not possible to increase the maximum load limit of 360 tons over the South Devon line. On a level or moderately undulating track, one can set existing locomotives to haul vastly heavier loads than normal, if the scheduled speed is lowered. Where previously loads of 300 tons have been hauled at 80mph, loads of 600 can be taken at 55mph. But this apparently simple arithmetical adaptation could not be applied where there are inclines like Dainton and Hemerdon to be climbed.

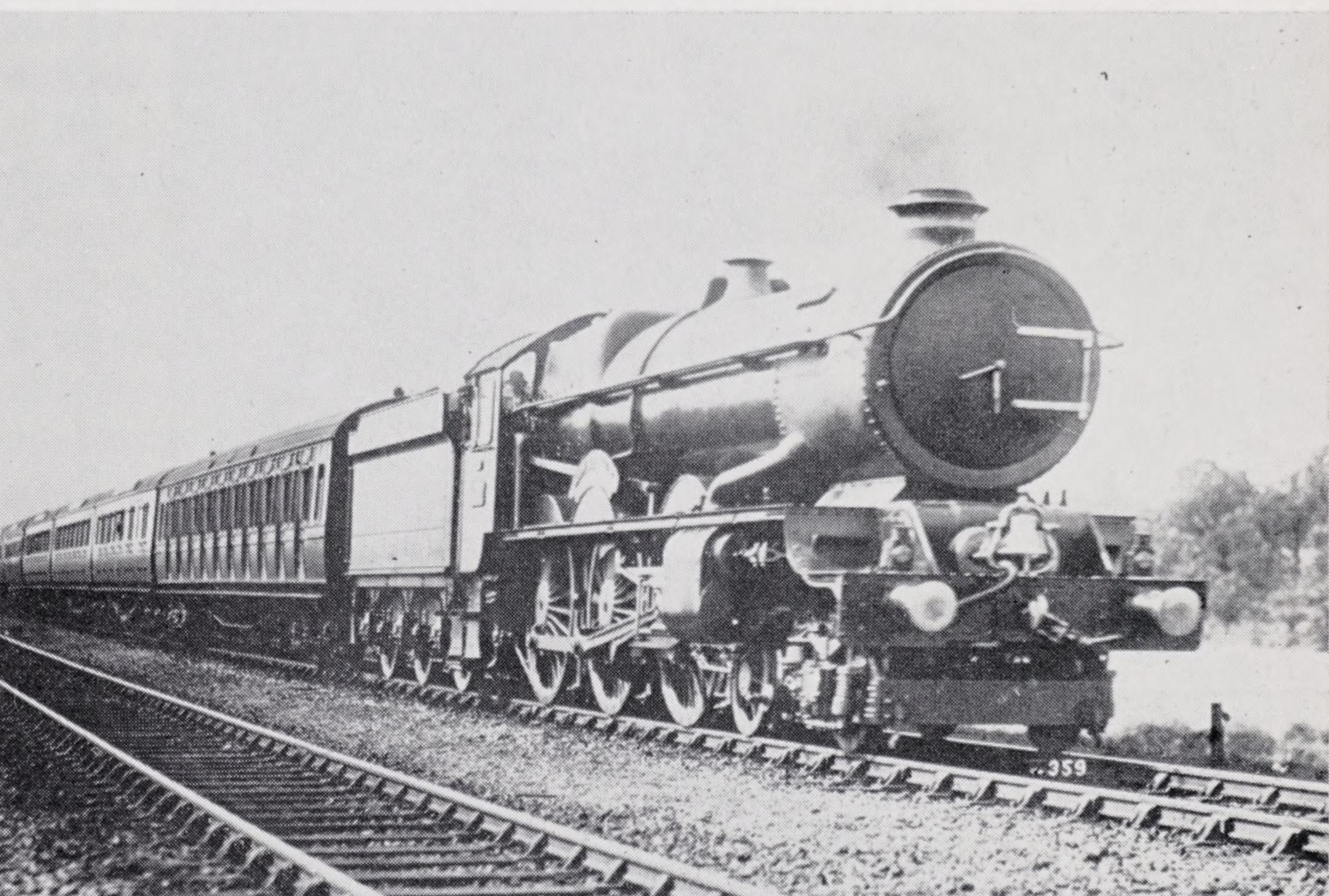
The Kings were at their practical limit on a gradient of 1 in 42 with a load of 360 tons. In normal good weather conditions, speed usually fell to a little below 20mph in the ascent of Hemerdon, and although, as the previous chapter showed, loads slightly in excess of 360 tons tare were taken on westbound





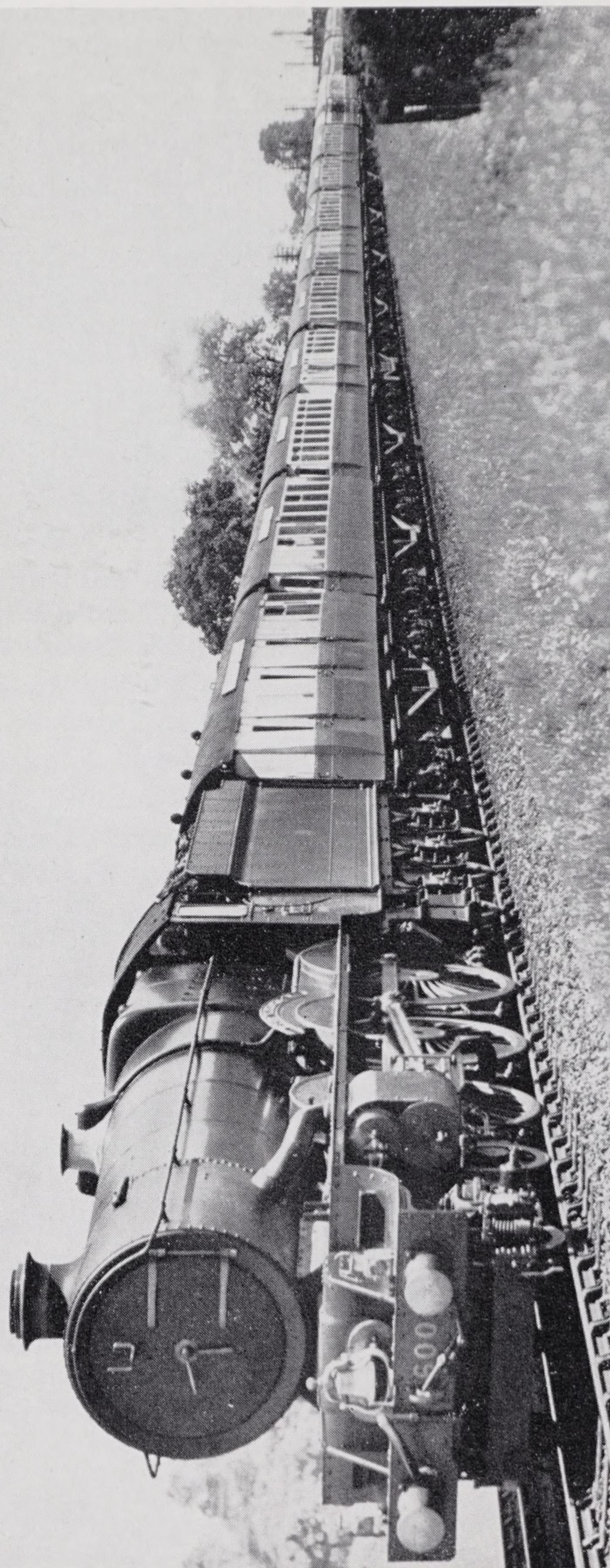
*Acknowledgements to: M. W. Earley*

*Page 73 (upper) Cornish Riviera Express near Twyford—1928;  
(lower) The inaugural up Bristolian near Swindon in 1935*



*Acknowledgements to: B.R. Western Region*





*Acknowledgements to: M. W. Earley*

Page 74 Cornish Riviera Express near Aldermaston, with Centenary stock and a 15-coach train



runs when conditions were favourable, the combination of a cold start, the chance of a 'green' fire, and the sheer length of maximum gradient between Plympton and Hemerdon Siding made that 360 the absolute limit. In bad weather slipping could lead to complete stalling. So that, war or no war, any excess over 360 tons meant double heading. The loading and overcrowding of the trains with service men and women travelling to and from Plymouth takes some believing; but in working these trains engine No 6000 did not step into the lime-light beyond any others of her class. By enthusiasts she may still have been regarded as the 'flagship'; but it was a flagship decked in wartime drab, working in a great team. For a time indeed, she was running without the American bell. The 'beat' of the Kings based in Devon did not at first extend beyond that of the Laira and Newton Abbot engines in pre-war years. They ran to Paddington, via both Bristol and Westbury, but that was all.

