### THE UNIVERSITY OF HULL

The London Gasworks: A Technical, Commercial and Labour History to 1914

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by

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Summary of Thesis submitted for PhD degree by Derek Matthews

The London Gasworks: A Technical, Commercial and Labour History to 1914.

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This thesis is a history of the gas industry down to 1914 with special reference to London. Part One deals with the industry's origins and its technical and business history and traces the development from the discovery of coal gas manufacture at the end of the seventeenth century to its first commercial exploitation in the early nineteenth century. It then sets out the subsequent technological progress made in the industry from the manufacturing process to the applications of coal gas. The commercial history of the gas companies in London is related from the early period of competition between an increasing number of speculative and often fraudulent concerns to the agreement of monopoly districts in the 1850s and amalgamation in the 1870s. The increasing government and legislative regulation is dealt with in detail and biographies of the leading industrialists are given. Part One concludes with an analysis which sets out to explain the nature and progress of the industry, its initial innovation, the pace of subsequent technological change and its commercial history, particularly relating to growth, competition, the actual role of government regulation and municipalisation, the relationship with the electricity industry and other linkages with the rest of the economy.

Part Two deals with the fortunes of the workers employed in the London gasworks and deals with working conditions, wages, hours, welfare benefits and the attempts of the companies to discipline their men. It relates the early strikes in London particularly those of 1834, 1859 and 1872 and looks at the rise of the permanent union in 1889, the winning of the eight hour day and the prolonged strike at the South Metropolitan company in 1889-90. The history of the profit sharing schemes which became a feature in gas companies is given as is a brief history of some aspects of the National Union of Gasworkers and General Labourers down to 1914. Part Two concludes with some analysis to explain the major variables in the labour relations of the gasworks, especially wages, strikes and the level of union membership.

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### Preface

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Until very recently the gas industry had been subject to some neglect by historians. Nor does the present work set out to be a comprehensive history of the industry since in large part it restricts itself to the period prior to 1914, and to London. In dealing with one city, however, the wider history of the industry is necessarily involved. London saw the first public gas supply in the world. Many of the major technical innovations were pioneered there, while for many years much of the rest of the world's gas industry was financed and organised from the capital. It was also the home, for most of the period, of the world's largest gas company and, from 1870, of the largest gasworks. Finally, the first permanent union among gasworkers in Britain was raised first in the London gasworks. There were few issues of importance in gas affairs therefore, that did not have their origins in the metropolis.

This history attempts to give a fair, if not exactly equal, coverage to technical, business and labour history. As such it provides an insight into the interconnection between all three aspects of the industry's progress. Part 1 deals with the technical and commercial history and Part 2 with labour history. In Chapter 1 the origins of the innovation of coal gas lighting are traced from the seventeenth century discovery to the first commercial applications at the start of the nineteenth century. Chapter 2 then follows the technological development of all aspects of coal gas production, distribution and application and the succeeding two chapters provide a business history of the gas companies in London. While the first four chapters are almost entirely descriptive, in Chapter 5 an analysis of the technical and economic progress is made to identify the main causal factors that determined the progress of the industry and any linkages with the rest of the economy that it may have had. Part 2 follows a similar format to Part 1 but deals with the experience of the workers in the nineteenth century gas industry and is viewed consciously from the standpoint of the ordinary workman. Chapter 6 looks at the nature of gaswork together with wages, hours and welfare benefits as well as the attempts by the companies to discipline their men. This theme is continued in Chapter 9, on the profit-sharing schemes of the companies toward the end of the period. Chapters 7, 8 and 10 relate the history of overt conflict between the companies and their men, while Chapter 11 looks at the trade union which the London gasworkers created in 1889, and here necessarily takes a more national viewpoint. As with Part 1, Part 2 concludes with a chapter offering an analysis of the underlying causation involved in the history of labour relations as revealed in the preceeding chapters.

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Stewart (1958) 1, 2, 20; <u>King's Treatise</u>, 3, 4, 5, 6, 7, 13, 16, 17, 18, 26, 27, 31; Brackenbury(1900) 8, 10, 15; Ibid (1905) 8, 9, 11, 12, 19, 26, 28; <u>JGL</u>, 14; Meade, 21; Chandler, 22, 23, 24, 29; <u>GW</u> 30, 33; Everard 31, <del>34</del>; <u>Illustrated London News</u>, 35; Author 36; <u>Co Partnership Herald</u>, 37,38

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## Abbreviations

CM	Committee of Management Minutes
CW	Committee of Works Minutes
DM	Board of Directors Minutes
GEC	General Executive Council of the NUGGL
GLCC	Gas Light and Coke Company
GW	Gas World
JGL	Journal of Gas Lighting
NUGGL	National Union of Gasworkers and General Labourers
PP	Parliamentary Papers
SHM	Shareholders Meetings Minutes
S.Metro	South Metropolitan Gaslight and Coke Company

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### Part 1

1

### The Gasworks

### Chapter 1: Origins

The discovery and commercial innovation of gas lighting is a relatively familiar story<sup>1</sup> but accounts tend to follow too slavishly the evidence that the printed sources provide and in consequence overemphasise the role of the leading individuals involved. This chapter will set out the story of the discovery and innovation of gas lighting in some detail, while Chapter 5 will treat more analytically the forces of causation involved particularly the reasons for the long gap between the first knowledge of how to produce coal gas and its first commercial utilisation.

It would not be correct to talk of the discovery of coal gas as such. Gas, as we use the term, is a collection of inflammable gases given off either naturally or by human contrivance from the decomposition of any organic matter, and that natural gas, bubbling through streams and ponds or issuing from rocks, would ignite and burn as a flame must have been a discovery of pre-history. Such fires were often wcrshipped as gods<sup>2</sup> and an early use of natural gas is said to have been made by the Chinese in the second century AD. Within thirty miles of Pekin a coal field associated with beds of salt had streams of gas rising from it and this was conveyed by means of bamboo tubes to nearby salt mines for use in panning the salt.<sup>3</sup> It was also said that the gas was piped to Pekin and used for lighting the streets into the nineteenth century.<sup>4</sup>

1.	See	e.g. C.	Hunt, A	History	of the	Introduction	of Gas	Lighting (190	)7);
	D.	Chandler	, Outlin	e of the	History	<pre>/ of Lighting</pre>	by Gas	(1936);	
	n	Chandlan	and A D	2001	The Die	so of the Cas	Inductor	v in Durthat	11041

- D. Chandler and A.D. Lacey, The Rise of the Gas Industry in Britain (1949); A. Clow and N.L. Clow, The Chemical Revolution (1952).
- 2. S. Hughes, <u>A Treatise on Gas Works</u> (Ist Ed. 1853) (hereafter,<u>Hughes' Treatise</u>) pp.3-4.
- 3. J. Needham, W. Ling and K.G. Robinson, <u>Science and Civilisation in China</u> (Cambridge 1966) p.66.
- 4. T. Newbigging and W.T. Fewtrell, <u>King's Treatise on the Science and Practice of the Manufacture and Distribution of Coal Gas</u>, Vol. I (1879) (hereafter, <u>King's Treatise</u>) p.3.

Natural gas was also used for cooking in Armenia in the eighteenth century.<sup>1</sup>

The discovery that man could make gas for himself must be of more recent origin, though to date this we rely on those with the education and opportunity to publish their findings and it is quite possible that gas manufacture was discovered earlier than the printed sources reveal. In 1618 a French doctor, Jean Tardin, published a little book recording experiments in gas making. He studied a 'fire-well' at Grenoble and traced it to coal beds in the district and experimented by heating these coals in a closed vessel.<sup>2</sup> Tardin's book, however, seems to have gone largely unnoticed by contemporaries. It was the seventeenth century that saw the first developments of the science of chemistry from its alchemical origins and around the middle of the century the Belgian, John Baptist van Helmont, is credited with coining the word 'gas'.<sup>3</sup> A man who with a medical training turned to alchemy, van Helmont described that one day he found that a heated crucible 'did belch forth a wild spirit or breath. This spirit up to the present time unknown but not susceptible of being confined in vessels nor capable of being reduced to visible body I call by the new name of gas'. The word was only slowly admitted into the language, however. Macquer's Dictionary of Chemistry (1771) talks of inflammable air called 'gas' but Nicholson's Dictionary of Chemistry (1804) talks only of 'inflammable air'.<sup>4</sup> It was possibly Lavoisier and the French chemists in the 1780s who decided on the term 'gas'.<sup>5</sup>

In the seventeenth century the study of natural phenomena for their own sake became a fashionable pastime among the educated and leisured classes. One

- 1. M.S. Cotterill, The Scottish Gas Industry up to 1914. University of Strathclyde (1976) p.1340. Unpublished PhD Thesis.
- Chandler, op.cit. pp.1-2.
  G. Lockemann, The Story of Chemistry (1960) p.58.
  Hughes' Treatise, op.cit. (1904) p.11.
- 5. King's Treatise, op.cit. Vol. 1, p.9.

such was Thomas Shirley who wrote in 1667 in the <u>Transactions of the Royal</u> <u>Philosophical Society</u> that in the year 1659 he had investigated a stream near Wigan which had long been known to catch fire when approached with a lighted candle. He supposed that this was due to 'bituminous or sulphurous fumes' derived from coal, and he dammed the stream and lit the dry bed, obtaining a flame some 18 inches high. There, however, he left his experiments.<sup>1</sup>

These were taken further by the Rev. John Clayton while rector of Crofton near Wakefield.<sup>2</sup> It is not known if Clayton knew of Shirley's findings but he seems to have come across the same stream near Wigan. Again he had it dammed but this time excavated the bed and found at a depth of 18 inches a seam of 'shelly' coal.<sup>3</sup> Taking a sample of coal from a nearby pit, Clayton conducted a series of experiments. He heated the coal in a retort and noted the production of gas, together with 'aqueous and tarry matters'. He collected and stored some of the gas in bladders in which he would prick holes and entertain his friends by lighting the escaping gas.<sup>4</sup> He further proved by experiment that the gas could be passed through water without losing its combustibility. The probable date of Clayton's discoveries was 1684<sup>5</sup>, but although he wrote informing his friend Robert Boyle of them, for some reason this letter was not published until it appeared in the Transactions in 1739.<sup>6</sup>

Clayton is often written of as the 'discoverer' of coal gas although this is clearly not the case. Apart from the work of Tardin and Shirley and the limitation of our knowledge to printed sources and almost solely the Transactions of the Royal Society it is also known that around 1680

- 4. Ibid. p.18. 5. Ibid. p.23.
- 6. Ibid. p.47.

<sup>1.</sup> Ibid. pp.2-3; Chandler, op.cit. p.2.

<sup>2.</sup> W.T. Layton, The Discoverer of Gas Lighting. Notes on the Life and Work of the Rev. John Clayton (1926) p.11.

<sup>3.</sup> Ibid. p.17.

Johann Joachim Bechar, doctor of medicine at Mainz University in Germany, produced coal gas and in 1681 in association with Henry Serle took out a patent for the manufacture of pitch and tar from coal, which achieved much publicity. Becher also demonstrated to King Charles II the value of coke and gas for smelting metals.<sup>1</sup> Moreover Becher worked in close association with Robert Boyle and so Clayton could have heard of his work via their mutual friend. Bovle himself is said to have experimented with the production of coal gas in 1691.<sup>2</sup>

By the end of the seventeenth century therefore, the secrets of coal gas production had been uncovered. This is not to say that such were the imperfect communications of the time that individuals could not believe themselves to be discoverers of coal gas for some time into the eighteenth century. Seemingly unaware of Clayton's work, Dr. Stephen Hales in his book Vegitable Statics in 1726 described how coal could be distilled. He measured the volume and weight of the 'air' given off from the Newcastle coals and suggested illuminating gas might be distilled from coal.<sup>3</sup> In Neumann's Chemistry (1759) he describes the production of inflammable  $gas^4$  while in 1767, in the second volume of his Chemical Essays, Dr. Richard Watson, the Professor of Chemistry at Cambridge, described how he had distilled coal and how the gas had retained its inflammability after being passed through water.<sup>5</sup> Commercial use of coal gas for lighting was also seriously considered. In 1764 in France a M. Jars suggested coal gas lighting for a village in Lyonnais but this was abandoned after an explosion.<sup>6</sup>

- 1. Lockemann, op.cit. pp.80-1.

 King's Treatise, op.cit. Vol. 1, p.2.
 A.E. Clark-Kennedy, Stephen Hales (Cambridge 1927) pp.97-9; J.E. Forbes, A Short History of the Art of Distillation (1948) pp.239-40; W. Matthews, An Historical Sketch of the Origin, Progress and Present State of Gas Lighting (1827) pp.7-8; King's Treatise, op.cit. Vol. 1, p.4. 4. Hughes' Treatise, op.cit. (1904) p.9. 5. Matthews, op.cit. pp.17-18; King's Treatise, op.cit. Vol. 1, p.7.

- 6. Chandler, op.cit. p.5.

Natural coal gas must have been encountered in the very earliest coal mines, but, probably because pits were going deeper, in the early eighteenth century the problem of 'firedamp' and 'chokedamp' became more worthy of comment and investigation. In 1733 Sir James Lowther, Bart. communicated to the Transactions an account of the 'damp air' encountered when his workmen were sinking a shaft near the sea at Whitehaven. Lowther also collected his gas in a bladder and ignited it when it was led off by a tube. Lowther only thought of this as a curiosity.<sup>1</sup> In 1765, however, Carlisle Spedding, then agent to the Whitehaven collieries of Lord Lonsdale, collected pit gas and used it to light his offices. Moreover, he proposed conveying the gas through pipes to light the streets of Whitehaven but the local magistrates refused to entertain the idea as being too dangerous.<sup>2</sup>

The first patent for the production of tar from coal has been variously attributed to Eele, Hancock and Portlock in 1667<sup>3</sup> or 1674<sup>4</sup> or Serle and Becher in 1681<sup>5</sup>. But not until the second half of the eighteenth century did the distillation of coal to produce tar become a commercial reality. In 1770 De Gensanne gave an account of such an operation at the iron works of Prince Nassau-Saarbrucken at Sultzbach. Here the tar was collected from the coke ovens and its oil skimmed off and used for lighting. The gas, however, was released to the air and wasted.<sup>6</sup> The first works for the production of coal tar in Britain was established by George Dixon at Cockfield, County Durham in 1779.<sup>7</sup> This was probably a result of the increased demand for and therefore

1. Matthews, op.cit. pp.8-13; King's Treatise, op.cit. Vol. 1, p.5.

- Chandler, op.cit. p.5.
  Clow and Clow, op.cit. p.392.
- 4. Hunt, op.cit. p.17.

Lockemann, op.cit. p.80-1.
 D. Brownlie, 'Early History of the Coal Gas Process', <u>Transactions of the Newcomen Society</u> (March 1923) p.57; Hunt, op.cit. pp.11-15.
 J. Macfarlan, 'George Dixon - Discoverer of Gas Light from Coal', <u>Transactions of the Newcomen Society</u> (1924-25) p.53; Chandler and Lacey, op.cit. p.9.

price of tar from the large navy building programme of the time.<sup>1</sup> Dixon was also interested in the other properties of coal. In 1760 he had filled a kettle with coal and placed it on a fire with a pipe attached to the spout and ignited the emerging gas. Later he lit his rooms with gas and contemplated lighting his mines. He constructed apparatus with a charge of one ton of coal as a trial. Unfortunately, this was demolished in an explosion and he abandoned the idea.<sup>2</sup> In 1781 the Earl of Dundonald patented a process by which tar could be made from coal by the use of its own heat. The Earl too was struck by the possibilities of coal gas and in 1787 he began filling portable metal boxes with gas from his coke ovens which were carried into Culross Abbey and used for lighting and amusement.<sup>3</sup> Dundonald's son claimed his father visited James Watt in Birmingham in 1782 and discussed the utilisation of gas lighting.<sup>4</sup>

Interest in the possibilities of coal gas continued. In 1776 M. Choussier of Dijon directed the attention of the Academy of Sciences to the subject $^5$  and in London at the Lyceum Theatre in 1784 a popular display of the possibilities of 'inflammable air' was given by a Mr. Diller in what he termed his 'Philosophical Fireworks'.<sup>6</sup> In the same year, Jean Pierre Minkelers, Professor of Natural Philosophy at the University of Louvain in Belgium, produced coal gas, originally to power a balloon, but he also used it for amusement to light his study, and from 1785 gave an annual lecture during which he lit the classroom with  $qas^7$ , as did Bickel of Wurzburg.<sup>8</sup> However, gas was not seen solely as a lighting agent. John Barber of Nuneaton used retorts to carbonise coal and used the gas to power an engine, along the lines of the internal combustion engine. This was in 1791.<sup>9</sup>

1. Clow and Clow, op.cit. pp.405-6.

- Chandler and Lacey, op.cit. p.12.
  Hunt, op.cit. pp.17-19.
- 4. Clow and Clow, op.cit. pp.417 and 428. 5. Chandler, op.cit. p.5.
- 6. Matthews, op.cit. p.18.
- 7. Hunt, op.cit. p.20.
- 8. Lockemann, op.cit. p.81.
- 9. Chandler and Lacey, op.cit. p.9; Clow and Clow, op.cit. p.447.

It is clear that by the second half of the eighteenth century the manufacture of coal gas and its properties had become common knowledge. It was not until the beginning of the nineteenth century, however, that this knowledge was put to commercial use. That it eventually was is usually attributed to the work of two men, Philip Le Bon in France but, more importantly, William Murdoch in England. Murdoch was born in Old Cummock, Ayrshire in 1754.<sup>1</sup> His father was a miller and millwright and a man of considerable mechanical skill with several inventions to his name. William showed precocious interest in his father's trade and is said to have experimented, like George Dixon, by using his mother's kettle to produce coal gas on the kitchen fire. At the age of seventeen he designed and built a river bridge and in 1777, at the age of twenty-three, he made his way south to receive the privilege of working for the engineering firm of Boulton and Watt at Soho.<sup>2</sup>

In 1779 Murdoch was sent by the firm as resident engineer to service their steam engines in the tin mines of Cornwall. He took up residence in Redruth on a wage of 20s a week and there he remained for the next nineteen years. During that time Murdoch gave remarkable evidence of his inventive mind. The famous 'Sun and Planet' motion for converting the vertical motion of the first steam engines to the rotary action that could power machinery, and the D slide valve which further refined the engine, were both Murdoch ideas.<sup>3</sup> One of his most interesting projects was his steam powered vehicle, a tricycle driven by high pressure steam which he developed in 1784.<sup>4</sup> He seems to have become a familiar sight chugging through the Cornish countryside giving many a fright in the dark when he lit his way with a portable gas lamp.<sup>5</sup> It is said Richard Trevithick from nearby Cranborne gained knowledge of the vehicle as a boy. Throughout

- I. This biography from C.H. Rivers, <u>William Murdock One time Citizen of Redruth</u> (1947).
- 2. Cotterill, op.cit. p.19; Hunt, op.cit. p.27.
- 3. Hunt, op.cit. p.28.
- 4. Ibid. pp. 32-33.
- 5. <u>Hughes' Treatise</u>, op.cit. (1853) p.11, although this story is possibly apocriphal; Hunt, op.cit. p.39.

