

## CHAPTER TWO – TURN OF THE WORM

Leonard Lord passed the University of London's Matriculation examinations in June, 1913. This was no mean achievement for someone of his background and upbringing and in the light of the hardship he had suffered.

By now Annie was recently married, to a machine tool salesman called Benjamin Blunstone. Although his roots were in the north of England, the couple lived in Coventry - at 27 Spencer Avenue – and it is interesting to note, purely as an aside, that Benjamin's father, of the same first name, had taken out a patent on a pneumatic tyre in 1891 in association with a Joseph Moseley. At the time, Mr Blunstone was managing the India Rubber Company's factory in Manchester and although he was dead by the time of his son's marriage, Annie had chosen an affluent spouse.

Leonard Lord's qualification would have entitled him to attend university, an option he declined. The reason is almost certainly that he felt the family finances on Foleshill Road could not support higher education and, of course, this can be a classic recipe for resentment and bitterness. Instead, Lord joined Courtaulds Ltd as an apprentice engineering draughtsman. Conveniently, the plant was on the street where he lived and during his time there – from August 1913 to December 1915 - he would train in the drawing office for two years and the engineering workshops for six months. He was paid just 4s 6d a week (less than 25p).

As to how or why the position with Courtaulds materialized we can only speculate. A mundane, but very likely explanation, is that this major and prestigious employer had contacts with Bablake School and at the end of the academic year touted for apprentices, what later sixth form pupils might have called the 'milk round'.

Another possibility, and the reason that I explored in some detail the ribbon making industry in Coventry, is that Emma Lord was, indeed, involved in the textile trade. She may have been formally employed or undertaking finishing work at home. In any event, there would have been a large number of, mainly female, employees within her circle. It is conceivable it was suggested to her that there were good opportunities for a young man within the perimeters of the giant Courtaulds plant.

We may now challenge that Leonard Lord had a destiny specific to any one field of engineering. That anonymous story from *The Motor*, referred to earlier, suggests that he decided '*it was in the motor industry that his future lay*'. This is convenient, if not glib, journalistically. Yet, if that was really the case, there was Riley just off Foleshill Road and a firm of such worldwide acclaim as Daimler had been in the city since 1896.

Yet, what is perhaps very much a part of Leonard Lord's greatness is that he was *not*, essentially, a 'motor man'. Often he was the man for the hour; the only man who could do the job; but he was not someone steeped in automotive lore or, in the early days, with an obvious passion for vehicles. It was his breadth of understanding, particularly of mechanical engineering, which enabled him to achieve what he did.

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Ever the diligent worker, while at Courtaulds he studied at Coventry Technical College for the City and Guilds of London Institute certificate in mechanical engineering which he passed in 1914 at the premier grade. Simultaneously he was teaching night school there in higher mathematics, often to students much older than himself. Again, this employment was needed for extra cash. Lord himself admits, quoted by Peter Seymour in *Wolseley Radial Aero Engines*, it was to keep his mother '*in comfort and provide her with little luxuries*'.

The few shillings accrued weren't going to keep Mrs Lord in much comfort and the statement, curtailed by Peter King in *The Motor Men* (Quiller Press 1989), to: '*buy little luxuries for my mother*', is probably nearer the mark.

In any case what small treats there were, were short-lived. In a fit of rage Lord threw a wooden blackboard scrubber at a pupil who annoyed him, was justifiably admonished by the administration, and would have realised that in whatever direction his destiny lay, it was probably not education.

Lord's period at Courtaulds is interesting and, I would suggest, relevant to his later life. The Courtauld family came to England from France at the end of the 17th century to work as gold and silversmiths in London. It was not until as late as 1775, when George Courtauld was apprenticed to a silk 'throwster' – a term for spinner - in the Spitalfields area of the capital, that an interest in textiles developed.

