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Contents

Sydney Slater Guy 1884 to 1971: a brilliant engineer and unrecognised hero of World War 2 *Robin Hannay*

Sydney Slater Guy was born in Wolverhampton in October 1884 and his family moved to King's Heath, Birmingham, shortly afterwards. Just before his 17th birthday, Bellis and Morcom, a firm of engineers, offered him employment at 4 shillings (20p) for a 53 hour week. If he showed aptitude after a few months, he would be appointed to a trade. He made the grade even though it meant getting up at 4.30 each morning to catch the steam tram from King's Heath into Birmingham to get there by 6 a.m. They had 30 minutes for breakfast at 8 a.m. where they fried bacon and eggs on brightly burnished shovels over the foundry furnaces. In the evening he went to classes in the Technical School and then made his way home to be ready to rise the next day at 4.30 a.m.

When he finished his apprenticeship, he spent a time at a small electrical business to gain some electrical knowledge working with a Harry Railings. The firm went on to become G.E.C. Ltd. (General Electrical Company) at Witton, Birmingham.

In 1906 he became the Service and Assistant Works Manager at the Humber Motor Company Ltd. in Coventry. The Works Manager used to stand by the gates before 6 a.m. with a fob watch in his hand. At 6.a.m. precisely, he closed the gates. They were then opened briefly at 6.15 and the stragglers let in but they lost an hour's pay. They were then closed so anybody after that lost a whole day's pay. This was common practice in the early part of the 20th Century. When Sydney left in May 1909, he had a letter from the Works Manager saying 'we were very sorry to part with him'.

Working at Sunbeam

Sydney joined the Sunbeam Motor Company Ltd. of Wolverhampton, as the Works Manager (today's title would be Managing Director) at the age of 24, at a salary of £250 a year - £5 a week. A skilled workman at that time would only earn just over a £1 a week.

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The Editor is always interested in hearing from members and non-members who would like to write an original piece about transport history and/or research for inclusion in this journal or online.

Sunbeam had been manufacturers of bicycles but, like many similar companies, were entering the manufacture of cars and needed a person used to vehicle engineering rather than steam. Sydney's experience was ideal, particularly as he came from a car manufacturer. He had also been recommended for the job. He did have the benefits of a works car as the Humber he owned did not suit the Directors! At that time there were 500 employees, their numbers had risen to 3,000 when he left in May 1914.

When Sydney started at Sunbeam's Moorfield Works on 2nd June, 1909, they were producing high quality cars and were compared with Rolls Royce, Daimler, Lanchester and Napier. He steadily increased production and reduced costs with the Company's profits increasing each year. However the Directors considered this to be his job and he did not get a bonus or a rise in salary.

Sydney felt that commercial chassis available at the time were heavy and that there was a market for lighter chassis. In 1912 he started to design a chassis to carry a payload of 30 cwt. He was living in a large house with a farm called Westacre in Finchfield close to Wolverhampton which later became a hotel. During 1913 he built 3 chassis designed to carry a payload of 30 cwt. They used proprietary engines made by White and Poppe (pronounced Poppy). He fitted a 4-speed gearbox which had an overdrive top gear. The legal speed limit at that time was 12 mph, so he fitted a speed limiter to restrict the maximum speed in top gear to 30 mph, but it did not affect performance in the other gears. It was about 75 years ahead of its time! One of these chassis was bought by a coach company in Crieff, Perthshire, and fitted with a 14 seat charabanc body for touring. When the firm was acquired by a larger operator in 1921, the Guy joined their fleet.

Early in 1914, Sydney resigned from Sunbeam and left at the end of May. He had increased their profits from £20,000, to £200,000 in 1913. He was wished the best of luck with his new venture, given a £100 bonus and allowed to continue to use his Company car until the end of August and return it to them unless he wished to buy it.

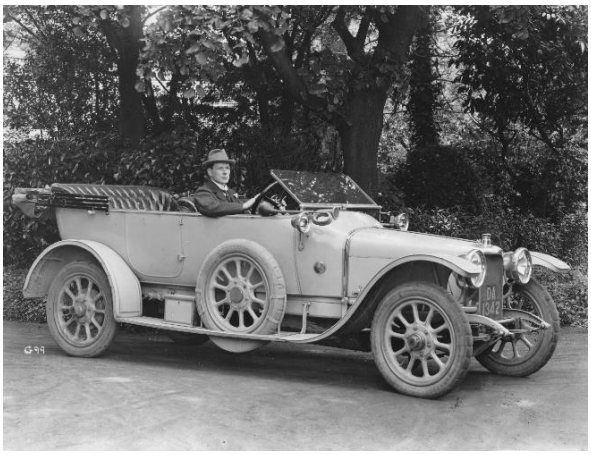
Establishment of Guy Motors

With the savings he had made and assistance from some friends, he bought a 60 acre plot of land (30 acres of this were subsequently sold, some to Henry Meadows whose entrance was on Cannock Road) on Park Lane in the village of Fallings Park on the outskirts of Wolverhampton and engaged builders to construct an office block fronting the road and factory building behind it. Whilst this was going on, he rented premises in nearby Heath Town and engaged 20 workmen to start building 30 cwt chassis. The first was delivered in September. Production was moved into the new Factory in March 1915 and by June a total of about 100 chassis had been built altogether, and the workforce had risen to 100.

By then, the factory was under the control of the Ministry of Munitions who controlled production and authorised factory extensions. Guy were given orders to produce a variety of types of munitions. They were allowed to continue to manufacture chassis until 1916. Some of the work they did involve building aircraft engines. This led them to becoming a leading manufacturer of buses, military vehicles and, after World War 2, an important exporter of buses.

