Moves toward Mass Production by Nick Baldwin

Britain's Motor Industry - The First One Hundred Years

G T Foulis 1995

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We will look at Morris's activities in the 1920s in some detail, but suffice to say at this stage that it had arrived on the scene in 1912, when an Oxford entrepreneur named William Morris made arrangements to mass-produce a light car based on the best components that he could buy-in cheaply. White & Poppe of Coventry made the engines and gearboxes whilst E. G. Wrigley of Soho, Birmingham, was responsible for axles and steering gear. Interestingly Wrigleys was on the site of the old Matthew Boulton & Watt's steam engine works which had originally helped to mechanize the early mining, textile and engineering industry. When later Morris began to buy up his suppliers, Wrigleys became home to the Morris-Commercial in 1924.

Morris production reached nearly a thousand in a former military college at Cowley in 1914 and in an effort to cut costs still further William Morris went on a buying spree to America. He discovered that an equivalent to White & Poppe's engine built under the efficient American system could be bought from Continental of Detroit for a mere £18 (well under half the price of the Coventry engine). Likewise gearboxes, axles, and steering gear from the Detroit Gear & Machine Co cost less than £25. However, shipping losses to enemy action put an end to this project when fewer than 3,000 sets of components materialized at Cowley. Another way in which Morris attempted to save money was in joint development costs, as when it shared the dies for Sankey wheels with the Perry car.

us that not all was doom and gloom in the new-found enthusiasm for mass production. As noted earlier, Wrigley, instead of sinking with Angus Sanderson, became a cornerstone of the Morris empire. Its principal gearbox rival in Birmingham was the Moss Gear Co, founded in 1910, which in 1928 moved to spacious modern premises in the rural suburbs of Tyburn, Erdington. We noted that its Continental engine undercut the pre-war White & Poppe units. In 1919 White & Poppe was acquired by Dennis Brothers of Guildford, which by now had abandoned cars to concentrate on commercial vehicles, and Morris looked around for another supplier. The French Hotchkiss car and armaments business had established a gun factory in Coventry which was looking for work. It began to supply a copy of the Continental engine to the reconstituted Morris Motors Ltd (capitalized to £150,000) in mid-1919. Morris Motors lost £8,000 in its first year of trading and stocks of unsold cars were mounting. Although costs were still rising William Morris took a decision in 1921 that was to have far-

