

London Small Arms Company, Gunmakers Lane, E3

Part of an interview with Mr J.F. Banyard,
recorded and transcribed by Denis Smith

Research by David Hamilton & Brenda Sowan

Until the turn of the 18th century the British Government had relied on private manufacturers for the supply of weapons for the army and navy, and during times of war had to purchase small arms from abroad. In 1804 the Board of Ordnance established the Small Arms Factory at Enfield, which grew in size and importance, the production in 1860 being 2000 rifles per week.¹ After 1860 there were in addition two firms contracted to make service rifles: the Birmingham Small Arms Company, established in 1861, and the London Small Arms Company.

On Friday, May 21st 1971 Mr Jim Banyard, then aged 80, was interviewed at his workshop in Kelvedon, Essex. In 1912 he had completed his engineering apprenticeship at the Stratford railway works. He here describes his first appointment, with the London Small Arms factory, Gunmakers Lane, Old Ford Road, where during the First World War he became foreman of one of the shifts in the body shop. This transcript is changed only minimally from the original tape.

[Gunmakers Lane was] a narrow lane which led over a canal bridge into an entrance to Victoria Park. The factory was said to be 200 years old. The area was an oblong shape and there were three lines of buildings. A row of small cottages in Old Ford Road

was one side and the canal was the other. The buildings next to the canal (A in Fig. 1a) were the wood machine shop for all those parts of the rifle and the body machine shop on the ground floor. All the wood was brought by narrow canal boats.

Under the body shop sub-basement was the steel stores. On the first floor of this building was the nose-cap, sear and trigger-catches, cocking-piece and striking rod in one half – the other half was the bolt and bolt-head shop. In the middle of this building on the ground floor was a big compound horizontal steam engine which drove all the machinery for the four shops by belt drive through the floors.

The middle line of buildings (B in Fig. 1a) was one half stores and offices – a roadway cut in the middle led to the third row of buildings; the other half of the middle row was the forging shop for all steel parts of the rifle. In here were drop hammers of varying sizes from forging the body which weighs seven pounds to all the smaller parts, also Lancashire boilers for all the steam required.

The third row of buildings (C) was, I think, three floors. [On] the ground floor [were] made all the small parts of the rifle such as belt-swivels, magazines and attachments. Also on the ground

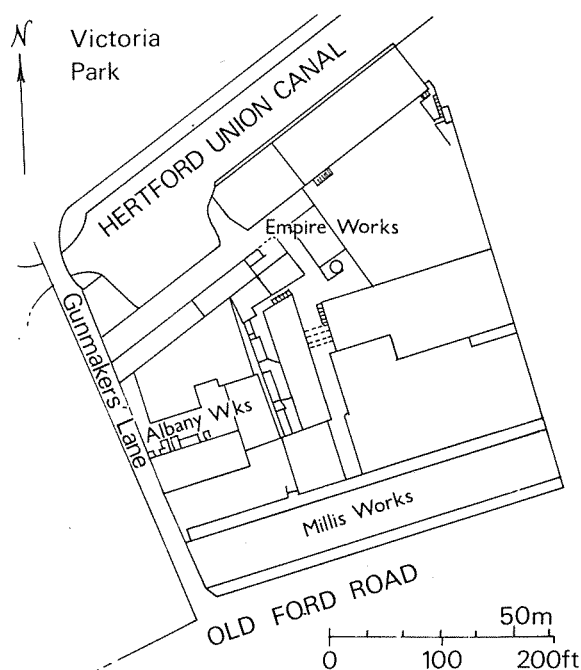
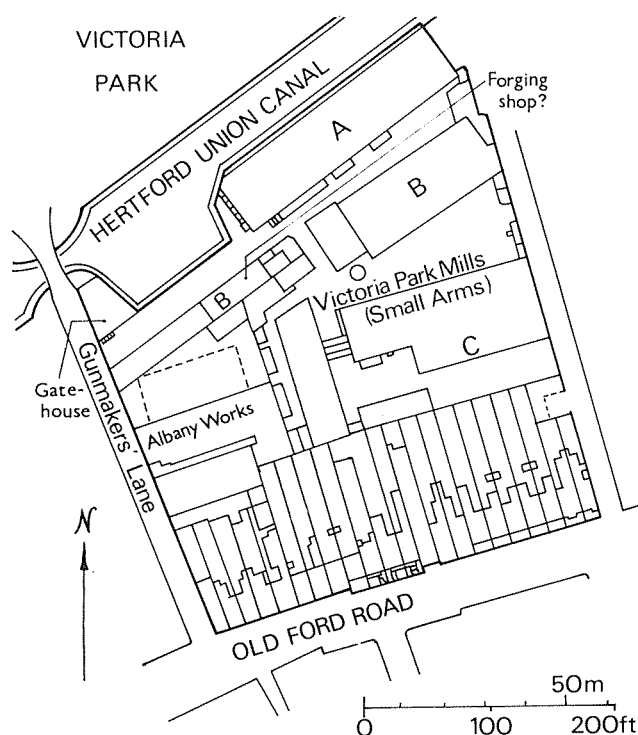