Innovation in design

During his time at the helm (1914 to 1957) he was responsible for several pioneering models. Apart from the overdrive gearbox and speed limiter on his commercial vehicle chassis, he patented an inclined cylinder head which could be removed for 'de-coking' (removing carbon deposits, which was needed regularly by early petrol engines) without affecting the valve gear, making the process easier and quicker. He made the first British car with a V-8 engine, probably the first vehicle to have automatic chassis lubrication as standard in 1919, the first true large passenger chassis on pneumatic tyres in 1924, the first 3-axled motorbuses on pneumatic tyres to enter service in this country in July 1926, the World's first three-axled trolleybus on pneumatic tyres in December 1926. This trolleybus also pioneered regenerative braking. This turned the electric motor into a generator when the driver applied the foot brake and would slow the trolleybus down to 5 mph before the vehicle's wheel brakes were applied. This saved wear on the brake shoes but also fed power back into the overhead lines, thereby saving power costs.



Above: Sydney Guy in 1920 at the wheel of one of the 20 h.p. V8-engined Tourers. This was the first British car to have V8 engine and possibly the first vehicle in the world to have automatic chassis lubrication. It was an expensive car, costing £1,450 and only a few were sold (author's collection)

Above: Guy pioneered the three-axled double-decker on pneumatic tyres in July 1926, and the World's first three-axled trolleybus with pneumatic tyres in December. It also featured regenerative braking. This is late example of an FCX motorbus for Northampton Corporation, which was exhibited at Olympia in 1929. It had a 54-seat body by Grose of Northampton and entered service in March 1930 (author's collection).

Early in the Great Depression, Sydney realised that customers were going to consider operating costs and durability when purchasing new vehicles. In 1932 he offered the new Gardner LW series engines in the Invincible double decker, and in the 6 to 11 ton, two and three axled lorries. He also started design work on

new single and double deck chassis solely powered by Gardner oil engines without a petrol engine alternative. He was the first British manufacturer to have this confidence in the future of oil engines.

Before the Second World War, Guy produced more different types of vehicle for the War Department than any other manufacturer. These included the three axled, all terrain BAX and the forward control version, FBAX, a three axled armoured car chassis, a normal control 8x8 lorry, the 15 cwt Ant and 4x4 version – the Quad-Ant, and the PE. This was a petrol electric two axled chassis to tow and provide power for searchlights. Because of the pressure of making vehicles for the Army from 1936, Guy announced in 1940 that over 6,000 civilian orders had been lost.

The Wheeled Light Tank

Sydney's greatest achievement was a humanitarian one and for which he received no appreciation. Every soldier who served in tanks and armoured cars in the Second World War, (as well as their families, their relatives and descendants) should be truly thankful, as he saved the crews from injury or even death. In 1938 he received an order from the War Office for 101 'Light Wheeled Tanks'. These were to a design drawn up by the Royal Arsenal at Woolwich based on the mechanical units of the Guy Quad-Ant. He built the 5 prototypes they had requested to their specification, assembling the hull with rivets.

Sydney was not at all happy with this method of construction as he realised that if a shell hit the structure, even if it did not penetrate, it would cause rivets to shear and injure (or even worse, kill) the occupants. He considered the only way to make the hulls safe was to weld them. The 'Boffins' at the War Department said this was impossible. That was a word that Sydney did not understand! He asked to be allowed three months before he began building the remainder of the order. During that time Guy Motors, at their own cost, would try to find a way of welding hardened armour plate. They succeeded and patented the method. They then placed the patents at the Government's disposal so that all tank manufacturers could build safer tanks. A relatively small bus and lorry manufacturer taught the wealthy and complacent armaments industry a lesson. I also feel that Sydney Guy should have a plaque in his honour at the Tank Museum.

Above: It took a small bus and lorry manufacturer to show the complacent and wealthy armaments industry that hardened armour plate could be welded. This is one of 96 rear-engined Guy Armoured Car Mk 1s. Guy went on to produce over 2,000 hulls for the Humber Mk 2 Armoured Car which used a Karrier chassis. Guy handed the patents to the Government so that tanks had welded hulls, saving thousands of casualties as well as speeding and cheapening manufacture (author's collection)

The Wheeled Light Tank passed its trials with flying colours, resulting in the War Department wanting Guy to produce them in large quantities which was not possible due to the size of the factory and existing orders. Sydney agreed for them to be built by another manufacturer, resulting in a hull being sent to Humber who fitted their mechanical units. Subsequently, Guy produced another 2,600 hulls for Humber before transferring the rotatable welding jigs and know-how to them to manufacture the hulls.

As an employer

Guy Motors was a happy place to work and many employees had relations working there. As a Student Engineering Apprentice, when moving from department to department, particularly in the Machine Shop and Fitting Shop, I found the workers very helpful in giving assistance, even though it might reduce their output and consequently earnings, as they were paid on piece work.

Sydney was a benevolent employer. He paid wages that were the average for the area but he had a Canteen

built to provide lunches and also started a Social Club. He provided room for football and cricket pitches and later a bowling green and club house. At Christmas time, there was a party for employees' children where they all received a present. He walked round the factory regularly to see what was going through and talked to his employees, knowing the majority by their first names and enquiring about their wives and children. In the 1950s he toured the site on Wednesday mornings and if he saw somebody struggling with a job, he could usually show them a better way to do it. He was one of the first employers to give his employees a paid holiday in 1936 when they received a week's pay. During the Second World War, because of the long hours being worked, resulting in the Winter months starting and finishing in the dark for 6 or even 7 days a week, he arranged for 'Sun Ray' treatment sessions. He also appreciated how difficult it was for married women to shop, so arranged for them to supply a shopping list which was collected and sent to two local shops. The shops then made up the list and delivered the goods in separate packages for each order for the women to pay for and collect.

