The Steam Bus
A Brief History
1833 - 1923
Until the rise of the tramway, the majority of stage carriage services in Britain were provided by the horse bus, but with the advances in steam and especially with the success of the railway network, application of steam to road transport was also tried.

Sir Goldsworthy Gurney experimented with steam road traction from 1823 onwards. By 1829, the Gurney Steam Carriage Company was running steam carriages from London to Bath, averaging 14 miles per hour, including stops for water and fuel, nearly double the speed of a horse coach.

The external appearance of Gurney’s steam coach resembled that of common stage coaches, but without the horses. It was mounted on four wheels which sustained the principal weight, and two small wheels (called the pilot wheels) were added to the front end in place of the horses. The pilot wheels guided the coach along the road. The coach moved by mechanical power exerted by high-pressure steam generated in a boiler situated at the back of the coach. The steam acted against two moveable pistons contained within two steam cylinders which were fixed to the framework beneath the body of the coach in a horizontal position and these pistons acted together (by connecting rods and cranks) and turned the rear wheels propelling the coach forward along the road.

Gurney also deployed his carriages on paid routes between Gloucester and Cheltenham. In one four-month period in 1831 his vehicles carried nearly 3,000 passengers over more than 4,000 miles.
Gurney tried various innovations to increase the power of his carriages but with the huge pressures involved in the steam engine, passengers became uncomfortable sitting directly atop the boiler. Although he was careful to maintain safety standards, one of his coaches, operated without his supervision, blew a boiler, killing two people.

His solution was the steam tractor which hauled the coaches and provided more safety for passengers.

At least one of his four-wheeled steam tractors hauled a coach between Gloucester and Cheltenham several times daily. The nine-mile journey, operated by Sir Charles Dance, was undertaken in as little as 45 minutes, but the apparent success alarmed other operators. On June 23rd 1831, piles of loose stones were scattered across the road and resulted in the coach breaking its back axle. Consequently the Turnpike Trusts imposed additional tolls on self-propelled vehicles and the venture came to an end.

The opposition of the Turnpike Trusts (whose apparent dislike for these vehicles stemmed from an opinion that the roads were inadequate for this type of vehicle, even though a House of Commons Select Committee had found that the wheels of horse-drawn vehicles were more likely to damage the roads than those of the steam-drawn vehicles) proved the downfall of many innovative ideas. Some idea of the excessive nature of the tolls can be illustrated by the toll of 48 shillings demanded for steam carriages operating between Liverpool and Prescott, whilst that for horse coaches was just 4 shillings.
This postcard dating from around 1829 shows one of Sir Goldsworthy Gurney’s steam carriages on the London to Bath route. (LTHL collection).
Whilst the first steam-drawn coaches more closely resembled the stagecoaches of the time, the introduction to London on the 22nd April 1833 of a regular steam carriage service marked the beginning of the history of the mechanically propelled bus.

Walter Hancock’s steam omnibus named ‘The Enterprise’ was built for the London and Paddington Steam Carriage Company and ran between London Wall and Paddington via Islington. It was the first mechanically propelled vehicle specially designed for omnibus work ever to be placed into service. Although a dispute between Hancock and the operators curtailed this service, Hancock himself built and operated steam buses between 1833 and 1840. In 1836 he introduced the 22-seat 'Automaton' and ran over 700 journeys between London and Paddington, London and Islington, and Moorgate and Stratford, carrying over 12,000 passengers and reaching speeds in excess of 20 mph.

The Enterprise required three operators in normal running. The driver sat at the front and was responsible for steering (via a steering wheel rather than a tiller) and controlled the speed via a regulator. A second operator occupied a small compartment to the rear of the vehicle between the boiler and the engine; this man was responsible for looking after the boiler's water level and selecting reverse gear when required. The final man stood on a platform at the rear and was responsible for maintaining the fire and braking, which was carried out by means of a large lever which acted directly on one of the rear wheels. Nothing is known about how these three people communicated.
Walter Hancock’s ‘Enterprise’ - the first mechanically propelled vehicle especially designed for omnibus work ever to be placed into service. It commenced running on the 22nd April 1833 and marked the beginning of the history of the mechanically propelled omnibus. (LTHL collection).
Hancock was not alone; pioneers ran steam buses in other parts of the country. John Russell ran 6 vehicles between Glasgow and Paisley on an hourly service in 1834. Built by the Steam Carriage Company of Scotland, they were an undoubted success, but sabotage caused a fatal accident and the service was abandoned.

A novel concept proposed by the London, Holyhead and Liverpool Steam Coach & Road Company, would have seen the construction of a stone pavement alongside existing roads upon which the Company would operate its own vehicles and charge tolls for other traffic, but the proposals came to nothing.