But as the need to make the utmost use of all locomotives intensified in the later stages of the war, the Devon based engines of the King class prolonged their stays in London by making a trip to Wolverhampton and back. Whether there was a regular 'diagram' covering this working I do not know; questions about it in the railway press of the day went unanswered. It was nevertheless quite a regular turn for a Laira King to work the 9.10am express from Paddington to Wolverhampton, and No 6000 was noted on this train on 16 February 1945. Although a good deal of individual engine noting was carried on throughout the war no one seems to have established the up working from the West of England by which these engines arrived in London. To have expected the Penzance sleeper to be punctual enough in Paddington for its engine to be available would have been slightly optimistic in wartime; though on the many occasions when I joined it at Chippenham at 4.45am (!) it ran well enough, and reached Paddington at 7.30am.

In October 1945, No 6000 went into Swindon works for a



heavy general overhaul, and returned, still in the plain green of wartime, to spend another three years at Laira. With the introduction of the County class 4-6-0s, the full lining out of pre-war days was restored, and something of the pride of turn-out on Great Western locomotives was beginning to return. But the inevitability of nationalisation was hanging like a shadow over all post-war activities, and when the Interchange Trials of 1948 were planned, the men of the Great Western did not enter into the contest with any great heart. While in previous years the *King George V* was the natural choice for any great occasion, it so happened that she had amassed a high mileage since last general repair, and would not have been a good choice. But when the Kings were going into action against such stars as the Stanier Duchesses and the Gresley A4s—*Mallard* into the bargain—one could imagine that if the spirit of 1927 and 1928 had prevailed more would have been done to fly the Great Western flag. Name and number changing was a subterfuge decades old, and had the name, numberplate *and* bell been temporarily switched from 6000 to 6018 it would not have been so easy to detect as the notorious ‘swop’ between 4082 and 7013 four years later! But in the 1948 interchanges, the Great Western representatives were not bent upon fire eating; 6000 remained in ordinary service from Laira until August, when she went once more into Swindon for heavy repairs.

In the pattern of post-war service, fewer large engines were needed in the West Country, and on leaving Swindon in the early autumn of 1948 No 6000 was allocated to Bristol (Bath Road) where she was joined by 6018 and 6019. The civil engineer was now prepared to accept Kings on the West to North route via the Severn Tunnel, and also north of Wolverhampton, and these Bristol engines began working a triangular diagram, north to Shrewsbury, thence to Paddington via Birmingham, and back to Bristol via Bath. It was however one of the curiosities of this engine allocation that when the West to North route became ‘double red’, there were no Kings left



at Newton Abbot, and the difficult double-home turns between Newton Abbot and Shrewsbury were worked entirely by Castles. Furthermore there was only one Bristol turn up the West to North line, and thence forward it became usual to find one of the Bristol trio on the 9am express to Paddington. This train ran non-stop from Bath in 119min, representing an average speed of 54mph. It loaded usually to just over 400 tons, but was not a difficult turn. The corresponding down working was easier still; for although the timing was faster, 114min, the load was usually around 350 tons. About that time there were not many tasks that made severe demands upon the Kings. The West of England trains, generally, were running to easier schedules than those of pre-war days, and with lighter loads. Hawksworth had retired at the end of 1949, and the historic post of chief mechanical engineer, at Swindon, had been divided into three: mechanical and electrical engineer, carriage and wagon engineer, and motive power superintendent. K. J. Cook, as mechanical and electrical engineer, Western Region, declared that the express passenger locomotive stock was ready for restoration of full pre-war speed; but the operating authorities at Paddington were sceptical, and acceleration was postponed.

In the meantime something of the pageantry of nationalisation was making its mark on the Western Region, to the disgust of the more die-hard Great Western men. The question of a standard livery for the whole of the British Railways locomotive stock was under discussion at the highest levels. R. A. Riddles, as member of the Railway Executive for Mechanical and Electrical Engineering wanted to paint the entire stock black, not necessarily because he was an old North Western man, but because he felt that in the prevailing conditions most of them would soon be dirty black anyway, whatever their pristine colour! But Lord Hurcomb wanted colours, and some trial paintings were made, and run in all the Regions to invite comment. The Kings belonged to the Class 8 group with the Pacifics of the other three pre-nationalisation groups, and a few



of them were painted in a blue very similar to that of the former Great Eastern, lined out in red and cream. Engines Nos 6009 and 6026 were the first two to appear in this style. On hearing of this, the veteran Sir Felix Pole remarked that there was something to be said for being blind: 'I am spared the sight of a "King" painted blue'! Actually I always thought the red and cream lining spoilt what could have been a fine livery; but somehow the traditional Great Western copper capped chimney and polished brass safety valve cover did not go well with that dark blue. Anyway the dark blue did not last, and when the decision to standardise was finally taken, the Class 8 group engines were painted in Caledonian blue, with black and white lining and black underframes. Engine 6000 was the first to have this livery, and the new British Railways crest on her tender. She was out-shopped from Swindon in this style on 17 June 1949, and certainly looked very handsome—albeit something of an alien to true Great Western eyes.

Meanwhile much serious consideration was being given to the design itself in the Swindon drawing office; and although none of the important experimental work of 1945-50 was done upon engine 6000, she was ultimately to benefit from all that was done, and to emerge once again, in 1954, as the 'flagship' of the fleet. Although Swindon men realised, from the onset of war in 1939, that the favoured conditions in which their express passenger locomotives had operated were unlikely to return once the war was over, nothing could be done while Collett was still in the chair. In any case the first years of the war were occupied with much special preparation for armament production. But after Hawksworth had become chief mechanical engineer in 1941, as opportunity presented itself, in the midst of war time work, some attention was given to post-war development. Hawksworth was convinced that the old Churchward precept of a medium-degree superheat must be cast aside, and following the steps towards change on both the Halls and the new Counties, he rebuilt engine No 6022 *King Edward III*



with a four-row superheater. In this he was imitating Stanier and the Princess Royal class Pacifics of the LMS, in pre-war days, when variations in quality of coal, virtually unknown then on the Great Western were showing that a high degree of superheat gave a better chance of reliable performance on a locomotive when boiler pressure could not be maintained at an optimum figure. Engine No 6022 as modified proved a great success, though the incidence of nationalisation, and the wresting of ultimate responsibility for locomotive practice from Swindon's control temporarily halted this most promising development. The staff of the testing section of the drawing office was in any case very fully involved with the large scale series of Interchange Trials initiated by the newly established Railway Executive. But the experience gained with engine 6022 was carefully docketed at Swindon, ready for use later on.

So far as actual running was concerned, in those years when engine 6000 was stationed at Bristol, I was a fairly frequent traveller on the 9am up—the 9.21am from Bath—but that train did not usually enjoy a very clear road. The timetable paths in front of it were fairly tight, particularly from Reading inwards, and traffic regulation was not always as intelligent as it might have been. In the ordinary way the Kings had an ample margin in reserve; but all the tractive effort on earth is useless if a signalman gives precedence to a slower train with a margin of no more than a single section. For many months, at about this time, running between Swindon and Chippenham was hampered by repair work following a 'slip' on the embankment near Christian Malford Halt, and up trains were required to slow to 10mph past the site. It was an awkward location with a heavy train, because there was not much distance in which to recover speed before tackling the 1 in 100 gradient of the Dauntsey bank. But that was one of the many situation in which the Kings excel, and I had a fine example with No 6000 one morning, hauling a load of 430 tons. We negotiated the restricted length at 8mph, and the driver opened the regulator again at



the 89th mile-post. He had just over  $1\frac{1}{2}$  miles of 1 in 660 rise before striking the Dauntsey bank proper, and with a crisp bark from the exhaust, and not a trace of slipping speed was quickly worked up to  $46\frac{1}{2}$ mph. The bank itself was climbed at a minimum speed of  $38\frac{1}{2}$ mph.

When that check on the embankment near Christian Malford was at its worst, it took about 5min out of the running, and on this occasion we took 40min to cover the 29.6 miles from the start at Bath to passing Swindon. But although there was another engineering slack to come at Reading, there was ample power in reserve to effect a punctual arrival, providing the line was clear of other trains. East of Swindon the speed settled down to a steady 69-70mph, increasing to a sustained 72mph on the level after Didcot, and despite the second engineering slack Reading was passed on time, in 78min for the 70.9 miles from Bath. An ample 41min remained for the 36 miles onwards to Paddington; but true to form the signalman at Reading had allowed a slower train to go on ahead, and that 36 miles of perfect racing ground took no less than 47min! I am afraid that in those first few years after nationalisation, we regular travellers grew accustomed to operating blunders of this kind. Allowing for the various checks, however, the net time was no more than 107min, an average of practically 60mph from start to stop with this 430 ton load.