In the Works, each week targets were put up for the current week, together with what was achieved the previous week. On Saturday mornings four girls went round the works selling War Savings Stamps to help with the cost of the War. From time to time, there were special collections for specific items such as Spitfires which cost £5,000, and towards battleships.

Sydney preferred to have a maximum labour force of 1,500 as he felt the personal touch was lost with a larger number. However to meet production requirements for military vehicles, this had to be increased and was doubled for most of the War. This involved recruiting women. It was realised that very few of them would have been inside a factory, let alone worked in one. When new groups joined, they were given a talk by a member of the Labour Department telling them about the factory and what it produced, their hours and conditions of work, facilities available and who to contact if help was required. Then they were taken on a tour of the Works where the functions of the various departments were explained. They were shown machinery at work and dangers explained as they walked round. Women were seen operating various types of machinery including fork lift trucks and Lister petrol driven trucks used for moving components from the Machine Shop. The relevance of the work seen to the completed lorries was explained. After the tour, they were asked if they had seen any particular job that they would like to do and were given it if possible.

Wartime production

There was still a shortage of labour. Many people, who were either too young or too old to be conscripted, wanted to help the War Effort. Sydney thought that they could be employed part time. This was raised with the Work Committee and the Trade Union representatives (membership was not compulsory) and they agreed to train people taken on and they would be paid Trade Union wages.

Above: This is a typical wartime bus delivered in plain grey paint instead of the operator's livery, due to shortages of paint pigments. This Guy Arab Mk2 with a 5LW engine and Park Royal utility 56-seat highbridge body was new to Cardiff Corporation in November 1943. It was one of 2,322 Arab Mk2s built with an overall length of 26 feet 7 inches. They were given special dispensation to exceed the legal length of 26 feet, so that the longer bonnet for the engine could be fitted as standard (author's collection)

An advertisement was placed in the local paper – The Express and Star – inviting applications for part time jobs in the evenings and on Saturday mornings to help with the War Effort. They had twice as many replies as they had hoped for. They came from school boys and their masters, people with office jobs and retired people with a variety of experiences, including a doctor and a J.P. Those with engineering experience were trained to use machines in the Machine Shop and most of the others were trained to do work in the Body Shop cutting materials and helping to build the drop

sided General Service bodies for the Ants, Quad-Ants and FBAX 6 wheelers. Their contribution was very valuable. It also gave the 'part timers' satisfaction that they were helping to defeat Germany but also gave them an insight into vehicle manufacturing.

Above: Sydney Guy is shaking hands with the Fitting Shop Manager on the completion of the 1,000th 'Emergency' double-deck chassis with the workforce gathered around. The board reads "Specification settled 5th September 1941. First test bus completed March 1942. 1,000th bus (chassis) completed 8th November 1943". This chassis was allocated to Walsall Corporation and entered service six weeks later. (author's collection)

After the War, the labour force was back to around 1,500, with the majority of the conscripted women leaving to become housewives again but some did remain.

By the early 1930s Sydney was living in a large house with stables and kennels, 'Sauchileigh' on the outskirts of Albrighton, Shropshire. He liked to go for a ride on a horse before breakfast to clear his head for the day. He had two brothers but one was killed in World War 1. His other brother, Ewart, joined him in the business and became Sales Director. Unfortunately, he was called up in 1940 and served in the Far East, becoming a prisoner of the Japanese. Like all Japanese prisoners who survived their brutality, he was in poor health when he returned home. To help him recover, he went out to South Africa and helped to establish Guy sales with good success with the help of the Distributors he appointed. After he died, around 1950, Sydney used to go out to South Africa early in January, returning in March after visiting customers and bringing back orders.

Each year around July he would call a meeting of all employees in the Yard and thank them for their hard work in the previous year. He would then talk to them about how the Company had performed in the previous year, orders on hand and future prospects. He also detailed the current economic climate at home and abroad and how it affected prospects.

When Sydney decided to retire at the end of 1957 he had been the Managing Director for 43 years. Under his direction the company had a record for returning substantial profits and for a long time a 15% dividend was paid to the shareholders. His two sons – Robin and Trevor – were directors, as well as Ewart's son Tony, who was Service Director. Unfortunately after his departure, the profitability of the business declined, due to the cost of introducing many new models, particularly the Invincible Mk.2 range where the tooling had been over £400,000, but also due to a decision he made in 1954 to dispense with the services of the excellent distributors he had in South Africa and establish Guy's own subsidiary company. The losses on this venture toppled the Parent Company in 1961. Fortunately, there are a number of Guy buses and lorries that have been preserved, including later ones built under Jaguar ownership, to commemorate Sydney Guy's achievements.

Sydney Guy died in 1971 at the age of 86.

Editor's note: Illustrations of other Guy vehicles have appeared in recent issues of this Journal, including the single-decker operated by Provincial in 1926 (issue 89, page 13), and Arab single-deckers in Bulawayo (issue 48, page 6) – the latter may have been a consequence of the sales efforts in South Africa mentioned above.

Working in the UK Express Coach Sector

Mike Lambden

The author worked for Crosville, National Bus Company and National Express in the period 1966 to 2012. This paper describes his experience up to express coach deregulation in 1980, and will be followed later by one covering subsequent developments.

Sunday 5 October 1980 was for me the day in which express coach operation in the UK changed for ever. Some may say that this is the day before the Transport Act 1980 was enacted but in National Express we 'cheated' and used the old legislation to make dramatic changes before the day. I will write more about this in a later edition. However, before this day I already had some fourteen years' experience of express coach operation.