Frank Hills of Deptford built a 12-seater steam-powered coach in 1839, which made the return journey to Brighton in a single day, demonstrating that passengers could be carried at twice the speed of a stagecoach and at half the expense.

By 1840, however, the development of steam-powered road vehicles had lost impetus and the heavy tolls imposed by the Turnpike Acts had turned inventive talents away from steam. In London even Hancock was forced to give up the struggle and leave the way clear for the horse bus proprietors. There were those that continued on, but their talents were turned more towards traction engines and agricultural machines rather than road transport.
Harsh legislation from 1861 onwards virtually eliminated mechanically propelled vehicles from the roads of Great Britain. The Locomotive Act of 1861 imposed speed limits on 'road locomotives' of 5mph in towns and cities, and 10mph in the country. Four years later, the Locomotives Act of 1865 (the famous Red Flag Act), reduced the speed limits to 4mph in the country and just 2mph in towns and cities. In addition the act required a man bearing a red flag to precede every vehicle and at the same time gave powers to local authorities to specify the hours during which any such vehicle might use the roads. It effectively killed development of the mechanically propelled omnibus for some 30 years, although from 1879 street trams were authorised under licence from the Board of Trade.

Steam never lacked its proponents and in 1873 they managed to secure the introduction into Parliament of the Locomotives on Roads Bill, intended to remove some of these restrictions but fierce opposition led to its withdrawal. There were changes to the legislation introduced under the Highways & Locomotives (Amendments) Act of 1878, but these did nothing to encourage the development of mechanically propelled transport, although the need for the pedestrian preceding road locomotives to carry a red flag was removed.

It was not until the internal combustion engine achieved a modicum of success on the Continent that public opinion against mechanically propelled vehicles began to change, and, in 1896, the Government passed the Locomotives on Highways Act. This removed
the most stringent restrictions and sanctioned a maximum speed of 14 mph, although this was later reduced by the Local Government Board to 12 mph. The Act came into force on the 14th November 1896 and from that date the mechanically propelled bus took a giant step forward.

Experiments with steam vehicles restarted. In 1899 a double-deck steam bus built by E. Gillett & Company of Hounslow was licensed for use in London (left), although it was basically a horse-bus body, seating 10 inside and 14 outside, mounted on a steam lorry chassis, with a light awning to protect potential passengers from soot and steam. In the event no regular service was operated with the vehicle.
The Liquid Fuel Engineering Co. (Lifu) of Cowes, built steam buses from 1897 to 1901. Lifu buses ran at Mansfield from 1 July 1898, Fairford and Cirencester for the Midland and South Western Junction Railway in 1898 and in 1899 for the Dover & East Kent Motor Bus Company Ltd (formed on the 9th March 1899), who operated three Lifu steam buses between Dover and Deal, but the Company failed.

In 1901, the Potteries Electric Traction Company bought two Straker steam buses, which were built at the Vulcan Ironworks in Bristol, and started work in April of that year. They were fitted with double-deck bodies with glass windscreens to protect the upper-deck passengers, but the pinion drive proved noisy and unsatisfactory. They were ineffective against the steep hills in the Potteries, eventually being sold in March 1902.

On the 17th March 1902 an experimental service between Hammersmith and Oxford Circus via Shepherd's Bush using a Thornycroft coke-fired steam bus was inaugurated by the London Road Car Company. The vehicle had coachwork based on a horse bus body, but was adapted to seat 36 passengers by elongating the upper deck over the driver. It had steel tyres and carried sandboxes, but was uneconomic in operation and only ran until May.
The Thornycroft coke-fired steam bus introduced on the 17th March 1902 by the London Road Car Company. It was not a success and was withdrawn after just two months in service. (LTHL collection).
Single-deck steam buses were introduced by the London General Omnibus Company and the London Road Car Company, both of whom used Chelmsford (later renamed Clarkson) steam chassis, but all were withdrawn by 1905 because of heavy losses.

By 1909 the London General Omnibus Company had abandoned steam, although the inventor, Thomas Clarkson [1864-1933], formed his own company called the National Steam Car Co. Ltd, which commenced services on the 2nd November 1909 with four steam buses. The fleet was gradually built up and in 1914 it was operating a total of 184. However this was to be the pinnacle of the steam bus era, which was never able to compete satisfactorily against the rise of the petrol engined bus. The vehicles soldiered on through World War I, but when the question of renewal arose the Company chose petrol vehicles; the last National steam bus ran in London on the 18th November 1919 and although one or two continued to work in the provinces until 1923 the age of the steam bus was over.
A ‘Clarkson’ steam bus of the National Steam Car Company, which was set up by the inventor Thomas Clarkson in November 1909. (LTHL collection).