Eventually George's son, Samuel, set up a business in Essex and, impatient with traditional methods, mechanized his factory to make silk mourning crepe for the Victorians. By the 1870s, with 3,000 workers on the payroll, Samuel Courtauld and Company had become one of the biggest firms in the British silk industry and Courtauld himself was drawing the fabulous income of £46,000 per annum. But as we saw in Chapter One, the business was volatile and by the turn of the century, with the company now under the management of Henry Greenwood Tetley and Paul Latham, the technology was on a plateau with profits falling.

However, three new processes were under development - none of them by Courtaulds. As Count Hilaire de Chardonnet realised in France, the way forward was with regenerated cellulosic, or man-made fibre. The Germans were trying a similar approach but the simplest technique, known as the viscose process, had been invented, in London's elegantly leafy Kew suburb, by Charles Cross, Edward Bevan and Clayton Beadle.

It involved dissolving cotton or wood cellulose with a selection of chemicals, then using dilute sulphuric acid to convert the treacle-like yellow substance back to pure white cellulose. It was the latter that could be spun into fibre. Tetley bought the British rights, patented in 1892, on July 14, 1904, for £25,000. The Foleshill factory was built in 1905 and started spinning in mid 1906. By 1913, the year Lord joined, it was producing more than 1,339 tons of rayon a year and had also bought the American licences and established a plant there.

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But the methodology Tetley had acquired with such enthusiasm was unreliable and inconsistent. In the early days 75% of the output was waste and it was the job of the chemists and engineers in Coventry and Essex to correct this and help Courtaulds towards an ordinary share capital of £12m by 1920 and the status of the world's largest producer of rayon. This is an excellent example of production engineering turning potential disaster into record breaking profitability, and while it would be ludicrous to suggest that Leonard Lord took any practical part in the process, he must have been acutely aware, when in both drawing office and workshops, of the drama that had been enacted and of its crucial importance.

It is beyond doubt he learnt such lessons well. Far better than had many of those who were later to surround him. It was of Tetley, who died in 1921, that it was said, he was of: *'relentless energy, arrogant, domineering, of furious temper, ruthlessly impatient with a single-minded devotion to business'*! Perhaps the traits were contagious. Not least the arrogance, because it is claimed – I have to admit rather unconvincingly - that when asked by a senior manager at Courtaulds what he wanted to do when he completed his apprenticeship, Lord replied: *'sit in your chair'*! It's just one more of those quotes for which there are no witnesses and sound very much as if they may have been invented by Lord himself!

In December, 1915, Leonard Lord moved from Courtaulds to the Coventry Ordnance Works Ltd in Red Lane to continue his training. The two most likely explanations for the transfer are, a sense of patriotism, amongst the management at the fibre makers, where much of the work was suitable for women, and who, therefore, were happy to allow a particularly talented young man to move into an industry that would have a direct bearing on the war effort.

Or, it may be, that devoted to his mother as he was, Lord realised that sooner or later conscription would be on the cards and although he was the principal breadwinner in the Foleshill household, at 19, single and fairly fit, being called up would be hard to avoid unless he was in a reserved occupation. Compulsory service actually arrived in 1916 as it became apparent the million volunteers that had joined the forces by January 1915, in response to General Kitchener's recruitment pleas, were insufficient to feed the carnage at the Front.

As they lay in their beds on the night of July 23, 1916, and all through that summer week, Leonard Lord and his mother would not have been able to hear the gunnery barrage on the Somme, as, when the wind blew from France towards Hampstead Heath, their compatriots in London could. But along an 18-mile front 1,537 British guns blazed as did as many French. The British fired 1,723,873 rounds. When this futile exercise was over and the battle proper began, nearly 60,000 of the nation's soldiers fell, dead or wounded. It was the worst day in the history of the British army.

'Coventry Ordnance' would have built some of the artillery that had raged. The company was part of a fraught and acrimonious munitions industry where a clutch of companies had struggled for years to persuade the services, and especially the world's navies, to buy their wares. Rather appropriately, it had been captained from 1910-1914 by Sir Reginald Bacon who had been the commander of the very first dreadnought battleship.