I started my career as a Traffic Trainee with Crosville Motor Services and was sent to their Liverpool Edge Lane depot to start my training. This was the heart of the Crosville express service operation and we ran the Liverpool to London services, and to North Wales and Cardiff. To illustrate the scale of the operation during the winter there were three journeys a day to London – one via the motorways, a daytime service using only A roads which took around 11 hours, and an overnight service. To North Wales we had two journeys a day to Caernarfon and one to Llandudno. Traffic levels were generally small during the winter.

The service levels were what we were allowed to operate by the regulations but also pretty much matched demand for the majority of the year. Mind you, we were not free to set our own fares as we had to apply to the Traffic Commissioners for permission to change them and, whilst in theory anyone could object, it was normally British Railways.

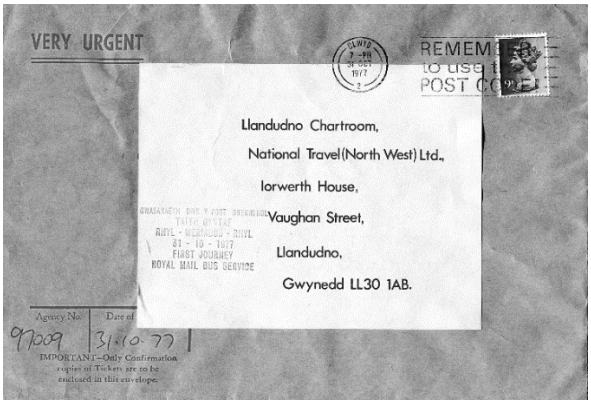
In reality, my experience of express coaches started as a babe in arms as I travelled with my parents by overnight coach from London to Liverpool but this was not continued, so I was told, after I was ill all over my father's demob suit which was the only one that he owned at that time. Later, my father became editor of Bus and Coach and I sometimes accompanied him on journeys he made and I particularly remember travelling overnight from London to Newcastle on one of United Automobile's new Bristol RE coaches.

Above: The traditional face of coaching, as a 1960s ECW-bodied Bristol RE crosses the swing bridge at Barnton Cut in Cheshire. This coach was one of the main London coaches based in Liverpool when Mike joined Crosville and from the final batch with manual gearboxes. (John Robinson)

Seasonal traffic patterns

Back to life in Crosville. At that time all seats were reserved using a manual system and we had a team of 'girls' (average age about 60!) who worked in the Liverpool chartroom which is where all the offices and agents phoned to make bookings. This worked well other than when things got really busy. Then people could not get through on the phone and reverted to just issuing tickets which later meant that some journeys were overbooked which would not be apparent until the services operated. However, we were wise to that and allowed spare capacity at peak times especially to North Wales.

In the late 1960s and early 70s holiday patterns tended to be traditional and families did much the same every year so it was actually reasonably predictable what numbers would travel on peak days. For example, out of Liverpool, on a peak summer Saturday we would have circa 50 vehicles to Butlins Pwllheli, another 50 to points along the North Wales coast as far as Rhyl and another 20 to Towyn, Colwyn Bay and Llandudno. There could also be another dozen or so vehicles to the Bangor and Caernarfon area.



Above: Traditional means of posting confirmation tickets to the chartroom, in this case using a Royal Mail post bus service in North Wales in 1977 (Mike Lambden)

I use the word 'vehicle' deliberately as what operated was very mixed. For some routes it would be coaches from around Crosville depots or hired from private operators but on the shorter services along the coast anything went. Local double deck buses from a wide area of Crosville would be pressed into service to cope. The downside of this was not only the poor quality for passengers but, also, we were then short of buses and crews to be able to run local bus services. It was not always the wonderful world which people look back on with rose- tinted glasses. Let's just say that passengers were very tolerant!

The holiday period which did not always fit the above pattern was Easter. It could be affected by how the school holidays fell but, also, people would leave it as late as possible to book as they waited to see what the weather would be like. Then, at the very last moment, they would book in droves or just turn up on Maundy Thursday evening or Good Friday morning. This made it a vast challenge getting the resource level correct. Therefore we tended to base allocations upon what happened in previous years but watching booking trends at the same time.

Most of the time we did get it right but occasionally it could go spectacularly wrong and either have far more passengers than seats allocated or a surplus of vehicles. If the former happened it would be then be a case of finding more buses which sometimes would require taking a crew off a local service with their bus. I also particularly recall one Friday evening where the 1745 to Caernarfon, which already had several vehicles on it, overloaded and I ended up taking a spare coach to Bangor after I had completed my day in the office.

One of the challenges with so many vehicles on some of the departures was loading them effectively. Naturally family groups liked to sit together but this would often lead to scattered seats being wasted. The technique at busy stops would be to say 'room for two' and have the driver primed to move off as soon as they boarded and before they discovered that one was upstairs and the other was downstairs!

National Bus Company changes

With the advent of National Bus Company, the transition just seemed to happen at company depot level and we were not particularly aware of what was happening at national level. It was part way through 1972 that we took delivery of our first coaches in National livery and, even then, only five of the ten were so liveried with the other five in Crosville express colours.

It was at this point that I moved to taking charge of the Crosville depot in Ellesmere Port for two years and my only involvement then with express services was providing an occasional duplicate coach, selling tickets in our office and observing express services in the bus station adjacent to our office.

Above: A Bristol RE with the later design of ECW coach bodywork on service 850, at Ellesmere Port during the author's time there in the 1970s (Mike Lambden)

However, in June 1975 I joined the fledging National Travel North West, based in Llandudno with responsibility for all National branded coach operations in North Wales. In reality, this meant life was very busy during the summer months but very

quiet during the winter as at that time so much business was highly seasonal. Our services were mainly to Liverpool during the winter with occasional ex-Midland Red service via a slow route to Birmingham and London plus an ex Associated Motorways service to Cheltenham which was then the heart of the express coach network.