The year 1951 marked the end of the period of austerity, stagnation and frustration that had bedevilled the railways of Great Britain since the end of World War II. There had been a solid five years of it, and when I write that it *ended* in 1951, it should not be imagined that there was a sudden switch to brighter things overnight; but the holding of the Festival of Britain symbolised a looking forward to better days, and it was marked on the nationalised railways by the institution of new named express trains, and new rolling stock. One of these trains was the Merchant Venturer. It was not a new train service, but a very old one newly glamourised: none other than



the 11.15am from Paddington to Weston-super-Mare, and the corresponding return working of the rolling stock. By pre-war standards this latter was a pedestrian service, leaving Bristol at 5.25pm; calling at Bath, Chippenham and Reading, and due in Paddington at 8.10pm. But it was now the Merchant Venturer; the engine carried a headboard, and the train consisted of the new British standard rolling stock. The up train was worked by a Bristol engine, which returned on the West of England Postal Special. When the 5.25pm up from Bristol first partook of its 'new look', it was worked by a Castle but then Bath Road shed realised it had a trump card in its hand in what had suddenly become a 'show' turn. Needless to say, it was, of course, No 6000. And so, each evening *King George V*, in Caledonian blue, was turned out in such flashing array as had scarcely been seen since the engine paraded round the exhibition at Baltimore, in 1927. As I wrote myself at the time in my 'Locomotive Causerie' in *Railways*; 'the presentation bell cannot have shone so brightly for many a day!'



## CHAPTER SEVEN

### *Eight Exciting Years*

WHEN the interest and mild glamour surrounding the new Festival trains had died down, there were many senior railwaymen who felt that new colours and new names would not halt the declining passenger receipts on British Railways, though to the consternation of some of us there were some regional general managers who considered that acceleration was unnecessary. Fortunately K. W. C. Grand of the Western Region was not of that ilk. He felt that restoration of full pre-war speed on all routes was the lowest target that should be aimed at; but the operating department, which by that time had responsibility for manning and running locomotives, was not confident that the motive power was up to the job. K. J. Cook, when mechanical and electrical engineer, maintained that the locomotives were adequate, but he could not convince the operating department. Then Cook went to Doncaster to become mechanical and electrical engineer of two regions, the Eastern and the North Eastern, and to succeed him at Swindon came R. A. Smeddle.

Now although the mechanical engineering authorities of the nationalised railways did not accept any of the basic features of Swindon locomotive practice, and concentrated on the production of nought but two-cylinder machines with outside Walschaerts valve gear, they had been very impressed with Great Western techniques for locomotive testing, and adopted them as standard practice. And while the new locomotive testing station at Rugby was ironing out its teething troubles and getting into its stride, the Railway Executive was glad enough





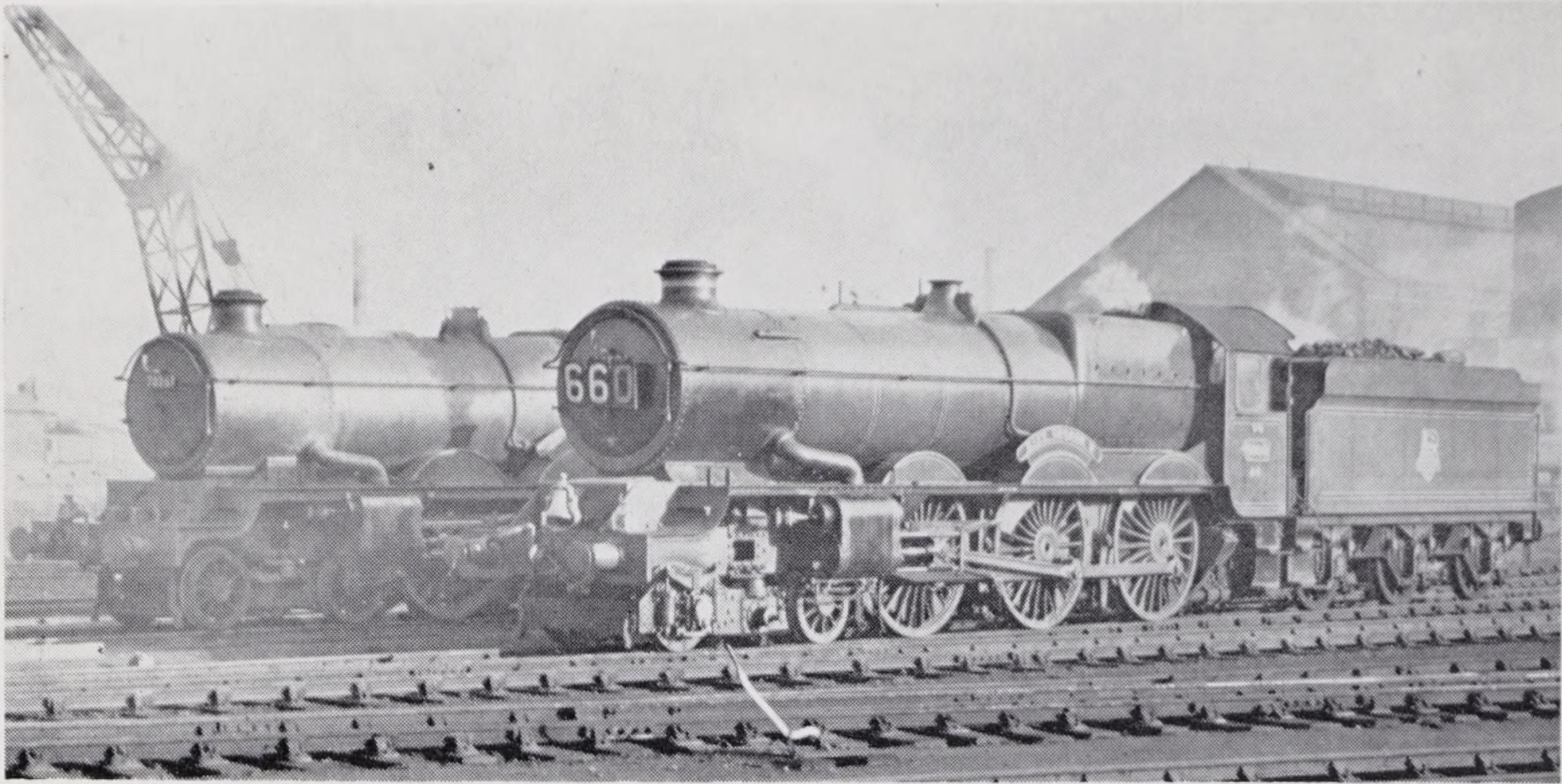
*Acknowledgements to: M. W. Earley*

*Page 83 (upper)* Wartime plain green livery. Second part down Cornish Riviera Express at Twyford in 1946; *(lower)* Weston-super-Mare to Paddington express leaving Reading, 1949, with legend BRITISH RAILWAYS in GWR style of lettering on the tender