Fig 1. Plan of the London Small Arms Company's works in Gunmakers Lane
(a) in 1893, based on Ordnance Survey map
(b) in 1932, based on the L.C.C. revision of the 1895 Ordnance Survey.

floor was a Tangye gas engine which drove all the machinery on this side of the factory. On the middle floor was the tool room. The manager's and engineer's offices were at the entrance and a large number of lathes, millers, grinders, etc. were in this room; [that is] the complete number of tools required for the manufacture of the rifle then being made — the short Lee-Enfield, the latest magazine rifle of the day (1912). Every single tool was made in this tool room right down to the smallest drills. When you consider that on the body piece alone there was 261 operations [the] wonderful achievement of this tool room could be realised. Annexed on this floor was the gauge shop. Every gauge for any part of the rifle was provided here. The top floor was divided in half, the automatics for the manufacture of all the screws and pins in one part, and the other was where the range-sights and fore-sights were made. The barrels were drilled and rifled, I believe, on the other half of the ground floor. The body forging weighed seven pounds and after 261 operations weighed one pound three ounces. In the basement was the rifle testing range. Every rifle on completion was tested by the viewers belonging to Enfield — the government armament factory.

American small arms factories at Springfield and Harper's Ferry to obtain manufacturing information.² Woodworking and milling machines were purchased for the Royal Small Arms Factory, Enfield from Robbins & Lawrence of Connecticut and the Ames Manufacturing Company of Massachusetts. Ames also supplied jigs and gauges. The Master Armourer of Harper's Ferry was engaged to come over and supervise the new installation.

Two Ames woodworking machines from Enfield are now preserved in the Science Museum: a lock-recessing machine, which cut a recess in the gun stock, and a copying lathe for shaping gun butts.

The London Armoury Company is first recorded as occupying Victoria Park Mills, Old Ford Road in 1865, having vacated premises in Henry Street, Bermondsey in 1863/4.³ The site of the new factory was previously occupied by a rope works and an india rubber works⁴ and was behind a row of cottages, known as Taylors Row, in Old Ford Road. By 1867 the business was known as London Small Arms Company Ltd. A plan of the works in 1893 is shown in Fig. 1a.

Until 1912 the Birmingham and the London Small Arms Companies produced rifles for home service, but during 1913 and 1914 supplied weapons chiefly for use in India and the Colonies. At this time the London Small Arms Company had a capacity of 500/600 rifles a week without employing a night shift.⁵

During the 1890s the London Small Arms Company was contracted to supply H.M. Government with Lee-Metford and Lee-Enfield Magazine rifles. The Mark III version of the Lee-Enfield (Fig. 2) was introduced in 1907 and became the standard British rifle of the First World War. It was named after James Lee (1831-1904), a Scottish watchmaker, who had emigrated to North America and designed the bolt repeating action which fed cartridges into the magazine (patented 1879)⁶; the rifling (grooves inside the barrel, which spin the bullet and thus improve the accuracy of the weapon) was designed at the Royal Small Arms Factory, Enfield.

So much for the position in 1912. I had just finished my seven years engineer apprenticeship and this was my first appointment as maintenance engineer and I was given as assistant to the foreman of the nose-cap department. This next sentence will come as a great surprise when talking about the manufacture of rifles. The only skilled men in each department were the foreman and his assistants who had served their engineering apprenticeship. They set up the machinery: milling machines and drills, profiling machines, and unskilled labour fed the machines. At the time I started there, 1912, the works were supplying the commonwealth army with 250 rifles per week.