Murdoch's career Watt gave him every discouragement and this applied to his interest in steam vehicles.<sup>1</sup>

Undaunted, Murdoch turned elsewhere and in 1791 patented an idea for making paints and dyes from coal tar. A year later he first fitted up his house in Redruth with gas lighting generated in an iron retort kept in the back yard.<sup>2</sup> Murdoch appreciated the commercial possibilities of the idea and urged his employers to patent the plan and take up the production of gas plant as a sideline to steam engines. Again Watt discouraged his employee and he never allowed Murdoch to establish a legal claim to his apparatus, perhaps because of his own problems with patents but more probably because he doubted, quite rightly, Murdoch's originality in the matter. There were Dundonald's experiments, while in 1790, John Champion a Bristol zinc spelter maker wrote to Boulton saying that he had made inflammable matter from coal for lighting lighthouses and urged its development.<sup>3</sup> Moreover Watt himself was working on a miniature gas works for the production of medicinal gases, many features of which were later adapted for coal gas.<sup>4</sup> Over a period of years Murdoch repeated his own plans to the firm without success, but despite many attractive offers from Cornish mineowners he remained loyal to Boulton and Watt on a relatively low wage. Finally. however, he resigned and returned to Scotland until the partners, realising their mistake, attracted Murdoch back as manager of Soho on a salary of £300 a year in 1798. Murdoch then resumed his plans for gas manufacture but these made little headway until a further stimulus came from developments in France.

1. Ibid. p.34.

2. Ibid. p.43; Chandler and Lacey, op.cit. p.14.

3. R.E. Schofield, The Lunar Society (1963) pp.345-8; Clow and Clow, op.cit. p.428. 4. Cotterill, op.cit. p.22.

Phillipe le Bon was the son of a court official of Louis XV.<sup>1</sup> From 1787 he studied mathematics and drawing at the Ecole des Ponts et Chaussees and graduated to work for that government department. As an inventor he is credited with the fire tube steam boiler and the superheater and he experimented with the elimination of smoke from furnaces by water washing. In addition, throughout the 1790s, Le Bon worked on techniques for producing gas.<sup>2</sup> He experimented with many different types of materials including tar, coal, wood and sawdust but settled on wood, probably because of the high cost of coal in Paris. He patented his process in 1799 and submitted a paper to the National Institute.<sup>3</sup> He carbonised the wood in an iron retort, purified the gas by passing it through water and stored it in a vat inverted in water. In 1801 he gave exhibitions of his 'Thermolamp' in Paris<sup>4</sup> and these attracted attention from all over Europe including James Watt's son Gregory, who was in Paris at the time. Writing from France Gregory urged his father to develop Murdoch's plans lest the company be overtaken in exploiting the process.<sup>5</sup> Murdoch renewed his efforts and these culminated in the famous display at Soho to celebrate the Treaty of Amiens in 1802. In the display only two so-called 'Bengal' lamps placed either end of the factory were gas-lit; the rest were oil lamps.<sup>6</sup>

By 1803 gas had replaced oil in lighting the workshops of the Soho factory and by 1804 developments had reached the stage when Boulton and Watt felt able to offer to install gas plant into other factories. In that year Murdoch himself began installing gas plant in the factory of

- 2. Ibid. p.51.
- 3. Ibid. p.52.
  4. Ibid. p.57.

<sup>1.</sup> Hunt, op.cit. p.50.

<sup>5. &</sup>lt;u>Hughes' Treatise</u>, op.cit. (1904) p.15; Clow and Clow, op.cit. p.429. 6. <u>Chandler and Lacey</u>, op.cit. p.14.

Phillips and Lee, the cotton manufacturers in Manchester. Not long afterward the firm set to work another of their brilliant engineers and one who was to do more than Murdoch himself to make gas a commercial success on a large scale - Samuel Clegg.

Clegg was born in Manchester in 1781, the son of a well-to-do businessman.<sup>1</sup> Like Murdoch he showed an early aptitude and interest in mechanical matters although unlike Murdoch he received a good formal education, studying mathematics and science under the famour Dr. John Dalton at New College, Manchester.<sup>2</sup> However, despite his preference for engineering, his family sent the young Clegg into the counting house of the family firm. But he did not stay long and in 1798 managed to get himself apprenticed with Boulton and Watt. While at Soho, Clegg became conversant with Murdoch's work on gas and in 1805 he was given the job of installing plant in Lodge's cotton mill in Halifax.<sup>3</sup> He rushed into the work in an attempt to finish before Murdoch at Phillips and Lee and in fact completed the job several weeks ahead.<sup>4</sup> Seeing an opportunity, he resigned from Boulton and Watt and set himself up in Manchester as an 'engineering contractor for private gasworks'.

At this point a little must be said of the technical development of gas plant. Murdoch had begun by using a vertical cast iron retort, placed into a portable furnace, which held a mere fifteen pounds of coal. In 1802 he was using a horizontally set retort and many changes and experiments followed in type, size and shape of retort, the best coal, the correct temperature and the

- 1. This biography from E.G. Stewart, <u>Samuel Clegg</u> (1962). Unpublished type-script in British Gas Corporation Library.
- 2. Dalton had produced and analysed gas from oil himself. Lockemann, op.cit. p.138.
- King's Treatise, op.cit. Vol. 1, p.25.
  S. Clegg Jn., <u>A Practical Treatise on the Manufacture and Distribution of</u> Coal Gas (1841) p.13.

best method for getting rid of the obnoxious fumes and by-products.<sup>1</sup> The retort used at Phillips and Lee was a wrought iron basket, holding 15 hundredweight of coal, lowered by crane into a cylindrical furnace.<sup>2</sup> In a paper submitted to the Royal Society in 1808 for which he was awarded the Rumford Gold Medal, Murdoch claimed that this apparatus cost £600 to run while the equivalent cost in candles would have been £2,000<sup>3</sup>. In the same year Murdoch installed plants in factories in Manchester, Leeds and Glasgow.

It is to Clegg, perhaps, that the most significant early developments in gas technology are due. In 1806 he set up an experimental plant for the Borough Reeve of Manchester and made a tender for the lighting of the whole of King Street, using individual portable gas holders. His offer was turned down. except for a single lamp above the police station. Between 1806 and 1809 Cleag erected a number of gas plants in factories in and around Manchester, in cotton mills, a dye house and a printing works and in 1808 the Society of Arts awarded him the Isis Silver Medal. In 1809 Clegg moved to bigger premises and began a series of experiments that were to make gas production possible and acceptable on a large scale. At Harris's works in Coventry he introduced a separate condenser into the apparatus to drain of the tar and some of the ammonia from the gas, and he put lime in the water of the gas holder tank to extract other of the impurities. He fitted an agitator to the tank to keep the lime in suspension.<sup>4</sup> The problem with this arrangement was getting rid of the lime water when it had to be replaced and so in 1811, in a plant erected in the Catholic College in Stonyhurst, Lancashire, Clegg used a separate container for the lime through which the gas was made to pass.<sup>5</sup> Who first thought of using lime as a purifying agent is a matter of some conjecture. Murdoch is said to have used lime early on<sup>6</sup> but Clegg laid claim to being first<sup>7</sup> while

2. Ibid. p.51.

- 5 Thid n 13
- 5. Ibid. p.13.
- 6. Matthews, op.cit. p.25. 7. Clegg, op.cit. pp.13-14.

<sup>1.</sup> King's Treatise, op.cit. Vol. 1, p.165.

Clegg, op.cit. pp.8-13; T.S. Peckston, <u>The Theory and Practice of Gas-Lighting</u> (1st Ed. 1819) pp.102-7.
 Clegg, op.cit. p.13.



Model of William Murdoch's arrangement for gas-lighting a factory (1806). Note what amounts to a vertical setting for retorts.



Samuel Clegg's apparatus for gas-lighting Ackerman's printing shop in the Strand (1812).

Dr. Henry, a chemist from Manchester, maintained that he had suggested the idea to Clegg.<sup>1</sup> Henry, one of the first scientists to study coal gas in detail, claimed to have arrived at the use of lime by experiment. Since all three worked closely together at some stage, the answer is never likely to be known.<sup>2</sup> Finally, in 1812 Clegg made a further decisive innovation when, at Greenaways cotton mill in Manchester, he introduced the hydraulic main which replaced valves as the means for preventing gas returning once it had ascended the pipes leading from the retorts.<sup>3</sup> Also in 1812 Cleag built further plants at Samuel Ashton's mills at Hyde and Stockport.

Clegg and Murdoch were not the only makers of gas plant at this time. Indeed, although the Boulton and Watt men undoubtedly set the pace, the innovation was on a relatively broad front. In Scotland John Maiben made significant contributions to the technology  $4^{4}$  and was in competition with Boulton and Watt in gas plant manufacture by 1810.<sup>5</sup> As early as 1805 several shops and factories in Glasgow were gas lit independent of the efforts of Boulton and Watt and may indeed have pre-dated the installation at Phillips and Lee.<sup>6</sup> In April 1805 John Northern of Leeds wrote to Monthly Magazine relating his experiments in gas manufacture.<sup>7</sup> Josiah Pemberton, a Birmingham engineer, was also in the business. He had carried out a number of experiments, possibly before<sup>8</sup> but certainly soon after the gas lighting of Soho in  $1802^9$  and went into the business, erecting gas plant at Park Mill, at a butter factory and at Cook's, a manufacturer of brass tubes and toys. Moreover, in these

Chandler and Lacey, op.cit. p.47.
 King's Treatise, op.cit. Vol. 1, p.386; Clow and Clow, op.cit. p.443.
 King's Treatise, op.cit. Vol. 1, p.246; Clegg, op.cit. p.15.
 Cotterill, op.cit. p.71.

<sup>5.</sup> Ibid. p.68.

Ibid. pp.31-2; Clow and Clow, op.cit. p.431; Hunt, op.cit. p.69.
 Chandler and Lacey, op.cit. p.59; Hunt, p.69.
 Matthews, op.cit. p.40.

<sup>9.</sup> A.W. Matthews, A Biography of William Matthews (1899) p.26.

Black Country factories the gas was not only used for lighting but also for various soldering operations.<sup>1</sup> In 1807 Pemberton installed plant at the Golden Lane Brewery, London from which street lamps in Golden Lane and Beech Street were supplied. Thus by 1812 at least nineteen but probably more gas plants had been built and operated in private establishments.<sup>2</sup> What neither Murdoch, Clegg nor Pemberton seem to have conceived of, or at least attempted, was the supply of gas from a large central works, piped underground to distant outlets. This was the more surprising since water works operating on just this principle were coming into widespread use at this time.<sup>3</sup> That this idea for gas gained ground owed something to an unlikely character and was a further development from events in France.

Frederic Albrecht Winzler, born in Brunswick in 1763,<sup>4</sup> was someone who took a more than average interest in Le Bon's demonstrations in Paris in 1801. He was an extraordinary character: a speculator, an opportunist and a man with little or no scientific or mechanical knowledge compensated for by boundless energy and ambition. Winzler must have seen in Le Bon's idea the chance of making his fortune and from the first, even if he did not conceive the plan himself, he set out to promote the idea of street lighting supplied underground from a central works.<sup>5</sup> For all his lack of substance it is some way due to Winzler that this system came into being. First, however, he had to get to know the working of the 'Thermolamp'. He failed both to get into Le Bon's employ or to buy the apparatus<sup>6</sup> but he managed to gain some knowledge of its workings and began to look around for backers. He failed to find these in Paris or in the Court of his native Brunswick but then came to England.

- Matthews (1827), op.cit. p.41.
  E.G. Stewart, Town Gas (1958) p.9.
  King's Treatise, op.cit. Vol. 1, p.30.
  Dictionary of National Biography Vol. XXI, pp.675-6; Chandler and Lacey, op.cit. Chap. 4; Hunt, op.cit. p.90.
  Montioned in his patent of 1804. Clow and Clow. op.cit. p.419. 5. Example The

Mentioned in his patent of 1804, Clow and Clow, op.cit. p.418; S. Everard, <u>The History of the Gas Light and Coke Company</u> (1949), p.20.
 Hunt, op.cit. p.58.

arriving in 1803 and changing his name to Winsor.<sup>1</sup>

By this time, Le Bon, having lost all his money, had abandoned the wood-gas project and was planning to set up a wood-tar factory at Rouen when he was murdered, possibly by creditors, in 1804.<sup>2</sup> Wood-gas never caught on commercially in Britain as it did in the USA. Germany and Russia.<sup>3</sup> It is an interesting comparison between the French and the British economies that on arrival in England Winsor switched from wood to coal, and in 1803 and 1804 he lost no time in giving demonstrations of his 'stove' and gaslights at the Lyceum Theatre.<sup>4</sup> He embarked on a campaign of blatant and unsubtle propaganda on behalf of gas, circulating pamphlets making extravagant claims often couched in doggerel.<sup>5</sup> There seemed nothing of value of which gas was not capable lighting, heating, cooking, and inhaled it was even a cure for asthma:<sup>6</sup>

Such claims may have retarded the adoption of gas by holding it up to ridicule, but they did serve to make gas a fashionable subject of attention. In 1807 Winsor caused a stir by lighting Pall Mall with lampposts fed by gas through underground  $piping^7$  and following up this success he announced a scheme to establish a National Heat and Light Company. The company proposed to supply the whole of Britain and according to its promotor a £50 share would return an annual rate of interest of a modest £6,000 and would thus rise in value to £120,000!<sup>8</sup> A committee of backers was formed in 1807 headed by James Ludovic Grant, a country gentleman and a man of affairs of some standing and almost from the first Winsor was elbowed aside.<sup>9</sup> His extravagant claims

- 1. Everard, op.cit. p.17.
- 2. Hunt, op.cit. p.61.
- <u>King's Treatise</u>, op.cit. Vol. 3, p.370.
  <u>Chandler and Lacey</u>, op.cit. p.30. As had Diller twenty years earlier.
  Hunt, op.cit. p.110; Stewart (1958) op.cit. p.10.
- 6. Everard, op.cit. p.18.
- 7. Chandler and Lacey, op.cit. p.41.
- 8. Everard, op.cit. p.19.
- 9. Ibid. pp.20-1.



Winsor's demonstration of gas-light at the Lyceum Theatre in 1804.

began to prove a liability to the establishment of a respectable company and he was made 'technical adviser', not a role for which he was well qualified. The committee decided to try and obtain a Royal Charter, an indication of their pretensions, but they were told that an Act of Parliament would have to establish the company before a Charter would be granted.<sup>1</sup> As with canal, dock, and, later, railway companies a private Act of Parliament was necessary, firstly for the limited liability on the large amounts of capital involved, secondly to establish a legal corporate entity but most importantly, in the case of a gas company, the right to take up streets and lay mains. Without an Act the permission of each of the many local authorities would be required.

In 1809 the first application for an Act was made. The idea of a national company had given way to the more limited aim of lighting London, Westminster and Southwark. Even so the capital of the company was to be fl million. In and outside Parliament the bill received violent opposition. In the Committee stage Murdoch claimed priority for his invention and he was supported by James Watt Jn., Lee of Phillips and Lee and by Humphrey Davy, then Secretary of the Royal Society.<sup>2</sup> Ridicule was a favourite weapon of the detractors. Davy, who should have known better, asked if it was intended to use the dome of St. Paul's as a gasholder.<sup>3</sup> Walter Scott called Winsor 'a madman proposing to light London with - what do you think? Why, with smoke:"<sup>4</sup> Scott later became the first chairman of the Edinburgh Gas Company.<sup>5</sup> William Wilberforce mercilessly compared Winsor's claims to those of the South Sea Company.<sup>6</sup> Much of the criticism had some foundation. Gas was said to be dangerous and it was said to be injurious to health which the ill-purified gas

1. Ibid. p.22.

- 2. Chandler and Lacey, op.cit. p.43.
- 3. Ibid. p.1. 4. Ibid. p.1.
- 5. Chandler, op.cit. p.18. 6. Everard, op.cit. p.24.

of the time often was. On another level gas was attacked as a threat to the Navy since if it replaced oil, its main competitor as a lighting agent, the whaling fleet would be ruined and the Royal Navy robbed of a source of recruits.<sup>1</sup> Finally, the proposed company was attacked, not least by the Times, for being that great bogey of the time - a monopoly.

Understandably this first bill was lost.<sup>2</sup> Yet gas had all too evident advantages not eventually to prevail. In terms of the volume of light it gave gas could out-compete both oil and candles for price. But this advantage only began to operate where large concentrations of light were required for long periods, and where the cost advantages were not outweighed by the tendency of the early gas to smoke and give off a smell. Gas therefore was ideal for factories, warehouses, large public buildings, and, most importantly, for the exteriors of open fronted shops and street lighting. Public street lighting was an innovation of the eighteenth century. In medieval London, a period when in theory at least a nine o'clock curfew was in force<sup>3</sup>, the streets were lit. if at all, by orders to householders to hang candle-lit lanterns outside their homes. The first recorded order was 1405.<sup>4</sup> Matters improved somewhat with the introduction of oil lighting, by various patent lamps involving reflectors and convex glasses<sup>5</sup>, from the 1680s. Being expensive these lights were by their nature operated by private companies and an Act of Parliament of 1694 gave to the Convex Lights Company monopoly rights to contract to supply oil lamps to householders who retained the option of hanging out their own lanterns.<sup>6</sup> This system was abandoned, however, in 1736 when the City authorities passed an Act to enable them to raise a rate and undertake streetlighting

- 1. Chandler and Lacey, op.cit. p.38; Hughes' Treatise, op.cit. (1904) p.20.
- 2. Times, 3 June 1809.