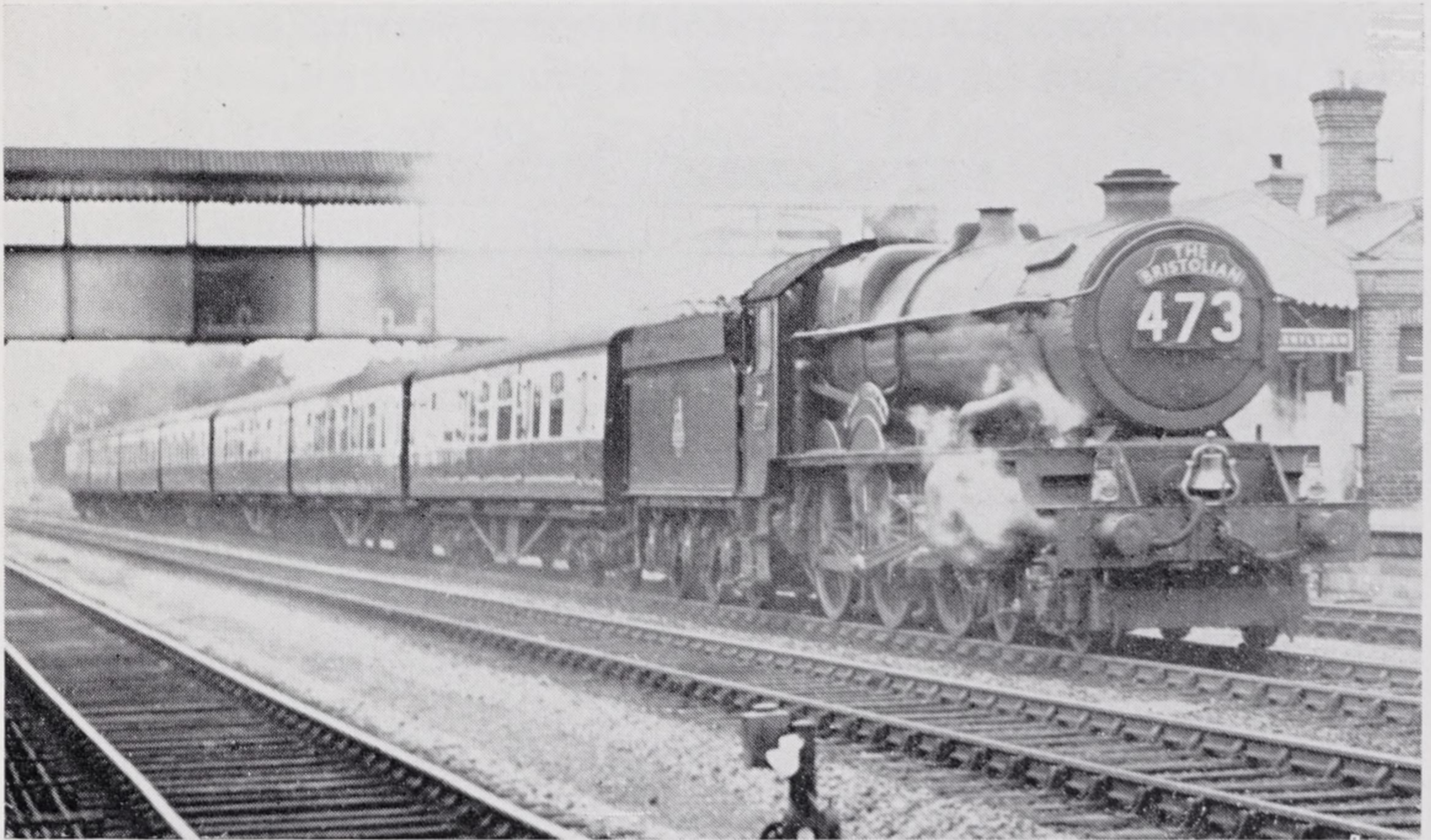
*Acknowledgements to: M. W. Earley*





*Acknowledgements to: K. H. Leech*

*Page 84 (upper)* In British Railways standard blue livery, at Bristol, ready to work West to North express to Shrewsbury;  
*(lower)* Passing Little Somerford at 86 m.p.h. with the up Bristolian, 1954, with the author on the footplate



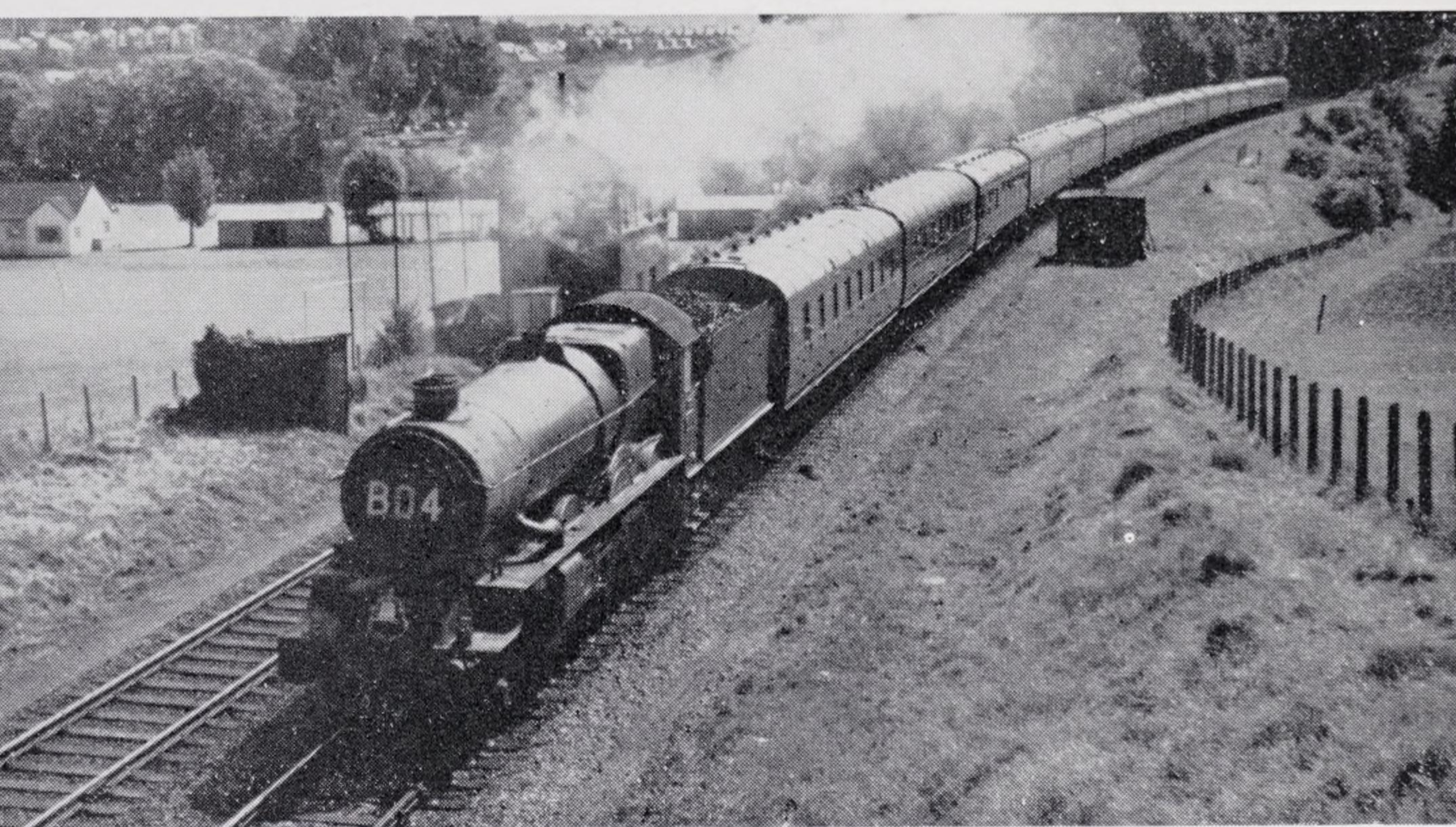
*Acknowledgements to: K. H. Leech*





*Acknowledgements to: Ivo Peters*

*Page 85 (upper)* Last year in traffic, arriving at Swindon with an enthusiasts' special, September 1962; *(lower)* on 8.45 a.m. Saturdays Paddington Weston-super-Mare express leaving Twer-ton Tunnel, near Bath, in August 1962



*Acknowledgements to: D. H. Ballantyne*





*Acknowledgements to: Ivo Peters*

*Page 86 (upper) March 1963, hauled temporarily from Swindon stock shed to pose alongside Mallard; (lower) The resurrection: No 6000 being hauled out by enthusiasts prior to restoration, and going to Bulmers at Hereford*



*Acknowledgements to: H. P. Bulmer Ltd*



to make use of the well-knit and experienced team of engineers forming the testing section of the Swindon drawing office, and working under S. O. Ell. They were given the task of nursing one or two 'lame ducks'; and the success with which they turned these into reliable units not only provided experience and confirmation that the theories of draughting held at Swindon were correct, but provided an invaluable fund of experimental data on which to work when Smeddle, to meet the demands of the general manager for acceleration, gave authority for improved draughting to be applied to the Kings! The requirement was simple enough: to provide pre-war performance on post-war fuel. Hawksworth's application of high degree superheating to engine No 6022 had been a big step forward; but Ell considered he could get equally good results, much more cheaply, by a simple change to the draughting. If however improved draughting was combined with high degree superheating the performance could be stepped up *beyond* the pre-war optimum.