American manufacturers of small arms were the first to use mass production methods. High technology machine tools enabled parts to be made to strict tolerances by unskilled labour. Elaborate jigs and gauges were used to check fits and tolerances, thus ensuring complete interchangeability of parts. In 1854 a mission headed by Joseph Whitworth visited the

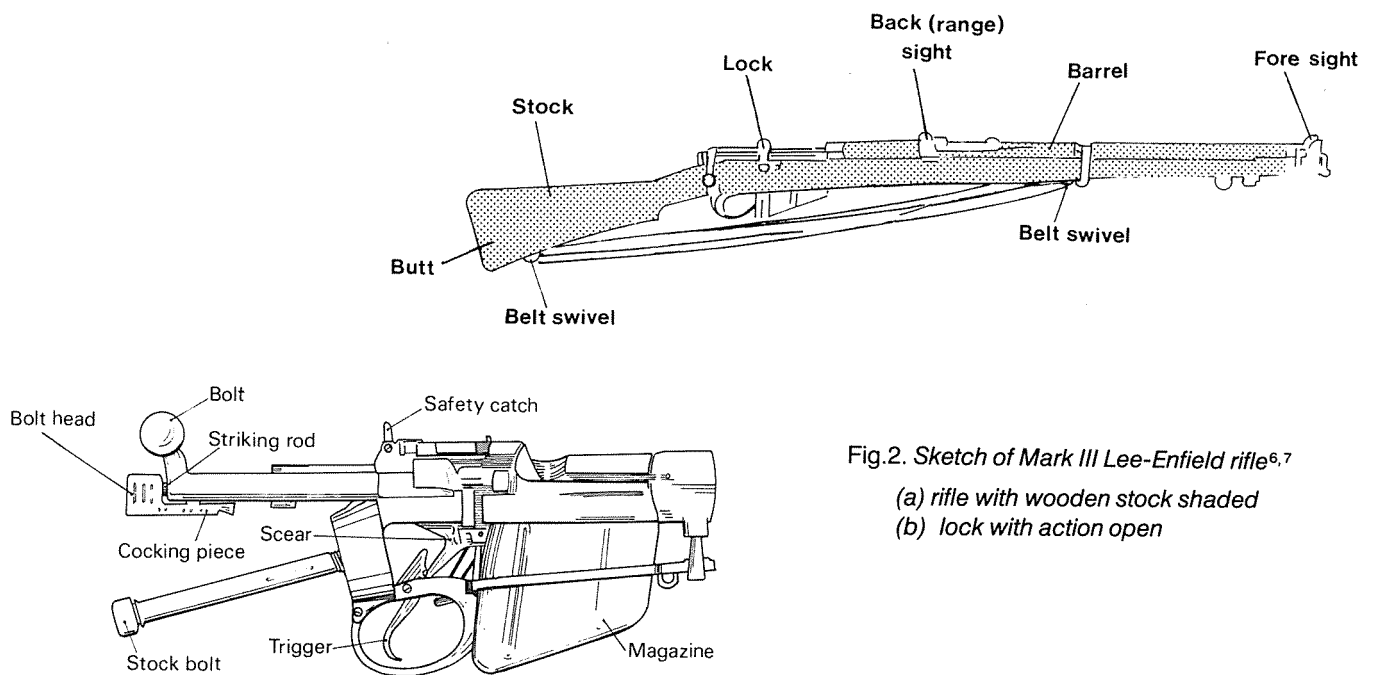


Fig. 2. Sketch of Mark III Lee-Enfield rifle^{6,7}
(a) rifle with wooden stock shaded
(b) lock with action open

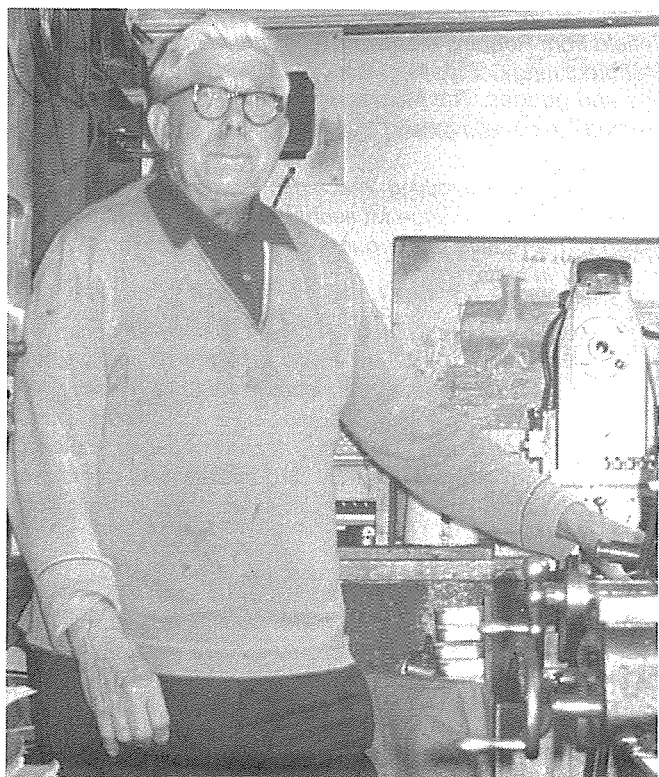


Plate 1. *Mr Banyard in his workshop at Kelvedon, Essex, 1971*
(Photo D. Smith)