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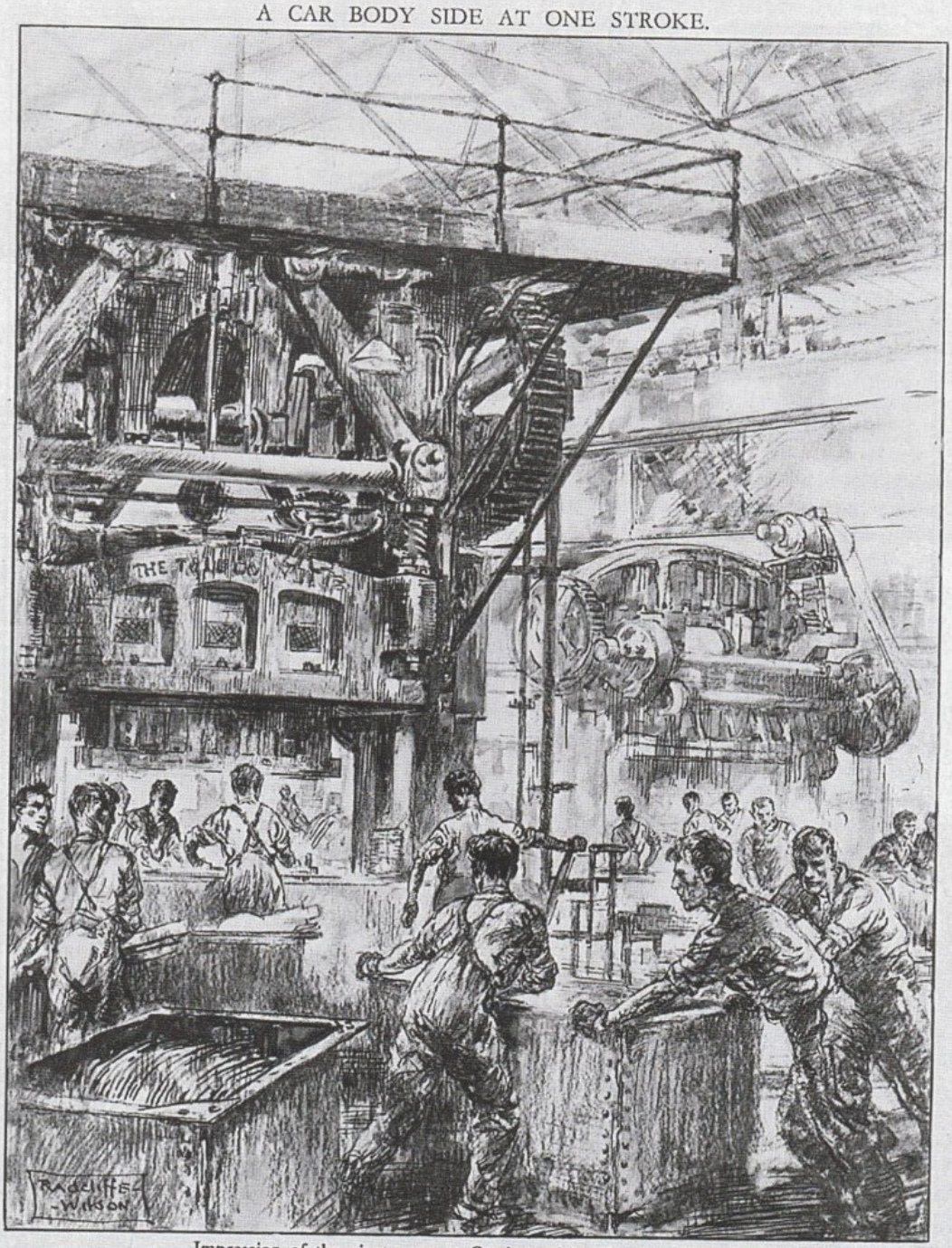
A CAR BODY SIDE AT ONE STROKE.



Impression of the giant press at Cowley, which, in one operation,
stamps from sheet steel a complete side
for an Isis saloon.
Drawing by H. Radcliffe Wilson.

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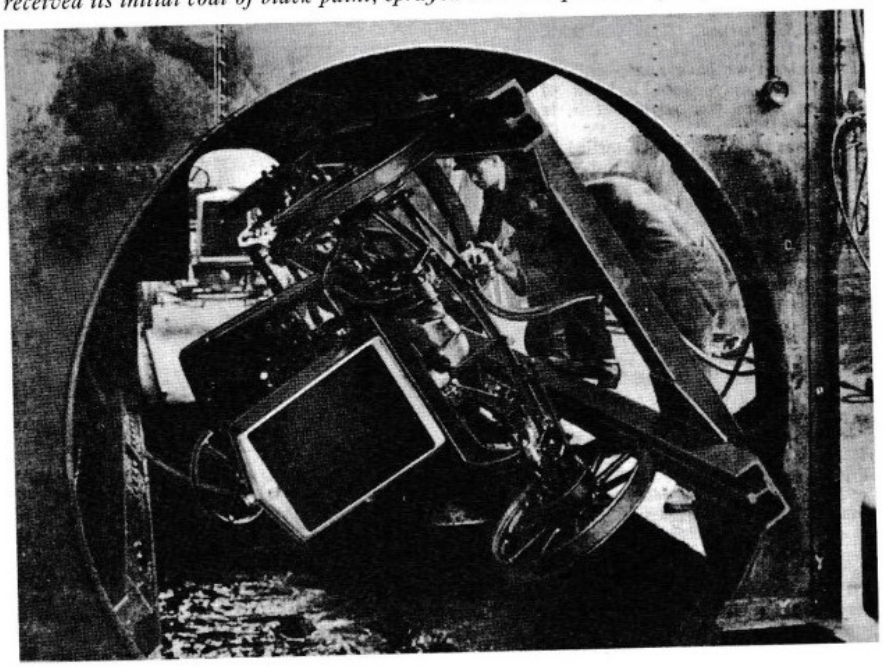
A rotating tumbril at the Morris factory, 1927, which turned the chassis over while it received its initial coat of black paint, sprayed on under pressure. (NB)



registered. The figure exceeded 100,000 for the first time in 1913 and reached 141,621 in 1916. It then dropped due to the First World War, but reached 186,801 in 1920. After that there was no stopping it, with virtually half a million reached in 1924 and one million in 1929. One and a half million was attained in 1935. In May 1939 Morris at Cowley became the first British factory to have produced one million cars, many of which had gone for export.