M. Falkus 'Lighting in the Dark Ages of English Economic History: Town Streets before the Industrial Revolution' in D.C. Coleman and A.H. John (Ed.) Trade,

- Government and Economy in Pre-Industrial England (1976) p.249. 4. E.S. de Beer 'The Early History of London Street-Lighting', <u>History</u> (March 1941) p.313.
- 5. Ibid. pp.316-7.
- 6. Ibid. p. 319.

themselves<sup>1</sup>, and this Act was further tightened in 1744<sup>2</sup>. The lamps initially burned rape seed oil but later in the eighteenth century whale oil was substituted<sup>3</sup>. Nor were these lights very powerful; link boys carrying flaming oily rags were still employed to escort the rich through the streets<sup>4</sup>. Few ventured from their carriages at night as assault and robbery were endemic. In 1784, Argand of Geneva improved the oil lamp with the introduction of a circular wick and a glass chimney which Rumford calculated gave 15 per cent more light<sup>5</sup>. Argand was probably not first with the idea<sup>6</sup> but his name stuck to the lamp which was quickly adopted particularly by London's shops.<sup>7</sup> Even with the Argand lamp, however, the street lighting of London could be described as 'not only dismal but hardly enabled the passenger to distinguish the watchman from the thief or the pavement from the gutter'.<sup>8</sup> One of the most telling arguments, therefore, in favour of gas lighting was as an aid to policing.<sup>9</sup>

The Gas Light and Coke Company, to give it its formal title, passed its Act at the second attempt in  $1810.^{10}$  The Act set the company's capital at £200,000, to be raised within three years. The company was empowered to take up the roads but, as a concession to the anti-monopoly lobby, this power was equally to apply to 'all persons who may contract for lighting streets with gas' in competition to the company. The charge for public lights was not to exceed that of oil and the company was required by the Act to supply any public lights on streets where its mains ran, if asked to do so. No maximum price was

1. Falkus (1976) op.cit. p.261.

- de Beer, op.cit. p.332.
  Falkus (1976) op.cit. p.266.
  And continued to do so 'until the end of the age of oil', de Beer, op.cit. p.323; or 1840, Falkus (1976) op.cit. p.267.

- Matthews, op.cit. p.93.
  Clow and Clow, op.cit. p.425.
  W.T. O'Dea, <u>A Social History of Lighting</u> (1958) p.51.
  C. Mackenzie, <u>One Thousand Processes in Manufactures and Experiments in Chemistry</u> (1821) p.264.
- 9. King's Treatise, op.cit. Vol. 1, p.30.
- 10. Times, 2 June 1810.

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set on private lighting and there was no limitation on dividend. Again to assuage the fear of monopoly, the company was prohibited from selling or supplying service pipes or burners.<sup>1</sup>

Two years later the company obtained its Royal Charter which it possibly felt it needed for the added prestige it would give to a revolutionary and speculative venture which had to combat a great deal of prejudice and ill-will. Whatever the reason, the Gas Light and Coke Company for its first sixty years became known as the 'Chartered' company. The first Court of Directors was held on 24 June 1812 and Grant was elected Governor and James Hargreaves, a doctor with an interest in mechanical matters from Ruthin in North Wales and no relation to the inventor of the cotton jenny, became Deputy Governor.<sup>2</sup> It was to Hargreaves and two other directors, James Barlow and Frederick Accum. a German chemist, that fell the task of constructing a viable gasworks. Winsor, having failed completely to produce a practical plan, was sacked.<sup>3</sup> A river site was found for the works at Cannon Row and the directors began, in a thoroughly unprofessional way, to conduct experiments and to spend the company's capital at an alarming rate.<sup>4</sup> Meanwhile, Grant was busy obtaining contracts for lighting the company had no hope of meeting.<sup>5</sup> Finally, the Court had to call in Clegg who had been erecting works at Ackerman's printing shop in the Strand. In 1812 he agreed to become the company's engineer at £500 a year and set about building the world's first public gasworks.<sup>6</sup> He abandoned the Cannon Row site and built three separate works, at Peter Street, Westminster, Curtain Road and Brick Lane.<sup>7</sup> Unfortunately, all three sites had no access by water.

Everard, op.cit. p.25.
 Ibid. p.27.
 Ibid. p.30.
 Ibid. p.31.
 Ibid. pp.33-6.
 Ibid. p.37.
 E.G. Stewart, <u>Historical Index of Gasworks</u> (1957) pp.109-10, 37, 27.

In September 1813 the company supplied its first public light and in December Westminster Bridge was gas-lit for the first time. At first the lamplighters refused to light the new lamps and Clegg did the job himself. The gas lights aroused such interest that while the novelty lasted a crowd of hundreds would follow the lamplighter on his rounds.

Thus public gaslighting became a reality and it quickly spread. The first provincial towns to get gas companies were Liverpool and Preston<sup>2</sup> or Exeter<sup>3</sup> in 1816, but by 1821 no town in the UK with a population greater than 50,000 was without a gasworks.<sup>4</sup> That gas lighting spread abroad owes something to the indefatigable Winsor. In 1814 Winsor fled from his creditors to France where in 1815 he set up a gas company in Paris. The company, however, failed and went bankrupt in 1819. Paris was successfully gas-lit for the first time in 1820. As a result of the efforts of his son, the destitute Winsor was granted an annuity of £200 a year by the Court of the Gas Light and Coke Company until his death in Paris in 1830, whereafter it transferred to his widow.<sup>5</sup> As to the other pioneer, Murdoch continued to work for Boulton and Watt, eventually becoming a partner. The firm did not continue in the business of gas plant manufacture for long, however.<sup>6</sup> Murdoch retired ir 1830 and died in 1839 at the age of eighty-five.

- Clegg, op.cit. p.19.
  M.E. Falkus, 'The British Gas Industry before 1850', <u>Economic History Review</u> (1967) p.494.

- P. Chantler, The British Gas Industry: An Economic Study (1938) p.4.
  Falkus (1967) op.cit. p.496.
  Everard, op.cit. p.55; Dictionary of National Biography Vol. XXI, p.676.
  King's Treatise, op.cit. Vol. 1, p.24; Cotterill, op.cit. pp.52-64, says the last was erected at Broadford Mill, Aberdeen in 1814.
- Chandler and Lacey, op.cit. p.23.

### Chapter 2: Technical Developments

For convenience, gas technology can be divided under the following headings: carbonisation, the process by which coal is subjected to heating to give off the gas and other by-products; purification, by which the gas is relieved of unwanted impurities; the storage and distribution of the gas; its measurement and, finally, the appliances by which it is used.

#### Carbonisation

It was quickly established that the only practical setting of the retorts for the mass-production of gas was horizontal, and this setting remained the most common down to 1914. Clegg's first retorts at the Chartered works were 7 feet in length and 12 inches in diameter, being circular in cross section. At one end was a mouthpiece luted gas-tight with clay. They took a charge of  $1 - 1\frac{1}{2}$  hundredweight of coal; each charge taking six hours to carbonate.<sup>1</sup> Coal was thrown in by shovel and the coke drawn out by rake. At first the retorts were set singly but later in pairs, encased in brickwork and heated to a 'bright or cherry red' by a furnace set under a brick arch, with the air conducted by flues back and forth along the retort and finally up a chimney.

Attempts at improving on Clegg's 'flue plan' took the form of ways of saving on fuel and more completely carbonising the coal in order to get maximum gas per ton. Clegg's early retorts took 50 per cent of coke produced to fuel but this was reduced by the 'oven plan' of Andrew Rackhouse in 1817 which set a 'bench' of five retorts in an oven and this setting soon became standard.<sup>2</sup> By 1840 the number of retorts to a bench had risen to

Hughes' Treatise, op.cit. (1853) p.47.
 Peckston, op.cit. (1819) p.116;5Clegg, op.cit. p.69.



Samuel Clegg's design for town gasworks c.1813. Note horizontal retorts (a) in 'flue plan' (d), the condenser in gasholder tank (n), the wet lime purifier with manual agitator (q) and the housing and counter-weight for the gasholder.
seven, the length of retort to 9 feet carrying a charge of 21 hundredweight and although round, eliptical, kidney shaped and oblong retorts were used, the most common cross section became D-shaped. I In the early 1820s labour was saved by the introduction, first by George Lowe at the Chartered, of the scoop which replaced the shovel.<sup>2</sup> The scoop, an iron trough the length and size of the retort, was filled with coal, offered up to the retort mouth by two stokers using a 'horsing-in iron' and pushed home and overturned in the retort by the scoop driver. This was quickly adopted in the larger works although the shovel remained common in the smaller for some years. $^3$  In the early works the benches of retorts were set side by side in a row, facing each other or back to back. A large early retort house was described as 116 feet long, 44 feet wide and 22 feet high<sup>4</sup> in 1841, although they grew in size with the years.<sup>5</sup> Packed with benches of retorts, these early houses were notoriously cramped and this was to some extent ameliorated by the use of the stage setting where the benches were elevated and the stokers worked on a raised platform. The hot coke was then allowed to fall into a cokehole and dealt with out of the way. Staged retort houses, however, never became universal for they were two or three times more costly to erect and made only marginal savings in labour. The major benefit was in the working conditions of the men, never a preoccupation of the gas companies.<sup>6</sup>

A cluster of innovations transformed gas making in the 1850s. In 1832 George Lowe patented what he called a 'reciprocating retort', 18 feet long and open at both ends.<sup>7</sup> A more complete carbonisation of the coal was obtained by drawing gas off alternately from either end. At the same time Kirkham at the Imperial Company was experimenting with long retorts to save fuel and the two

- 3. Hughes' Treatise, op.cit. (1853) p.108, until a works justified the employment of three stokers.
- 4.5Clegg, op.cit. p.96; also Blackfriars of City Co. was 108' x 60', City CM July 1819; Vauxhall of Phoenix, 168' x 72', W.T. Garton, 'History of South Metropolitan Gas Company' G.W. 3 May 1952, p.454.
- 5. Beckton retort houses in 1870 were 480' x 120', Hughes''Treatise, op.cit. (1904) p.95.
- 6. King's Treatise, op.cit. Vol. 1, pp.125-40;SClegg, op.cit. p.66.

7. <u>King's Treatise</u>, op.cit. Vol. 1, p.178; <u>Hughes' Treatise</u>, op.cit. (1853) pp.58-61; S.Clegg, op.cit. pp.81-85.

Peckston, op.cit. (1819) p.167; Matthews, <u>Historical Sketch</u>, op.cit. p.15; <u>Hughes' Treatise</u>, op.cit. (1853) p.46.
 W. Matthews, <u>A Compendium of Gas-Lighting</u> (1827) p.16.

engineers collaborated on a patent in 1839. These 18 feet iron retorts, however, were prone to buckle and the long retort, to be successful, had to be made of clay.<sup>1</sup> Prior to 1849 clay retorts had been rejected by the London gasworks. First patented by John Grafton in 1820<sup>2</sup>, they were tried but failed in London<sup>3</sup> but were gradually taken up in provincial towns<sup>4</sup>, in Scotland<sup>5</sup> and on the continent. When Lowe visited Scotland in 1842 he found clay universally used<sup>6</sup> while in the same year a Scottish manufacturer of clay retorts canvassed the London companies but did not take a single order.<sup>7</sup> The advantage of clay retorts was that they were cheaper, lasted longer - two to three years compared to eight months for iron $^8$  - and, since higher temperatures could be used, more gas per ton of coal was possible.<sup>9</sup> On the other hand clay required more fuel and the early ones often cracked, were porous and leaked gas under pressure.<sup>10</sup> This last point was particularly important with the high pressures in the large London works. There is also the suspicion that the higher temperatures and increased fuel led to acts of Luddism by the London stokers.<sup>11</sup> But it was the porosity of clay that was probably decisive in London and this was not overcome until the perfection of the exhauster.<sup>12</sup>

The development of the exhauster was also pioneered by Grafton who was looking for a way of recucing the pressure on retorts<sup>13</sup>, which built up a carbonaceous crust that eventually had to be chipped away. His 1841 patent was for a reciprocating engine on the lines of the steam pump, set between the purifiers and the scrubber, pumping the gas through the system and relieving the pressure.<sup>14</sup>

- King's Treatise, op.cit. Vol. 1, pp.178-80.
   <u>Hughes' Treatise</u>, op.cit. (1853) p.78.
   City CM, June 1821 and Oct. 1822.

- 4. 40 in 1841, Clegg, op.cit. p.91.
   5. Cotterill, op.cit. p.233 and pp.282-287. Cotterill explains use of clay in Scotland as due to high temperatures suiting Scottish coal.
- 6. King's Treatise, op.cit. Vol. 1, p.56.
- 7. Ibid. p.54.

- 7. Ibid. p.54.
  8. Ibid. p.186.
  9. Hughes' Treatise, op.cit. (1904) p.106.
  10. Ibid. (1853) pp.83-87.
  11. King's Treatise, op.cit. Vol. 1, p.183.
  12. Ibid. pp.53-54; Hughes' Treatise, op.cit. (1904) p.109.
  13. Hughes' Treatise, op.cit. (1853) p.152.
  14. King's Treatise, op.cit. Vol. 1, p.317.

But the exhauster was only perfected by Beale, an engineer with the Chartered, and first used in 1847.<sup>1</sup> Based on a rotary engine, this became the standard exhauster for the next sixty years.<sup>2</sup> The exhauster now allowed the use of clay retorts to advantage in the largest works.<sup>3</sup> In 1844 Joseph Cowen of Newcastle had patented an improved clay retort<sup>4</sup> and in 1848 Thomas Livesey imported clay retorts from Belgium and these were found to work well.<sup>5</sup> The use of clay in turn allowed the introduction of the long, or 'through', retort, charged at both ends, which quickly became standard. Introduced into the London works as the old iron settings wore out, by 1861 long clay retorts were almost exclusively used.<sup>b</sup>

From the beginning of the gas industry engineers applied themselves with no lack of ingenuity to mechanising the operation of gas stoking. In 1815 Clegg patented a 'rotary retort', a flat circular dish which revolved, taking segments of itself into a furnace in rotation.<sup>7</sup> Soon after he devised an even more elaborate 'web retort' which fed coal into and out of a furnace on a continuous iron conveyor belt, steam or water powered.<sup>8</sup> In 1819 William Brunton of the Eagle foundry, Birmingham, patented another circular stoker and in 1835 John Brunton, engineer at the West Bromwich gasworks, patented a retort, 4½ feet in length, charged by a piston driven by a crank.<sup>9</sup> In 1839 Grafton had the coal introduced into the retort by a wagon<sup>0</sup> while in the same year William Heginbotham had the coal passing continuously through the retort on the principle of the Archimedean screw. All these ideas foundered for the same reason: the iron workings could

1. Ibid. p.315.

- A. Meade, New Modern Gas Works Practice (1934) p.477; C.E. Brackenbury, British Progress in Gasworks Plant and Machinery (1905) p.32; Stewart (1958) op.cit. p.35; King's Treatise, Vol. 1, p.321.
   Stewart (1958) op.cit. p.35; JGL, 5 Apr.1857, p.152; companies bought exhausters in conjunction with clay retorts; Imperial CW, 31 July 1850; London SHM, 11 Oct. 1854; Equitable CW, 27 Nov. 1848; S.Metro. DM, 17 Dec. 1851.
- King's Treatise, op.cit. Vol. 1, p.54.
   W.T. Layton, Early Years of the South Metropolitan Gas Company 1833-1871 (1920).
   Z. Colburn, The Gasworks of London (1865) p.12.
- 7. Matthews, Historical Sketch, op.cit. pp.72-3; King's Treatise, op.cit. Vol. 1, p.167.
- 8.S.Clegg, op.cit. p.85; <u>Hughes' Treatise</u>, op.cit. (1853) pp.61-65. 9.S.Clegg, op.cit. p.78; <u>Hughes' Treatise</u>, op.cit. (1853) pp.55-57.
- 10. King's Treatise, op.cit. Vol. 1, p.263.



John Brunton's retort of 1835 charged by hand crank.



Samuel Clegg's 'Web Retort' using the principle of the continuous conveyor belt.

not cope with the intense heat.

The only system that was to be successful in charging horizontal retorts was the one which reproduced the actions of the stoker in front of ordinary retort settings. King's Treatise, published in 1878, describes no fewer than sixteen different such systems, starting from that of George Michiels, patented in 1850, and there were probably many more. Not unnaturally the earliest machines were driven by steam power. The first to come anywhere near success was that of H. Green, engineer of the Preston works, in 1860. In 1867, Best and Holden improved on Green's design and their drawing and charging machines ran for a number of years at the Dublin Works of the Alliance Gas Company.<sup>3</sup> They were tried at the Westminster works in 1869 but failed.<sup>4</sup> In 1871, the Steam Stoker Company was formed to exploit the machines of Somerville and Robinson.<sup>5</sup> Four were bought by the Imperial for Fulham in 1873 and they were extensively tried at Beckton, but when they were inspected there by George Livesey in 1873 he disapproved and they were soon abandoned.<sup>6</sup> In 1880 a further attempt was made, this time in America by Ross, engineer at the Cincinnati gasworks, the coal being blown into the retorts by blasts of steam. Extensively tried at the Nine Elms works of the London Company in 1881<sup>7</sup> and in Birmingham in 1883  $^{8}$  , the Ross machine failed like the rest and probably ended attempts to use steam as the motive power. Steam was found to be too heavy and cumbersome and prone to breaking down.9

Engineers turned their attention to other sources of motive power. A compressed air driven system invented by T.F. Rowland of the Continental Works,

- Ibid. p.264.
   Ibid. p.265.

4. <u>Hughes' Treatise</u>, op.cit. (1904) p.81; Stewart (1957) op.cit. p.110.
5. <u>King's Treatise</u>, op.cit. Vol. 1, p.269.
6. S. Metro. DM, 3 Mar. 1873; GLCC DM, 23 May 1872.
7. JGL, 30 Nov. 1880 p.855 and 18 Oct. 1881 p.674.
8. C.E. Brackenbury, <u>Modern Methods of Saving Labour in Gasworks</u> (1900) p.25. 9. JGL, 20 May 1873 p.469.

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 $\mathcal{O}_{2,2} = \{\mathcal{O}_{1,2}\}$ 

<sup>1.</sup> King's Treatise, op.cit. Vol. 1, Chap VI.



Best and Holden's steam charging and drawing machine (1867).



Somerville and Robinson's steam stoking machine (above) and drawing machine (below) (1871).



