GHOSTLY QUALITIES

By David Forward, © 2005.

Just what is it about the Silver Ghost model that in its day won for it universal acceptance as being in a class above all other motor cars, in fact above all other engineering excellence?

By 1906 Henry Royce had gained the experience of designing and producing five models to the very highest standards, so that when he began designing the 40-50 HP in the spring of that year he knew just what his ideal car should be. It would be smooth, silent, elegant, have easy power, be drivable, totally reliable, economical, long-lived, versatile - and be good value for money.

The smoothness comes from Royce's meticulous design and engineering. The Ghost engine, even more than its already smooth Rolls-Royce predecessors, seems to show Royce's instinctive grasp of proportions. The first Tens and Twenties had a three and three-quarter inch diameter piston , that soon was increased to four inches, against their stroke of five inches. For the Ghost engine, the piston grew, and the stroke shortened, both to four and a half inches, making a "square" engine. It is possible that even then Royce was not satisfied with its smoothness, and that this was one of the reasons for his increasing the stroke by a quarter-inch in 1909 (apart from wanting a little more capacity. The important point is that Royce had now achieved his ideal balance of reciprocating parts. The engine would now be smooth in all circumstances.

The compression of 3.2 adopted in 1906 had gradually been increased until by 1910 it reached around 4.0, where it mostly remained for Standard chassis until the end in 1925-26. Smoothness could be guaranteed in all circumstances. For the Sporting types, offered from 1912, compressions could be raised further. Their buyers were likely to be owner-drivers who could accept the challenge of the more powerful engine and all it entailed, just as in former times young bloods might choose high-mettled mounts that needed skills of horsemanship above the ordinary. Sporting Ghost drivers could be taught, and would understand, to feather the Ignition lever when accelerating hard, or hearing incipient knocking.

Smoothness also results from the design and finish of transmission and wheel bearings. Fitters were given many hours to stone and lap all meshing gears. Where even large Rolls-Royces like the earlier Thirties had plain wheel bearings, all Forties had ballraces. Plain bearings were smooth enough, but caused drag on cold mornings. European ballraces of sufficient quality and silence were just becoming available at the right time for Royce to adopt them as standard for all parts of gearbox and transmission. They optimized the ideal design of fully floating rear half axles. The final factor in smoothness was Royce's precision-designed and controlled battery ignition for starting, plus the flexible Simms-Bosch (later Bosch D6) magneto for running.

Silence comes from the car's effortless progress, even if cruising fast, with extremely low engine speeds. At idling speeds of no more than 150 rpm the clutch can be engaged and the car will move away powerfully, with anything from light throttle to full acceleration. The pre-Armistice car, with its cast-iron pistons, has especially high torque at the very low end of its range, so that to get into top gear before 10 mph is exactly right for it, and exploits its greatest strength. It is almost like a steam engine: the pistons move so slowly, yet push steadily and inexorably. Here we also see the great advantage of a six over a four when the engine is of more than modest capacity: its cylinders are smaller, and the explosions closer together for a given engine speed, so that there is less vibration. Royce's 3+3 cylinder design is a pair of mirrored triples, the by-product forces of the one triple countering and cancelling those of the other, and combustions being equally spaced along the 720-degree continuum.

Many drivers of the Early type apparently went just about everywhere in overdrive, with the engine hardly turning. They had a four speed gearbox, with third as direct drive (top) and fourth as an overdrive. At only 500 rpm - about a fast idle, but near the point of greatest torque - the 1907 short chassis car in overdrive ran at 28 mph, while the long chassis ran at 21 mph. These were good chauffeur speeds for the roads of the day, speeds that would not discompose milord in the back. But since overdrive was not a direct gear, its straight-cut gears made the same subdued musical note as the low gears, and this was audible to both passengers and pedestrians. In other words, these Ghosts were sounding just like their rivals: they emitted a steady whine as they went along in overdrive (fourth gear), instead of being silent in direct drive top (third gear). This was given as the reason for the overdrive's deletion in 1909. Direct drive was quite silent: let drivers now drive everywhere in this gear, as they were meant to.