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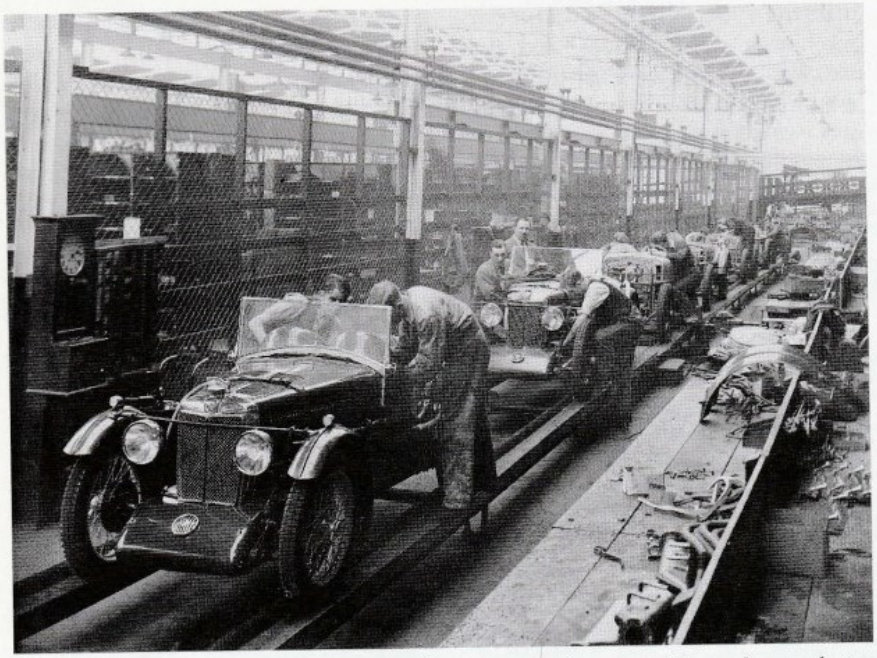

MG was the first British company to make sports cars in reasonable numbers and at a low price. This view of the production line at Abingdon in 1931 in fact shows a relatively rare model of Midget, the C-type, of which 44 were made. (NMM)

reaching consequences. He slashed the price of his already cheap Cowley and more up-market Oxford 'Bullnose' models and saw sales of 68 in January leap to 377 in March. By the end of the year 3,077 cars had been sold. Ford was overtaken and in 1925 sales reached 54,151.

This had been made possible by a spate of acquisitions. Hotchkiss for £350,000 became the Morris Motors Engines Branch; Wrigley, as noted earlier, the home of the light trucks; Hollick & Pratt in Coventry the main body works; and Doherty (later Osberton) Radiators was moved to a former skating rink in Coventry; Fisher & Ludlow became the group's pressings division; and in 1926 the SU Carburettor business was acquired for £100,000. In that year the various Morris factories added up to a ground area of 42.25 acres. Chassis frames, which had originally arrived from Belgium, were soon sourced locally and were drilled from both sides simultaneously on Wilkins & Mitchell machines on arrival at Cowley.

The most important of all William Morris' steps towards mass production followed his visit to America in 1925. There he visited the Edward G. Budd Manufacturing Co of Philadelphia and arranged for a partnership between this pioneer of pressed steel bodies to join Morris Motors and a merchant bank in the creation of the Pressed Steel Company of Great Britain Ltd. This was set up at an initial cost to Morris of £410,000 and started production in 1927. A set of dies for the first American-designed bodies cost £120,000 and soon several Morris models, as well as those of newly acquired Wolseley, had Pressed Steel bodywork. Providing the production runs were big enough this produced an enormous saving when compared with traditional wood and metal methods of body production. The snag was that Morris and Wolseley could not absorb all the potential output of the giant presses. The biggest was a 1,600 ton Hamilton press that shook the ground for hundreds of feet around. It weighed 245 tons and was 28 ft above floor level and 16 ft below. In all 1,000 men were employed making 100 bodies daily on the 11-acre site by late 1927. They fitted panels into jigs that were then arc welded. The welding was semi-automated in 1931.

