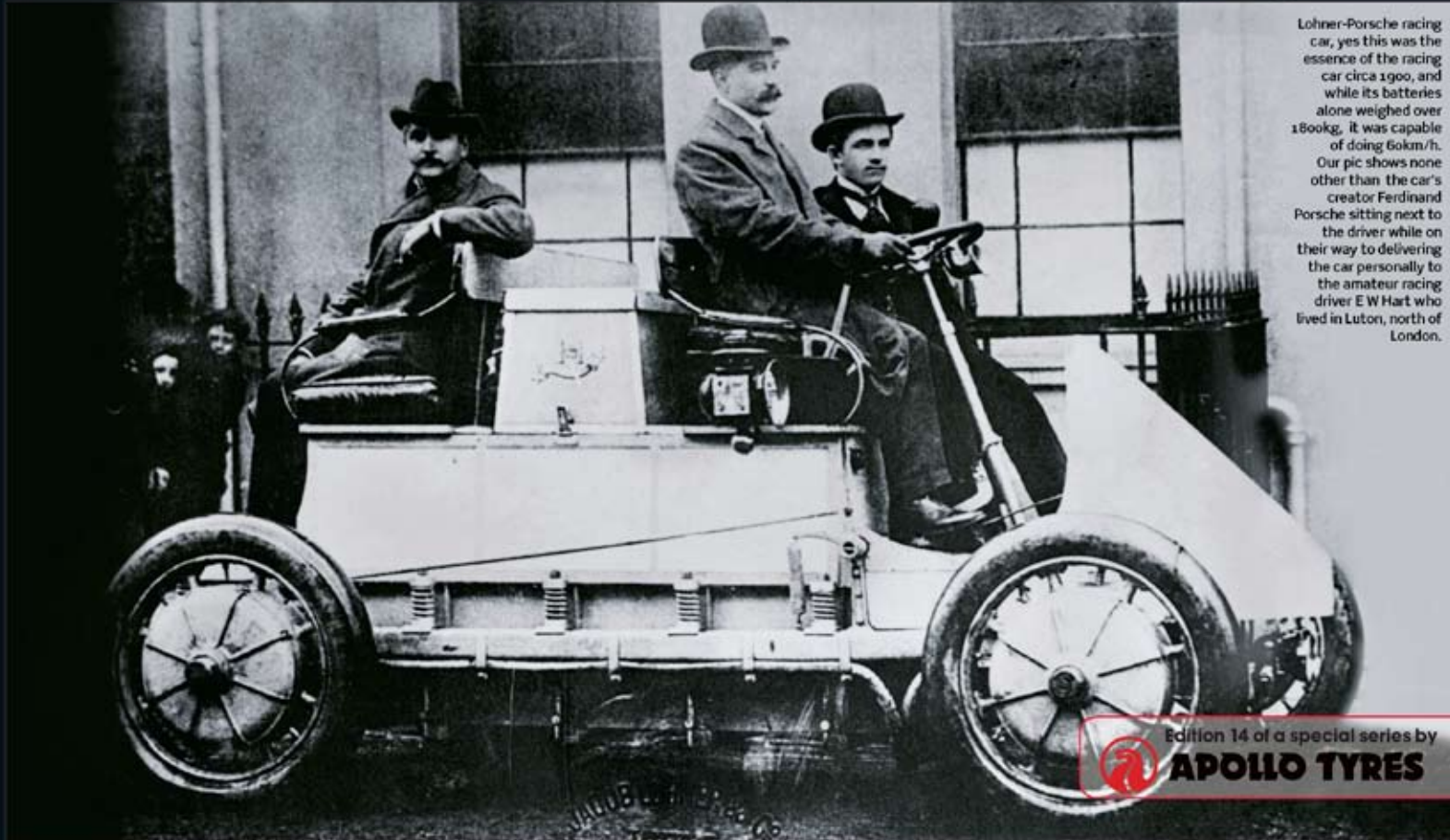


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## LOHNER-PORSCHE


Hard to believe that the first all wheel drive car in the world was an electrically charged automobile using hub-motors! The work of a then 25-year old genius - Ferdinand Porsche - the Lohner-Porsche was the forerunner of the modern day electric cars though its size was overwhelmingly large.



Lohner-Porsche racing car, yes this was the essence of the racing car circa 1900, and while its batteries alone weighed over 1800kg, it was capable of doing 60km/h. Our pic shows none other than the car's creator Ferdinand Porsche sitting next to the driver while on their way to delivering the car personally to the amateur racing driver E W Hart who lived in Luton, north of London.

Edition 14 of a special series by

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EXACTLY 107 YEARS AGO, ON APRIL 14, 1900 TO BE precise, show goers at the World Exhibition in Paris were stunned by what they saw as an all new invention in the fledgling automotive movement: the birth of an electric car. No it wasn't just any electric car but one which was unique in its appeal and form with totally avant garde design and engineering thought, especially in the way its mechanicals were packaged and powered.