Brooklyn, New York, was tried in 1877 but was defective. Indeed, the successful innovation of stoking machinery was due to the efforts and perseverance of two British engineers, John West and William Foulis. While engineer of the Maidstone works, West successfully developed charging machinery in 1873, powered manually.<sup>2</sup> This came into partial use at, for example, the South Metropolitan  $^3$  and moving to Manchester he produced machinery driven by compressed air in 1880. In 1874 Foulis, engineer at Glasgow gasworks, introduced hydraulically powered machinery, tried at Manchester in 1875 and Beckton in 1877.<sup>4</sup> In 1880 the Manchester Corporation tested the West machine against that of Foulis and the West machine won and was subsequently introduced at Manchester, at the South Metropolitan in 1883 and in 1884 at Beckton, where it was considered the first successful use of machine power.<sup>5</sup> Yet introduction of machinery was slow, largely because the dust of the retorthouses made it prone to breakdown. But West and Foulis continued to make improvements. In 1889, at the South Metropolitan, West introduced a wire rope driven machine, powered by a stationary Otto gas engine, after a compressed air machine installed in 1887 had failed. He returned to compressed air in the houses fitted up at Beckton in 1889 and 1890. However, in 1891, Foulis in partnership with William Arrol, who had developed the technology during his bridge building career<sup>8</sup>, produced an improved

hydraulic system introduced at Beckton in 1895. But mechanisation still progressed slowly. In 1896 H.E. Jones of the Commercial told shareholders that as yet machinery was less than perfect and he saw no reason to introduce it except

- King's Treatise, op.cit. Vol. 1, p.286.
   JGL, 30 Jun. 1874 pp.911-2.
   S. Metro. SHM, 13 Oct. 1879.
   JGL, 10 Jul. 1877 p.50.
   Co-Partners' Magazine of the Gas Light and Coke Company (1913) p.3.

University Library Hull

- JGL, 17 Nov. 1891 p.894.
   Ibid. 25 Feb. 1890.
   C. Singer, E.S. Holmyard and A.R. Hall (Ed.), <u>A History of Technology</u> Vol. V (1958) p.535; R. Purvis, Sir William Arrol: A Memoir. (1913).





The successful Arrol-Foulis hydraulic stoking machines (above) and drawing machine (below), in the late 1890s.





William Foulis' hydraulic stoking machine (above) and drawing machine (below) in 1878.





Cross-section through a Beckton retorthouse using Arrol-Foulis stoking machines.



John West's manual charging and drawing machinery first introduced in 1873.



West's wire rope driven drawing and charging machines at the East Greenwich works of the South Metropolitan in the 1890s.



West's compressed air drawing and charging machines.

where old plant wore out.<sup>1</sup> The South Metropolitan led the way, favouring West's system, but in 1898 while 32.8 per cent of its retorts were machine stoked and 11.2 per cent were inclined, still 44.8 per cent were hand stoked.<sup>2</sup> In 1904 a commentator could still say that hand stoking was generally practised.<sup>3</sup> By 1910, however, horizontal retorts in all but the very smallest works were machine stoked.<sup>4</sup> Further developments came from the continent, with the use, first by De Brouwer in Belgium, of electricity to power machinery which shot coal into the retort from a revolving wheel. This allowed the complete filling of horizontal retorts by 1909.<sup>5</sup>

Attempts to stoke retorts by gravity by inclining or standing them vertically were as old as the industry itself. Murdoch made many attempts at this<sup>6</sup> and Grafton patented an inclined retort in 1818. W.T. Carpenter at Sheerness, Key at Glasgow and E.S. Cathels in New Brunswick, all seemed to have been experimenting with 'slopers' before the first relatively successful plan was patented by Emile Coze of the Rheims gasworks in 1885.<sup>7</sup> The early problem with inclined retorts had been uniform heating which was impossible with the direct furnaces used for horizontals. The problem was only overcome with the introduction of heating by producer gas, which was a crude gas produced by passing steam through hot coke. The process was patented in this country in 1861 by William Siemens for use in the metallurgical industries<sup>8</sup> but was tried without success at Westminster gasworks in 1862.<sup>9</sup> Improvements were made by Klönne in 1881 and Mond in 1889<sup>10</sup> primarily for use in the chemical industry, but in the 1880s the London gasworks began to use producer gas, sometimes made outside the retort

- 1. Commercial SHM, 11 Apr. 1896.
- 2. S.C. on the Metropolitan Gas Companies PP 1899X p.125.
- Hughes' Treatise, op.cit. (1904) p.80.
   F. Popplewell, 'The Gas Industry', in S. Webb and A. Freeman (Ed.), <u>Seasonal</u> Trades (1912) p.175.
- 5. Stewart (1958) op.cit. p.14; S. Metro. SHM, 14 Aug. 1909.
- 6. Clegg, op.cit. p.7.
- 7. Stewart (1958) op.cit. p.15.
- 8. J.E. Dowson and A.T. Carter, <u>Producer Gas</u> (1906) p.xi.
  9. <u>King's Treatise</u>, op.cit. Vol. III p. 381.
  10. C. Hunt, 'Gas Lighting' in C.E. Groves and W. Thorp (Ed.), <u>Chemical Technology</u> Vol. III (1900) pp.35-46.



Coze's inclined retort design, 1885.

house and piped in, to fire the horizontal retorts<sup>1</sup> and this system now allowed the adequate heating of inclined and vertical retorts.<sup>2</sup>

The Coze system was first introduced in Britain at the Southall works of the Brentford Company in 1887,<sup>3</sup> where the engineer Frank Morris made some improvements. Introduced at the Kensal Green works of the Gas Light and Coke Company in 1890 and at the Greenwich works of the South Metropolitan, 'slopers' were partially used by most companies in the 1890s and by 1903 perhaps 20 per cent of London's gas was so produced. Despite improvements, however, the disadvantages of the system became increasingly clear. The 'slopers' were costly to build but wore badly. Moreover, although in theory they could be charged at the top by hopper and discharged by simply opening the mouth at the bottom, not all types of coal would lie at the precise angle the retorts were set at and they often needed 'prickling' to extract the coke stuck at the bottom of the retort.<sup>5</sup> As stoking machinery improved therefore, 'slopers' went out of fashion. None were built in London after 1903<sup>6</sup> and some were demolished, although others continued in service until the 1930s.7

Vertical retorts had a more successful history. John Brunton had taken out a patent in 1828<sup>8</sup> and Barnet in 1829<sup>9</sup>, Winsor Jn. had experimented with them at Westminster in 1835<sup>10</sup> and others were tried at that works in 1854 and 1861 and the design of Porter and Lane which fed coal through the retort by Archimedean screw was

- Everard, op.cit. p.87.
   Stewart (1957) op.cit. p.110.

Stewart (1957) op.cit. pp.41-2 e.g. at Fulham in 1881.
 W.H.Y. Weber, Gas and Gas Making (1918) p.27.
 Stewart (1957) op.cit. p.90.
 JGL, 30 Jun. 1903 p.961.
 Meade, op.cit. p.112.
 G W , 17 Jan. 1903.
 Meade, op.cit. p.112; JGL, 14 Sep. 1938 p.653.
 Stewart (1958) op.cit. p.16.
 Brownlie, op.cit. p.87.



Andrew Scott's design of 1874 for a vertical retort.



Glover-West continuous vertical retorts in 1916.

given a trial in 1871. The vertical retort of Andrew Scott of Musselburgh in 1874 was similar in design to those eventually adopted but all these early attempts suffered from the heating problem, together with the fact that, entirely filled, the retorts tended to crack on the expansion of the coal. The breakthrough did not come until the simultaneous development in 1902, by Dr. Bueb at the Dessau gasworks in Germany and by Harold Woodall (son of Corbett) and his assistant Duckham at Bournemouth, of workable systems. The German model worked on the intermittent system whereby carbonisation was a discrete operation while the Woodall-Duckham system was a continuous process of coal being added at the top and coke emerging at the bottom. $^{3}$ West. in partnership with Glover, developed a similar plant. In 1907 the first verticals in London were put into Nine Elms on the Woodall-Duckham design and although they probably made faster headway on the continent they were more enduring than 'slopers' and by 1934 50 per cent of UK town gas was produced by continuous vertical retorts.<sup>4</sup> Coke ovens were also largely pioneered in Germany by Koppers and first erected in Britain in Birmingham in 1912<sup>5</sup>but had only a limited role in gasworks in this country.<sup>6</sup>

Towards the end of the period water gas, made along the lines of producer gas, by passing steam through hot coke to produce equal parts of carbon monoxide and hydrogen, was introduced. Attempts to do this successfully date back to the patent of J.H. Ibbetson in 1824.<sup>7</sup> Early attempts failed because water gas is colourless and to burn with a flame hydrocarbons in the form of

JGL, 25 Feb. 1873 p.141.
 King's Treatise, op.cit. Vol. 1. p.235.
 <u>G W</u>, 7 Apr. 1906 pp.698-700.
 Meade, op.cit. p.72.
 Stewart (1958) op.cit. p.18.
 Meade, op.cit. p.162.
 Hughes' Treatise, op.cit. (1904) p.372.



Humphreys and Glasgow's carburetted water gas plant.

oil needed to be added and it was difficult to keep these suspended in the gas. This was eventually overcome by Professor T.S. Lowe in Phoenixville, Penn., between 1873 and 1882 by spraying the oil onto the coke. It was first introduced into Britain at Liverpool and first tried at Beckton in 1889. Depending on the price of coke it was usually more costly than coal gas in Britain because of the need for oil but it was flexible, could be started up at short notice and was used to cope with peak periods and when coke was cheap. It was also used as an enricher and replaced the high grade cannel coal in this By 1907, 21 per cent of the Gas Light and Coke Company's gas and 33 per role. cent of the Commercial's was water gas while the South Metropolitan never adopted it. In America, indeed, where bil was cheap, water gas became the prevailing system, and by 1900 75 per cent of town gas in America was made in this wav.

Finally, the 1890s also saw the mechanisation of handling coal and coke in the retort-house, although this was less used apparently than in the electricity supply industry. West developed a conveyor for taking away the coke as it was discharged from horizontal retorts and De Brouwer introduced a similar arrangement both for bringing coal in and taking coke away. Britain was said to be ahead of the continent in these matters but she lagged behind the United States.

## Purification

Coal gas, as it issues from the retorts, is a rich and complex mixture of elements and compounds including water, tar, ammonia, carbonic acid, various

- Stewart (1958) op.cit. p.21.
   Stewart (1957) op.cit. p.15.
   Hughes' Treatise, op.cit. (1904) p.380.
- 4. J.W. Field, Analysis of Gas Companies. Published annually from 1869
- (hereafter Field's Analysis ).
  5. Brackenbury (1900) op.cit. p.47; 5.3% of UK gas in 1893, 12.1% in 1909, Cotterill, op.cit. p.466 and 20% by 1958, Stewart (1958) op.cit. p.20.
  6. Hughes' Treatise (1904) pp.133-4.
- 7. Brackenbury (1905) op.cit. p.47.

sulphur compounds and sulphuretted hydrogen, all of which to a great extent need to be removed, leaving the carburetted hydrogen which when mixed with oxygen will ignite giving light and heat.<sup>2</sup>

From the front of the retorts the gas went up ascension pipes, which dipped into Clegg's hydraulic main. The gas left the retort set at  $1500-1800^{\circ}F^{3}$  at a temperature of about 120-130<sup>0</sup>F and for it to drop its tar and most of the ammonia this had to be reduced to 50-70°F.<sup>4</sup> This process began as the gas bubbled through the hydraulic main but Clegg soon introduced a separate condenser, which was simply a pipe which wormed back and forth, with a means of drawing off the tar and ammonia at the bottom.<sup>5</sup> To remove the rest of the ammonia and the carbonic acid and sulphuretted hydrogen, Clegg and Malam<sup>6</sup> perfected the 'wet lime' purifier. usually a battery of three or four boxes in which the gas passed through a creamy solution of water and lime kept in suspension, first by hand, although the workers proved too unreliable in operating the paddle, then (by the 1820s) by steam or waterwheel. The City Company used an overshot wheel, using water pumped from the Thames by steam engine, until 1865.7

Wet lime purified reasonably adequately although a fair proportion of ammonia was left in<sup>8</sup> but there was a problem with the disposal of the spent lime or evil smelling 'blue billy'. At first the Chartered put it down the public sewers until this was stopped by the Commissioner of Sewers. They then laid a pipe directly into the Thames.<sup>9</sup> Most of it, however, had to be carted through the streets and dumped either on waste ground or into the Thames or the Regent's Canal which outflowed into the river. Indeed, the gas companies played a leading role in the pollution of the Thames and the death of the fishing industry in the nineteenth century.<sup>10</sup> Attempts made to stop them were largely ineffectual. In

- 3. King's Treatise, op.cit. Vol. II p.1. 4. Ibid. Vol. I p.291.
- 5. Peckston (1819) op.cit. pp.183-193.
- <u>King's Treatise</u>, op.cit. Vol. 1 pp.387-388.
   Colburn, op.cit. p.47.
- 8. King's Treatise, op.cit. Vol. I p.389.
- 9. Everard, op.cit. p.65.
- 10. A.W. Matthews (1899) op.cit. p.82; City CM, June 1821.

Hughes' Treatise, op.cit. (1904) pp.44-54; King's Treatise, op.cit. Vol. 1. p.344.
 19th century chemical nomenclature is used throughout. For modern chemical break-down see Stewart (1958) op.cit. p.3 and p.23.

1822, the fishermen and Water Bailiffs brought an action for nuisance against the City Company for killing the fish. The trial was held at the Guildhall but no witnesses for the prosecution turned up while the eighty witnesses for the company were later given 'refreshment' by the company at two nearby coffee houses.<sup>1</sup> In 1835 another action, by the City of London Corporation against the London Company was later dropped.<sup>2</sup> Yet the companies could not remain oblivious to public feeling and attempted, some by employing chemists, to find an alternative to wet lime.<sup>3</sup> Moreover, the problem multiplied. Every ton of coal carbonised produced one hundredweight of 'blue billy'<sup>4</sup> which meant that, in London alone, 5,000 tons of the effluent had to be disposed of in 1830 and this would have been 45,000 tons by 1861.<sup>5</sup>

The part answer was patented by Reuben Phillips in 1817 and known as 'dry lime'.<sup>6</sup> Something of a misnomer, the process involved passing gas through successive layers of crumbled lime slaked with water. The resulting waste was less odorous, easier to handle and in rural areas would be taken by farmers as fertiliser. This probably explains why it was less enthusiastically taken up in London than in the provinces. Some London companies adopted 'dry lime' in the late 1820s but, using less water, the process took out less ammonia and therefore still needed to be used in conjunction with 'wet lime'. Some companies therefore stuck entirely to the latter method into the 1860s.7

The use of oxides as purifying agents had been mentioned in a patent by Winsor's assistant Edward Heard in 1806<sup>8</sup> and successive attempts to make iron oxide work were made by Phillips in 1835 and Croll in 1840<sup>9</sup> until success was delivered by the Frenchman Laming in 1849. While this process was being tried

- 1. City CM, Jan. 1822.
- London DM, 18 Aug. 1835.
   City CM, Nov. 1821 and Dec. 1821.

- City LM, NOV. 1821 and Dec. 1821.
   Stewart (1958) p.24.
   Extrapolated from Table 8, p. 157.
   Matthews, <u>Historical Sketch</u>, op.cit. p.29; <u>King's Treatise</u> Vol. I, p.390.
   Colburn, op.cit. p.48 although by 1904 wet Time had been entirely abandoned. <u>Hughes' Treatise</u>, op.cit. (1904) p.165.
   Chandler and Lacey, op.cit. p.60.
- 9. King's Treatise, op.cit. Vol. I p.63.



Condenser for large gasworks.



LONGITUDINAL ELEVATION.



Batch of four dry lime or oxide purifiers. Note the crane for lifting out the trays. This arrangement allows three boxes to stay in use while a fourth is being cleaned out.

out at Westminster by F.J. Evans he accidentally discovered, when throwing some spent oxide aside, that the air revivified it and made it possible to be reused. Unfortunately for Evans, the chemical manufacturer F.C. Hills was also on the premises and stepped in to patent the idea before the Chartered's engineer.<sup>1</sup> This patent he successfully defended through the courts until 1863, by which time the monopoly was said to have earned Hills Iron oxide used in 'dry lime' purifiers, taken out and turned £100.000.<sup>2</sup> over often by horse and plough, could be reused thirty or forty times. However, oxide only took out the sulphuretted hydrogen not the carbonic acid or the sulphur compounds which had to be extracted under Acts of 1860 and 1868.<sup>3</sup> Therefore some lime still had to be used. In 1901 55 per cent of UK works used lime only, 8 per cent oxide only and 37 per cent lime and oxide.<sup>4</sup> On the Continent, where there were no statutory obligations, oxide was universally used and, when after an Act of 1905 had relieved the London companies of the need to remove the sulphurs, oxide had entirely replaced lime by 1912.5

The use of 'dry lime' and iron oxide from the 1850s necessitated the removal of the ammonia by other means. The level of ammonia in the gas had caused complaints by early consumers since it would corrode and tarnish brass candlesticks and picture frames and when gas entered living rooms to a substantial degree in the 1850s the complete removal of the ammonia was imperative.<sup>6</sup> This was done by the washer and the scrubber, neither of which needed to overtax the inventive imagination of the gas engineers. The washer was simply a box of water through which the gas was passed, although it was not perfected until George Livesey in 1870 released the gas through a perforated tube to produce fine enough bubbles to more thoroughly wash the gas. The Livesey washer remained standard into the 1920s.<sup>8</sup>

Hughes'

<sup>1.</sup> King's Treatise, op.cit. Vol. I p.63.

JGL, 28 Jul. 1863 p.490. <u>King's Treatise</u>, op.cit. Vol. I p.398.
 Stewart (1958) op.cit. p.25.
 Ibid. p.26.
 King's Treatise op.cit. Vol. I p.389

King's Treatise, op.cit. Vol. I p.389. Hughes' Treatise (1904) pp.156-158.

Davidson, Gas Manufacture (1923) p.215.



Mann and Walker's tower scrubbers at the Nine Elms Gasworks of the London Company.

The scrubber, invented by William G ssage in 1836,<sup>1</sup> was a tower some 30 feet high by 10 feet in diameter inside which were set grids on which were layers of coke or broken bits of metal. Water was run from the top of the tower downward as the gas was passed up, being washed in the process. This was improved by Lowe in 1846<sup>2</sup> and perfected by W. Mann, engineer of the City Company, in 1848.<sup>3</sup> In partnership with Walker, Mann's scrubbers became standard both here and abroad from the mid-1850s.<sup>4</sup>

From 1860, the pattern of purification was established and changed little until 1914, save for better layout and the introduction of the mechanical handling of the materials around the turn of the century. A condenser took out most of the tar and ammonia while a combination of washers and scrubbers removed the rest and a combination of dry lime and iron oxide purifiers removed the sulphuretted hydrogen, carbonic acid and sulphur compounds. By 1860, therefore, the gas passed more or less pure into the gasholders.