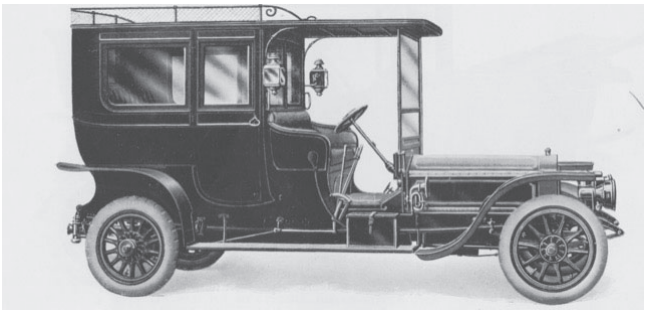
From 1919, with alloy pistons, the engine becomes more biased towards power in its now greatly extended upper range, but chauffeurs are still being taught to pull away from rest in second or third gear, and to move to top by 10 mph - scarcely more than walking pace. The low-end torque is still formidable: we are talking of a 7.4-litre engine here - and the car will still move from rest even without accelerator if the clutch is engaged while the engine is idling.

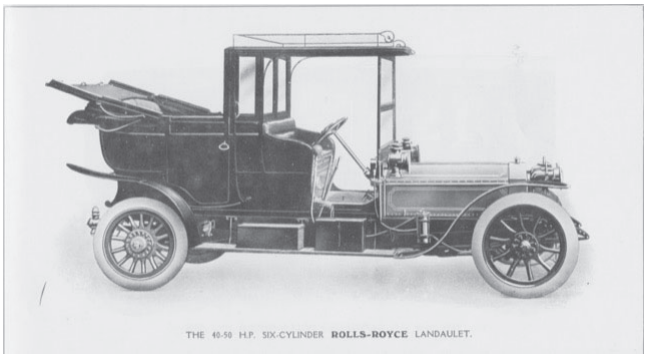
We are so used now to our modern high-speed, but smaller engines, that we protect them from heavy load at lower speeds by changing down and "keeping the revs up". The only time we need to do this with a Silver Ghost occurs when it is danger of overheating, so that fan and water pump can work nearer their maxima. Otherwise, the Ghost glides along so silently and powerfully at such low engine speeds that pedestrians cannot hear it approach.

As to elegance, John Bolster, writing in 1973, puts it best: The Rolls-Royce was desired for many reasons, but its appearance was one of the most important. That wonderful radiator shape and the long, low bonnet with its evenly spaced rivets were all part of the character of a car that looked a thoroughbred in every line. It had an air of lightness about it that made its competitors look heavy and plebeian. It looks light because it is generally leaner than rivals, or, again as Bolster puts it: To the engineer, this chassis is still a poem in metal, without an ounce of surplus weight in any part of it. (The Upper Crust, London 1923, ,86; 85.

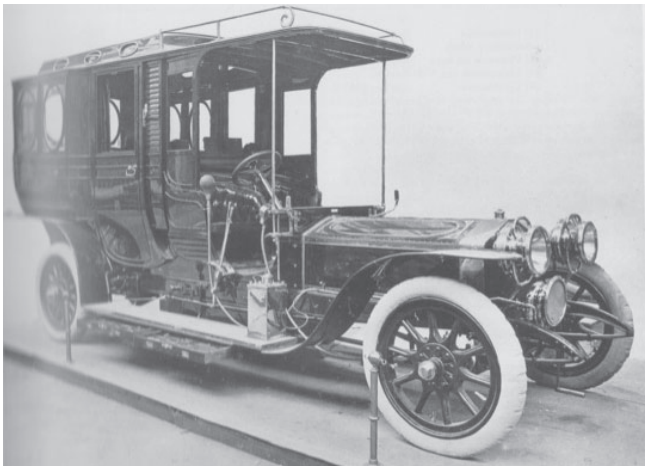
I can only add to this that the Ghost looks well proportioned with all forms of coachwork, whether the Roi-des-Belges of 1907, the landaulets of 1910, the torpedo tourers either side of 1918, or the all-weathers and cabriolets of 1925. Key factors in this proportioning are the placement of the radiator over the front axle, the length of the bonnet, and the positioning of steering wheel and driver. Different wheelbases over the Ghost's life, and the availability of long and short chassis, make any rules inapplicable, but I should not be surprised to find that for many Ghosts, the distance between driver or compartment and radiator is in Golden Ratio to that between driver/compartment front and rear wheels. (In this ageless ratio of aesthetic worth, the proportion of the lesser to the greater is that of the greater to the whole.) The Thirty had its radiator well ahead of the front axle, and like the Napier and many lorries of the period, looks, and is, front-heavy as a result.