Plate 2. *Gunmakers Lane works in 1980 looking south-east, showing boiler house (B) on left*
(Photo D.J. Hamilton)



Plate 3. *Gunmakers Lane works in 1980 looking north-west over possible forging shop (B) towards gatehouse and Victoria Park.*
(Photo D.J. Hamilton)

Mr Banyard now continues.

Now August 1914 – WAR! Orders from the Government were received to start overtime and I was sent to the body shop which was the largest shop owing to the great number of machining operations on the body. There were now the Foreman and two assistants in this shop and more milling machines were installed owing to the first roughing operations causing a time lag and bottle-neck. The Company were urged to complete as many rifles as possible. About two months after the start of the war the Foreman and my colleague and I were sent to the Manager's office and given our orders, as were all the other shop foremen, to start night and day shifts. We were made foremen to take charge of each shift and were to do a fortnight days and same on nights. We did 13 shifts and on the 14th, a Sunday, was our day of rest when we changed over. The original Foreman was Head Foreman and worked all day work. We worked like this all through the war. By the end of the first 12 months we were getting near 1000 rifles per week. Then we were told more was wanted and the row of little cottages metioned early on were demolished and another row of buildings were erected. A squad of old soldiers were stationed in old store rooms and were on guard the four sides of the factory armed with old single-shot rifles.

Black-out made life a misery and the foul air and the sweat caused a lot of illness – many of us were smothered in boils. My shop was extended [so] as to increase our output and that meant more milling machines. To keep this vast output going without bottle-necks some of the early operations had three machines on each. All the shops were fitted with one electric motor each to drive all the machinery at the start of the war. There must have been miles of belt in each shop. To keep these machines in running order we had two fitters on each shift – the millions of revs those old Archdale millers must have done, and still the output kept increasing. To get the total of the finished body past the view room meant that at least 200 more than that number had to be machined on the earlier operations.

Then the call-up came for the young men and we had to have ladies. I detest that name given by factory owners – 'female labour', I know that on lots of suitable operations the ladies knocked the men for six! During the third year of the war we got a week's holiday and by the end of that year we had attained 2000 per week; we could not *always* make the 2000 perhaps but we struggled to maintain this right through the fourth and fifth years.

Then we were granted two weeks' holiday in those years.

The owners were named Barnett, to the best of my recollection – I never heard anybody else mentioned. It was a family concern and at the end of the war in late 1919 the whole of the factory plant was sold for what they could get in auction, because 'No more guns wanted – we had fought the war to end wars.'

Documentary evidence

Mr Herbert Barnett was managing director of the Company from 1884/5 until the firm closed⁹. The History of the Ministry of Munitions¹⁰ describes how in late 1914 the directors of the London Small Arms Company implied that, with extension of plant, output could be increased to 2000 rifles per week by March 1915 but that financial assistance was needed. The War Office promised a grant of up to £27,000, but a refund would be required in the event of failure to reach the target output. The rifles were to cost the War Office 75/- each plus an additional 10/6 for each one produced on night shift, not less than 1100 per week being produced on day shift. However, during May 1915 the total output was only 5452 rifles. The Company blamed troubles with workmen (the men had negotiated for increased wages and 'held back and did not work their full capacity, presumably with a view to forcing our hands'), sickness, lack of good supervisors and difficulties in obtaining suitable steel: 16 different classes of steel were needed, each with a different heat treatment. Difficulties were also experienced, in getting steel to machine satisfactorily and with heat spots in barrel steel. An extension to the contract was granted, but as all available land was covered, further expansion was out of the question.¹¹

Both the London and Birmingham Small Arms factories built up stocks of components during 1915 that could be drawn on by the Royal Small Arms factory and by other contractors. The London Small Arms Company drew barrels from Enfield and from Vickers.