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The concern was established five years before Bacon came on board by a consortium of shipbuilding firms that included John Brown and Cammell Laird. It sought to break the dominance of Vickers and Armstrong-Whitworth and to that end had designed a 5.5 inch naval gun and developed a 37 mm weapon that was the first modern auto cannon (an automatically loading heavy machine gun). They also made aeroplanes, producing 700 in WWI, plus 100 each of tanks and anti-aircraft guns. There was a second factory in Scotstoun, Glasgow.

Their greatest claim to fame, though, was the design and production of siege howitzers for the British, and subsequently allied, armies just like those that fired that July on the Somme. This is of significance to our story. 'Coventry Ordnance' had begun with a 9.2 inch model in 1913. It had a sophisticated variable recoil mechanism and a range of about six miles, depending on the version. The prototype, nicknamed 'Mother', was in action in France as early as October 1914 and a total of 512 were supplied, but largely by arch rival Vickers.

A 15 inch variant was developed from the 9.2. Developed in late 1914, and used by the Royal Marine Artillery, it fired shells weighing over 25 hundredweight and was intended to destroy deep fortifications. However, the range was relatively short and the Coventry firm lost out as the army turned to a 12 inch version that Vickers started producing in August 1916, then to railway mounted howitzers of the same calibre. The predictable decline in demand for arms after the armistice saw the Coventry Ordnance Works fall on hard times and it failed in 1925.

Lord worked in the heavy workshops and tool rooms. It must have represented a spectacular change of scale after Courtaulds. Some of the equipment used had been sourced in Continental Europe and America. There were milling machines with 36 foot diameter tables, used for machining the enormous ring gear fitted to naval gun turrets. Useful insight as that undoubtedly was, the most valuable experience for Lord was making the acquaintance of Carl Engelbach and seeing him at work.

Charles Richard Fox Engelbach, always known as Carl, was in charge of that all-important howitzer production. He was a London boy, born in Kensington, and, by coincidence the son of a War Office clerk of Huguenot descent but with Jewish undertones. He had been sent to boarding school in Southport, although the justification for this locale remains something of a mystery. The most likely explanation is links to, or contacts within, the town's flourishing Jewish community. That apart, Carl Engelbach grew into a gentle, sensitive and cultured young man.

When he was 16 his godfather presented him with the considerable sum, for 1893, of £1,000. He very wisely spent it securing an indentured apprenticeship at Armstrong-Whitworth in Newcastle-upon-Tyne, rather than taking up the professional singing career that had been offered by the D'Oyly Carte Opera Company, back in the capital.

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Armstrong-Whitworth were a major engineering manufacturing company dating back to the mid-19th century and now produced ships, aeroplanes, railway locomotives and subsequently cars. When firmly established there, Engelbach specialized on the automotive side and in 1902 cut his teeth on the Roots & Venables car that Armstrong-Whitworth were contracted to build. Rather auspiciously, perhaps, his grandfather's first name was Gottlieb – as in Daimler!

Although now lost in the mists of time, the Roots & Venables is an interesting make. Like Engelbach himself, it had its origins in London and used an oil engine. They first emerged in 1896 as a tiller steered three-wheeler and at the time were one of only four British marques on the market. The others were Daimler, the Coventry Bollée and Petter dog-cart, but of course, two of those – the Daimler and the 'Bollée' - were essentially foreign brands.

'Roots' had difficulty actually making the car and after a period employing BSA to do so, turned to Armstrong-Whitworth. There Engelbach would have watched over three models, a three horsepower rear engined machine and two forward powered cars of four and seven 'horse' respectively. While he was attending to all this, Engelbach affirmed the more esoteric side of his character and married, in 1902, Florence Ada Neumegen. She was an artist with Spanish connections, but living in Newcastle.

She painted in a vigorous style with strong gouts of colour, the texture of cream, spreading across the canvas. The style was to grow in popularity during the '30s and continued through the next decade. Florence's speciality was flowers and her work was good enough to be hung in temporary exhibitions at London's Royal Academy.

