

## CHAPTER THREE - THE FRENCH CONNECTION

Whatever Leonard Lord may have been looking for, he found something of significance in 1922 when he joined the Coventry Works of Hotchkiss.

That April day changed the course of automotive history.

The company was originally the creation of an American designer called Benjamin Berkeley Hotchkiss, who had been born in Watertown, Connecticut, in 1826. While working in the family engineering business he became passionately interested in firearms, but having failed to interest the American government in his ideas, he decided to move to France in 1867. He set up shop on the Route de Gonesse, in the ancient township of St Denis, just north of Paris and, with its magnificent basilica, the traditional burial ground for the kings of France.

There he strove to perfect a truly automatic machine gun and although Hotchkiss himself died in 1885 his loyal team strove to finesse the concept, had done so by 1892, and in 1897 the 'Hotchkiss gun' was adopted by the French army. It was air cooled and combustion gas operated and in the run up to the First World War was modified and improved until, as that other great exponent of the machine gun, Hiram Maxim, said, enabled *'these Europeans to "cut each others' throats" with greater facility'*.

Yet to help Hotchkiss et Cie become one of the most important engineering companies in France, diversification was necessary. Around the turn of the century the firm took the very important step of manufacturing major components, like crankshafts, for some of the leaders in the embryo motor industry, including Panhard et Levassor and de Dion Bouton. By 1903 they were making complete engines then, spurred on by two motor dealers, Mann Overton in London and Fournier in Paris, started building complete cars.

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The début model was based on the Benz-derived Simplex, but reworked by Georges Therasse who Hotchkiss had brought in from Mors. These early cars had a proliferation of ball bearings in their engines and of course the trend-setting 'Hotchkiss drive'. The latter, which was the dominant transmission system during most of the 20th century for front-engine-rear-drive vehicles, used an open transmission ('propeller') shaft attached by universal joints to the gearbox at one end and the differential at the other, having the axle located simply by parallel leaf springs.

By 1910 Hotchkiss were turning to smaller cars and this policy was accelerated by the Agadir crisis of 1911. This was a tripartite squabble centred on Morocco, with France and Germany as the major protagonists. In any event, it all led to a crisis of confidence for long term international stability, not least in the motor industry. Here Hotchkiss's cars continued to be reduced in size. Of course, none of it really mattered, because in 1914 the automotive scene, as so much else, was to change for ever.

In the first few weeks of the Great War, 180,000 German troops tore through Belgium, brushing the shores of the English Channel. By now they were on foot or horseback, but had crossed the Rhine in 500 trains made up of a total of 25,000 wagons. It seemed it might be, as the Kaiser had predicted: *'Paris for lunch, dinner in St Petersburg'*. Once out of the Low Countries the Imperial army swung south. There was chaos in Paris. The banks were besieged. Tens of thousands of reservists from the male population had barely hours to reach the Gare de l'Est and board the trains that would take them to meet the invader.

Today, St Denis is a vibrant, bustling, multi-cultural, community, bordering the railway along which the expresses thunder to the Gare du Nord. It is the insignificant last station on their long hauls from the north, ignored by nearly everything but commuter trains. In 1914 it was the very first place in France the Germans would have encountered an engineering facility of any significance – the arms and motor works of Hotchkiss.

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What no one could envisage was that on September 5, with the Germans 35 kilometres from Paris, 600 Renault taxi cabs would spill out their soldier passengers beside the river Marne to add weight to Joseph Joffre's French forces. The casualties over the next five days would be appalling. But the invasion was stopped. For the moment, briefly, the Germans had been broken and defeated.

A proportion of the management had already fled from Hotchkiss, intent on establishing a satellite works in England. They chose Gosford Street, Coventry, and machines and workers were moved from St Denis. The company began manufacturing their famous machine gun and, possibly, armoured cars, of which they had had an impressive type since 1909.

When, eventually, the armistice was signed, on November 11, 1918, in *Wagons Lits* dining car 2419 ('Pullman' carriage in British parlance), in the Forest of Compiègne, little more than 30 kilometres north east of Paris, the armaments industry collapsed. Virtually overnight.

There were spectacular sufferers; not least the Austin Motor Company at Longbridge in Birmingham. But also Hotchkiss et Cie on Gosford Street. We cannot be sure whether the St Denis firm's managing director, Monsieur Benet, was one of those who came to Britain in 1914 to set up the auxiliary factory, but there is no question he was on English soil in 1919 to use his skills on behalf of his British cohorts, Henry Ainsworth and A H Wilde, who had run the factory throughout the war, and aid their recovery from the dearth of work that beset the company.