The summer had a wide range of services catering for the holiday market from all over the North West and Midlands with a few from further afield. My office was in Llandudno and we were responsible for the charting of the Liverpool services initially although we later took over others. Due to the heavy demand at weekends, the week would be spent liaising with other offices and hiring in enough vehicles to cope with the anticipated demand. These would come from both NBC companies and many local coach operators. In truth, we did not care too much about quality in our quest to find enough capacity.

Summer Saturdays at that time were still the main day of travel but we quickly discovered that circumstances would affect how many people actually travelled compared to what was booked. If the weather was bad during the week, we found that people would board services earlier in the week to go home without changing their tickets and we would then have a lot of unused seats on Saturdays. Therefore, we started under providing seats on Saturdays and mainly got it right although every now and then would find that we ran out of seats at some of the last stops on the routes at places like Gronant and would have to phone around to get another vehicle to move people.

It needs to be remembered that at this time there was no on-road communication with crews or passengers so sometimes it would be several hours before we heard that there was an issue. It was also a case that passengers seemed to have been remarkably tolerant of delays and would only contact us if they had been waiting a couple of hours, sometimes at remote places. Nowadays, with mobile phones there is instant contact with both passengers and crews. Vehicle tracking also enables checks on where coaches are in real time. Late summer Saturdays could be a tense time as we waited to ensure that everyone had been cleared from all over North Wales. On a few occasions we would get to about 1700hrs and think all was well when the phone would ring, and it would be someone saying something like 'I have been waiting in Betws-y-Coed since one and my coach has not turned up'. This would mean that we would have to persuade a local taxi operator to move them home on credit.

Not that much changed with services during the mid to late 70s although we were able to launch a new daily service to London from North Wales in 1976 which we named the London Welshman. At that time, we were only able to operate what we could get authority for from the Traffic Commissioners based on proving that there was a need and anyone could object to us having the service. The main objector was usually British Rail even though at this time we were both state owned. The new service proved very busy during the summer, but we reduced it to just weekends during the winter.

Above: Launch of the 'London Welshman' at Caernarfon in 1976 (Mike Lambden)

We also had a try at introducing services between North and South Wales, but we quickly found that there was insufficient regular demand to make it worthwhile.

The late 1970s

I worked in North Wales from 1975 until 1979, but I gradually also took on responsibility for National Express operations in Cheshire and Merseyside. During those summers it was clear that the traditional summer markets were declining fast as a combination of the ending of Wakes weeks and the move to cheap foreign holidays in the sun took their toll.

Above: The first of the Leyland-engined Bristol REs to be used by Crosville, departing from Liverpool Edge Lane depot in 1972. (Mike Lambden)

The decline was not just affecting seasonal services but also the main all-year-round trunk routes such as Liverpool and Manchester to London. There were days in the winter of 1979 when all the passengers for a day on Liverpool to London could easily have fitted on one coach and it did appear that the future of National Express network was in doubt. Various initiatives were tried, but made little real impression on passenger numbers.

It was at this point that National Bus Company launched 'Coachmap' following its use on local bus services as the NBC Market Analysis Project (MAP). Staff rode on all National Express routes for a number of weeks collecting data about the actual points of origin and destination of passengers rather than just the element they made by the coach service. The concept was that this data would all be analysed and would provide a range of services that better matched passenger requirements.

However, whilst was the Coachmap work was underway a new threat was approaching in the form of the 1980 Transport Act and the deregulation of coach services. I know little of what was found from the data as it was never used to redesign services. From memory, what little was shared showed that it produced some very strange results as, given how few people were travelling anyway, it did not measure what non-users wanted.

1980 brought a whole new chapter in the provision of express coach services in Great Britain, as I indicated in my opening paragraph, and that is a story in itself.

28 April meeting

As shown on the last page of this issue, the AGM will be held on this date in Coventry at 1100. It will be followed by presentations from a number of speakers. A programme and booking form will be distributed directly to all members.

Serendipity in Widnes

Ken Swallow

It was October last year. The new Widnes-Runcorn bridge, the Mersey Gateway, was soon to open. Not only was it to be a tolled crossing but the payment for its use was to be on line or by phone. No throwing of cash into a bucket. Paid by midnight next day as well. Number plate recognition would mean you, or rather your car, would be recorded; and a penalty would result if you were not going to own up to having made the crossing or had not found a way of paying your £2. You could register your car in advance and reduce the toll to £1.80. Or, if you registered as a Halton resident then each crossing would be free. My curiosity mingled with my fear of the unknown took me off to Widnes Library to seek out the inevitable explanatory leaflets.

But what by chance caught my eye there alongside those leaflets was a little 36pp booklet entitled Crossing the Runcorn Gap – Early Bridging Proposals. *Outlining the story of various early ideas to put a bridge across the Mersey at Runcorn Gap, it sounded much more interesting than finding out how to cross in 2017. Number two in a set of three authored by C A Cowan, it had been published by Halton Borough Council in 1992*. So, and with due acknowledgement to them, I picked out the bones from the story. Mastering the ways to pay for using their new bridge could wait a little.*

* * * *

The first name we find in Cowan's list of early proposals is that of James Brindley, who suggested carrying his Bridgewater Canal from Runcorn on to Liverpool. In the *Liverpool Advertiser* of 19 July 1768 he is reported as having "waited upon several of the principal gentlemen of this town and others at Runcorn in order to ascertain the expense that may attend the building of a bridge over the Mersey at that place". It seems the Duke's resources were already drained by the work on the canal and the idea seems not to have had any practical result. For one thing his proposal was opposed by men from both Liverpool and Warrington who felt his suggested aqueduct and road bridge would obstruct their flats and barges. So the canal stopped at Runcorn – but not before a separate suggestion for a barrage had been put forward in a letter from one George Merchant to the Liverpool Mayor later in the year. However, the idea of a barrage was to be raised a number of times, even as recently as 1983.