The change in draughting involved, among other things, discarding the jumper top to the blastpipe, which had been one of Churchward's specialities. It had been standardised to prevent an excessively sharp blast, under heavy working conditions, from tearing the fire, causing excessive coal usage due to fire throwing; and there were some old hands who shook their heads at the thought of this long-cherished Great Western speciality being removed. When it became known that Ell's modifications including a reduction in the diameter of the orifice of the blast pipe, and the putting of a liner in the chimney, there was even more shaking of heads. It was averred that the term 'improved draughting' was merely a polite scientific cloak of the old engineman's trick of putting a 'jemmy' in the blast pipe to make an ailing engine steam. But Ell's adjustments were most skilfully devised, and when he got engine No 6001 on the stationary testing plant early in 1953, it was evident that the increase in basic coal consumption was no more than



fractional. And, after all, what were one or two decimal points in coal per drawbar horsepower hour when providing a locomotive that would steam reliably on indifferent fuel. I have told elsewhere how a series of dynamometer car trials, with good, bad and medium coal, finally convinced the operating department; and as from 14 June 1954, the Bristolian began running between Paddington and Bristol in  $1\frac{3}{4}$  hours once again. And once again the 'flagship', No 6000 *King George V*, was chosen to make the running on the inaugural day.

My office was then near to Chippenham station, and I went over to the lineside to see them come tearing through, dead on time, 79min for the 94 miles from Paddington; but more interesting really was the eastbound journey in the comparison it afforded with that other inaugural Bristolian journey of nineteen years earlier, when the train was first put on, to signalise the centenary of the Great Western Railway itself. *King George V* was also used on that occasion, but it was a curiously undistinguished run, with the speed see-sawing up and down in the most erratic manner, and giving some observers the idea that the Kings were not suitable engines for continuous high speed running. Ultimately the driver was  $1\frac{1}{2}$ min late in passing Southall, and he opened out to make a last frantic dash to get in on time. He achieved his maximum speed of the whole journey passing Old Oak Common, at 88mph and stopped at Paddington in 105min 29sec. That was on 31 August 1935. The comparison between this run, and that of 14 June 1954, was startling. The times at the principal passing stations are shown in the accompanying table. I should add that the schedule quoted in the table is that of 1954 and includes 4min recovery time between Swindon and Didcot, and another 4min between Southall and Paddington. The 1935 schedule was 43min to Swindon,  $74\frac{1}{2}$ min to Reading, and  $94\frac{1}{2}$ min to Southall. On the 1954 journey speed averaged 90mph between milepost 62 and 47, and 82mph over the 44 miles from Didcot to Southall.

The beautifully even speed maintained on the 1954 inaugural



INAUGURAL 'BRISTOLIAN' RUNS  
Engine No 6000 *King George V*

Date			31-8-35	14-6-54		
Load tons full			265	250		
<i>Dist</i>		<i>Sch</i>	<i>Actual</i>		<i>Actual</i>	
<i>Miles</i>		<i>min</i>	<i>m</i>	<i>s</i>	<i>m</i>	<i>s</i>
0.0	BRISTOL	0	0	00	0	00
4.8	Filton Junction	8½	9	43	8	05
—					p w s	
17.6	Badminton	21½	24	09	24	55
34.7	Wootton Bassett	34	38	44	38	06
40.3	SWINDON	39	43	52	42	30
—					p w s	
64.5	Didcot	59½	62	53	59	54
81.6	READING	71½	75	55	71	56
99.1	SLOUGH	84½	88	58	85	06
108.5	Southall	91	95	56	92	09
117.6	PADDINGTON	105	105	29	102	15
Net times			105½		96¾	

run certainly gave the lie to any suggestion that the Kings were unsuitable for continuous high speed running with light trains. Three days later, I travelled by the train myself, not behind *King George V* but with *King Richard III*. With only one moderate check to hinder us, that near Shrivenham, we stopped in Paddington 9min early, in 96min 12sec from Bristol. On this run, the average speed over the  $65\frac{3}{4}$  miles from Knighton Crossing to Old Oak Common West Junction was 83.8mph. We were travelling at 74mph at the beginning of this stretch, recovering from the Shrivenham check, and 77mph at the finish; but intermediately, from Uffington to Ealing Broadway the speed lay entirely between  $80\frac{1}{2}$  and 88mph. The one slight check cost about  $1\frac{1}{4}$ min in running, leaving us with a net time of 95 min, and an average speed from start to stop of 74.4mph.

At the end of July in that first summer of the accelerations,



THE BRISTOLIAN; JULY 1954

Load: 7 cars, 234 tons tare, 250 tons full

Engine: 6000 *King George V*

Driver: H. Jones, Fireman: E. Callaghan

<i>Dist Miles</i>		<i>Sch min</i>	<i>Actual m s</i>	<i>Speeds mph</i>	<i>Regulator opening</i>
0.0	BRISTOL	0	0 00	—	
1.6	Stapleton Road		4 10	39	Main 5/8
3.7	<i>Milepost 3<math>\frac{3}{4}</math></i>		7 49	31	
4.8	Filton Junction	8 $\frac{1}{2}$	9 28	—	1st port
7.7	Winterbourne		12 46	60 $\frac{1}{2}$	Main just open
13.0	Chipping Sodbury		17 44	68	„
17.6	Badminton	21 $\frac{1}{2}$	21 52	65 $\frac{1}{2}$	1st port
23.4	Hullavington		26 19	82	„
27.9	Little Somerford		29 35	86	Main just open
30.6	Brinkworth		31 35	80	„
34.7	Wootton Bassett	34	34 45	60*	„
37.6	<i>Hay Lane</i>		37 27	69	„
40.3	SWINDON	39	39 37	76	„
46.1	Shrivenham		43 53	83 $\frac{1}{2}$	1st port
51.1	Uffington		47 43	78	„
53.7	Challon		49 44	79	„
57.2	Wantage Road		52 22	79	„
61.1	Steventon		55 21	78	Main just open
64.5	DIDCOT	59 $\frac{1}{2}$	57 55	80	„
69.1	Cholsey		61 22	80	„
72.9	Goring		64 15	75	1st port
78.9	Tilehurst		68 51	82 $\frac{1}{2}$	Main just open
81.6	READING	71 $\frac{1}{2}$	70 53	77 $\frac{1}{2}$	„
83.6	<i>Milepost 34</i>		72 29	75	„
86.6	Twyford		74 51	77	„
93.4	Maidenhead		80 00	80	1st port
96.6	Burnham		82 28	79	„
99.1	SLOUGH	84 $\frac{1}{2}$	84 23	78 $\frac{1}{2}$	„
101.3	Langley		86 08	77 $\frac{1}{2}$	„
104.3	West Drayton		88 27	77	„
108.5	Southall	91	91 43	77 $\frac{1}{2}$	1st port
111.9	Ealing Broadway		94 16	79	„
114.3	<i>Old Oak West Jc</i>		96 13	75	shut
115.6	<i>Milepost 2</i>		97 17	—	—
116.3	Westbourne Park		97 59	—	—
—			sig stop	—	—
117.6	PADDINGTON	105	106 05		



I had the privilege of a footplate pass, and was delighted to find that the *King George V* was once again on the job. By that time I had ridden on many Kings, all in heavy West of England or Birmingham duties, and it was an interesting experience to get the feel of one of these splendid engines in continuous high speed running with a light train. But make no mistake about it, although the Bristolian was a relatively light train, it was not ordinarily a light duty. The accelerated schedules of 1954 and afterwards were planned in the experimental section of the drawing office at Swindon—later an independent unit—and the policy was to build in 4min recovery time every 50 miles, to cover time that might be lost through temporary speed restrictions for track repairs and such like. In the Bristolian schedule there was therefore 8min recovery time, and the locomotives had to be capable of making the Bristol-Paddington run not in 105 but in 97min. On the exciting run I logged in the first week of the accelerated service, when we stopped at Paddington in just over 96min from Bristol, we had run up to 'full recovery' standard, and a little bit faster still. The running inspectors used to say that strictly speaking the recovery time did not belong to the driver, and that with a clear road throughout, an arrival in Paddington 8min early was to be expected; but in practice, if there were no speed reductions to be made, drivers used to take advantage of the recovery time to run a little easier, thus saving coal and wear-and-tear.

