2 The Beginnings of the Automobile in Germany

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For centuries European civilisation has been concerned with the idea, inherited from the ancients, of a self-propelled means of transport. Even in the Iliad Homer spoke of self-propelled tripods. In early modern times there were attempts to apply mechanical power of various sorts. In the mid-seventeenth century, for instance, a clockwork-driven carriage is supposed to have run through the streets of Nuremberg. Steam was tried also, but the early steam engines were cumbersome and in locomotive form required special iron roads to run upon if they were to operate satisfactorily.

A few steam traction engines, increasing in number, did lumber along German roads and, in the last part of the nineteenth century, more efficient and lighter versions were being produced; but by then means were being found to adapt for road transport the stationary gas engine, a convenient form of lighter power source used in workshops, with the development of which the German Nikolaus August Otto had been particularly connected. In 1872 Gottlieb Daimler became chief engineer at Otto & Langen’s factory at Deutz, just across the river from Cologne, and Wilhelm Maybach went there as his chief of design. They experimented for a time in the mid-1870s upon vaporised petrol as a substitute for gas as fuel. When Daimler and Gasmotoren Fabrik Deutz A. G. parted company in 1882, he and Maybach began their own experiments in a garden shed at Cannstatt where Daimler then moved.¹

Meanwhile Karl Benz, who had been working on gas engines for some time and had patented a throttle regulator in 1882, formed with others Benz & Company, Rheinische Motorenfabrik in Mannheim in the following year. So Daimler with Maybach, and Benz, without knowledge of the other’s work, were independently hard on the track of an internal combustion engine which could be used for transport purposes; and all three saw that the main obstacle in their way was the construction of a light, high-speed engine which could drive such a vehicle.

While Benz never lost sight of the concept of the automobile as a
whole and actually created such a vehicle with his patent motor car of 1886, Daimler and Maybach concentrated solely on a universally applicable engine which would serve as the motive power for every means of transport imaginable and not just for the automobile. Gottlieb Daimler had no intention of entering into competition with the long-established guild of coach and wagon builders. In his opinion they should continue to be able to build and sell their products, but with the new engine instead of shafts.

GOTTLIEB DAIMLER

As early as 1883 the hoped-for breakthrough occurred in Cannstatt. On 16 December Daimler obtained patent DRP 28022 on the hot tube ignition system; and on 22 December patent DRP 28243 on an ingenious form of engine governor, by means of which the exhaust valve was worked. A small model engine had been made by the Kurtz bell foundry in Stuttgart according to Daimler's instructions in August 1883. Maybach noted in his diary on 5 May 1884 that such a motor had reached 600 revolutions. This indeed showed the amazing technical progress he had made; until then not more than 100 to 150 revolutions had been attained, even at Deutz.

Daimler and Maybach soon left behind the horizontal design of their first test engine. Already in the patent specification of 22 December 1883 there was the diagram of Gottlieb Daimler's vertical vehicle motor which was to pass into automobile history as the first high-speed internal combustion engine to be built. But it took about another year and a half before the engine functioned reliably. 'It was a long road', reported Daimler, 'requiring endless attempts and the incessant dedicated work of the engineer with practical experience in order not to lose heart despite the initial extremely discouraging results'.

It was an epoch-making step forward. Maybach had made the engine as small and as compact as possible so that at a weight of around 90 kg., it appeared exceptionally delicate and almost like a toy in comparison with the contemporary Deutz motors which, at 10 h.p., weighed around 4 600 kg. This first high-speed internal combustion engine, soon known by Daimler's workers as the 'grandfather clock' because of its appearance, reached about 1 h.p. at 600 revolutions with a bore and stroke of 70 and 120 mm. respectively. It was covered by patent DRP 34926 of 13 April 1885. Engines of this