Number two in Cowan's list of budding bridge builders is "a celebrated, though somewhat erratic, civil engineer", Ralph Dodd, author of a book entitled *An Account of the Principal Canals in the Known World* (but perhaps better known for his attempt to build the first tunnel under the Thames). His 1800 proposal was an enlargement of Brindley's, not only for a canal from the Cheshire side to the Lancashire side of the Mersey but also for a roadway on each sides of an aqueduct. He would erect a bridge with three or five arches of cast iron – but as an alternative a company had also been formed for a less practicable tunnel. Dodd claimed that his bridge would shorten the distance between Liverpool and London and "would exhibit one of the grandest spectacles in the world, the idea of which the reflecting mind would far better conceive than it is possible to describe here . . ." He failed to attract the necessary finance and the scheme shared the fate of its predecessor.

Cowan identifies next a lesser known character, John Dumbell of the Mersey Mills at Latchford, near Warrington. Neither an engineer nor provider of plans, he outlined his proposal for the erection of a bridge in a letter dated 27 November 1813 addressed to the Worshipful Mayor of Liverpool. Like Dodd earlier he emphasised the shortening of the road distance between Liverpool and London his proposal would achieve. "A bridge at Runcorn will lead directly and consequently be the means of bringing the mail from London to Liverpool at 6 o'clock in the afternoon instead of 2.25 am in the succeeding morning" he claimed, offering similar and supporting statistics. Layman as he may have been he advocated a method that "may be executed at a less expense of both time and money than that by which bridges have hitherto been made". His bridge would have only three openings to the river – the centre span of 1,000 feet and the other two of 500 feet each. The capital required in the first instance was £150,000 by 1,500 shares of a nominal value of £100 each.

Dumbell suggested an alternative method by which the construction and maintenance cost might be financed. In a petition to the House of Commons, his proposal was seemingly inspired by the fact that his father, William, "stood possessed of a fishery in the

River Mersey of great value to his family and highly beneficial to the public at large". Leading from "a trial at law before a jury at Lancaster" relating to the profits from "the fish of the said river" he proposed "that a portion of these could or might be well applied in erecting, maintaining and repairing two bridges over the said River Mersey, one at or near Runcorn Gap and the other near the site of the ancient ford between Latchford and Warrington . . ." Cowan suggests that this proposal "was so novel and original and, having regard to the condition of the river in later years, would have inevitably failed".

Next in Cowan's sequence of prospective builders, in 1814, comes Thomas Telford. He was commissioned by Liverpool Corporation "to report upon and prepare detailed plans for a bridge and connecting roads to the Midlands and southern counties". What he recommended was a wrought iron suspension bridge. Only one, and then "of a fairly rude kind" had been constructed in England – across the Tees near Middleton. It would be important not to obstruct the current through Runcorn Gap, so the towers proposed would be on the rocks on the two sides, with a 1,000 ft span. However, the cost of his proposed bridge was too great for private funding, and with Government already committed to the Caledonian Canal and the Holyhead Road, not to mention the Napoleonic Wars, no public funds were available and the scheme was dropped. However, Cowan points out that there were many points of resemblance between Telford's design for Runcorn and the bridge that still spans the Menai Strait and which in 1818 Telford would decide to build.

Meanwhile, in 1816, the earlier plans and estimates were revived and looked at again in a series of meetings, and various other plans of bridges were also produced. A meeting in the King's Arms Inn in Liverpool on 13 January 1817 was shown no fewer than six separate schemes prepared by various gentlemen and a distinguished sub-committee was appointed "for the furtherance of the undertaking". A sub-committee was given the remit "to take into their earliest consideration the proprietary of employing a competent Engineer to decide how much the waterway may be diminished without injury to the navigation". Telford's attention at the time was being directed to the erection of a bridge across the Menai Strait and his thoughts at the time were no doubt of a suspension bridge there. His view was that for the Runcorn Gap also only a suspension bridge would do, which meant that only the proposal of a Captain Brown of the Navy met Telford's criteria. Having in mind that Brown's proposal was short of the extra local information that would support a correct cost estimate; he laid his own plan to the committee on 8 April. It was resolved "that a subscription be now commenced for carrying the measure into effect;" and four months later Telford produced a supplementary report with a modified plan and revised cost estimates.

The purpose of any bridge at Runcorn Gap was not just to convey people and goods more expeditiously between Runcorn and Widnes. As Dodd had pointed out in his 1800 proposal, the distance by road from Chester to Liverpool was then 40 miles and his proposal for a bridge would reduce that by 15 miles. Remember, both towns have a relatively short history. Runcorn up to the arrival of the Bridgewater Canal in 1776 had been but a poor hamlet with a few scattered tenements; Widnes similarly had a few small settlements up to the arrival of the chemical industry from 1847. A crossing of Runcorn Gap was needed as part of the national road network. So Telford was asked to report on the construction of a new connecting main road. Cowan explains that Telford had "come to the conclusion that by improving the existing road to the north and the undesirability of deviating from it at any other point than Warrington, most of the anticipated results could be obtained at a much less cost commensurate with the supposed advantages of making a new road to Liverpool via Runcorn Bridge". This "sounded the death knell for the whole scheme" and it was abandoned. However, Henshall's history of Cheshire [Henshall J H, *The History of the County Palatine of Chester,* 1817] said "a bridge on the same principle projected by the same skilful engineer is now erecting over the Menai Straits upon the success of which, and there is no doubt of it, may probably hinge the eventual commencement of the bridge at Runcorn". More recent reference is of course found in the book on Telford [Glover J, *Man of Iron, Thomas Telford and the Building of Britain,* Bloomsbury 2017].