Benet, with a somewhat liberal interpretation of both the English language and the nation's culture, concluded that a likely place to find work in exchange for labour might be the 'labour exchange'. At that organization's offices, thanks to one of those incredible accidents of history that shape the course of the world, he met an administrator who was both imaginative, informed, and could interpret the Frenchman's 'take' on the situation. And thus that character, who was to have such an enormous influence on Leonard Lord's life, first appears on the scene. William Morris.

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In a moment we will need to examine Morris, because although this work makes absolutely no pretence at assessing Morris's role in the British motor industry or United Kingdom society in general, we can never understand Lord unless we know much of Morris.

Returning to the Coventry Labour Exchange for a moment; it was the official there who suggested that Morris Motors, in not-too-distant Oxford, might be looking for an engineering firm who could build motor car engines and that may provide useful employment for the idle hands at Hotchkiss.

And it is here we must digress to look at the man who was to become Lord Nuffield – not the nation's greatest motor man, but certainly its best known charitable benefactor. William Richard Morris had a 'good war'. Thereon hinges his business success. Therein is a pivotal element in the story of Leonard Lord.

Morris had a fundamentally different approach to engineering and vehicle production than Herbert Austin, or, say, Henry Royce. Austin believed that a motor car factory should be a self contained unit in which practically all the elements involved in the construction process – engines, radiators, gearboxes, rear axles, chassis frames, even the raw metal contained in them - were manufactured or processed in-house, then finally brought together in the finished product. That was how quality was controlled and maintained. Royce worked largely in the same way but the detailing was finer. For example, pre-WWI, Rolls-Royce would have made its own carburettors and magnetos.

Morris was an assembler of other people's output. *'There is no point in producing any article yourself which you can buy from a concern specializing in the work.'*

Contemporary business associates said of him: *'His best asset was his nice appreciation of price and costs. Basically he was a buyer and a very acute (possibly 'astute' – this author's hypothesis) buyer indeed. Anything he bought, he bought at a very keen price, and he would get it in the end. The basis of Cowley is buying, not manufacturing'.*

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*'...Morris always had second sight. He liked to think of himself as an engineer, but really he was a prince of commerce, because he had an instinct to know what the people wanted, to know what the next man was thinking, a buying capacity and so on. Those gifts were much greater than his engineering ability, although that was not small'. As a consequence Morris had not the genius of Austin or even Ford. Yet it was this very thinking that left him so well placed at the end of the Great War.*

Austin, for his part, had poured equipment into the conflict - 7,000,000 shells, no fewer than 2,000 aeroplanes and as many two/three ton lorries, 480 armoured cars and close on a total of 1,000 ambulances, staff cars and vans. Such was the production capacity at Longbridge, often employing machines Austin had designed himself, that output of eight inch howitzer shells, weighing 175 pounds each, reached 15,000 a week and peaked at an amazing 15,500. Between the spring of 1914 and 1917 a relatively small car factory, with 2,638 people on the payroll, mushroomed to an enormous works employing 20,000 men and women – as many as were employed there in the 1960s. Huge new machine and process shops had been constructed around the original site, many of them at government expense.

Morris had virtually no manufacturing capacity at the motor works he had established at 100, Holywell Street in the Longwall district of Oxford. His material contribution to the War was hand grenades from around July 1915, machining trench howitzer bomb cases and, from 1916, the assembly of a sinker for naval mines. This was a device that was jettisoned with the charge and then, as it plummeted to the sea bed, paid out and subsequently locked the securing hawser so the mine was located at a pre-determined depth. Morris methodology increased output from the 40 a week the craftsman at *HMS Vernon* in Portsmouth were capable of producing, to an ultimate total of 2,000 over the same period – output in excess of what was needed!

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So it was that when peace returned, the Receiver was soon to be at Longbridge and W R Morris looked to the future with optimism. Morris had wanted to be a surgeon and maybe that tells us something about the direction of his benefaction in later life. But his medical ambitions were thwarted by a decline in the family's finances. It is easy for us to leap to a comparison with Lord, who, at approximately the same age, we strongly suspect, would have liked to have furthered his education at university but for the aftermath of the circumstances at Whitefriars Lane and those continuing on Foleshill Road.