## Storage and Distribution

Gasholders, or gasometers, so called from the early days when they acted as crude measures of gas made, perform two functions: to cope with the uneven consumption of gas throughout the twenty-four hour cycle and to provide pressure to force the gas through the mains. The basic idea of an inverted tank sealed by a second tank of water was invented by Lavoisier in the 1780s but the first holders for gas works, square and encased in brickwork, were pioneered by Clegg.

Gasholders were the first interest the Government took in the gas industry when, after an explosion at the Westminster works in 1813, Sidmouth, the Home Secretary, sent the Royal Society to check on their safety. The deputation were astonished when Clegg knocked a hole in the side of a holder and ignited

- 2. Ibid. p.366.
- 3. Ibid. p.356.
- 1. Ibid. p.369.

<sup>1.</sup> King's Treatise, op.cit. Vol. I. p.365.

Matthews, Historical Sketch, op.cit. p.32; Hughes' Treatise, op.cit. (1904) p.13; King's Treatise, op.cit. Vol. II p.42.

the gas which burned harmlessly.<sup>1</sup> Nonetheless, Davy, in his report, recommended that holders be restricted in size to 6,000 cubic feet. The Select Committee on the gas industry in 1823 also feared explosions and rioters firing the holders although it reported that the holders were not as dangerous as was The Chartered had a holder of 25,136 cubic feet and the City one supposed. of 39,270, while in Paris there was one of 300,000 cubic feet. But the Committee still recommended a limit of 20,000 cubic feet.<sup>2</sup> This impractical restriction was never implemented.

Despite the unflagging ingenuity of Clegg, who had patented a rotary holder<sup>3</sup> and one on the principle of the book cover<sup>4</sup>, holder design quickly settled into the familiar round shape with slightly domed roof. The holders soon lost their protective housing, though some were supported by a central column, others by three or four columns around the side. All, at this stage, had counterweights to prevent the weight of the holder from increasing the gas pressure.<sup>5</sup> With the increase in the size of holders this ceased to be a problem and counterweights were abandoned by the 1840s.<sup>6</sup> The major advance in holder design came with the development of the telescopic holder, invented, but not patented, by Tait in 1824<sup>7</sup> and first used at the Mile End Oil Gas Company and at Leeds in 1826 and patented by Hutchinson in 1833<sup>8</sup> and used by his London Company at their Vauxhall works in 1834.<sup>9</sup> The telescopic holder saved land and capital since the bottom tank did not have to be so deep and was soon replaced by a circular trench. It also allowed the prodigious increases in size which were to bring further economies.

In 1830 the largest holder was that of the Imperial Company at their Fulham works, a one lift holder of 234,000 cubic feet.<sup>10</sup> But in 1835 the

1.5	SClegg,	op.	.cit.	. p.18	B. 👘				
2.	Report	of	the	s.c.	on	Gas-Lighting	Establishments	PP(1823) V	p.195.
3.	Pecksto	on (	1819	) op.	.cit.	. pp.247-251	•	•	

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4. Ibid. pp.266-267.
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    Ibid. p.221; Hughes' Treatise, op.cit. (1853) p.197.
    Peckston (1841) op.cit. Chap. XI.
    Stewart (1958) op.cit. p.33.
    King's Treatise, op.cit. Vol. 1 p.48.
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- 9. Stewart (1958) op.cit. p.33. 10. Stewart (1957) op.cit. p.42.

City Company, always short of space, built a three lift holder of 450,000 cubic feet, standing 105 feet tall, a landmark in the City, for many years, Not all telescopic holders were large. In 1838 the South Metropolitan erected one a mere 45,000 cubic feet. Also not all large holders were telescopic. In the same year the Imperial erected a single lift holder of 300,000 cubic feet at Pancras.<sup>2</sup> From then until 1892, however, the story is one of increasing size and number of lifts. In 1840 holders had reached 1,750,000 cubic feet; in 1860, 2, 500, 000 and by 1874, 5, 000, 000.<sup>3</sup> George Livesey then took the lead in holder design and in 1875 built a two lift holder at Old Kent Road of 2,215,000 cubic feet and in 1881 built the largest holder in the world of 5,779,000 cubic feet.<sup>4</sup> This was followed by an 8,000,000 cubic feet holder at East Greenwich in 1890 and at the same works in 1892 a monster of six lifts holding 12,000,000 cubic feet  $\frac{6}{5}$ , still the largest holder in Britain today. The driving force behind this development was the classic economies of scale since the larger the holder the less iron per volume of gas which was required. Livesey estimated, for example, that his 2,215,000 cubic feet holder of 1875 cost £18 9s. 3d. per 1,000 cubic feet while his 5,779,000 holder in 1881 cost only £8 10s. 8d. per 1,000.<sup>7</sup> The 12,000,000 holder of 1892 cost a mere £4 14s. 0d.<sup>8</sup>

Improvements in technique continued. The guiding framework was replaced by spiral guides in the side of the holder itself, pioneered by Gadd and Mason in 1888. In 1916 a waterless gasholder on the principle of a gas-tight piston operating inside an outer tower was invented in Germany - the last major advance in holder design. Several were erected in Britain up to 7,500,000

1. Ibid. p.19; King's Treatise, op.cit. Vol. II p.177, says built in 1844. 2.S.Clegg, op. cit. p. 140.

- Stewart (1958) op.cit. p.33.
   S. Metro. DM, 21 Dec. 1881.
   Hughes' Treatise, op.cit. (1904) p.225.
   S. Metro. SHM, 5 Feb. 1892; Brackenbury (1905) op.cit. p.42.
   S. Metro. DM, 21 Dec. 1881.
- 8. Hughes' Treatise (1904) op.cit. p.227; Garton, <u>G.W.</u>, 9 Aug. 1952 p.352. Iron prices were also falling of course, see p.177. 9. Hughes' Treatise (1904) op.cit. p.227; Stewart (1958) op.cit. p.33.



Livesey's 12 million cubic foot gasholder at the East Greenwich works built in 1892 and for many years the largest holder in the world. cubic feet; the largest of 20,000,000 cubic feet was built in Chicago in 1927.

The distribution of gas to the consumer, from the earliest days, followed the pattern of the existing water companies, although cast iron replaced the wooden pipes still in use as water mains.<sup>2</sup> The mains were up to 30 per cent of the initial capital cost of the early works<sup>3</sup> and determined that supply would be by a relatively large number of small works as the cost of mains escalated disproportionately with distance.<sup>4</sup> One of Clegg's major errors at the Chartered was to lay initial mains too small, only 2 inches in diameter, and as output increased these had to be replaced at great expense. The largest mains were 16 inches in 1820, 36 inches in 1850, while 48 inch mains led from Beckton in 1870.6

Poor joints and liability to fracture made the early mains defective, although inappropriate gauges and too high gas pressure were equally to blame for the extraordinary level of leakage. In the first half of the nineteenth century, 40 per cent leakage was normal, while the Equitable Company recorded a loss of 60 per cent in 1839. Improved joints, lower pressures and districting had reduced leakage to 12-15 per cent by 1860.<sup>8</sup> By 1887 unaccounted for gas for the three metropolitan companies represented 5.7 per cent of make, at which point it levelled off, being 6.4 per cent in 1914.9

Stewart (1958) op.cit. p.34.
 <u>King's Treatise</u>, op.cit. Vol. I p.30.
 Cotterill, op.cit. pp.830-31, 1161.
 e.g. a 2" main cost 9id. a yard with iron at £4 a ton, an 8" main cost 4s. 3id. a yard and a 24" main 23s. 3id. <u>King's Treatise</u>, op.cit. Vol. II pp.342-44.
 Matthews, <u>Historical Sketch</u>, op.cit. p.67.
 <u>King's Treatise</u>, op.cit. Vol. II p.298.
 Equitable SHM, 29 Jan. 1840.
 Commercial SHM, 6 Apr. 1866; Great Central SHM, Nov. 1868.
 Field's Analysis.

- 9. Field's Analysis.

Best practice gasworks c.1890.





Best practice gasworks in 1914.

The small bore service pipes from street main to the point of use were made of wrought iron and at the beginning of the industry surplus musket barrels from the Napoleonic War were often used. Short service pipes are called barrels to this day.<sup>1</sup> In 1813, James Russell, a gun maker, developed an improved method of tube manufacture and this was bettered by the patent of 1825 by Cornelius Whitehouse which formed pipe by drawing rod at welding heat through a mandril.<sup>2</sup> A major drawback, imposed by a Parliament fearful of monopoly, was to prohibit companies fitting up their own service pipes and burners. Until this restriction was lifted, therefore, the job had to be done by contractors who were often poor craftsmen who left leaking fittings. Many were dishonest and for a small extra charge would fit up more burners than the consumer had contracted to pay the gas company for under the rental system.<sup>3</sup>

## Measurement

One of the first problems to confront the gas companies was that of accurately measuring the gas they sold. Prior to the use of meters, the companies charged their customers a rental on the basis of the number of burners and the hours they were to be lighted. Companies appointed inspectors to check that burners were extinguished at the right time but the whole system was hopelessly prone to abuse.<sup>4</sup> The answer was an accurate meter. Early attempts were made to develop an inferential meter on the basis that the volume of gas passing through a pipe of known measurements at a constant pressure could be calculated. Patents were taken out by John Malam, a colleague of Clegg at the Chartered, by Congreve in 1824 and by Thomas Edge in  $1842^5$  but they all failed because of the variable pressure of the gas. The provenance of the first workable meter was the subject of controversy. The original idea was probably Clegg's and he took

5. Ibid. pp.9-15.

Stewart (1958) p.40; S.Clegg, op.cit. p.17.
 Patent acquired by Russell in 1830, King's Treatise Vol. I p.47.

<sup>3.</sup> Hughes' Treatise, op.cit. (1904) p.29. 4. King's Treatise, op.cit. Vol. III p.1.



Clegg, 1816





Malam, 1819





Crosley, 1820
out a patent in 1815 but the idea was probably only made workable by Malam who had worked with Clegg at the Chartered company and who Clegg claimed infringed his patent but whom the Royal Society gave the Isis Gold Medal for his design in 1819. The basic idea was of a drum half full of water inside which was another drum divided into four segments and revolving on an axis. Gas under pressure was injected into successive segments and expelled as it went under water. The turning of the axis drove a meter, one revolution registering gas to the volume of all the segments. The 'wet meter' was improved by Crosley, who started commercial production in 1820. At first the companies were slow to adopt the wet meter; the Chartered company placed its first large order in 1824 and the Imperial did not begin using meters until 1828.<sup>2</sup> In 1827 the City company had only 336 meters out on hire to 18.5 per cent of its 1,800 private customers - and the City was a leading company on the issue.<sup>3</sup> The early meters were inaccurate, the water often froze in winter and they could be tampered with to under-register the gas used by tilting or letting out some of the water. However, as the number of the companies' customers multiplied, the problem of surreptitious burning became acute and the rental system finally untenable. From the mid-1830s, the companies were taking active steps to convert customers to meters by giving discounts to those who did so.<sup>4</sup> By 1837, over 60 per cent of the Imperial customers had meters<sup>5</sup> and by the late 1840s, in London at least, meter use was almost universal.<sup>6</sup>

The drawbacks of the wet meter, however, bent many minds to the development of a dry meter. Clegg and Malam both tried but the first practical plan was that of an 'intelligent workman', named Bogardus, in America.<sup>7</sup> The idea was of a leather diaphragm set in a circular casing. The gas was injected alternately on

- 1. Ibid. p.4; Peckston (1819) op.cit. pp.319-321; Hughes' Treatise, op.cit. (1904).

- 151d. p.4; Peckston (1819) op.cit. pp.319-321; <u>Hugnes Treatise</u>, op.cit. (190-pp.318-19; Chandler, op.cit. p.65-66.
   Everard, op.cit. p.105; Imperial DM, 26 Dec. 1828.
   City CM, Aug. 1827.
   The Chartered gave 10% discount by 1830, Everard, op.cit. p.106; also City by 1828, CM, May 1828; London 1827, DM, 29 June 1837.
   Imperial DM, 17 Mar. 1837.
- 6. From 1840 the Chartered forced customers to change, Everard, op.cit. p.107, and in 1848 the S. Metro. made it compulsory, Garton, GW, 5 Apr. 1952 p.351.
- 7. King's Treatise Vol. III p.25.

Dry Meters





Bogardus, 1833



Defries, 1838



Croll, 1844





Improved Richards and Croll, 1844

each side of the diaphragm which oscillated back and forth expelling the gas and operating the meter. The meter was patented and introduced into this country in 1833 by Miles Berry but it failed<sup>1</sup>, largely because the action of the meter interrupted the flow of gas and therefore the light of the burners. In 1836 an improved Bogardus design was patented and introduced into Britain by Sullivan but with no more success.<sup>2</sup> Many engineers attempted to perfect the basic Bogardus idea and the first dry meter used on a widespread commercial basis was that of Nathan Defries in 1838.<sup>3</sup> Defries claimed by 1849 to have sold 30,000 of his meters<sup>4</sup> and by 1866, 200,000<sup>5</sup> although <u>King's Treatise</u> pronounced it unsuccessful because the leather perished.<sup>6</sup>

The dry meter that was to come into most common use was that developed by W. Richards while he was testing existing dry meters as surveyor of mains at the Chartered. He used a minimum of leather and two diaphragms rather than one, so equalising the flow of gas. In conjunction with Angus Croll, then his superior, he patented the idea in 1844<sup>7</sup> and they went into business together, the meter proving a success. Richards, however, fell out with Croll who took the British patent into partnership with Thomas Glover.<sup>8</sup> Glover, a Scot and former manufacturer of brass fittings, further improved the meter by using tanned leather<sup>9</sup> but again Croll discarded his partner after fourteen years and with an employee, Rait, he founded the Gas Meter Company by 1865<sup>10</sup>, the largest in the country, producing the 'Glover' meter which became the standard dry meter.

Despite the fact that dry meters were almost exclusively used on the continent and in America by 1865<sup>11</sup>, wet meters held their own in Britain. Dry

1.	Ibid. pp.24-25.
3.	Chandler, op.cit. p.72.
4.	Advert in J.O.N. Rutter, Gas-Lighting: Its Progress and its Prospects (1849).
5.	JGL, 6 Mar. 1866 p.152.
6.	King's Treatise, op.cit. Vol. III p.27.
7.	Chandler, op.cit. p.72; Hughes' Treatise, op.cit. (1904) p.333.
8.	G W , 11 Jun. 1887 p.741.
9.	Hughes' Treatise, op.cit. (1904) p.334.
10.	JGL, 2 May 1865 p.330.
11.	Hughes' Treatise, op.cit. (1865) p.229.

meters still tended to perish after a few years while the disadvantages of wet meters had been minimised by the use of floats to regulate the water level and additives to prevent freezing. Moreover, wet meters were marginally more accurate<sup>1</sup>, an important consideration since the 1859 Sale of Gas Act laid down the testing of gas meters and the granting of approval only to meters which did not err more than 2 per cent in favour of the company or 3 per cent in favour of the consumer.<sup>2</sup> As late as 1904 wet meters were still in common use in this country. The South Metropolitan used wet meters exclusively until the end of the century.<sup>3</sup>

The last important development with regard to the meter was the invention, in the late 1880s of the prepayment or penny-in-the-slot meter.<sup>4</sup> Introduced first by the Liverpool Gas Company in 1892<sup>5</sup>, it soon came into widespread use, part of the revolution in gas consumption which brought gas into working class homes for the first time in the 1890s. The South Metropolitan first used the coin meter in London in 1893 and by 1894 20,000, or 20 per cent of their consumers, used them.<sup>6</sup> and by 1900 95,000 or 50 per cent of consumers.<sup>7</sup> The Gas Light and Coke started a year later<sup>8</sup> and by 1897 had 65,124 coin meters, representing 22 per cent of consumers.<sup>9</sup> Thereafter, the expansion in the use of the coin meter went ahead rapidly (see Table 1) with the increase in the companies custom coming almost entirely from this source. The South Metropolitan led the London companies, who in general were in advance of the provinces. In the UK as a whole, 1 million coin meters were in use by 1899<sup>10</sup>, 11 million by 1903<sup>11</sup> and 2 million by 1906, representing 38 per cent of a total number of private gas

- And were still so in 1918, Weber (1918) op.cit. p.70.
   King's Treatise, op.cit. Vol. III pp.15-16.
   Hughes' Treatise, op.cit. (1904) p.332.
   Patents by R.W. Brownhill in 1887 and Thorp and Marsh in 1889, Cotterill, op.cit.
- p.1310. S.C. on Metropolitan Gas Companies PP (1899) X p.105.
   S. Metro. SHM, 15 Aug. 1894.
   Garton, G.W., 8 Aug. 1952 p.352.
   GLCC SHM, TT Aug. 1894.

- 9. Field's Analysis.
- 10. <u>G W , 14 Jan. 1899</u> p.49. 11. Ibid. 5 Sept. 1903 p.379.