Crossing the Runcorn Gap was shelved with the appearance of the railways. The Grand Junction Railway, one of the constituents of the London & North Western Railway, obtained an Act of Parliament in 1846 for the making of a bridge with a clear

headway of 100 feet about high water, but if would have had three or perhaps four piers in the bed of the river. The relevant section of the Act was not carried out and was allowed to lapse. However, a further Act of 11 July 1861 authorised the construction of the present railway bridge, including (since the railway company was apparently the lessee of the ancient Runcorn Ferry) a footway – but with no provision for road traffic. Cowan covers it in a separate booklet, recording in its final pages the aspirations of the last years of the 19th century that were to lead to the opening of Britain's first transporter bridge in 1905. This in turn was replaced in 1961 by the arch span bridge later to be known as the Silver Jubilee Bridge, presently closed for refurbishment.

* * * *

The Mersey Gateway opened on 14 October 2017. It is, however, much more than just a bridge. It forms part of a major civil engineering project, including aligning road improvements with the existing network and creating new junctions, connecting the M56 Junction 12 in Runcorn to the Widnes Eastern Bypass and Speke Road towards Liverpool. It has also been the source of much local media exposure partly because, controversially, it is tolled – as will also be the Silver Jubilee Bridge when it reopens.

The 'inevitable explanatory leaflets' explained it all for me. Only history will tell whether eventually a scheme of national road charging might remove the controversy of the tolling so carefully explained in those leaflets, but it won't be in my lifetime!

[Serendipity: Making happy and unexpected discoveries by accident - OED]

*The other two booklets in the series, published in 1990-92, were:

1 Runcorn Ferry and Hale Ford
3 Runcorn Railway Bridge

Book Reviews

Peter White

Regional Tramways: The North West of England post 1945 Peter Waller. 192pp, hardback, very extensive illustrations. August 2017. Pen & Sword Books Limited, 47 Church Street, Barnsley, South Yorks S70 2AS, www.pen-and-sword.co.uk. ISBN 978 1 47386 207 4. £25.00.

This very comprehensive volume examines all the system in North West England (Lancashire, Cumbria and Cheshire). Each system remaining in 1945 is covered in detail, but an introductory chapter also gives a valuable review from the earliest days of tramway operation in the region, covering both horse and the surprisingly extensive extent of steam-hauled operation, as well as all the electrified systems from the late nineteenth century onward. Hence, a number of small systems which disappeared prior to 1945 are covered, such as the two-route operation in Glossop (closed in 1927), and that in Carlisle (closed in 1931). More substantial systems, notably Preston and Burnley, also disappeared prior to 1945.

The description of changes from 1945 covers both the route networks operated (with helpful maps) and the fleet run. In many cases, the sequence of events described is a somewhat depressing one, being the gradual rundown of each system, for which closure had in some cases been planned earlier, but was deferred due to wartime conditions. Even those which had invested in more modern vehicles, such as Darwen, succumbed with the rest. The striking exception is of course Blackpool, which main route along the coast survived to be modernised in its present form. Manchester has also seen revival though the Metrolink network, described in separate chapter.

In many cases, it is shown that the costs of renewing infrastructure and rolling stock meant that bus replacement was financially far more attractive. Many of the smaller systems were on scale for which survival was in any case unlikely. One may thus ask how many of these systems could have survived, even given a more favourable long-term approach toward investment. The clearest case would be Liverpool, whose network included substantial reserved-track services. Could these have formed the basis of a

modern system such as that in Amsterdam or Gothenburg? At the very least, might the reserved track sections have been transferred to bus-only use?

Presentation is generally very clear, with an exceptionally wide selection of fascinating photographs, given sufficient space for the reader to appreciate in detail. They often set tramways in the broader streetscape of the period. Many illustrations are drawn from the Online Transport Archive, of which the author is a director. The maps do not show route numbers or identification letters, which in some cases would be useful for the reader trying to understand complex networks such as Manchester, and relating the text to the maps. It is evident that many of the networks in the Liverpool - Manchester region connected with each other (albeit with limited through working) and an outline map showing these links might be helpful. These are, however, minor points, and the quality of presentation indicates good value for money.

London Buses 1970-1980. Matthew Wharmby and John Laker. 160pp, hardback, with very extensive colour illustrations. November 2017. Pen & Sword Books Limited, 47 Church Street, Barnsley, South Yorks S70 2AS, www.pen-and-sword.co.uk. ISBN 978 1 47387 294 3. £25.00.

In contrast to the North West tramway book from the same publisher, this is very largely a series of illustrations, with limited information to be derived from captions rather than a supporting text. It covers a somewhat unhappy decade, in which older vehicle types continued to be active (notably RTs and RFs), with newer types often proving unsuccessful (notably short-lived the AEC single-deckers for one-person-operation, and the Daimler Fleetline rear-engined double-decker). Country operations had been transferred to NBC, but were still largely based on LT vehicle designs in earlier years. However, some problems may have been associated with LT's rigid engineering systems, notably the role of Aldenham and Chiswick (as illustrated in this book) which proved poorly-adapted to rear- engined types (many Fleetlines had substantially longer operating lives outside London). Special events such as the Silver Jubilee liveried vehicles from 1977, and the Shillibeer 150th anniversary in 1979. Overall this book is likely to be of interest to those mainly focussed on London with a strong emphasis on vehicles, rather than a broader readership.