To make such a connection though would largely be an error. Morris's father, Frederick, although diminished in health, gave his full support to his son and so did the mother, who was not physically strong herself. The boy began his career as an apprentice in a bicycle shop but soon walked out to start his own rival business in 1893. Likewise he failed to pursue for more than two classes a course in engineering and design at the Oxford Schools of Technology, but was soon trading as '*W R Morris Practical Cycle Maker and Repairer of 48 High Street and James Street\* Oxford. Sole maker of the celebrated Morris cycles*'. '*The celebrated Morris "cycles"*' was, in fact, one machine made for a gentleman of ample proportions called Pilcher who was rector of the local St Clements church and who had commissioned a huge bicycle based on a 27 inch frame.

Morris soon entered the field of motor cycles. Of interest, as far as we are concerned, is that the castings for the one horsepower engine were bought in for final machining at 'Longwall'. By 1902 he was buying complete de Dion Bouton engines.

From 1904 until 1912 Morris's principal activity was as a garage proprietor and participant in various peripheral automotive enterprises such as the private hire of cars and operating a taxi service. But in 1912 he was ready to announce his 'own car' at the London motor show. It had an engine from Coventry supplier White and Poppe and one of their gearboxes.

\*This was his parents' address in Cowley St John.

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The rear and front axle came from E G Wrigley and Company in Smethwick, west of Birmingham, and so, probably, did most of the gearbox. The wheels were from the highly respected firm of Sankey, the chassis frames travelled from Belgium and the bodies arrived from Oxford coachbuilders Raworth.

This was the Morris Oxford. Some 1,500 sales were anticipated and White and Poppe were asked to organize for 50 engines a week. Meanwhile, a second, slightly larger model, called the Cowley, was in the pipeline. White and Poppe had no surplus capacity for the 14.9 horsepower power unit needed. Morris turned to America and the Continental Motor Manufacturing Company in Detroit for the engines themselves and to other firms Stateside for the gearboxes, transmission and other items of running gear.

Continental had entered the world of motorization around the same time as Morris, when Chicago engineer Ross Judson and his brother-in-law, Arthur Tobin, built a twin cylinder engine based on a Mercedes design. As orders flooded in they set up a company called 'Autocar' but the name was the same as an existing firm so the enterprise was re-christened 'Continental', because they thought it suggested 'European quality'.

In 1905, lured by incentives put in place to compensate for the demise of the logging industry, Judson and Tobin moved to Muskegon on the shores of Lake Michigan. By 1907 they were building for Studebaker at the rate of 1,000 engines a month. Then, in 1911, Hudson came through with an order for 10,000 units and Continental shifted to Detroit to be close to their factory. They went on to build for more than 100 makes of automobile, including such top flight names as Auburn and Stutz and such household ones as Willys. The Muskegon plant continued, but making bus, lorry and industrial engines. Eventually Continental went over to producing aircraft power plants.

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Morris had called on Continental in 1914 to a somewhat frosty reception. They had been caught out previously by entrepreneurs from Britain placing orders then welshing on the deals and were inclined to be wary. However, the visitor returned home with drawings for an engine that could be built for £25 against White and Poppe's price for a similar unit of £50. Consternation abounded and eventually Morris returned to America with Hans Landstad, White and Poppe's chief draughtsman, to see how this wonder was worked! Landstad did, in fact, go to work for Continental, and in a semi-formal capacity acted as Morris's liaison officer, advising on what would be required when the engines arrived in England and on what parts would need to be sourced locally. He remained in Detroit until the prototypes came off test, returning home in December 1914 to the pleasing Christmas present of a job at Morris.

Even now, matters did not run particularly smoothly. Continental only extracted an order for 1,500 engines. That was William Morris's revision of the number he thought he could utilize, as opposed to the 6,500 he originally envisaged would be needed to cover the first two years of Morris Cowley production. Then, as the war began to bite, it became increasingly difficult to deliver the stock and the first engines did not come through until September 1915. All this was compounded by the imposition of McKenna duties, so named after Sir Reginald McKenna, the British Chancellor of the Exchequer between May 1915 and December 1916. He placed a duty of 33% on motor car imports and dulled the attraction of an engine costing, by now, \$85 (about £17.50 at the exchange rates of the day) plus insurance and freight charges. Finally, Continental decided they didn't want to bother with a motor suitable only for a light car and that they would be unable to place with manufacturers in America. However, they were prepared to sell Morris the drawings and some of the tooling.