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## TABLE 1

Details of consumption by the three major London Gas Companies: 1887 - 1914

Year	Output in '000000000 cubic ft.	Miles of Main	Number of Consumers	Output per Consumer in '000 cubic ft.	Consumers per mile of main	% of Consumers using coin meters
1887	25.5	2825	293,029	87.0	104	
88	25.8	2852	295,531	87.1	104	
89	27.4	2880	301,705	90.8	105	
1890	27.7	2901	309,541	89.3	107	
91	29.7	2929	315,149	94.2	108	
92	29.6	2955	315,548	92.7	108	:
93	28.6	2983	328,780	86.9	110	
94	29.0	3020	350,379	82.8	116	
95	31.2	3062	395,651	78.7	129	
: 96	32.6	3114	448,047	72.7	144	
97	34.3	3156	497,113	69.0	158	
98	34.8	3208	539,412	64.5	168	
99	36.1	3253	578,181	62.4	178	
1900	36.6	3304	612,040	59.8	185	
01	37.2	.3363	635,485	58.5	189	41.8
02	37.5	3423	666,526	56.2	195	43.7
03	37.2	3475	716,526	51.9	206	47.0
04	38.1	3531	779,450	48.9	221	50.8
05	38.6	3581	841,133	45.8	235	53.9
06	39.3	3616	895,320	43.9	248	56.6
07	40.2	3653	943,545	42.5	258	58.9
	39.9	3694	988,364	40.3	268	60.9
09	40.9	3708	1,029,468	39.7	278	62./
1910	43.8	3999	1,145,660	38.2	286	64.2
11	44.4	4047	1,178,517	37.6	291	65.2
12	46.6	4176	1,223,995	38.0	293	65.9
13	42.5	4202	1,256,591	33.8	299	66.5
1914	42.1	4223	1,283,278	32.8	304	67.0

Source: Field's Analysis

users of 5½ million.<sup>1</sup> Moreover, Britain seems to have been in advance of the rest of the world.<sup>2</sup>

## **Appliances**

For the first sixty years or so of the existence of the gas industry. virtually its only use was for lighting. Early gas burners were little more than holes in the service pipes, but this was quickly improved upon by Stone, a workman of Winsor's who by making the hole into a slit produced a wide flat flame known as a 'batswing' after its shape.<sup>3</sup> There were many less popular burners with equally picturesque names like rat tail, cockspur, cockscomb and in 1820 James Neilson and James Milne of Glasgow invented the union jet or fishtail whereby two jets impinged on one another increasing the temperature and giving a brighter flame. Samuel Clegg had quickly adapted the Argand burner to gas in 1809, further improved upon by Grafton in 1815.<sup>4</sup> Basically a series of fifteen or so holes in a circle giving a hot tubular flame, it was the most efficient form of gas-light until the incandescent mantle and was the most used light until the 1850s,<sup>5</sup> but it gave a light equal to 10-12 candles<sup>6</sup> and used relatively large amounts of gas and was therefore beyond the pocket of all but the richest private users.<sup>7</sup>

In the early days, street lighting was a high proportion of the companies' In 1822, 28 per cent of the London companies' lights were public but demand. because public lights were on average larger and were lit longer, 51 per cent of gas was sold through them.<sup>8</sup> This importance declined relatively with the increase in private demand - to perhaps 9 per cent in 1859<sup>9</sup>, 5 per cent in 1887 and 3 per

W.H.Y. Weber, Town Gas and its Uses (1907) p.17.
 Brackenbury (1905) op.cit. p.113.
 S.Clegg, op.cit. p.21.

<sup>4.</sup> Chandler, op.cit. p.84.

<sup>5. 80%</sup> of the Imperial's lights in 1837 were Argands, Imperial DM, 17 March 1837.
6. J.O.N. Rutter, Advantages of Gas (1865) p.14.
7. King's Treatise, op.cit. Vol. III p.75.
8. Report of S.C. (1823) op.cit. pp.340-1.
9. JGL, 10 May 1859 pp.267-8.

Early Gaslights



cent by 1914.<sup>1</sup> Public lighting was the less lucrative side of the companies' business but necessary to get a company established in a particular parish. The single most important early use of gas was in shops.<sup>2</sup> The characteristic open-fronted London shop usually took three Argand lamps and since they almost all closed at nine o'clock in the first half of the nineteenth century this lent itself to contract burning. Gas was also extensively used in the early years in public houses, offices, theatres, warehouses and the like. Finally, the wealthy used gas in their entrances, halls and doorways but not in living rooms.<sup>3</sup> The heat that gas-light generated, faulty fittings, bad purification and the lasting appeal of candles all contributed, but the cost was the main factor. Even three Argands in hallways in the 1820s would cost £40 to £50 a year. As the price of gas fell, however, use of gas in living rooms increased.<sup>4</sup> By 1849, with gas less than a third of the price in the 1820s, it could be said that 'The advantage of gas lights in private houses is beginning to be understood<sup>1,5</sup> In the 1850s gas in the form of the single jet burner rapidly entered middle class homes.<sup>6</sup>

Continuous attempts were made to improve the performance of the burners, dominated by William Suyg, but also by his great rival Charles Bray.<sup>7</sup> Sugg started as a meter maker with the South Metropolitan but left to found his own business<sup>8</sup> and to make his fortune. The firm still survives to this day. Sugg's principles were to keep the flame as hot as possible and to keep down the pressure of the gas by use of a 'governor' and so allow more complete combustion.<sup>9</sup> In 1858 he invented a burner with a steatite top which neither

- rieid's Analysis.
  As it had been oil lamps. Falkus (1976) op.cit. p.262.
  J.O.N. Rutter, Practical Observations on the Ventilation of Gas-Lights (1846) p.3. In 1850 the JGL said 'gas not used in the home in any numbers', JGL, 10 Oct. 1850 p.294.
  Ibid. 10 Sep. 1850 p.283.
  J.O.N. Rutter, Gas Lighting (1849) p.44.
  JGL, 31 Dec. 1861 p.874.
  Chandler, on cit. p.96.

- 7. Chandler, op.cit. p.96. 8. S. Metro. DM, 20 Jun. 1836.
- 9. Chandler, op.cit. p.91.

corroded nor allowed so much heat to escape from the flame. In 1869 he introduced his 'London' Argand burner which became standard all over the world.<sup>2</sup> A further advance came with the development of the regenerative burner which pre-heated the air, further increasing the temperature of the flame. Invented by Fredrich Siemens of Dresden in 1879,<sup>3</sup> it doubled the candle power of the burner from three candles per cubic foot per hour to six or seven.<sup>4</sup> Yet this was only viable for large lights. Even the wellto-do middle class used mainly flat flame burners even by the 1880s and here any improvements were only marginal.<sup>5</sup>

The kernel of the idea that was eventually to be successful and transform gas-lighting, that of using the heat of the gas flame to make a solid material glow incandescently, had been long appreciated. In 1828 by Drummond, and later improved by Gurney, a gas was used in conjunction with lime to produce the limelight used in theatres.<sup>6</sup> In 1849, Lowe had naphtha vapour injected into the flame, while the 'arbo carbon' light of Kidd in 1878 similarly used naphtha and was taken up to some extent.<sup>7</sup> The pedigree of the eventually successful plan, however, can be traced to the Frenchman Frankenstein who, in 1849, played a flame onto a mantle coated in certain refractory materials.<sup>8</sup> Mantles were devised of platinum wire gauze, as in the patent of Lewis in 1881, or of magnesium, as in that of Clamond, another Frenchman, in 1882.<sup>9</sup> All these lights failed because the mantles were too fragile. In 1853, however, gas-light had come to Heidelburg and in 1855 Robert Wilhelm von Bunsen, a professor at the University, developed a burner which by varying the gas/oxygen ratio could produce a colourless flame of high temperature.<sup>10</sup> This was a prerequisite of the successful

- 1: O'Dea (1958) op.cit. p.55.
- 2. Chandler, op.cit. p.125.
- 3. Ibid. p.152.
- F.W. Robins, The Story of the Lamp and the Candle (1939) p.118.
   King's Treatise, op.cit. Vol. III p.75.
- 6. Chandler, op.cit. p.182. 7. Ibid. pp.138-140.
- 8. Ibid. p.183.
- 9. Ibid. p.185.
- 10. Ibid. p.179.





1889



Welsbach's improved burner, 1893.

incandescent burner and using the Bunsen burner, Hogg, in 1868, and Wenham, in 1856 and 1880, came close to success.<sup>1</sup> However, it was a pupil of Bunsen. Carl Auer, who like many others had been experimenting with many materials for the mantle, who first discovered a workable solution. In 1885 he patented a method of saturating a fine cotton mantle in a combination of thorium and cerium, then burning off the cotton at high temperatures leaving a fragile gauze which glowed brilliantly when heated in a Bunsen flame. The first specification gave a light of 6 candles per cubic foot, or double the standard Argand,<sup>2</sup> and the Austrian Government honoured Auer with the title von Welsbach. In 1887 von Welsbach came to Britain and set up the Incandescent Gas Light Company to exploit the patent.<sup>3</sup> At first the company failed; the mantles were still too fragile - the slightest draught would destroy them. Adjusting the combination of the 'rare earths', however, strengthened the mantles sufficiently to be practicable.<sup>4</sup> With a candle power of 8-10 candles and without the need to use large quantities of gas, the Welsbach mantles brought gas into the homes of the working class for the first time. By 1893 the reconstituted Welsbach Company had sold 20,000 mantles; by 1894 - 105,000; 1895 - 300,000,<sup>5</sup> and by 1896 -  $600,000^6$  and in total there were said to be 4 million in use by 1896.<sup>7</sup> By 1914, however, 75 per cent of mantles were imported from Germany.<sup>8</sup>

The efficiency of the incandescent mantle underwent rapid improvement. In 1897 a synthetic fibre made from grasses found in China replaced cotton and strengthened the mantle.<sup>9</sup> Inverting the mantle further improved performance<sup>10</sup> but really dramatic increases in illuminating power came with successive increases

- 1. Ibid. p.185. 2. Ibid. p.192. 3. Ibid. p.194. 4. Co-Partners Magazine, op.cit. (1918) p.53.
  5. Chandler, op.cit. p.201.
  6. G W , 30 May 1896 p.744.
  7. Ibid. 26 Dec. 1896 p.897.
  8. Garton, G.W., 6 Dec. 1952 p.1444.
  9. Co-Partners Magazine, op.cit. (1918) p.81.
- 10. Chandler, op.cit. p.221.

in the pressure of the gas.<sup>1</sup> Approximate efficiencies were as follows:<sup>2</sup>

Flat flame bu	2-21	candles	per	cubic	foot	
Argand		3	B		. 01	**
Regenerative		7	- N	11	11	81
Early incande	scent burner	10	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	. 11	<b>i</b> 1	1. <sup>1</sup> .
Inverted	an she kara a s	20	86		s 0 · · ·	81
Intensified	0	30	58	81	H	. 11
ligh pressure	11	60	D2	15	N	. #

Between 1899 and 1902 the South Metropolitan converted its entire public lighting from flat flame burners to mantles<sup>3</sup> and by 1906, 80 per cent of its private customers used mantles.<sup>4</sup> The Gas Light and Coke was more backward but by 1904 65 per cent of its public lights were incandescently lit.<sup>5</sup> Indeed the incandescent mantle allowed the gas companies to hold out against electricity in street-lighting until the 1930s.<sup>6</sup>

The use of gas for cooking and heating had been an early claim of Winsor's,<sup>7</sup> but sixty or seventy years were to elapse before it became a reality on a significant scale. The impurity of the early gas, the discouragement of the companies when, before meters, the daytime use of gas required a separate main, and, especially, the cost of gas, all conspired against its use for cooking. Nonetheless James Sharp of Northampton, the pioneer in the field, demonstrated practical gas stoves in 1830 as did John Barlow a few years later. In 1841 the famous chef, Alexis Soyer began using gas at the Reform Club<sup>8</sup> and subsequently its use in hotels, restaurants, hospitals and schools became quite common. Recognisable gas cookers with gas rings and an oven below were exhibited by Alfred King, Charles Ricketts and Sharp at an exhibition at the Polytechnic Institute in 1851.<sup>9</sup> And, as gas prices fell, cookers made slow progress into

Ibid. pp.217-18.
 Stewart (1958) p.47.
 Chandler, op.cit. p.247-8.
 S. Metro. SHM, 17 Feb. 1906.
 GLCC SHM, 13 Aug. 1904.
 Chandler, op.cit. p.261-279.
 King's Treatise, op.cit. Vol. III p.215.
 Chandler and Lacey op.cit. p.77; Stewart (1958) p 45.
 Ibid. pp.78-79.

middle class kitchens, especially after the application of Bunsen's principles to the jets. In 1857 the Maidstone Gas Company was the first to hire out stoves to its customers,<sup>1</sup> followed by the Crystal Palace in 1867,<sup>2</sup> the South Metropolitan in 1878<sup>3</sup> and the Commercial and GLCC some years later. The South Metropolitan and GLCC sent out advertisements with their quarterly bills and in the eighties exhibitions and cookery lectures - with titles like 'What will ten feet of gas cook?' - were held to encourage consumption.<sup>4</sup> Progress was slow, however. In 1879 after over ten years of hiring the Crystal Palace had only 352 stoves out on hire among its 8,000 consumers.<sup>5</sup> By 1889, the South Metropolitan still had only 10,000 cookers out on hire, representing some 13 per cent of customers,<sup>6</sup> while in 1890 the Gas Light and Coke had 20,000 or 9 per cent of customers.<sup>7</sup> This under-estimates use since customers bought their own but, undoubtedly, the nineties saw the real establishment of the mass use of gas cooking which began ousting the old coal range from working class homes. From 1889 to 1893 South Metropolitan stoves on hire doubled to 21,600 or 25 per cent of consumers,<sup>8</sup> and by 1900 this had further increased to 120,373 cookers, or 63 per cent of its customers.<sup>9</sup> The Gas Light and Coke's business made similar Between 1890 and 1893 stoves on hire trebled to 60,000.<sup>10</sup> In 1898 it strides. opened its first showroom and by 1900 had 208,049 cookers on hire - 59 per cent of its customers.<sup>11</sup> By 1914 the three London companies had over a million stoves on hire, 84 per cent of all consumers.<sup>12</sup>

By 1913 the old black, cast iron cooker gave way to the familiar enamelled case iron and in 1923 automatic control of oven temperatures became possible

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    Hughes' Treatise, op.cit. (1904) p.352.
    King's Treatise, op.cit. Vol. III p.221.
    S. Metro. DM, T4 Oct. 1878.
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3. S. Metro. DM, 14 Oct. 1878.
4. JGL, 17 Jun. 1890 p.1119.
5. King's Treatise, op.cit. Vol. III p.221.
6. S. Metro. SHM, 1 Aug. 1896.
7. JGL, 17 Jun. 1890 p.1119.
8. S. Metro. SHM, 3 Aug. 1893.
9. G W, 10 Feb. 1900 p.215.
10. GLCC SHM, 7 Feb. 1893.
11. G W, 10 Feb. 1900 p.215.
12. Field's Analysis (1914) p 17.
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with the introduction of the thermostat. Indeed, cooking was to be the saviour of the gas industry in the face of electricity and by 1939 75 per cent of all gas used in the home was for cooking.<sup>2</sup>

Early gas heaters were convectors and by 1841 had been used to heat churches, shops and counting houses.<sup>3</sup> The first patent for a radiant heater was that of Dr. David Owen Edwards in 1849.<sup>4</sup> He had the gas playing onto a hollow clay bulb with small perforations. Asbestos fibre was used by Goddard in 1852 and woven wire in 1877. Perhaps the first acceptable radiant heater was that of Leoni in 1882, who used asbestos set in fire brick and these came slowly into use. But while in 1900 the South Metropolitan had 120,373 cookers out on hire it had only 10,399 fires<sup>5</sup> and indeed heating has never exceeded cooking as a consumer of gas. A water heater patent dates from 1825 by Robert Hicks for heating a bath, while the instantaneous water heater - the geyser - was patented by Maughan in 1868 and successively improved by Fletcher in 1890 and Davis, Potterton in 1904.

There were ceaseless attempts to use gas as a motive force to rival steam power dating back, of course, to that of John Barber in 1791. Patents were taken out by Samuel Brown in 1823, L.W. Wright in 1833,<sup>7</sup> and by two Italians, Metteucci and Barsanti, in 1857. The first to approach success, however, was that of Lenoir the Frenchman in 1860.<sup>8</sup> The explosion of the gas in the engine, however, proved too great and in 1863 the German Otto tried to use the vacuum created by combustion.<sup>9</sup> This proved unsuccessful, but by reverting to the explosive power regulated by the gas/air mixture, Otto produced a workable engine which was taken up by Crossley Bros. of Manchester<sup>10</sup> and came into general use in

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1. Stewart (1958) p.47.
2. P.E.P., Report on the Gas Industry (1939) p.5.
3. Peckston (1841) op.cit.
4. Chandler and Lacy, op.cit. p.82.
5. <u>G.W</u>, 10 Feb. 1900 p.215.
6. Stewart (1958) p.47.
7. King's Treatise, op.cit. Vol. III p.190.
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- 8. Ibid. p.191.

<sup>9.</sup> Ibid. p.196. 10. Hughes' Treatise, op.cit. (1904) p.361.

Gas Fires in 1878











the 1870s and 80s.<sup>1</sup> It was primarily used in small scale industry such as printers<sup>2</sup> and in the workshops of the Black Country and came into extensive use in the 1890s. In 1879 two leading manufacturers of Otto engines, Crossley in England and Deutz in Germany had sold 590 engines in Britain, by 1890, 1805 and by 1897, 30,973. This was almost twice as many as in Germany and fractionally more than in the rest of the world put together and in terms of power generated almost twice as much as the rest of the world.<sup>3</sup> Gas engines. however, had a relatively brief flowering. They could not compete with electricity and, when this became cheaper and generally available in the inter-war period, gas engines became virtually extinct.

Other industrial uses of gas had been appreciated from the beginning - for example, the Fleet Street printers soon adopted gas for melting down type.<sup>4</sup> Moreover, as the price of gas fell it became economic to use it in other areas and by the First World War was used extensively in the firing of furnaces, in the treatment of metals, in paint and glue making, in bakeries and many other industries.<sup>5</sup>

This brief description of technical developments in gas appliances makes it clear that the period from the 1880s to 1914 was one of tremendous change in the consumption of gas. As late as 1890 gas was for minority consumption by commerce and the middle classes. By 1914, as a result of increases in living standards, the fall in the price of gas prior to 1890 and the development of the Welsbach mantle and the coin meter, gas had entered the vast majority of working class homes. For the three London companies their number of consumers more than

King's Treatise, op.cit. Vol. III p.200.
 JGL, 9 Jan. 1866 p.27.

- 3. G.W., 2 Jul. 1898 p.17.
- 4. Peckston (1819) op.cit. p.108.
- 5. Popplewell, op.cit. p.203.

quadrupled between 1890 and 1914;<sup>1</sup> the amount of gas they sold, however, increased a mere 64 per cent<sup>2</sup>, such was the improvement in the efficiency of gas consumption.

These developments had an important impact on the industry. In 1840 the day-time demand for gas was negligible, by 1860 it was probably less than 10 per cent of total gas sales. By 1886, however, it was already up to 30.6 per cent and by 1903 it was 50 - 53.6 per cent, day demand exceeding night.<sup>3</sup> This clearly reflects the increasing use of gas for cooking and heating and this, as well as altering the demand for gas in the twenty-four hour cycle, also affected seasonal consumption. In 1860 the peak winter demand in any one day was up to four times as great as the summer minimum.<sup>4</sup> By 1910 the proportion was less than double and stayed at this level into the 1950s.<sup>5</sup>

See Table 1 p. 41.
 See Table 8 p. 157.
 Popplewell, op.cit. p.207.
 Colburn, op.cit. p.25.
 Stewart (1958) op.cit. p.42.