During 1916 the London Small Arms Co. reached a maximum output of 2000 per week in spite of accidents and sickness. In the autumn of 1916 the Company erected screw making machines and were able to speed up production. Two thousand rifles per week were still be produced in May 1917 (when the War Office were obtaining a total of 25,000 per week from all sources). A fire at the British Gun Barrel works in 1917 meant that the London

Table 1. *Rifles accepted by the War Office, August 1914–November 1918¹²*

	1914 Aug.–Dec.	1915	1916	1917	1918	Total
<i>Great Britain:</i>						
Enfield*	51,576	271,856	418,283	640,113	626,330	2,008,158
Birmingham Small Arms Co.	56,416	275,927	435,212	468,547	345,752	1,581,854
London Small Arms Co.	12,101	65,678	99,433	97,012	89,8990	364,214
Total	120,093	613,461	952,928	1,205,672	1,062,672	3,954,226
<i>America:</i>						
(inc Ross Rifle Co.)	—	2,650	406,758	952,643	—	1,362,051
Grand Total	120,093	616,111	1,359,686	2,158,315	1,062,072	5,316,277

* Figures include a small number of 'peddled' rifles from various manufacturers.

Small Arms Co. had to obtain 700 barrels elsewhere, but by the end of 1917 more rifles began to be produced than were needed. The Company ceased night shift working and reduced capacity to about 1250 rifles per week. See Table 1 for output figures.

Gunmakers Lane since 1919. *The present building on the site of the cottages in Old Ford Road (Connaught Works) is dated 1918; named Millis Works on the 1932 map (Fig.1b), it was occupied by cabinet makers in the 1930s. In the early 1920s Victoria Gramophones occupied Empire Works¹³, but by 1935 they had been replaced by Dependable Furniture Ltd., whose business closed after World War II. Mr Mallett, who has lived in the Gunmakers Lane gatehouse since the Blitz, claims that gliders were made in building A during World War II by Fox, Davies and Sons, who after the War made furniture. Mr Mallett remembers a rifle testing target in the basement of building B being removed when the basement was sealed off. He can also recall kilns for drying wood near the canal, and the filling in of the canal dock in 1954/6. The four storey building in Albany Works is now a youth training workshop, but never seems to have been part of the London Small Arms Company's works; the building backing onto this carries a London Small Arms Company's boundary stone.*

Many of the buildings now (1980) stand empty although some are still furniture making workshops.

Acknowledgements

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of the Royal Small Arms Factory, Enfield Lock; the Imperial War Museum, Department of Printed Books, London SE1; the London Borough of Tower Hamlets Local History Collection at Banfield Road; also Mr F.G. Mallett.

References

- 1. Bowbelski, M. *The Royal Small Arms Factory*. Edmonton Hundred Historical Society, 1977.
- 2. *Industrial Archaeology in Enfield*. Enfield Archaeology Society, 1971.
- 3. *Kelly's Post Office Directories* for appropriate years.
- 4. *Stanfords Library map of London and its Suburbs*, 1862.
- 5. *History of the Ministry of Munitions*, Vol.XI. The supply of munitions. Part IV, Rifles. (approx. 1920). Imperial War Museum Library.
- 6. de Haas, F. *Bolt Action Rifles*. DBI Books Inc. Northfield, Illinois, 1971.
- 7. Smith, W.B. *Small Arms of the World*, 5th edition. Military Service Pub. Co., Harrisbury, Penn., 1955.
- 8. Carman, W.Y. *A History of Firearms*. Routledge & Kegan Paul, 1955.
- 9. *Kelly's Directories*.
- 10. *History of the Ministry of Munitions*, *ibid*.
- 11. *Kelly's Directories* state that Albany Works was occupied by Johns, Son & Watts Ltd, fancy box makers, during World War I and until the 1930s.
- 12. *History of the Ministry of Munitions*, *ibid*.
- 13. *Kelly's Directories*.



Amendments and corrections

London's Industrial Archaeology, No.1

- R.N.L.I. storeyard at 27 Broomfield Street, Poplar, E14 by P. Purkis**
Page 26, column 2, para. 3: foundry patterns were never made at the storeyard, but by an outside contractor — J.H. May Ltd — and stored at the yard.
- Page 26, column 2 para. 4:* Weyburn Engineering Co Ltd (not Wayburn); Ferry Engine Co of Woolston, near Southampton (not Dalston).
- Page 281, column 2, para 4:* 40,000 collecting boxes (not 4000).

Limehouse Lock and the 'GLIAS' winch at Camden Town by M. Tucker
The waterway marked on Fig.1 as 'cut of 1853-1864' had already existed from the late 18th century, as part of a backwater and basin of the Lee Navigation surrounding the Island Lead Works. In 1853 the recently enlarged Regent's Canal Dock was connected to this at a more westerly point.