The way out of this situation, as suggested by that perspicacious gentleman at the Coventry Labour Exchange, was for Morris to have Hotchkiss build his engines. The supply came on stream in September 1919, Hotchkiss using adapted gun making machinery and having resolved quality issues associated with the proprietary cylinder block castings they received.

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As an aside, there is a bizarre story that around 1920, Hotchkiss were contemplating going into production, in England, with their own car. It was to have used a 1,080 cc air cooled, overhead valve, V-twin engine with a three speed gearbox fitted into, of all things, a Morris Cowley chassis! It *is* just possible there were one or more Morris chassis at Gosford Street that had been used experimentally when engine production for Morris Motors was getting underway and one of these formed the basis for a now forgotten Hotchkiss.

The new relationship between Hotchkiss and Morris was not as happy as it might have been. Throughout 1920 and '21 the French firm had built up engine production from a faltering total of 60-odd in 1919 to slightly more than 200 a week by the beginning of 1922. Morris wanted guarantees of between five and six hundred which was about twice what Hotchkiss were able – or wanted – to supply. The reasoning was the French company were again building their own cars in France and to pursue a policy of investing capital that could be better used at home was unappealing. Thus Morris resorted to the course of action he nearly always adopted - he bought into the company. And with it, of course, he acquired Leonard Lord.

A fairly 'scratchy' partnership between Morris and Hotchkiss continued for about 12 months. The latter were represented on the board of the reorganized company and as a consequence would have access to engine developments. This, not unreasonably, irked William Morris. The cars from St Denis at the time were in an AF, AH, AL series and although available in the UK were much larger than the Morris and could hardly be construed as competitors. Nonetheless, William Morris wanted to sever all connection and in May, 1923, he bought out the French interest altogether.

It is impossible for us to know what Leonard Lord said in his application to Hotchkiss et Cie in the opening months of 1922. Indeed, his own version, which is a little unlikely from a 'newly married' with a wife to support, was that he knocked on the door looking for whatever job was going. Whatever the circumstances, there would have been an interview at Gosford Street with Ainsworth, Wilde, or their chief engineer, Herbert Taylor – perhaps all three.

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We can conclude that Lord was an ideal candidate but it is not entirely clear what exactly his position was. Some sources have him as assistant chief engineer, but Frank Woollard, who entered the company as general manager and became Lord's immediate boss, described him as machine tool engineer. This makes perfect sense. What was now Morris Motors Engines Branch was being restructured. Ainsworth and Wilde (in charge, you will remember, during the war) were not required by William Morris and left for Hotchkiss in St Denis to become manager and chief engineer respectively.

Among those who remained was works manager George Harriman – 'old George'. He was the father of the George Harriman who headed the British Motor Corporation after Lord and about whom we shall obviously have much to say. As it happened 'young George' started an apprenticeship at 'Morris Engines' in 1923.

General Manager, Woollard, had been the 'designer' – although this was never officially his title - at E G Wrigley and Company (again, you will recall, makers of axles and transmission parts for the Morris Oxford) and had advised Morris on the purchase of Hotchkiss before being given his post at Gosford Street. Taylor, a talented man of diminutive stature, went on as before as chief engineer.

What Lord brought to the picture was the sound production engineering practice he had witnessed at Courtaulds, a thorough grounding and recognized qualifications in general engineering procedures, and the broadness of mind and flexibility to understand that when facilities were not available at home they could often be imported from abroad. He had witnessed this at the Coventry Ordnance Works Ltd. He also had the considerable skill necessary to design machinery himself. *And* he had worked in munitions, Hotchkiss's cornerstone. A bonus in the latter case was working alongside – 'Coventry Ordnance' again - a man who was, arguably, the best production engineer in the land – Carl Engelbach.

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Perhaps most important of all, at least from a personal standpoint, was that in less than one, highly active, decade Leonard Lord had firmly laid to rest that negative from the Bablake inspectors that a boy would be '*at an initial advantage in a workshop or machine shop but not fitted for further advancement*'.