The small chaise (a coach-building term from the realm of horse-drawn transportation prevalent then) was the only car to be on display from an Austrian manufacturer at the Paris show. The Vienna-based K.U.K. Hofwagenfabrik Jakob Lohner & Co. had made the car which was designed by its young engineer Ferdinand Porsche. What is now the holy grail of modern day electric cars and also hydrogen fuel cell vehicles plus the modern day hybrids which run electric motors in their wheel hubs, Ferdinand Porsche had this unstoppable idea more than a century ago and, as I never tire of stating, in the automotive world, the more things change, the more they remain the same! For sure both Porsche and Lohner weren't afraid of going against the IC engine in developing such a vehicle.

This transmission-less vehicle was revolutionary because it did away with the usual mix of clunky chains, sprockets, gears, belts and differentials altogether. It was cleaner and more aesthetic in its build and absolutely silent in its drive. While many were stunned stiff by the total elimination of a complex transmission system, now in hindsight after more than a century one can see the design and engineering logic behind Ferdinand Porsche's placement of the hub motors. In fact he predated the thought process propagated by none other NASA who did the Moon Rover with design principles based on the Lohner-Porsche.

If one needs to know more about the Lohner-Porsche, one needs to first know something more about the genius that was Ferdinand Porsche - probably one of the greatest automotive engineers the world has ever seen. Born in 1875 to a plumber in Maffersdorf (now part of the Czech Republic), Ferdinand was the third of five children and his father expected him to take over the family business. However electricity and all things mechanical fascinated the young Ferdinand who at the tender



The very first Lohner-Porsche electric car powered by wheel hub motors was a sensation at the World Exhibition in Paris in 1900.

age of 14 began experimenting with electricity. His parents were aghast but there was no stopping him. In deference to his father, he did complete his apprenticeship in plumbing but thereafter took up a job with the Viennese firm of Bela Egger & Co. (A bit of history here as well because this firm later went on to be christened Brown Boveri in 1893). Young Ferdinand was most impressive in his duties at the test centre of Bela Egger and he made rapid progress from a mere worker to test centre manager. When just 21 years old, he made a complete wheel-hub motor before the lure of better prospects took him across to K.U.K. Hofwagenfabrik Jakob Lohner & Co. across the road in Vienna. Lohner was setting up an "Electric Car Department" and Porsche knew that his wheel-hub motor could be exploited better here. He set out to work on developing a car with such a wheel-hub motor and the result was that three years after joining Lohner, he had the first Lohner-Porsche ready and rolling.

The Lohner-Porsche did not distinguish itself any differently from the other cars of its time, styled almost like an adaptation of a traditional coach sans the horses and with a steering wheel and some perfunctory controls behind the curved dash. The twin wheel-hub motors in the front wheels though were totally unique and a marvel of packaging. These wheel-hub motors had an output of 2.5 horsepower at the dizzy speed of 1200rpm and were utterly silent in their operation. Feeding the juice to these two motors on the front wheels was a 44-cell, 80-volt rechargeable battery packing in a capacity of 300 ampere-hours - good enough for a range of 50 kilometres between recharges. So what if it was an electric car, being the first ever manifestation of a Porsche automobile in history, the Lohner-Porsche had a top speed of 50km/h but it could go further on if the driver kept the pace down to a more sensible 37km/h.

Being devoid of any gearing by way of driveshafts or chains and belts, frictional losses were kept to a bare minimum and it was claimed that the car ran at a bewildering 83 per cent efficiency - levels unheard of at that point in time in the automotive world. The wheel doubled as the rotor of the DC motor and ran around the stator that was



Evident in this pic are the large hub motors in the front wheels of this road-going Lohner, chauffeur waiting for his master to arrive.

attached to the front suspension, making for a most compact power unit. An electric front brake was provided while a mechanical strap brake did duty at the rear along with ratchet-type mechanisms working on the rear axle to provide further retardation, especially to prevent the vehicle from rolling back while tackling hilly roads. The wooden-spoke wheels in front measured 650mm in diameter while the ones in the rear were even larger at 950mm in diameter.

One of the bugbears of the Lohner-Porsche Electromobile was its excessive weight of around one tonne. But this had to be seen in the context of the batteries which weight 410kg and the motorised front wheels, each of them tipping the scales at 110kg apiece.

Lohner built around 300 of these cars but there were also a few racing versions with even more power, larger battery packs and wheel-hub motors on all four ends. But here Ferdinand Porsche also created the first petrol-electric hybrid. Using a Mercedes-Simplex 28HP chassis and drivetrain, the gasoline engine powered a dynamo which in turn fed electric charge to the wheel-hub motors on all four ends. A few of these racing cars were sold to privateers (our main pic overleaf is illustrative of that) but one was also piloted to victory by none other than Ferdinand Porsche himself who won his class in the Exelberg race on May 7, 1902.

The Lohner-Porsches were quite clearly very expensive propositions when compared to gasoline engined automobiles and cost a pretty penny as well. However there were no dearth of takers with a host of high profile customers acquiring these distinctive whooshmobiles - Viennese coffee baron Julius Meinl, Emil Jellinek (yes the very same man who got Daimler to name all their cars after his daughter Mercedes), French car maker Panhard et Levassor also invested in one as did the banker Baron Nathan Rothschild and Prince Max Egon von Thurn und Taxis. I also do know that one Lohner-Porsche did make it to India but then that is another unstoppable story for another day.

**Adil Jal Darukhanawala**