## Chapter 3: Rogues, Speculators and Competing Monopolies, 1812-1860

The commercial history of the London gas industry up to 1914 can be conveniently, if somewhat artificially, divided at 1860 into an early period of competition between companies and a later period of monopoly via, firstly, 'districting' agreements, which gave a company sole right of supply in an area, and secondly, by amalgamations. To characterise the period up to 1860 as being entirely one of competition, however, would be to misrepresent the situation since, for most of the time, most of the companies did not actively compete. Districting agreements were continually made, while where, as often happened, their mains remained in the same street, companies charged the same price and agreed not to poach each other's customers. The advantages of not competing, particularly the reduction of the length of mains and therefore capital expenditure and gas wastage, exerted a constant pressure on the companies. The pattern repeated itself a number of times whereby a new company entered the industry offering competition to some of the existing concerns but this competition was kept up only long enough for the new company to establish itself in an area and until the advantages of competition - that is the possibility of gaining new customers - no longer outweighed the advantages of reaching an agreement. But the continual entry of new competitive companies did give this period the character of freebooting capitalism, peopled by company promoters more or less dishonest and, because the hand of government, local and central, was never far away, by politicians more or less corrupt. In this respect it is informative to look briefly at the fortunes of each company as it is set up.

Untypically, the Chartered Company was never at its heart fraudulently run, but it had very rocky beginnings. Its three works were poorly sited to receive coal, which throughout this period came down the coast from Newcastle. Its initial mains soon proved too small and had to be replaced.<sup>1</sup> Clegg, their early engineer, spent much time and company money on ingenious but commercially fruitless projects. Many problems arose because the Chartered was the pioneer

1. Matthews (1827) op.cit. p.67.

company and made mistakes which successors avoided. For whatever reason, the company burned up capital at an alarming rate and had to return to Parliament in 1814, 1816,  $1819^1$  for more funds, by which time it had a nominal capital of £580,000. In 1822 it had almost five times the amount of capital as the City Company but produced only two and a half times as much gas.<sup>2</sup>

As a result of these early difficulties a breakaway committee of the company's proprietors began to agitate against the Court and at one stage went as far as to order retorts on its own account. They were also dissatisfied with the treatment of Winsor and voted him back onto the Court but this the Court ignored. Finally, in 1814, Grant, the Governor, resigned to be replaced by David Pollock, the first in a tradition of lawyers as Governors of the Chartered. Pollock, the son of a saddlemaker to George III, governed the company in a solid fashion until he was appointed a Chief Justice in India, although he died before he could take up the appointment in 1847.<sup>5</sup> The Deputy Governor was one of the breakaway committee, Thomas Livesey. Livesey was the first of what was to become the most famous family in the nineteenth century gas industry but his origins are unfortunately obscure. He played a leading role in the setting up of a number of gas works around the country  $b^{6}$  as well as in the running of the Chartered. However, he fought a running battle for almost twenty-five years with some of the shareholders. In 1816 a committee of enquiry was set up by a general meeting to look into Livesey's dealings with their coal merchant who had been exposed defrauding the company.<sup>7</sup> Livesey was exonerated

1. <u>Returns from the Gas Companies Established By Act of Parliament</u> P.P. (1847) XLIV p.22.

- 3. Everard, op.cit. p.40.
- 4. Ibid. p.47. 5. Ibid. p.115.
- 6. <u>King's Treatise</u>, op.cit. Vol. I p.51.
- 7. Everard, op.cit. p.77.

<sup>2.</sup> S.C. on Gas-Lighting Establishments P.P. (1823) V pp.332 and 334.

and further accusations of dishonesty were also not proved in 1824.<sup>1</sup> The historian of the company clearly believes Livesey to be innocent of any crookedness but is not correct in saying that his abrupt departure in 1840 went unrecorded, since a cryptic resolution was entered in the minutes of the shareholders' meeting to the effect 'That this Court highly appreciates the services of Mr. Livesey for more than a quarter of a century and aquits him of any intention to injure or prejudice the Company and of every charge affecting his integrity'.<sup>2</sup>

In the first years after they took charge of the company, Pollock and Livesey made drastic attempts to cut expenditure and save the company from ruin. In this they were successful but the company was in no position to expand. Indeed, it began turning customers away. For a number of winters it was unable to meet demand and received many complaints from customers about low pressure.<sup>3</sup> One of the main problems was a shortage of holder capacity.<sup>4</sup> The Company did not pay its first dividend until 1817 - 6 per cent. It paid 8 per cent from 1818 to 1823, falling to 7.00 per cent in 1824 and 6 per cent in 1826<sup>5</sup> where it was held while the Company used its profits to improve its capital structure. Its early situation left the Chartered vulnerable to competition, which arrived first from a company in the City and also from one south of the river, an area which, by 1825, it had abandoned.<sup>6</sup> As more companies set up against it and districting boundaries were established, the Chartered became encircled in the West End and was therefore not in a position to benefit from the geographical expansion of the city. This advantage fell to the Imperial which by the 1840s had overtaken the Chartered as the largest company in London.

Ibid. pp.77 and 112.
 Ibid. p.114; GLCC SHM, 2 May 1840.
 Everard, pp.64 and 82-3.
 GLCC DM, 13 Feb. 1817 and 24 Mar. 1817.
 GLCC SHM for each year.
 Everard, op.cit. p.98.

The City Company began as a partnership between William Knight and F. Sparrow in 1814 with a small works in Dorset Street. The firm was not particularly successful and in 1816 offered itself to the Chartered for  $f13,500^2$  The latter declined and the concern went on to get an Act of Parliament and a capital of £200,000 in 1817. At first Sparrow took the chair but he was soon replaced by Timothy Stansfeld, a City merchant.<sup>3</sup> Their new engineer John Perks, recruited from the Chartered, set about building a new works on the river site at Blackfriars which was opened in 1819.<sup>4</sup> The City further consolidated its position by buying up a small company established in the City and closing its works in 1823, which gave the company a virtual monopoly in the 'square mile'. With a compact area the company had the advantage of a low mileage of main with a higher proportion of customers per mile who, moreover, comprised wealthy homes, workshops, counting houses, taverns and shops. The company had undertaken no wasteful expenditure of capital and therefore was in an ideal position to become the most successful and profitable company in London.

The City never competed with the Chartered on price, both companies charging 15s per 1,000 cubic feet. The company seems to have filled a vacuum created by the older company's inability to expand. By 1820 the mains of the two concerns began to overlap but they came to a tacit boundary The same situation applied to a more formidable opponent, which agreement. first surfaced in 1816, whose declared intention was to offer competition to existing companies over the whole of the metropolitan area. Unable to prevent this competition commercially, the Chartered rallied support to oppose the new

1. Ibid. p.142.

<sup>2.</sup> King's Treatise, op.cit. Vol. I p.59.

<sup>3.</sup> Everard, op.cit. p.143.

<sup>4.</sup> Ibid. p.144.

Returns from the Gas Companies (1847) op.cit. p.22.
 Everard. op.cit. p.149.

company passing its Act of Parliament. This it succeeded in doing in 1819 but in 1821 it withdrew its opposition when the Imperial Company, as it became known, agreed to a boundary line to the north, west and east of its area in the West End and the City. Like the City, the Imperial took an area underexploited by the Chartered and charged an even higher price than the older company - 17s per 1,000 cubic feet.<sup>2</sup>

At this juncture the Government entered the picture in the person of William Congreve. Congreve, born in 1772, was the son of a Lieutenant General in the Roval Artillerv. Educated at the Royal Academy at Woolwich, he entered his father's regiment in 1791. Congreve had an inventive turn of mind and while at Woolwich he developed an artillery rocket which was used with some success against the French. A Fellow of the Royal Society, he was elected to Parliament in 1812 and took a close interest in the gas industry from the first, being a member of the deputation shown around the Westminster works in 1814. In that year he succeeded to his father's baronetcy and, a personal friend of the Regent, later George IV, he followed his father as Comptroller of the Royal Laboratory at Woolwich. Congreve took out a number of patents concerned with gas manufacture with no great success but in 1822 the Home Office appointed him to examine and report on the state of the London gasworks. The precise nature of Congreve's appointment is not clear. If, however, he was a salaried Government Inspector along the lines of those appointed under the Factory Act of , he had a degree of financial involvement in the 1833, as has been suggested industry he was inspecting which would be thought unacceptable by today's standards. He was an associate of the notorious Joseph Clarke and was heavily

1. Everard, op.cit. p.42.

- Returns from the Gas Companies (1847) op.cit. p.22.
   Dictionary of National Biography, Vol. XII p.9.
- 4. Everard, op.cit. p.95.
- 'State Control of Public Utilities in the 19th century', D.A. Chatterton, in Business History, (June 1972) p.168.

involved in the speculations of 1824-5.<sup>1</sup> Yet bias on his part in his dealings with the gas companies is not clearly evident.

As the Home Office Inspector, appointed under provisions of one of the Chartered's Acts of 1816, Congreve made two reports, the first in 1822,<sup>2</sup> mainly concerned with the danger of explosions, the original concern of the Government. The report for the Select Committee in 1823, went further in advocating licensing of works, gas testing and compulsory districting, primarily to avoid the undue taking up of the streets, as well as limitations on the size of holders.<sup>3</sup> A bill was drawn up to embody these proposals and a Select Committee set up to investigate. After opposition, however, the bill was withdrawn.<sup>4</sup> In the meantime, Congreve had been called in by the companies to arbitrate on the precise boundary between the Chartered and the Imperial drawn up in 1819 and, with the legislation pending, he also called in the City Company to agree a comprehensive plan.<sup>5</sup> The City demurred because it feared the Government's plans to limit holder size at a level well below that of the company's existing holders.<sup>6</sup> Finally, however, it accepted a boundary imposed by Congreve which, as with that between the Imperial and Chartered, ran precisely along the lines already arrived at by the companies.<sup>7</sup> The Congreve agreement was never given the force of law.<sup>8</sup> Congreve continued as an inspector until his death in 1828.

The City Company successfully preserved its monopoly in the City until 1849. Highly prosperous, in addition to paying dividends of 10 per cent, by 1827 it was distributing 'surplus' profits to shareholders - in 1833 £8 18s. per £100 share for example 9 - and, in addition, used profits to pay calls on its shares of £10

- gas firms in London, Chandler, op.cit. p.58.
  Copy of the Report of the Royal Society to the Principal Secretary of State for the Home Department on the subject of Gas Lights, and Copies of two Reports of the Person appointed by the same Secretary of State to inspect the Gas Light Establishments in the Metropolis P.P. (1823) V pp.308-312.
- 3. Ibid. pp.313-326.
- 4. Everard, op.cit. p.95.

- Everaru, 0....
   Ibid. p.96.
   City CM, 'May 1823.
   Ibid., Jun. 1823; Imperial SHM, 17 Jul. 1823.
   -i+ n.96.
- 9. City SHM,

<sup>1.</sup> For example he helped set up the Oil Gas Company in competition to existing coal

each in 1827 and 1828<sup>11</sup> and £15 in 1838.<sup>2</sup> The City successfully withstood successive attempts by new companies to enter its district. It spent heavily in conjunction with the other existing companies to prevent the Independent and the British from passing Acts in 1829. It was unsuccessful but the boundary agreements kept its district intact. Repeated attempts were made by the British, the London and the Equitable to get permission to lay mains in the City but again without success. In this, the City Company was doubtless helped by having City Aldermen and Lord Mayors on their Board. But the City was commercially strong enough to withstand encroachment since it was in a position, until 1849 at least, to undercut any competition in price and still remain profitable. Throughout the period, the company was given strong leadership. When Timothy Stansfeld died in 1829 he was succeeded by his son Josiah,<sup>3</sup> who in turn was followed in the chair, in 1849, by his brother-in-law Robert Gray. Gray, a shareholder in most of the other London companies and prominent at their shareholders' meetings, remained in the chair of the City until amalgamation in 1870 when he retired at the age of 81. $^4$ 

The early years of the Imperial were less sedate. The company had, in fact, been promoted from the first by a group of rogues led by one Joseph Clarke, who deserves to rank in notoriety with George Hudson the 'Railway King'.<sup>5</sup> The company only received its Act in 1821 after it had paid £300 each to a number of MPs including Joseph Hume, Admiral Sir Elias Harvey and George Dawson, Under Secretary at the Home Office responsible for the gas industry and Congreve's superior.<sup>6</sup> The Act granted them capital of £250,000 and a huge potential territory.<sup>7</sup> Clarke installed a senile old gentleman - Rowland Williams - as Governor and a malleable MP, Peter Moore, as Deputy. Williams attended few

- Jul. 1827 and Jul. 1828. 1. Ibid.
- 2. Ibid. Jul. 1838.

- Everard, op.cit. p.153.
   JGL, 18 Dec. 1877 p.944.
   D. Mountfield, The Railway Barons (1979) Chap. 2.
   Imperial SHM, 17 Jul. 1823 and DM, 18 Jul. 1823.
- 7. Everard, op.cit. p.157.



Pancras gasworks from the Regent's Canal in 1829. One of the 'sights' of London.

meetings<sup>1</sup> and it is clear Clarke made all the decisions.<sup>2</sup> To cover their territory, the company built three works: at Shoreditch on the Regent's Canal, opened in 1823;<sup>3</sup> another on the canal at St. Pancras (always called Pancras), built by Clegg, opened in 1824, and said to be for some years the largest gasworks in the world;<sup>4</sup> and finally a works at Fulham on the Kensington canal, opened in 1829.<sup>5</sup> A viable concern as such, Clarke and his associates now set about diverting as much of the funds into their own pockets as possible. Apart from overpaying themselves in salaries, in 1824 one director, James Deacon, accused the others of regularly withdrawing large sums from the company. Deacon, however, was skilfully ousted from the Court by Clarke.<sup>6</sup>

In 1824-5, Clarke and his cronies played a leading part in the stock market boom, being involved in the promotion of no less than twenty-six companies, including the Arigna Mining Company,<sup>7</sup> set up to mine and smelt iron ore in Ireland. Clarke persuaded Congreve to become chairman and he in turn recruited other MPs, including James Brogden, then Chairman of Ways and Means. Clarke and his friends bought the property in Ireland for £10,000 but sold it to the Arigna Company for £25,000 and the proceeds were distributed among the directors. As the <u>Times</u> said when the swindle emerged, Clarke was someone who deals out sums of £1,047 each to MPs as a man deals out cards at Put or Blind-Hookey'.<sup>8</sup> When, finally, a committee of shareholders was set up to investigate the affairs of the company, Clarke resigned taking the sharebook with him.

With the stock market crash in 1826, the conspiracy at the Imperial also began to unravel. The first public notice of the state of the company came in an anonymous letter to the <u>Times</u> which revealed that the company had been grossly overpaying their coal agent, a brother of one of the directors, A.A. Surtees,

Imperial SHM, 20 Jul. 1826.
 Everard, op.cit. p.160.
 Stewart (1957) op.cit. p.86.
 Ibid., p.72; Everard, op.cit. p.158.
 Stewart (1957) op.cit. p.41.
 Imperial DM, 10 Dec. 1824.
 Times, 26 Feb. 1827.
 Ibid. 18 Jun. 1826.

and that when he had died, the agency had been given to the nephew on the understanding that the profits were passed to Surtees' sisters.<sup>1</sup> At the time Surtees, also a director of the Arigna and other notorious companies, was a junior clerk in the Navy Pay Office at Somerset House. As a result of the revelations, Surtees resigned - only to become the Company's coal agent himself,<sup>2</sup> and subsequently to make off with a further £2,500.<sup>3</sup> In 1825, when, unsurprisingly, the company was running short of cash. Clarke lent it £10.000<sup>4</sup> and, despite the publicity in 1826 and subsequent disclosures, Clarke managed to stay on the Court for another three years. In 1826, Williams, the Governor, died and Clarke was forced to bid for the chair but he was beaten, despite much manoeuvring, by a local landowner - Philip Lucas.<sup>5</sup> Moreover, due to shareholders' pressure, a committee of enquiry was set up in 1827 to look into the accounts.<sup>6</sup> As a result of this investigation the clerk of the company, Clarke's brother Henry, was forced to resign albeit on a pension<sup>7</sup> and speedily took up residence in Paris. But still matters did not improve since the replacement as clerk, Bartholomew Mayhew, immediately set about relieving the company of some £8,200.<sup>8</sup> Things did not finally come to a head until a bill brought before Parliament in 1828 to raise further capital was rejected because those implicated in the Arigna Mining Company scandal remained on the board. In addition the presentation of the accounts of the company was delayed and so another committee of enquiry was set up by the shareholders, this time headed by Parry Richards.<sup>9</sup> Finally, the whole nest of embezzlers was uncovered.<sup>10</sup> Surtees and Mayhew ran off. Vivian, the engineer, was caught having falsified stock accounts. Illegal payments had been

Ibid. 25 Mar. 1826.
 Imperial DM, 11 Aug. 1826; Everard, op.cit. p.164..
 Imperial SHM, 28 May 1828.
 Imperial DM, 6 May 1825.
 Imperial SHM, 22 Dec. 1826 and 10 Jan. 1827.
 Ibid. 8 Mar. 1827.
 Imperial DM, 19 Sep. 1827.
 Imperial SHM, 9 Apr. 1828 and 28 May 1828.
 Ibid. 20 Mar. 1828.
 Ibid. 28 May 1828.

made to the company's solicitor, John Wilks MP, notorious as 'Bubble Wilks', the swindler<sup>1</sup> and dividends had been paid out of capital. The total 'plunder' was estimated at £22,040 but still for a year Clarke and his friends refused to resign from the board and its committees until legal action was threatened against them for making false statements of profits and allowing frauds to take place while in charge of the concern.<sup>2</sup> The action in 1829 resulted in an out-of-court settlement of £3,500 which was a fraction of the full extent of the fraud while Clarke still felt obliged to sue the company for his fees as a director.<sup>3</sup> Most of the conspirators fled the country but Clarke finally found himself in Fleet Prison at the instigation of the Arigna Company.<sup>4</sup>

With Clarke out of the way, the company got its Act granting capital and raised £85,000 in debentures to cover immediate debts.<sup>5</sup> In 1830 Lucas died and was replaced by Parry Richards as Governor.<sup>6</sup> In the same year Clegg, who had replaced Vivian as engineer<sup>7</sup>, was in turn sacked<sup>8</sup> and the company found a Scot, John Kirkham, who gave them long and able service.<sup>9</sup> The company's capital had, at best, been wastefully expended and, at worst, embezzled and this left it exposed to competition and threats by parochial authorities to set up their own works, as did Clerkenwell in 1834.<sup>10</sup> To combat this, the Imperial cut its prices, agreed districts where possible with competitors, kept its dividends at a modest 5½ or 6 per cent<sup>11</sup> and used profits to finance the expansion which came with the price cuts and the development of London northward into its territory. Under Parry Richards' Governorship the Imperial became the largest and one of the soundest companies in London and he was succeeded in the chair by his son, another lawyer, E. Vaughan Richards, in 1863.<sup>12</sup>

Everard, op.cit. p.166.
 Imperial SHM, 18 May 1829.
 Ibid. 12 Apr. 1832.
 Imperial, Committee of Accounts, 6 Sep. 1832.
 Imperial SHM, 20 May 1829 and 8 Oct. 1829.
 Ibid. 23 Dec. 1830.
 Ibid. SHM, 2 Oct. 1828.
 Imperial DM, 19 Feb. 1830.
 Everard, op.cit. pp.173-4.
 Imperial DM, 21 Feb. 1834.
 Returns from the Gas Companies (1847) op.cit. p.23.
 Imperial SHM, 9 Apr. 1863.