Frank Griffith Woollard was a Londoner and advanced through that most thorough of engineering routes, the railway workshops, to his post at Wrigleys. He arrived there as chief draughtsman in 1910, progressed to chief engineer and then assistant managing director. In WWI, as the military tank was developed and Wrigleys began producing its gearbox, Woollard ensured the quantities required for these machines were available. His presence at Wrigleys and involvement in making parts for Morris is the basis for the link to the Cowley industrialist.

The denouement, of course, is Frank Woollard taking over at Gosford Street with the brief to double engine production, from the same floor space and as rapidly as possible. The significance to the story of Leonard Lord, who was already at Morris Engines, is we are now seeing him at work alongside some of the best production engineers in the world, holding his own and at 27 years of age making incredibly bold decisions about his employer's way forward.

Herbert Taylor's basic philosophy was the product should be the focus of the processes in its manufacture. This meant that rather than moving, say, a cylinder block from machine shop to machine shop to be bored, faced, drilled or whatever, the machinery should 'go to the component' to carry out the various operations. This is the theory behind the transfer machine.

We will need to look at this equipment in greater detail later. But, for the moment, suffice to say, it is multi-functional plant, which can adapt to different procedures on a component while the part itself needs to have minimal mobility for those actions to be carried out.

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Such machines were to be essential if Morris was to achieve the production volumes and thus price levels he sought. Put another way, the success of Morris Motors, indeed its very survival in this most crucial period of the company's history, depended to a large degree on the success of transfer machines.

The set-up at 'Engines Branch' was, in all practical terms, the work of Lord.

To briefly place matters in context. The British motor industry had shared in a short, general trade boom, immediately after WWI. But by 1920 this had collapsed and at least half of the country's 90 car manufacturers were in serious financial difficulty. William Morris believed that the situation was caused by too high prices for the cars themselves, the materials that went into them and the labour to put it there, compounded by low output that prevented the industry capitalizing on what demand existed. Consequently, in February 1921, he took the astonishing step of slashing his prices. The four-seater Cowley came down from £525 to £425, the two-seater dropped £90 to £375, there was £25 off the more up-market Oxford and the coupé variant of that model dropped £80. These measures immediately stimulated sales. They started to soar towards the 1,000-plus vehicles a week that would be leaving the dealerships by 1925. The Morris had become Britain's best-selling car, but obviously everything depended on the output being there in the first place.

The transfer machine that Woollard had made to Taylor's design was 181 feet long, weighed 300 tons and had 53 work stations where just 21 men pushed buttons to convert a raw casting into a finished cylinder block in a total of 224 minutes – or one off the line every four. The trouble was the buttons that operated features like the limit switches, which ensured a component stopped in exactly the right spot for the next process, relied on pneumatics, hydraulics and electrics. And, quite frankly, although the concept was brilliant the execution was flawed. Lord was asked to resolve the problem. It took three weeks deliberation but when the solution came it was earth-shattering and somewhat fazed management when they were told the machine should be scrapped!

To quote Woollard in a 1955 article for *The Motor*: '*Even general managers can't execute such a volte face, tantamount to admitting that we have spent a vast sum of money on a mistaken policy*'. What Lord was actually suggesting was that the root problem was the control systems of the day were not up to the job of governing the automatic movements (the 'transfers' themselves) of the cylinder blocks. The answer was to convert the one vast machine back to individual stations. He further argued there would be no cost penalty because sourcing a milling or boring machine from a traditional supplier would only provide an extremely expensive piece of equipment, most of whose functions were not required, while those that *were* needed were already admirably contained in the in-house design.

Lord had costed his revision to the last detail and could prove its efficacy. This is interesting. He has a reputation for being reckless over cost analysis to a point where he would eventually debilitate BMC. Clearly this is not the case.

Lord's plan for the transfer machine at Morris Engines was implemented with spectacular results. Engine output rose over six months during 1923 from the 300 a week Hotchkiss were just about capable of producing, to 450; then to 600 by the turn of the year. By mid-1924 production had reached 800 with 1,200 a week projected for 1925 with still further increases forecast. Over that initial six months – 300 engines to 450 – the manpower needed dropped from 3.1 to 2.7 per unit.

It should be acknowledged though, the final rises quoted were helped by doubling floor space and installing more equipment including extra transfer machines. One of these was for the complex task of machining gearbox casings and was designed in its entirety by Lord, the first of its kind in the world. Some of these machines were still in use in 1955. It had taken Leonard Lord three weeks to devise a dramatic solution to the problem with the original transfer machine. Yet he could work much faster and, into the bargain, show his level of commitment. When Morris Engines needed four heavy-duty milling machines and attempts to source them either at home or abroad failed, Lord was given the task of producing a design that could be manufactured within the works.