Engelbach, for his part, soon had to undertake the production of the Wilson-Pilcher, another London make that had come to Armstrong Whitworth under similar circumstances to those of the Roots & Venables. It was also an interesting machine with a horizontally-opposed engine coupled to a four speed epicyclic gearbox with, naturally, a clutchless change. Englebach looked after production of a four cylinder and a big four litre, powered by a 'square'\* flat six.

By now he was manager of the motor side of the business and, as the Wilson-Pilcher died, launched, in 1906, Armstrong-Whitworth's own make. This necessitated a major reorganization of the Works and Engelbach aspired to produce a comprehensive range of cars at the ambitious rate of 6,000 vehicles a year. His confidence was not matched by management and he left just before the outbreak of WWI.

At some point during his career at Armstrong Whitworth, Engelbach had joined the Royal Naval Voluntary Reserve, which was formed in 1903 from civilians. In 1914 he was called to active service but it was soon realised his talents would be better employed elsewhere and he was posted to 'Coventry Ordnance'.

*\*Bore and stroke of the same dimensions.*

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Hopefully, this brief profile gives a picture of the man Lord was to encounter. Carl Engelbach was acclaimed as the best production engineer in Britain and Lord was privileged to work under him. He was also, primarily, a 'motor man' and it was almost certainly from Engelbach that Lord would gain an introduction to the motor industry and its potential. Without pre-empting the story, it is worth noting that Lord was to encounter Engelbach again, much later in both their careers, but the circumstances were less positive.

While at The Coventry Ordnance Works Ltd Leonard Lord rounded off his formal education by passing the Board of Higher Education examination in machine construction and drawing. As with his 'City and Guilds' qualification he passed with distinction. Perhaps inspired by something, or many things, Carl Engelbach had said, it is now, in 1919, that Lord first enters the world of car building, albeit for an amazingly short time!

To quote a snatch of doggerel derived from *The Vicar of Bray*: '*And whosoever king may reign, he still will own a Daimler*'. And it was for the royal car maker that Lord departed the ordnance works. Engelbach could well have recommended this manufacturer, hailing from the dawn of motoring, in preference to the other local player – Riley - who were insignificant by comparison. At the time, Daimler were based in Sandy Lane, in the Radford district of the city, a little to the west of Foleshill. They would have been making a 30 and a 45 horsepower model, the latter with a six cylinder sleeve-valve engine.

Interesting innovations had followed the return of peace including a steel frame on which coachbuilders could mount their bodies in readiness for fitting to a chassis, rather than having to wait for the arrival of the actual running gear. Less importantly there were concealed radiator caps, believed to be the first appearance (or non-appearance!) of this feature on a British car.

Leonard Lord went to work in the toolroom. To get there from Foleshill Road he would just have had to cut through Cash's Lane, walked along Witherington Road and then into Sandy Lane. Of the environment he would have encountered Brian Smith, in his definitive book on Daimler, *The Daimler Tradition*, (Transport Bookman Publications 1972) says: '*In the foundry laboratory, qualified chemists were engaged in blending metals, in heat treatment, evolving the best iron and steel for the particular use to which it would be put whilst in the research and chemical departments other chemists tested to the utmost limits the products of their creative work. Tests for hardness, impact tests and ingenious methods of finding out the fatigue resisting properties of all the metals used were undertaken and in conjunction with the results of chemical analysis, the use of the correct materials for all purposes was scientifically guaranteed*'.

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He goes on: *'The Daimler Company had early appreciated the fact that a high standard of machine shop practice was necessary – hence the development and equipment of the Daimler toolroom to a standard of efficiency superior to anything existing elsewhere. Tools of such accuracy and precision were used that Daimler craftsmen were able to work to the finest limits of toleration (sic) and moreover, many of the master gauges issued during the war through The National Physical Laboratory to the many other factories producing aeroplane engines, were products of the Daimler tool room. A particular branch of tool room activity was the cutting of the Daimler/Lanchester\* type worm gears.*

*'When the ratio of the gear had been settled, it was a four months' job to develop a set of tools from the master hob. The intricate tools were hand made and from these a master set of gears were produced and these would be retained for comparison throughout the production'.*

On the basis of Smith's account alone one would conclude that Daimler was about the best engineering centre in the land and anyone fortunate enough to be offered a job would gain invaluable experience and be on the threshold of a remunerative and satisfying life-long career. So why was Lord only there for eight weeks?