Frank Sprague
by Reg Davies

In my paper on the Southern Railway's response to bus competition I made a passing reference to Sprague's work in America in 1888 (Journal No. 86, page 2), which was instrumental in the electrification of horse-worked tramways. I have now found much more information in *Engineering Innovation: Frank J Sprague and the US Electrical Industry* by Frederick Dalzell, published by the MIT Press in 2010 (ISBN 978-0-262-04256-7).

The 1888 work was in Richmond, Virginia, where Sprague had to keep twenty tramcars running in service for thirty days to receive payment for his work from the Union Passenger Railway. He had developed electric motors, tramcar design, control systems and power transmission to produce a full-scale electric tramway system, which on average carried 40,000 passengers a week in its test period. He then moved to the development of electric lifts. As a by-product of that, he produced a system of multiple-unit control. On railway lines this could be used to control a number of power cars from one point and so facilitated mass transit. But not only was he an inventor, forming companies to develop his technology, he became involved with the financial, marketing and production requirements necessary to bring his innovations to fruition. Necessarily this is the briefest of summaries of the contents of a book I thoroughly recommend.

Viewpoints and opinions expressed by contributors to this Journal should be seen as personal, and do not necessarily reflect the views of the Association

Letter to the Editor

Dear Sir

The changing nature of transport infrastructure funding

Several recent events have highlighted a number of issues regarding the funding of the UK's infrastructure projects. The liquidation of construction conglomerate Carillion (with contracts for road and rail transport projects, as well as public services); the wider debate about the nature, use and sustainability of PFI for public sector projects; and the rationale for the reduction in tolls on the River Severn road crossings, all raise some questions about how we, as a nation, pay for such huge transport projects – publicly-funded, privately-funded or a combination of both?

To take a topical example, the original Severn Bridge opened in 1966 and drew plaudits immediately for its sleek engineering design by Freeman, Fox and Partners. It was the only road crossing of the estuary until 1996, when it was joined by the Second Severn Crossing several miles downstream. Whilst the newer bridge connects England to Wales (and saves five miles of M4 corridor travel), it was a popular misconception that the original bridge also linked the two nations. In fact, the original bridge links South Gloucestershire to Gloucestershire via the Beachley peninsula. It is the smaller Wye Bridge at the western end which runs into Wales, although a single toll covers the contiguous bridges. From 1992 until January 2018 both the old bridge and the second crossing came under the same private ownership of Severn Crossing plc, a multi-national consortium run by Vinci, Laing, Bank of America and Barclays Capital.

From an original toll of 2/6d, tolls steadily increased to £6.70 for a car (and higher for other classes of vehicle). It was a long-standing joke that you paid to enter Wales but that it was free to leave – the humour not always appreciated by those who saw the tolls as a tax on Wales and its economic growth. On 8 January 2018, ownership reverted to the public sector when the Secretary of State for Wales gave the long-leaked announcement that there would be an immediate reduction in tolls by removing VAT and also a pledge to scrap tolls entirely during 2018. For operators of heavy commercial vehicles, this marked a reduction from £20 per crossing to £16.70, with the removal of all tolls (as well as toll plazas and staff operatives) later in the year. For car drivers, a reduction of £1.10 to £5.60 was welcome and opened up a greater possibility of commuting to the Bristol area.

The decision to scrap tolls was part of the 2017 Conservative election manifesto, such powers residing with the UK government. The announcement came the day after the UK government's decision to also scrap rail electrification west of Cardiff, and was greeted by the Labour Welsh Government as a diversionary tactic from the negative impact of this rail decision. Party politics aside, the wider question is raised about whether devolution, national or regional, may impact upon road infrastructure funding. Tolls in Scotland for the Forth and Tay crossings have been scrapped for many years. With the development of the 'northern powerhouse', will there be pressure to scrap tolls on bridges or tunnels in the north of England? Will regional devolution spread to the Thames crossings?

These questions impact on both private and commercial users of such infrastructure. We await the unpicking of the financial conundrum which led to the Carillion affair and its devastating direct impact on employees, sub-contractors and the wider economy, yet for some years investment in infrastructure companies per se has been a significant part of the investment landscape. Both private and corporate investors have been attracted to funds like First State Global Listed Infrastructure on the basis that there is a steadily increasing global demand for roads, rail, tunnels, bridges, ports and airports which cannot be funded solely by a nation's public purse. There is a long and proud legacy of privately-funded infrastructure on projects which kept generations of innovative engineers like Telford, Brunel, Roebling and Eiffel busy. Public-sector investment during the US Great Depression saw projects like highways and the Hoover Dam come to fruition for the enormous benefit of citizens. Are we now in an era where this is likely to change? Has the appetite for risk embraced by infrastructure entrepreneurs over the centuries dimmed? How will our new roads, tunnels and bridges be financed in future?

Rod Ashley (Chair, RTHA)

The Roads and Road Transport History Association Limited

Notification of Annual General Meeting

Notice is hereby given that the Annual General Meeting of the company will be held on Saturday, 28th April 2018 at the Coventry Transport Museum, Millennium Place, The Hales Street, Coventry, CV1 1JD, commencing at 11.00am.

If any members have items to be included in the agenda they should notify the undersigned by Tuesday, 28th February 2017.

Election of Directors

As per our Articles of Association, two directors come up for re-election at the AGM:

John Ashley and Mike Phillips

Both have offered to serve for a further three-year term. If any other members would like to offer themselves to serve as a director, they should write to the undersigned by 1st April 2018, including details of a nominator and seconder both of whom should be existing members.

Anyone requiring more details about these vacancies should contact the undersigned.

AGM Papers

The agenda, accounts for the year ended 31st December 2017 and minutes of the last AGM will be available at the AGM. If any members would like these sent to them in advance please contact the undersigned.

Please note that there is no charge to attend the Annual General Meeting.

Philip Kirk, BA (Hons), MA, FCILT, DMS
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