This was demonstrated skilfully on my footplate journey, when getting a completely clear road the driver gradually let his recovery margin slip away until he was precisely on time on passing Slough, with another 4min of recovery time available to him on the last lap. We should, in fact, have been exactly 4min early into Paddington; but the summer service was then at its height, and the big station was not ready for us so early. We were stopped for  $2\frac{3}{4}$ min outside, and arrived in the platform a minute late. Time keeping apart however, the engine performance, and also the work of driver and fireman, was quite a classic



in the way the train was run with a minimum of coal consumption. The log is set out in very complete detail in the accompanying table, and in view of the attention given to steam production in the Swindon trials from 1953 onwards, it is appropriate to consider the steaming first. The tender was loaded with soft Welsh coal, and according to tradition a big fire, built haycock fashion, had been prepared. Steam pressure was 225lb per sq in on leaving Bristol, but then it quickly rose to 250 while climbing the Filton incline. I then took a continuous record of its fluctuations, and during the next 80min the absolute minimum I noted was 240, but for the most part the needle was hovering between 245 and 250lb per sq in, but without once blowing off. In other words the steaming was perfect. The firing was not heavy, and as usual with Welsh coal on Great Western locomotives the last charge was put on a long time before journey's end. On this run the last appreciable firing was near Pangbourne, when we were still 40 miles from Paddington. After that it was gradually worked down. A couple of shovels were put on just after Maidenhead, and a little more at Langley; but that was all.

I took a careful record of the water consumption, from that registered in the tank before starting and on arrival in Paddington, together with the amounts picked up at Chipping Sodbury and Goring water troughs. The total worked out at 2,950 gallons, or 17,800lbs of water per hour. This was considerably less than the 25,000lb per hour set as the target of sustained output to be kept up continuously under maximum recovery conditions. *King George V* was not running up to this maximum, having a net time of 101min, or 4, rather than 8min under the schedule. But conditions on a fine summer evening were very favourable to good running; and the capacity built into the Kings, with the improved draughting, provided for running up to maximum recovery standards in adverse weather conditions, where a strong north-easterly wind could make those seven coaches of the Bristolian pull like nine or even ten. The handling of the engine was most skilful. Driver Jones used 22 per cent



cut-off in climbing the Filton incline, but on passing Filton Junction he linked up to 18 per cent, and no further adjustments of the reverser were made all the way to Paddington. The variations of power output, to suit gradients and to observe the one minor speed restriction—over the junction of Wootton Bassett—were made entirely by adjustments of the regulator. And here, on the footplate, I could quite appreciate how a driver inexperienced in the art of really fast running—as seemed to be the case on August 31 1935—might find difficulty in maintaining a steady uniform pace. On the Kings the working of the up Bristolian, at medium rather than full recovery standards, seemed to require a regulator adjustment delicately poised between the auxiliary port full open, and the main port just ‘cracked’, once the Filton incline was mounted. In the accompanying log I have shown the places where adjustment of the regulator took place, and the *finesse* with which the driver balanced the two adjustments is revealed in the uniformity of the speed.

The maximum speed of the whole journey, 86mph at Little Somerford, was attained down the 1 in 300 descent from Badminton, on very easy steaming. Then, when the main port was used in recovering from the slight easing of the speed through Wootton Bassett, it took us romping away to well over 80mph east of Swindon, and a change was made back to the auxiliary, or first port. This gave us an absolutely steady 78-79mph down the Vale of the White Horse, on gradients of around 1 in 754; and near Didcot, with the gradients flattening out into almost dead level, the main port just cracked, gave us a steady 80mph. So, with this artistic handling of the engine, we continued to the outskirts of London, until eventually, we had 8min left for the last 2 miles. No more than 4min would have been ample, but we were stopped at the last group of signals, only  $\frac{1}{4}$  mile from the buffer stops in 101min from Bristol. This was certainly an exposition of King performance at its most elegant.



It must not be imagined however that in that particular era *King George V*, or indeed the entire King class was involved solely in lightly loaded high speed trains. I had an experience on the 7.45am express from Bristol to Paddington with No 6000 that was both impressive and amusing. The supremacy of the Kings on the Western Region was then being challenged by the two experimental gas turbine locomotives, and the British-built example, No 18100, was, in her day, a most formidable competitor. She was frequently on the 7.45am up from Bristol which I was using most days in my commuting between Bath and Chippenham. One morning it happened that we had an unusually heavy load for that train; fifteen coaches with a gross load of 515 tons. One of the most competent Old Oak drivers of that period, Pollard by name, was on No 18100, and he just managed to keep the 19min point-to-point time, although he had a nominal tractive effort of 60,000lb at his disposal.

## BATH TO CHIPPENHAM: A COMPARISON

Load tons E/F		478/515		501/535
Engine No		18100		6000
Power		Gas Turbine		Steam
Driver		Pollard		Elsworth
<hr/>				
<i>Dist</i>		<i>Actual</i>		<i>Actual</i>
<i>Miles</i>		<i>m</i>	<i>s</i>	<i>m s</i>
0.0	BATH*	0	00	0 00
1.0	<i>Milepost</i> 105 $\frac{3}{4}$	3	33	2 44
2.4	Bathampton	5	33	4 26
4.9	Box	9	08	7 52
5.7	<i>Milepost</i> 101	10	09	8 54
7.7	<i>Milepost</i> 99	13	08	12 07
8.5	Corsham	14	08	13 10
10.7	<i>Thingley Junction</i>	16	35	15 49
11.7	<i>Milepost</i> 95	17	41	16 55
12.8	CHIPPENHAM	19	10†	18 51‡

\* Coach opposite Milepost 106 $\frac{3}{4}$

† Stop 150 yd short of normal

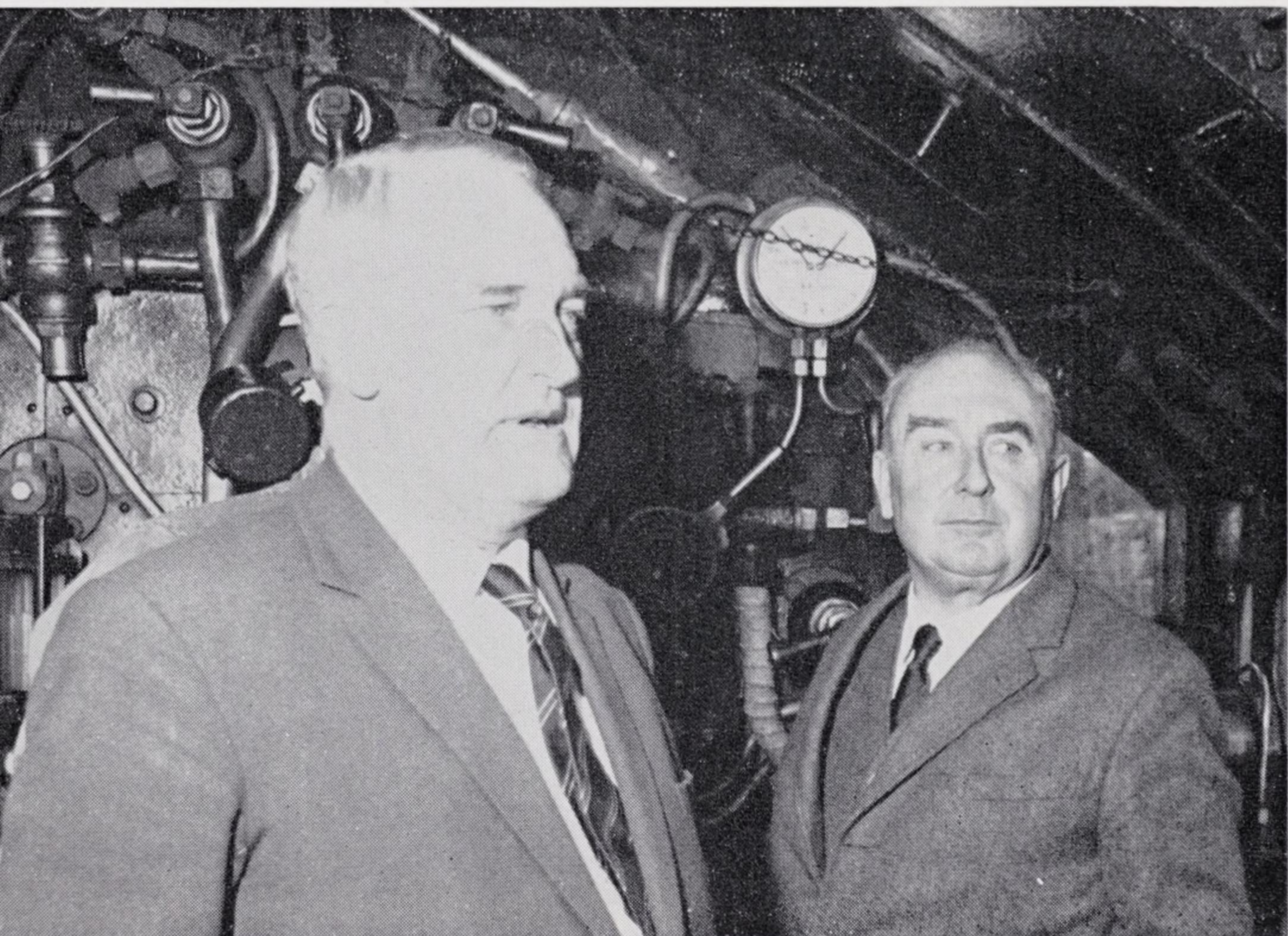
‡ Accurate stop in platform





*Acknowledgements to: Ivo Peters*

*Page 95 (upper) On the private track at Hereford, June 1969;  
(lower) The author, driving the engine on the Hereford circuit,  
with Mr. R. C. Hilton, then Divisional Manager, British Rail-  
ways, Cardiff*