We have to suspect that at this point in his own career – he was 23 – he was not temperamentally suited to the job and perhaps he never would have been. Any question about Lord's technical competence can be confidently set aside but he was a quick tempered and impatient man of action. We can imagine that in the rarefied atmosphere of those Sandy Lane toolrooms, being involved with long-serving, painstaking craftsmen, taking 16 weeks to produce a set of gear cutters, where everything was highly prescriptive, would have caused him to explode – at Foleshill Road if not in the workshop!

Jon Box served his apprenticeship at Daimler and subsequently worked in a wide variety of motor industry jobs including at Standard Triumph, Land Rover and TVR. He is now a regular contributor to the Daimler and Lanchester Owners' Club magazine, *The Driving Member*. He says of this period: *'The Daimler toolroom would not have been somewhere where Lord could have his own way. It does not surprise me he was soon on the move and looking for something where he could have much greater control'.*

Thus, an outstanding opportunity had come too soon.

On the other hand, Lord may have viewed his next job, as general manager of The Jig Tool and General Engineering Company Ltd, in his native city's Hertford Street, as a chance he could not afford to miss. It was, after all, promotion to a position of authority where he would much more readily be able to be his 'own man', while the work itself would have given him a much broader perspective than that at Daimler. As he would have said: *'If the door's not open; kick it open'.*

*\*This is slightly misleading. F W Lanchester was a pioneer of worm drive. He became a consulting engineer to Daimler in 1909 and Daimler adopted this method of final drive. Lanchester as a manufacturer did not become part of Daimler (aka BSA) until 1931.*

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'Jig and Tool' were a modest engineering company employing 50 people to make small machines and assembly jigs. Lord's time there was highly successful because when he left in September 1920 he had full responsibility for the shops and had applied, on July 18, 1919 – application 13,158 - to become a graduate member of the Institution of Mechanical Engineers.

For those not familiar with that august body, it is the bastion of engineering excellence in the UK, numbering among its ranks such luminaries as Sir Nigel Gresley of locomotive fame, John Thornycroft from the world of marine engines and commercial vehicles and Frederick Henry Royce. The conditions for entry are both stringent and complex. Lord was safely clear of the minimum age of 21 but he needed to pass the Institution's own associate membership exam or hold a qualification it recognized. His City and Guilds pass should have sufficed. He would also need to prove he had received regular training as a mechanical engineer.

To move on to full membership, which he gained in 1927, he would have to have reached the age of at least 30 and apart from the required formal qualification, show that he had '*attained a position of such eminence in the profession, or in the direction of engineering work, as to qualify him, in the opinion of the council, for the distinction of membership*'. Lord never presented a paper to the Institution. Neither was he published on any subject. We might conclude, therefore, that his letters were more for status than out of dedication to his profession, but it is obvious that he had the wherewithal to realize that his standing as a MIMechE would give him influence and help pave his career path.

Lord moved from The Jig Tool and General Engineering Company to the east London firm of Messrs Holbrook and Sons\* at 44 Martin Street, Stratford. At the time Holbrook were famous for a range of high quality lathes. They concentrated on medium sized models but also made a 3.5 inch centre height (16.5 inches between centres) precision machine. It was basically to the 1862 design of the American company, Stark, and was a scaled up watchmaker's type.

This miniature Holbrook was intended both for skilled operators turning one-off parts and for small-batch production. An unusual feature, designed for the latter process, was a counter shaft that enabled stopping, starting and speed changes to be made by pressing pedals that operated through wire links.

The firm lasted into the 1980s but by then was owned by the giant Coventry company, Arthur Herbert.