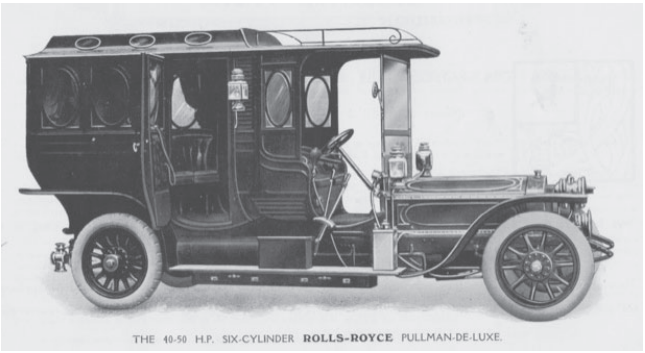
Below: Side-by-side photos: 30 HP (1906 Catalogue, 77) and Early 40-50 (1907 Catalogue, 22).





Height also comes into the equation, but the surprising thing is that for both straight and tapered bonnet Ghosts tall coachwork usually looks as elegant for its form as low tourer coachwork. On straight-bonnet Ghosts, the perpendicular dashboard is a dramatic feature that perfectly offsets the bonnet's lowness, and needs, even invites, the curving lines of Roi-des-Belges or landaulet body-framing that flow from it. The first closed Ghost - chassis 60539 as shown at the 1906 Olympia Motor Show - is a study in Art Nouveau curves against the horizontal lines so important for elegance. Montague Grahame-White, its designer, protested that its height had been increased by Barkers, thus spoiling the proportions he had chosen. You may judge for yourself below. Note how far the compartment projects beyond the rear axle, giving length to balance height. I would love to see this body, superb in all its Edwardian excess of detail, recreated on an Early Ghost.

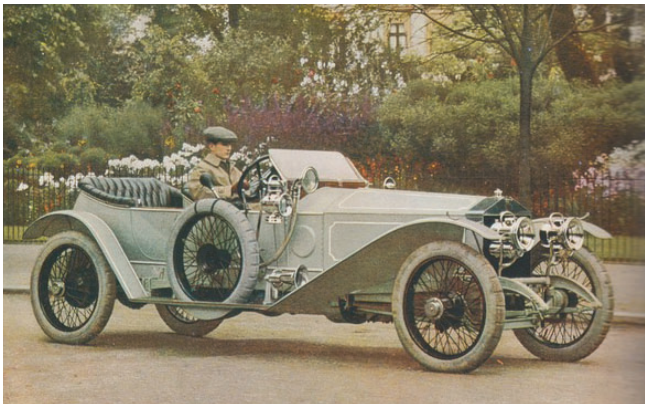




Above: Side-by-side photos: Montague Graham-White's Pullman Limousine design (1907 Catalogue, 23), and a photo of its partial realization (Fasal & Goodman, Vol. I, 151) by Barkers.

This subject, of course, deserves and has given rise to, whole books, but we can end it with two contrasting examples of elegance - 1914 Continental tourer 6TB and 1924 Springfield Mayfair 353LF (author's photos).

Below: Side-by-side photos of Continental tourer and Mayfair town car.
Easy power comes from an engine of ample capacity for its task, rather than a smaller, more fussy one that has



to work harder. My researches seem to show that Royce maintained the same generous power- to-weight ratio (of about fifty pounds weight per brake horsepower, chassis + coachwork) throughout the Ghost's two decades. Sporting Ghost owners, and drivers of Standard chassis with light tourer bodies, of course did better than those with heavy limousines. The London-to-Edinburgh and its descendants have the best power-to-weight ratios of all, giving them very long and fast legs indeed.

The Ghost's drivability goes together with its easy power. It will go up most hills, around corners and into side-streets, in top gear, with great ease and little need to change down. Its steering is light and direct, and its ride predictable. The car has the abilities of a grand tourer, covering long daily distances with ease. Gear changing too difficult? Not if done before 10 mph, as chauffeurs were taught, or by feeling in a gear with hand as the clutch is being released, with accelerator quietly feathering to suit. Controlling changes is a matter of feeling cogs just touching, with a soft hand, and allowing a sliding, oily engagement by allowing the clutch to begin to take up, when gears then pull themselves into quiet mesh. It is just like shutting a coachbuilt door gently, feeling for its satisfying, soft double click.