*Acknowledgements to: H. P. Bulmer Ltd*





*Acknowledgements to: D. H. Ballantyne*

*Page 96 (upper)* First run on BR in the post steam era: 2 October, 1971, passing Magor en route from Hereford to Birmingham via Oxford; *(lower)* The epoch-making train on 2 October, 1971 leaving the Severn Tunnel



*Acknowledgements to: G. Coffin*



A week or so later we again had a fifteen coach train, this time of heavier stock, and making a gross trailing load of 535 tons. Instead of the gas turbine we had *King George V*, and driver Elsworth simply left No 18100 standing! Once again one saw that ability of the King class to lift a heavy train cleanly off the mark, with a time of 2min 44sec for the first mile. At Box, after nearly 5 miles of faintly rising track No 6000 was leading No 18100 by  $1\frac{1}{4}$ min, and doing  $51\frac{1}{2}$ mph with that huge train. The gas turbine showed a slight advantage in climbing through Box Tunnel, but the King did not fall below 32mph on that 2 miles of 1 in 100 and worked up to 60mph before the Chippenham stop. The fascinating details of these two runs can be studied in the table. The train was then booked to run the remaining 94 miles to Paddington non-stop in 104min. I learned afterwards that *King George V* finished the journey on time.

On a wintry day when *King George V* was again the engine, I travelled through to Paddington. The load was thirteen coaches on that occasion, 470 tons at first, and 430 after detaching the Didcot slip portion. We took  $21\frac{1}{4}$ min to cover the initial 16.7 miles from Chippenham to Swindon, mostly against the collar, and were then slowed to 25mph just beyond for track repairs. In rather misty conditions the driver did not hurry things down the Vale of the White Horse, sustaining 64 to 69mph; but then we had to make a special stop at Didcot, instead of slipping. The 40.9 miles from Chippenham took  $47\frac{1}{4}$ min start to stop. For a little time afterwards the weather conditions precluded really fast running, but after passing Reading we had a grand burst of speed, covering the  $13\frac{1}{4}$  miles of level road from Maidenhead to Hayes at an average speed of 72.3mph. There was another check at Hayes, but, despite this, and the exceptional delay at Didcot, we had actually regained a minute from Chippenham, completing the run into Paddington in 103min. Such were a few runs with *King George V* in the mid-1950s.

The dynamometer car test runs of 1955, with engine No 6013,



had suggested that a further improvement might be made to the Kings by fitting twin-orifice blast pipes, and double chimneys. Tests were made in 1956 with engine No 6002 *King William IV* so equipped, and I must admit that the results were most impressive. Authority was given for all the Kings to be so modified, and No 6000 was equipped in December 1956. At about the same time all thirty engines of the class received new cylinders, new outside steam pipes, and new front sections to their main frames. These changes were, by official reckoning, regarded as making Kings fit for another twenty-five years of service. How long they would have lasted, but for the wholesale introduction of the diesels, is a matter of conjecture: the whole class was in fact withdrawn in 1962. Engine No 6000 was one of the last four to remain in traffic; the others were 6011, 6018, and 6025. All were withdrawn in December of that year.



## CHAPTER EIGHT

### *Sanctuary at Hereford*

ALTHOUGH a locomotive of the King class had been scheduled for preservation in the national collection of historical railway relics, and *King George V* was the natural choice for this honour, this project for a long time seemed unlikely to get off the ground. Swindon was the natural place for such an engine to be preserved, and No 6000 became the joint property of the Swindon Corporation and the British Railways Board, as joint owners of the Great Western Railway Museum. But there was no room for such an engine in the museum, and for several years No 6000 languished in the back of the stock shed. She was under cover, and so partially protected from the vagaries of the weather; but that was about *all*. Her name, number plates, presentation bell, and medallions had been removed for safe keeping, and there she lay for more than five years. And then 'out of the blue' as it were, there appeared an advertisement in *The Times*, on Thursday, 8 August 1968:

Resurrection of King George V. Western Region's greatest steam locomotive will be ceremoniously pulled by railway enthusiasts from the stock shed at Swindon on Friday at 3 p.m. Strong cider drinkers particularly welcome.

That last sentence gave a clue as to who the then-unknown benefactors were; and railway enthusiasts far and wide will never cease to be grateful to the management of H. P. Bulmer Ltd, the celebrated cider-makers of Hereford, for rescuing the *King George V* from dark oblivion in the stock-shed at Swindon,



and probably from a fate worse than outright scrapping—disintegration from rust and neglect.

Bulmers had decided to have a train, as a mobile reception lounge and exhibition unit, and had purchased five Pullman cars from British Railways. But things that have wheels are intended to run, and Bulmers had the idea that their exhibition train might go on tour from time to time. Then there was the question of hauling it. The edict 'no more steam' had already gone forth from British Railways; but Bulmers have about three-quarters of a mile of private track at Hereford, and so came the inspiration; what better locomotive to haul the exhibition train than the *King George V*! Negotiations were opened with the British Railways Board and the Swindon Corporation, and an arrangement was concluded whereby Bulmers would have custody of the locomotive for two years. But Peter Prior, group managing director of Bulmers, wanted a working engine, which could be steamed, and run on the private track at Hereford. *King George V* was in no state to run after lying derelict for nearly six years! Accordingly a contract was negotiated with A. R. Adams & Son, of Newport Mon, to put the engine into first class running order. It was nevertheless a considerable distance between Swindon and Newport, and No 6000 had to be transported there.

The news of this forthcoming move spread rapidly among railway enthusiasts, and Bulmers had in particular the valuable and experienced support of the Great Western Society. But so far as British Railways were concerned the transfer from Swindon to Newport was conceived as a kind of 'cloak and dagger' operation. One can understand the necessity of the towing speed being limited to 20mph throughout, but a path was arranged in the small hours of the morning, leaving Swindon at 1am and arriving at Alexandra Dock Junction, Newport, at 6am so as to be sure—or so it seemed!—that no one could photograph the run. But even if the actual journey had to be made under cover of night, Bulmers were determined



that the emergence of the engine from the stock-shed should not go unnoticed. She had lain there unkempt and ungroomed; but when the arrangement was concluded with the BRB and the Swindon Corporation things began to happen in the dark recesses of that stock-shed. The Great Western Society got to work. Plans were made for the formation of a branch of the society at Hereford to look after the engine when she finally arrived at her new 'running shed', and a vast amount of volunteer elbow-grease was expended to ensure that when she did once more burst into the light of day, she would at least be a tolerable example of what all good enthusiasts thought a Great Western express passenger locomotive *should* look like. The emergence, whatever the subsequent journey should be, was to no 'cloak and dagger' affair; and this brings me back to that advertisement in *The Times*.

*The Railway Magazine*, aptly described the events of Friday 9 August 1968:

Incessant rain sweeping across a now near-derelect quarter of the Swindon railway complex seemed to symbolise melancholia at the end of the steam age, which had nurtured that fine breed culminating in the Kings proudly produced there 40 years before. But the eager manual efforts on the ropes as No. 6000 was pulled clear of the shed dispelled the gloom; though change there must be, such enthusiasm was ensuring that all traces of past fulfilments were not to be swept away.