*\*For the figures on his curriculum vitae to be correct Lord must count the September of his joining Holbrook to be a full month, thus he must have left 'Jig and Tool' at the very beginning of September 1921 to give the 20 months of employment at Holbrook he also quotes.*

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Lord, impressively, was chief engineer in charge of a 150-strong workforce and after just six months became general manager with responsibility for both the machine shops and drawing office. He remained with Holbrook for 20 months leaving in the spring of 1922. This was after his marriage, on July 16, 1921, to Ethel Lily Horton. The service was conducted by the Reverend Basil Littlewood in Coventry's 12th century Holy Trinity Church. Its 230 ft spire is still one of the city's landmarks. It seems reasonable to assume the move from Holbrook back to Coventry was prompted by Lord's change in marital status.

Ethel was the daughter of George and Mary Clarice Horton (*nee* Overton) from Coventry's St Peters Street. It no longer exists. She was born on June 19, 1896, when the family lived at 33 Colchester Street, so was almost an exact contemporary of Lord. Mr Horton at the time of Ethel's birth was a cycle machinist, but by the time of his daughter's wedding was noted as simply being employed in the motor trade. We might speculate that he worked at Riley, who, in the early 1890s, were, of course, cycle makers, and that as Riley and St Peters Street were a 'wheel's turn' from the Foleshill Road, Lord, in the broader sense, had married 'the girl next door'.

What is even more interesting is that on the marriage certificate, William Lord is recorded as a 'cabinet maker, deceased'. There is no evidence available to support this and we can only guess that Mr Lord trained in this skill at some point before he took the job at Priory Street baths. However, what *is* clear is that his son wished to conceal the fact his father had ended his days as a pub landlord. That may have been for reasons of personal embarrassment, or, unnecessarily in the light of his own achievements, to enhance his social standing in the eyes of his in-laws! The ploy, though, was not uncommon.

The young couple made their first home in Priory Row, just around the corner from the public baths where Leonard Lord had been born.

Between joining Courtaulds in August 1913 and leaving London in the spring of 1922 – a period of seven years and eight months – Lord changed jobs four times. There are various references to him having worked in 'engineering' in Peterborough. Probably, these all emanate from a reference to that effect in *The Times* newspaper's obituary. However, the consensus of opinion is that Lord was never employed in or around the Cambridgeshire town.

Yet, on the basis of there being 'no smoke without fire', we need to recognize that Peterborough was an important engineering centre at the relevant time and a possible explanation is that Holbrook were suppliers to one or more of the companies so engaged, or, the London firm had a presence of some kind there. Even discounting any activity in Cambridgeshire, those four moves in under eight years – even less if you allow for the restrictions on mobility of an apprenticeship – is a fairly volatile work pattern.

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The move to Coventry Ordnance Works Ltd in December, 1915, we may put down to his wishing to avoid the likelihood of being conscripted into the Armed Forces. The move from that company was undoubtedly due to the very sensible realisation that, with no, or very few, civilian initiatives, unlike Vickers and Armstrong Whitworth, 'Coventry Ordnance' was a dead end.

The switch to Daimler in 1919 can thus be attributed to 'career advancement' and we have an explanation for his very short stay at the prestigious car maker. Again, the transfer to The Jig and Tool and General Engineering Company. Ltd. can be seen as professional progress and similarly the move, in September, 1920, to Holbrook and Sons in London.

But mobility at this level, at that time, is unusual. Admittedly, there was a brief post-War boom when the job market had buoyancy and fluidity. Even so, unemployment in 1919 stood at 3.5 per cent of the total workforce and after a very brief recovery in 1920 had soared to 11 per cent by 1921. By contrast, for the fortunate few who could get such a position, it was also the era of the 'job for life' culture – in banks, in the public sector, on the railways - placings to be fiercely guarded.

So do we see the emerging character of Leonard Lord? At first glance, advancement meant more money and he and his mother would benefit from increased financial security. Yet, is there more to it than that? Was there a restlessness, something to prove, over and above the dictates of normal ambition? Did his impatience, if not his temper, get the better of him in some of these situations? Of course, we now have no way of knowing. But maybe Leonard Lord was looking for something. And maybe that something was himself.

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