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He began work in the cramped drawing office at Gosford Street but progress was slow and on a Thursday morning he sought Woollard's permission to take the job home with the promise it would be completed by the following Tuesday. By Monday afternoon he had not only produced beautifully executed isometric projections of the machines themselves, which subsequently performed perfectly, but a layout for the whole work area.

One last episode from Morris Engines is worth recounting. It does not have the momentous impact on production as the work on the transfer machines, or the ingredients of dexterity, design skill and devotion that surround the 'mills', yet it illustrates extremely well Lord's imagination, ingenuity and directness of approach.

Not surprisingly, the equipment inherited from Hotchkiss was French and as a consequence, not only were the threads to the metric standard, but the bolt heads as well. This caused a problem for fitters and machinists equipped with imperial tools. Lord's strikingly simple expedient was to make or modify the fasteners so they retained metric threads but had imperial heads.

William Morris was so impressed with Lord's work that in 1927 he moved him to the Wolseley Motor Company, a bankrupt concern he had acquired from the Receiver in January of that year. Thus Taylor, Woollard and Leonard Lord parted company. They would not work together again, so it may be worth noting how Lord's boss perceived him in those years from 1923-1927.

*'I found all the qualities which go to make the ideal executive: an analytical mind coupled with a lively inventive capacity and an ability to present a case with all the implications fully considered'* said Woollard. *'One of my most cooperative and congenial colleagues'*.

*'Decisive'* and of *'prompt action'*; *'having the ability to pick the right men and to inspire and maintain their enthusiasm because of his own faith and belief in the work he is doing; more apt to smile than to frown'* with *'a realisation that business is not static but dynamic'* are other descriptions Woollard coins.

Many would disagree of course, some violently so. And maybe the course from Gosford Street did not run true. Our task is to assess whether it did or not and never to allow trivia to detract from the greatness of the subject. A good example of the ludicrous injustice heaped on Lord by authors and commentators comes in P W S Andrews's and Elizabeth Brunner's 1955 book *The Life of Lord Nuffield. A study in Enterprise and Benevolence* (Basil Blackwell Oxford).

This is undiluted William Morris hagiography. The only thing that can be said in defence of which is that it was penned in Morris's lifetime and with his 'cooperation' and, at that time, most writing on popular public figures was not known for fearless objectivity.

But in the section that deals with Morris Engines and, specifically, the transfer machines, Lord does not receive a mention; not even *en passant*. That is unforgivable. But let the facts speak for themselves. Peter Seymour in *Wolseley Radial Aero Engines* says, with justifiable pride: '*the Gosford Street factory became a model for all British industry*' (presumably as regards flow line production, my assumption). That was not the work of William Morris, or, in reality, of Taylor or Woollard, but of Leonard Lord.

In addition, when the factory was visited in 1923 by Ford's chief production engineer from Detroit, he described the transfer machine as 20 years ahead of its time. In fairness, he was probably alluding to Taylor's original design rather than the Lord revision that actually made it work! But it is praise indeed, from the arch exponents of 'flow line'.

In this chapter, as in earlier ones, we have needed to digress to paint a picture of the background against which Leonard Lord was living and operating. Thus, in this section we have taken a glimpse at Hotchkiss and its reaction to the 1914-18 war in France, at the early positioning of William Morris, and we have considered the stance of the Continental Motor Manufacturing Company in Detroit.

In the cause of continuity, completeness and general interest we now need to examine a number of other characters and elements.

As we have already seen, when Leonard Lord was looking for fresh fields to conquer and Morris pressing Hotchkiss for more and more engines, Austin was going bankrupt. The millions made from munitions and further cash raised in 1919 had been spent on a massive refurbishment and revitalization of the Longbridge Works to turn it into a plant that could make 150 cars a week. But Austin only had one model on the stocks (the Twenty), with no hope of selling it in anything like those numbers. Five hundred *a year* would have been optimistic. Furthermore there was a slump looming. By 1920 Austin had an overdraft of one million pounds and owed his creditors as much again.