Indeed the engine emerged shorn little, if at all, of her former glory. Those hard working enthusiasts had scraped, and cleaned, and polished till she was positively glittering. The bell was there again; her brasswork was burnished till it shone like gold, and riding on her buffer beam were the Mayor and Mayoress of Swindon and Mr Bertram Bulmer, chairman of the cider-making company. The engine was handed over by the mayor, Alderman A. J. Brown, and the health of the *King George V* was drunk in copious draughts of Herefordshire cider. After the ceremony the name and number plates, and the famous bell were taken off,



for safe carriage, and to the accompaniment of round after round of cheers the engine was towed away by a diesel shunter. At 1am next morning she was to leave Swindon for Newport. By an odd coincidence that very week-end, Sunday 11 August 1968, British Railways ran their 'last steam train': an historic special farewell journey from Liverpool and Manchester to Carlisle and back. I have put the words 'last steam train' in inverted commas; because British Railways, all unwittingly, had reckoned without the *King George V*.

On 13 November, 1968, the engine arrived in Hereford, now under her own steam, and she was driven into Bulmer's works by the deputy mayor of Hereford, Councillor H. J. Evans, a former GWR engine driver. In the early spring of 1969 my wife and I were invited to a little 'party' at Hereford. It could have been called a *King George V* party. The engine was to be in steam, and with us there travelled that master portrayer of steam locomotives in action, Terence Cuneo. There had been no doubt about his assignment when we got to Hereford; but to my surprise and delight I learned that my job was to drive the engine hauling the five exhibition Pullmans, and to position it for Cuneo to make the sketches for his painting. Over the years I have driven many different classes of locomotive, and this is no place to dilate or digress upon the merits, or otherwise, of some of these from the viewpoint of the driver's manipulation of the controls. But Great Western locomotives normally respond to the lightest of touches on the regulator. One delights in the story of the visit of Her Majesty the Queen to Swindon, when Princess Elizabeth, and how following the precedent set by her grandfather in 1924, she drove a locomotive from the works back to the station. On mounting the footplate of the Star No 4057 bearing her own name she was a little apprehensive; but her mentor indicating the regulator said 'Now lift it a little, ever so gently'. She did and the engine moved away equally gently.

I thought of this as I manoeuvred the *King George V* round



Bulmer's track. It was just the same; 'gently' did it. It seemed amazing that I was handling a locomotive that could haul a fifteen-coach train at 80mph on level track—probably more now she has a twin-orifice blastpipe and chimney. The sense of 'control' given by that regulator is wonderfully assuring. Time and again I was able to 'spot' the engine for Cuneo's activities at the lineside and many enthusiasts will be familiar with the magnificent picture that resulted. I can perhaps now reveal that in one minor respect Cuneo took liberties with his subject. He quite properly showed a blue-overalled driver leaning out of the cab; but I was that driver, and far from having to don overalls everything in the cab was so spotless that neither my wife, who was with me, nor I even had to wipe our hands when climbing down. It was a pleasant interlude, and I came away from Hereford happy in the thought that the engine was in safe, experienced and very enthusiastic hands. I concluded an article in *The Railway Magazine* with the words: 'Long may she remain a "live steamer".'

I was in Canada and the USA for six weeks in the late summer of 1971, but my plane from Pittsburgh had barely touched down at Heathrow before I was receiving telephone messages with the astonishing news the British Railways had made a concession, and that *King George V* was to run main line rails again, on the very next day. Unfortunately a long absence from home made it impossible for me to dash off to see her on the first leg of that remarkable 'Royal Journey', as *The Railway Magazine* called it; but there was still the following weekend. How Bulmer's, and in particular Mr Peter Prior, persuaded British Railways to lift their ban on steam I do not know; but lifted it was, 'to assess the practical difficulties in operating steam hauled trains over British Railways', as the official announcement read. It was no half-day holiday 'doddle' either. True, the engine was not required to steam up to 25,000lb per hour once again, or anything like it; but the itinerary, extending over four days, involved the following:



- Oct 2: Hereford to Birmingham (Tyseley) via Severn Tunnel and Oxford
- Oct 4: Birmingham (Moor St) to Kensington (Olympia) by the historic route of the one-time two-hour expresses
- Oct 7: Olympia to Swindon
- Oct 9: Swindon to Hereford, via Bath, Bristol (Stapleton Rd) and Severn Tunnel Junction

To say that this tour was a 'Royal Progress' would be a wild under-statement. I do not think it is far off the mark to say that nothing like it has previously been seen on the railways of this country—or of any other country for that matter. The crowds that thronged the lineside at every point of vantage, and many other points that are not normally accessible, were phenomenal. At times, indeed, they were in danger of getting out of control, to their own peril from other trains.

I was in Hereford on 7 October to give a talk to The 6000 Locomotive Association, and then details were fixed for my own journey with the engine, two days later. I drove my car from Bath to Severn Tunnel Junction to join the train there, and long before coming to the station I met the first manifestations of the extraordinary popularity of the trip as a public spectacle. All road approaches to the station were packed; I could not park my car nearer than half a mile away, and as I subsequently made my way, on foot, I began counting the cars. Having got to 300 I gave up. There must have been at least double that number in the immediate neighbourhood of the station. Once again I was privileged to ride on the footplate, from Severn Tunnel Junction up to Pontypool Road, and again the words that occurred to me were 'Royal Progress'! From the footplate the lineside was an amazing sight. Young and old, men and women alike in almost equal numbers waved us on our way. This was all the more remarkable because this was not one of the principal express routes of the GWR, and was only worked over by the Kings in their declining years.

It had been enjoyable enough to mount the footplate of



No 6000, as a 'live' engine, in 1969, and to drive her round Bulmer's track; but this was the 'real' thing. In my recent visit to Canada I had ridden many hundreds of miles on the footplate, but on diesels—a 'white collar' job; but on 6000 I was in overalls again, amid all the once-familiar smells of hot oil, the tang of coal dust, and the 'sing' of the injector. She was in superb mechanical condition, running as sweetly as the proverbial sewing machine, though no great output of power was demanded. In addition to the five Pullman cars of this Bulmer exhibition train there were four coaches for ordinary passengers in the rear, 335 tons tare and 350 tons full. Although the point-to-point times were easy, it was important not to get ahead. The passing times at principal intermediate points had been published shortly before the trips, and everyone on board was anxious that no one should miss his or her sight of the train through its running early. Actually one would imagine most of the sightseers had taken up their chosen places some time before the train was advertised to pass.

We made a beautifully easy climb from the Maindee Junctions at Newport up to Pontypool Road. After observing a permanent way slack at Caerleon, we climbed the four miles of 1 in 100 ascent in 7min 24sec. By a coincidence the working positions of the engine controls were exactly the same as on the Filton Incline, when I rode the engine on the up Bristolian in 1954: 22 per cent cut-off, and the main port of the regulator a little more than half open. The main difference was that in 1971 the boiler pressure was not permitted to exceed 210lb per sq in, whereas in 1954 we had the full 250. On this recent run the beat sounded beautifully clear and true, and there was never a suspicion of black smoke from the chimney. On riding that engine, in 1971, the years did indeed fall back. It seemed amazing that it was seventeen years since I rode her on the Bristolian, and forty-four years since I first caught sight of her at Paddington. Her story is still unfinished, for her stay at Hereford is to continue, and while she is there she will often be in steam.



Saga of a locomotive indeed! Has there ever been one like it? One thinks back to the 'men in her life': to pre-natal events, like Collett's scrapping of *The Great Bear*, which started the train of inquiries at Paddington; Edward Hungerford of the USA who wanted a British locomotive in the B & O Centenary Exhibition; R. E. L. Maunsell, who dared to build an express locomotive with a higher tractive effort than anything then running on the GWR; and finally Sir Felix Pole, who virtually laid down the specification. Then there was Hawksworth, who supervised the design of the engine; and A. W. J. Dymond, who did the boiler, and suggested the unique design of bogie; K. J. Cook, who as assistant locomotive works manager carried major responsibility for construction; and Stanier, who took the engine to the USA. Then there was Fred Williams, charge-man fitter from Swindon 'A' shop, and Dando his mate. The massive meat pies that Mrs Williams made for her husband when he was going 'trial trip' with new engines were legendary at Swindon; how he got on without them in America I can't imagine!

*King George V*, like all top link Great Western express engines, never had a regular driver, or pair of drivers; but I think William Young will always be associated with her from his visit to the USA. In her days on the post-war Bristolian from 1954 onwards, she was handled by men from two different sheds on the same day; Old Oak men going down, and Bristol Bath Road on the return. No 6000, like the rest of the class, was a very thoroughly pooled engine.

And so I come to the end, for the time being. No one can tell what the future may hold for this remarkable engine. One can well imagine, however, that Bulmers, and the 6000 Locomotive Association, will not let her fiftieth birthday, in June 1977, pass without a special celebration.



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