Morris found it very difficult to obtain outside business because rivals were not happy at two members of the Pressed Steel board being Morris directors who might be tempted to pass on plans for future models. The sister British Paint & Lacquer Co, with joint American ownership, was in the same boat and was converted into an independent company after about six years. Its sprayed Bripal oven-dried cellulose was standard on all Morris cars from late in 1928. Budd retained its controlling interest in Pressed Steel until 1936 but Morris had greatly reduced its own involvement in 1930 so that other car companies could help it to share the colossal costs involved. As well as Wolseley, Morris now had another brand under its control, that of the MG sports car. By using cheap mass-produced components from the family cars this was able to open up a whole new market for fun motoring. Traditionally sports cars had been low production and therefore expensive items, but the first MG Midget of 1929 was to change all that. It soon earned a factory in its own right in part of the Pavlova Leather Co premises at Abingdon.

Before leaving this most successful of the early British attempts to mass produce cars, we should pay a visit to the Morris Motors Engines Branch in Gosford Street, Coventry, for it was here that chief engineer Herbert Taylor and director and general manager F. G. Woollard put mass and flow production most successfully to work following the factory's acquisition from Hotchkiss in 1923. Woollard had been educated at Goldsmiths and Birkbeck Colleges, and after involvement in the design of the Clarkson steam omnibus and some consulting work he had joined Wrigleys on the Morris contract. During the First World War he had been recommended for the MBE by Winston Churchill for his work on the production of 'land

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p' (tank) engines at Wrigleys and d joined the Engines Branch in 23. There he put his 'Eighteen Basic inciples for Mass and Flow oduction' into practice in a transfer achine for the production of cylinder ocks. It was 181 ft long, weighed 300 ns, and employed 81 electric motors d 21 men. From rough casting to nished article took 224 minutes. It as followed in 1924 by an Archdale utomatic transfer machine for gear-oxes and then an Asquith machine for he mass production of flywheels. utput leapt by 66 per cent and even ord's Detroit chief production engi-eer was impressed. Woollard's great riend was chief experimental designer A. G. Pendrell, who was responsible or many of the later 1920s engines, ncluding the overhead camshaft 2½-itre types.

In 1931 Woollard left to become managing director of Rudge Whitworth (well known for bicycles, motor cycles, wire wheels) and soon joined the board of Birmingham Aluminium Castings, a rival to the aptly named Birmingham Repetition Castings. In 1934 his important book *The Principles of Mass and Flow Production* was published to widespread industrial acclaim. A glimpse into the newly extended Engines Branch in 1930, shortly before he left Morris, showed gravity rollers to take castings to the pickling vats. After neutralizing the acid in soda the blocks were taken by chain conveyor to the various machining positions. The blocks were located in jigs where milling cutters and multiple drills completed several operations. Visitors noted that the operations involved little manpower and were plainly the shape of things to come.

Whilst the activities of Morris were a constant source of fascination to the motoring press, several other factories were making equally impressive strides towards efficiency. Vauxhall was acquired for £300,000 by General Motors in October 1925 and quickly moved from being a small producer of quality cars to one of the principal exponents of cheap, mass produced family cars. Its sales in 1926 were 1,513 cars, of which 292 were exported. Whilst new models were prepared there was little change for the next three years but then, in 1930, output leapt to 8,930, out of which 217 were exported. For most of the rest of the 1930s exports accounted for around a third of production, which reached 16,329 (including the new Bedford commercials) in 1932 and 40,456 in 1934. The figure for 1937 was a stag-gering 59,746, or roughly 40 times the total of only ten years before.

Cars in use on British roads overall shows what enormous strides took place from 1904, when only 8,465 were

The 'all-British Overland' wasn't quite that, for the chassis components came from Canada. The use of a 14/28 hp Morris Oxford engine was an attempt to beat the horsepower tax. The same car with a 2.7-litre American-type engine paid £19 annually, while the use of the 1.8-litre Morris engine brought the tax down to £14. (NB)

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