For such a large engine, its economy can still put modern cars of much lesser capacity to shame. In 1911 chassis 1701 went from London to Edinburgh locked in top gear, and returned a mileage of 24.32 miles per imperial gallon (about 12 litres/100 km). Ordinary driving now, at our higher modern cruising speeds, returns between 12 and 15 miles per imperial gallon. How does this compare with the currently fashionable and equally heavy four-wheel drive vehicles now, with engines half the size? The Ghost's driver is able to adjust the mixture while driving, as also the spark timing and governor setting, and so can lean the mixture if cruising freely, advancing the spark to suit.

Longevity and reliability? This was proved in spades by history, and in particular by the armoured cars of World War I, that ran in appallingly dusty conditions over trackless terrains, weighed down by double their chassis weight in armour, and receiving little ideal maintenance. I think the only casualty was one broken spring in all the thousands of miles covered, which the driver resourcefully put into a splint and continued his way. Then, after the war, these cars were put back into top condition, and sold well, continuing to give faithful service as if nothing had happened.

Henry Royce aimed to make his cars last twenty years, in an age when for most cars this must have seemed impossible. That some have now lasted a hundred, and bid fair to last forever, does not seem remarkable at all. The quality remains, and always will.

Versatility was not a virtue of many of its rivals. Not many of the Daimler sleeve-valve chassis, for instance, could serve both to propel limousines and sporting coachwork. In general, sporting cars of the era were purpose-built and designed differently from ordinary cars, but the Ghost chassis was just as happy gliding at 150 rpm along Bond Street as racing to win the 1913 Spanish Grand Prix, or being a King's Messenger car in wartime. Indeed, in that war Ghosts ferried princes, generals and messages along the shelled and shattered roads behind the front lines, became ambulance cars, and achieved prodigies as armoured cars. From the beginning, at the 1906 Olympia Motor Show, the chassis was presented as a short form suitable for touring coachwork, and in long form as being able to accommodate luxurious closed coachwork. As Royce's ideal design it was to combine the virtues of the both the successful Light Twenty and Long Thirty forms, which it did with ease.

Finally, value for money. Its becoming in recent years a gold-plated collectable investment has pushed current prices for Ghosts to ridiculous levels, out of the range of many a true lover of the model. This makes them so precious that they can sit in miserly collections largely unseen, or occasionally be presented as an essentially unusable hot-house orchid at Concours competitions. When it was designed, however, the Ghost was a medium-sized car at a price easily affordable by an average gentleman who could keep two or three servants, belong to fashionable clubs, wear clothes from the right bespoke tailors, and appear at all the fashionable social events on no more than £10 ($50) a week. After the war prices had to rise, but it was even then hardly a millionaire's car; Britain had precious few millionaires. When the owner added his costs at the end of the year, year after year, he had paid far less for maintenance and running than those who found their motoring mounts to be so run down or troublesome that they had to keep buying new ones.

Even with all these qualities, of course, the car might not have sold had it not been for the superb publicity and myth-building of Charles Rolls and Claude Johnson. Because Henry Royce genuinely tried to make the best car that it was possible to make, Rolls and Johnson's early publicity - that which by 1910 had established the Ghost internationally - was backed by a body of evidence of testimonials and supervised trials that could not be ignored. On top of this, people always want to believe in something special, whether it be a god, Babe Ruth, Elvis Presley or Don Bradman; we need something to revere. Thus Johnson carefully fed and watered the belief that the Rolls-Royce was godlike, infallible, inevitably superior.

All Rolls-Royces and Bentleys that have been similarly honestly designed to be the best possible now share this status. But it was the Silver Ghost model that established and embodied it as "the best car in the world". In its day, and long after, it was venerated where it should be - on the road - as an unapproachable icon of perfection. And it is on the road that it will always belong. On the display field, a Ghost will command the cameras and onlookers, but as it passes by along the road, it will still raise hats, cause wonder, and give supreme pleasure.