On April 26, 1921, an emergency board meeting resolved to write to the London Joint City And Midland Bank Ltd and the Eagle Star and Dominions Insurance Company inviting them to appoint a Receiver and manager. The very same day Sir Arthur Whinney was given the job and chose an accountant, E L Payton, and a production engineer, Carl Engelbach of Vickers and 'Coventry Ordnance' repute, to help him.

Although Herbert Austin came to like and respect Engelbach there were initial resentments for obvious reasons. However, what is not so obvious, and has only been revealed by recent research, is the extent to which Carl Engelbach needed the job at Austin and would have been anxious to please and make an impact. Letters held at Birmingham Library describe how he had been acting as a consultant to various companies but not been paid. Thus, among the reasons he would have been vigorous in his role at Longbridge were its financial benefits and stability. His early difficulties with Sir Herbert may have stemmed, in part, from that enthusiasm.

Indeed, Engelbach almost got control of the entire works but Austin managed to retain for himself, most importantly, a design role. From the summer of 1921 the company had had a Twelve horsepower model to supplement the Twenty but Austin believed they needed a third, much smaller, car. He put this to the board on August 30 claiming potential sales of 500 a week.

A decision was deferred until September 9 when again the board prevaricated. However, for the meeting of September 20, continuing on the 21st, it is minuted: '*the board cannot discuss it (a small car: my insertion) with any usefulness at the present time*'.

Austin lived at Lickey Grange, just outside Birmingham and some 35 miles from Coventry. He went home that day having decided to design, privately, a light car of about seven horsepower. In October, he took an 18-year-old trainee draughtsman, Stanley Francis Edge, from the drawing office and into his own pay to ensure that whatever materialized would remain Sir Herbert's private property. Work on the Austin Seven began.

If we could have floated, ghost-like, across the elegant lawns of Lickey Grange late on those autumn nights, and looked beyond the warm-butter-glow of the library windows, we might have found Davidge and Hancock, who had been with Sir Herbert almost from the start; Depper and Yeal, two more from the inner sanctum of confidence and the 55-year-old Austin, of course. All with their backs to the wall – quite literally. We might even have found Edge; and if not him personally, his drawings spread out on the billiard table.

Stanley Edge does not, at face value, even have a walk-on part in the story of Leonard Lord. However, much later, he will make a shadowy appearance in the story, so it is worth placing his relevance in context. In recent years, certain historians and journalists have attributed to Edge a creative role in the 'design' of the Austin Seven. This is not credible. An engineer of the experience and calibre of Herbert Austin did not need an 18-year-old to help him design an extremely simple motor car. Edge was the draughtsman, little, and probably no, more.

On March 16, 1922, the Receiver's final scheme of arrangement for the Austin Motor Company was approved by the Courts. It agreed that from April the firm could be returned to the control of its directors. At a board meeting on April 5 it was resolved that three 'six horsepower' (Austin's Seven) cars would be funded, the company would have exclusive world rights to make them, and Austin himself would be paid a two guinea (£2.10) royalty on each. In effect, Herbert Austin was licensing *his* design to *his* company. On July 21 the model was shown to the distributors, four days later it received favourable publicity in *Light Car and Cycle* magazine and the next day the board signed off on full scale production.

Again for neatness, and although it is of no particular relevance to the life of Leonard Lord, it may be of interest to know that Hotchkiss continued in France as one of the nation's most admired motor manufacturers, the radiator badge of crossed cannon barrels always evoking their earliest history. The cars won the Monte Carlo Rally in 1932, 1933, 1934, 1939, 1949 and 1950. The company was nationalized in 1936 by the *Front Populaire* and took over French car maker Amilcar in 1937. Ainsworth was still there, but, very wisely, got out of Paris before the German Occupation. Peugeot took control in 1942. Ainsworth returned after the Liberation and once again produced cars of pre-war design, a light lorry and a tractor. He retired in 1950 at the same time as Peugeot pulled out.

Ainsworth's greatest legacy, and maybe the thing for which Hotchkiss is best remembered, is large numbers of Willys MB Jeeps built in France. As a military vehicle as well as private car expert he liaised with Willys Overland from London during WWII and, after the conflict, opened negotiations that eventually led to the production of some 27,000 'French Jeeps'.

Although Hotchkiss had merged with that other luxury French marque, Delahaye, in 1954, private car production ceased in 1955 and in 1956 the whole enterprise was acquired by Brandt of household appliance fame. Military vehicle activity continued in one form or another into the 1970s but eventually Hotchkiss ended up helping to make washing machines!