The 1824 stock boom generated three gas companies in London. Two of these began to supply the East End, an area neglected by the Chartered and the Imperial. Several small companies already existed there. The Poplar Company had received an Act in 1821,<sup>1</sup> while the Ratcliffe supplied an area of dockland east of the Tower from 1817, receiving an Act in 1823.<sup>2</sup> The East London Company offered competition from 1829 until it was taken over by the Ratcliffe in 1835.<sup>3</sup> In 1824 a highly speculative company, the British, was formed, originally with the intention of supplying the whole of Britain with a capital of fl million but this soon reduced to the rather more modest aim of lighting Whitechapel.<sup>4</sup> With unlimited liability, it raised £80,000 and with leading directors Mathias Attwood, MP and Alderman, and Edward Stewart, and a works at Schoolhouse Lane. Ratcliffe<sup>5</sup>. it began offering competition on the basis of 13s 9d. per 1,000 to the Chartered and the Imperial in 1826.<sup>6</sup> To begin with it was badly, if not fraudulently, run. It tried and failed to buy out the Ratcliffe in 1825 and in the crash of 1826 its shares tumbled.<sup>7</sup> Competition continued until, in 1828, the British, Independent, Imperial and Chartered agreed first not to take each other's bad customers<sup>8</sup> and then, in 1829, formal boundary lines were agreed between them.<sup>9</sup> These were written into the British and Independent companies' Acts, passed despite opposition in 1829. The British paid its first dividend in 1830 but never became a financial success by gas company standards.

The second East End company, the Independent, was promoted by two former employees of the Chartered - Edward Hinde and Joseph Hartley. While working for that company they had offered on their own behalf to build a works and supply gas to the Marylebone parish authorities and had been sacked.<sup>10</sup> Together with Charles Woodwood, they proceeded to form a company of their own. They set up William

1. Stewart (1957) op.cit. p.75.

- 2. Ibid. p.84.
- 3. Ibid. p.106.
- 4. Times, 4 Feb. 1826.
   5. Stewart (1957) op.cit. p.97.
   6. Return from Gas Companies (1847) op.cit. pp.22-3.
- 7. Times, 4 Feb. 1826.
- 8. Imperial DM, 10 Nov. 1828.
- 9. Imperial DM, 23 Feb. 1829.
- 10. Ibid. 28 May 1824.

Prendagast, a barrister, as chairman and Joseph Gratton as deputy<sup>1</sup> and formed a company by Deed of Settlement with unlimited liability. Such was the mood of the time that their £60,000 of capital, in £30 shares, was oversubscribed. A works was built near that of the Imperial on the Regent's Canal in Shoreditch<sup>2</sup> and Hinde took the job of engineer, Hartley, superintendant and Woodwood, secretary.<sup>3</sup> They overpaid themselves and mismanaged the business.<sup>4</sup> By 1826, the company's shares crashed with the rest and the company neared insolvency, as many shareholders, Predagast included, defaulted on calls.<sup>5</sup> Salvation came, as it did for many of these early gas companies, with the setting up by the shareholders of a committee of enquiry. This recommended cuts in salaries for the directors and the promotors<sup>6</sup>, who one by one were sacked.<sup>7</sup> Hinde was the last to  $q_0$ , having to be evicted from the company's house,<sup>8</sup> and at one stage he had 120 directors and shareholders of the company arrested for non-payment of money owed him.<sup>9</sup> Prendagast was voted out as chairman in December 1826 and replaced by Gratton,<sup>10</sup> who remained until he retired in 1864 at the age of 78. From 1826, the Independent grew in prosperity, second only to the City Company in that respect. In 1829, like the British, it agreed a boundary with the Chartered and Imperial, who had earlier failed to buy it out,<sup>11</sup> and this district was written into their Act of Parliament. Although only declaring dividends of 6 per cent, even to Parliament, <sup>12</sup> in the 1830s the Independent began distributing 'surplus' profits - covertly - because of 'the general feeling existing on the subject of gas profits among all classes of consumers'.<sup>13</sup> In 1842 the face value of the £30 shares was enhanced to £35, out of profits, and together with surpluses the company was in effect paying a dividend of 12 per cent.<sup>14</sup> From its compact district, which was becoming more and more populous,

Independent DM, Aug. 1824.
 Stewart (1957) op.cit. p.47.
 Independent DM, Jun. 1824.
 Ibid. Apr. 1826.
 <u>Times</u>, 8 Sep. 1825 and 6 Apr. 1826.
 Independent DM, Apr. 1826.
 Ibid. Nov. 1826, Dec. 1826, Jan. 1827.
 Ibid. 7 Jun. 1827.
 <u>Times</u>, 27 Jan. 1827.
 <u>Independent DM</u>, Dec. 1826.
 Independent DM, Jun. 1826.
 <u>Returns from Gas Companies</u> (1847) op.cit. p.25.
 Independent DM, 16 Apr. 1834.
 Ibid. 19 Oct. 1842.

the Independent was able to preserve its monopoly by making pre-emptive price cuts while still maintaining its prosperity and financing expansion out of profits.

The third company created in the mid-20s boom was the Phoenix, covering south London. Gas production there dates from 1814 when a company was formed by a Scot, Robert Munro, with a small works at Bankside. Needing more capital, the company gained an Act of Parliament in 1821 with an Alderman Smith as chairman and Munro as deputy and engineer. I In 1824, however, a new company, the Phoenix was promoted to offer competition south of the river. A boundary line was mooted but eventually the new company agreed to buy out the old at a premium, which was allotted £172,000 worth of shares in the Phoenix which had a total capital of £450,000.<sup>2</sup> Smith and Munro remained as chairman and deputy, the latter clearly in control. In 1825, the Phoenix bought out the Chartered from south of the river<sup>3</sup> but the new company was not a great success, mainly because its territory was too The company, therefore, had a heavy capital burden for the amount of widespread. business it did. Moreover, there is evidence of mismanagement and the company secretary was dismissed in 1831 for defalcations.<sup>4</sup> In 1835, Smith died and was replaced by Frederick Perkins as chairman.<sup>5</sup> Munro resigned as deputy in 1836 but stayed as engineer.<sup>6</sup> In 1826, the company had built a works at Greenwich to cover the eastern end of its district<sup>7</sup> and in 1847 it built a large new works on the Thames at Vauxhall to cope with the increased demand as south London expanded.<sup>8</sup> But prosperity eluded the company. Between 1828-33 it was able to pay 6 per cent dividends, but competition drove this down to 3 per cent in 1833-7 and recovery produced only 5 per cent dividends in the 1840s.9

- Garton, op.cit., <u>G</u> W, 2 Feb. 1952 p.122 et seq.
   S. London CM, 19 Feb. 1824.
   Phoenix DM, 25 May 1825.
   Garton, op.cit., <u>G</u> W, 16 Feb. 1952 p.171.
   Garton, op.cit., <u>G</u> W, 16 Feb. 1952 p.171.
   Possibly a relative of Charles Perkins the company's coal and iron merchant, Phoenix DM, 21 Jan, 1925 and 25 Mar 1925. Phoenix DM, 21 Jan. 1835 and 25 Mar. 1835.

- 6. Ibid. 20 Apr. 1836.
  7. Ibid. 19 Apr. 1826.
  8. Ibid. 19 Apr. 1826, 16 Aug. 1826 and 27 Sep. 1826.
- 9. JGL, 17 May 1864 p.353.

The first competition to the Phoenix came in 1829 from the company that was eventually to predominate in south London - the South Metropolitan.<sup>1</sup> The leadership of the South Metropolitan was as fraudulent as most, a fact ignored in a later history of the great concern.<sup>2</sup> The original chairman, Evan Meredith Roberts, together with directors Lewis Roberts and William Clare, made very slow progress in building the company's works with their initial capital of £70,000, raised with unlimited liability. They were also in the habit of signing bills on behalf of the company and pocketing the money. These three were not finally sacked until the company was heavily in debt, with shareholders refusing to pay calls, and only kept going by loans from friends of the board. Finally the familiar committee of proprietors was set up and found the company £11,000 in debt with £983 in hand and it also uncovered the 'fraudulent deception...practiced upon the Public' by the original directors.<sup>3</sup> In 1833, G.H. Forster took over as chairman, with Fredrick Blaksley as managing director in charge of the works, a job he carried out more or less incompetently until 1840. The works had been built by G.H. Palmer on the Surrey Canal at its junction with the Old Kent Road and probably on Palmer's advice, the South Metropolitan began offering competition to the Phoenix not on price but on the quality of its gas, made from high grade cannel coal. Their gas sold for 11s. per 1,000 compared with the 9s. of the Phoenix in 1834 but the company claimed that 3,000 cubic feet of cannel gas was equivalent to 5,000 of common gas.<sup>4</sup> Like the Phoenix, the company attempted to supply a wide area of south London but, despite making offers of shares to prominent people in the Borough.<sup>5</sup> they never received permission to lay mains in Southwark. A final handicap to the company was their engineer, Palmer, who, although sacked in 1836,<sup>6</sup> left a dangerous legacy in the form of a purifying house

1. Garton, op.cit., <u>G W</u>, 2 Feb. 1952 p.125.

- 2. Walter T. Layton, The Early Years of the South Metropolitan Gas Company (1833-1871) (1920).
- 3. S. Metro. SHM, 30 Oct. 1834.
- Garton, op.cit., G W, 16 Feb. 1834.
   S. Metro. DM, 13 Mar. 1834.
   S. Metro SHM, 30 Jun. 1836.

built with no ventilation and which blew up shortly after he left in an explosion which was heard all over London.

Slowly the fortunes of the company improved. In 1836, when the price of cannel increased, their supplier, the Marquis of Lothian, broke his contract with the company.<sup>2</sup> The company won a protracted legal battle but this did not compensate for the increased price and in 1838 they finally abandoned cannel on the advice of John Kirkham. Henceforth, they charged the same price for common gas as the Phoenix. In 1839 the company took on Thomas Livesey as their chief clerk. Livesey's own parentage is obscure. He was born in 1807, a nephew of the Deputy Governor of the Chartered, who had got him his first post at Brick Lane in 1821.<sup>4</sup> Thomas's brother, William, received similar patronage, but he was sacked by the Chartered in the same year as Thomas left and later turned up as an occasional coal agent dealing with the company.<sup>5</sup> Thomas was thirty-three when he joined the South Metropolitan but only a year later, when Blaksley retired, he had so impressed the board that they did not appoint another manager and he took over the running of the company.<sup>6</sup> In the same year, 1840, Forster retired and was replaced by Thomas Farncombe, a City merchant.<sup>7</sup> In 1842, the company was incorporated by Act of Parliament, which limited its dividend to 10 per cent. The company had only paid its first dividend, 13 per cent, in 1836, rising to only 43 per cent by 1840. But under Farncombe and Livesey the company's prosperity grew as its territory filled up with housing. As well as paying for expansion out of profits, by 1846 it was paying a 4 per cent bonus on top of its nominal

- S. Metro. SHM, 26 Jan. 1837.
   Ibid., 24 Jan. 1839.

- Returns from Gas Companies, op.cit. (1847) p.24.
   JGL, 24 Oct. 1871 p.798; W.T.K. Braunholtz, The First Hundred Years 1863-1963 (i.e. of the Institution of Gas Engineers) (1963) p.277.
   Everard, op.cit. pp.114 and 220; and was secretary of the committee of gas
- companies overlooking legislation in 1859, Garton, op.cit., <u>G W</u>, 19 Apr. 1952 p.393. 6. S. Metro. DM, 20 May 1840. 7. Ibid., DM, 24 Oct. 1840.

- 8. Garton, op.cit., <u>G W</u>, 8 Mar. 1952 p.244.

6 per cent dividend, not declared to Parliament. Livesey eventually received a place on the Board of the company until his death in 1871. The Journal of Gas-lighting in its obituary of Livesey gives an insight into his character. 'His was an unostentatious piety but he was a true Christian.' He was an active temperance campaigner, while 'the poor always had a friend in him.<sup>2</sup> There were three hundred at his funeral, including the company's He left less than £25,000 in his will but his most important workmen. legacy was his son, George, who had joined the company in 1848 and was already in charge of the works before his father died.<sup>3</sup>

North of the river, the districting agreements of 1829 did not end competition for long since in 1830 Edward Hinde, undetered after being thrown out at the Independent raised another company - the Equitable. Capital of £200,000 was raised, a works was built at Pimlico<sup>4</sup> and competition, on the basis of a 1s 6d drop in the price of gas to 11s, was offered to the Chartered and the Imperial in the West End. In 1832, however, a boundary agreement was made with the Imperial. From the first the company was incompetently and crookedly run.<sup>5</sup> The directors-overpaid themselves and jobbery was rife. The high priced contract to lighter coal up the Thames was won on the basis of a bribe to a director. Jobs went to the incompetent on the basis of nepotism, while the secretary embezzled large sums. Fighting its way into the market by competition was bound to be wasteful and bad debts abounded as customers played one company off against another. On top of this, the Equitable's wastage equalled 60 per cent of gas made. No plan of the mains was ever made so no-one knew where they were. Dividends of 4 per cent between 1833-9 were all paid out of capital and by 1836 the company was in bad financial

1. S. Metro. SHM, 6 Oct. 1846; Returns from Gas Companies, op.cit. (1847) p.25. 2. JGL, 24 Oct. 1871 p.798.

3. See p.91.

Equitable SHM, 2 May 1832; Stewart (1957) op.cit. p.73.
 Equitable SHM, 29 Jan. 1840 for Report of Special Committee of the Proprietors.
difficulties. At this point Hinde left to build a gasworks in St. Petersburg<sup>1</sup> and a year later the chairman was disqualified from the board.<sup>2</sup>

In 1838, attempts were made to cut costs but not until 1839 was a committee of enquiry set up on the initiative of the Bristol shareholders, principally Fry the chocolate manufacturers,<sup>3</sup> and the full extent of the state of the company's affairs uncovered. The committee reported that 'the management of this company from its very commencement was not only marked by incapacity consisting either of ignorance, neglect or both but that it was tainted with malversation in every form which jobbing and favouritism could at the expense of our funds exhibit'.<sup>4</sup> The whole board was forced to resign and the head of the committee of enquiry, Warren Jackson, was voted into the chair.<sup>5</sup> Attempts were made to put the company in order but an immediate mistake was made in the appointment of G.H. Palmer as engineer.<sup>6</sup> In 1841 the company got an Act of Parliament which, like the South Metropolitan's, limited its dividend to 10 per cent,<sup>7</sup> although this was not a provision that inconvenienced the company for the next twenty years, in which time it never paid a dividend over 5 per cent.<sup>8</sup>

Immediately the Equitable had got under way in 1832 another speculative company was raised, only for the pattern to repeat itself. For the first time, the projectors of the London, as it was called, specifically appealed to consumers to support the new company with capital, in return for a 25 per cent reduction in the price of gas to 9s.<sup>9</sup> The projectors could do this, they claimed, since the price of materials had fallen and they had made dramatic improvements in gas technology. To encourage consumers to invest, shares were issued in £10 denominations, but even so only £50,000 was raised. In 1836, shares were increased to £50 nominal value and capital was raised to £150,000.<sup>10</sup> Like others before it, the London

 Ibid., 25 Aug. 1836.
 Ibid., 13 Apr. 1837.
 Ibid., 31 Oct. 1839.
 Ibid., 29 Jan. 1840.
 Ibid., 25 Mar. 1840.
 Ibid., 27 May 1841.
 Ibid., 17 Dec. 1841.
 Returns from Gas Companies, op.cit. (1847) p.23; continued in P.P. (1850) XLIX p.8 and P.P. (1865) L p.3.
 Prospectus in London DM, 24 Jun. 1833.
 Ibid., 16 Feb. 1836.

originally aimed to light the whole of London from its works in Vauxhall, built by the end of 1833,<sup>1</sup> but by 1837 its mains had stretched only as far north as Kentish Town in the Imperial's district, to Holborn on the outskirts of the City in the Chartered's area and south of the river in Lambeth and Southwark, attacking the Phoenix. Curwood, a barrister, was chairman of the company and Barnard was deputy but it was controlled by the three projectors - Stamp as 'actuary', Rickman as inspector and collector and Stephen Hutchinson as engineer and leading spirit.<sup>2</sup> Hutchinson, in fact, pioneered the use of the telescopic holder in London and toured the country erecting similar holders.<sup>3</sup> The projectors, in their contract with the company, were appointed for life and paid on a sliding scale first with the number of lights the company supplied and then with dividend.<sup>4</sup> Hutchinson's son was dismissed in 1835 for neglect of duty but was reinstated.<sup>5</sup> Rickman, who as inspector was said to be unable to read a meter, was caught pocketing money collected but remained at his post.<sup>6</sup>

In 1835, the chairman, Curwood,<sup>7</sup> and the secretary, Manning,<sup>8</sup> were bought out and Andrew Spottiswoode took the chair,<sup>9</sup> not, it would seem, to improve matters but to get a better chance of embezzlement himself. Heavy compensation was paid to the outgoing regime for giving up life appointments.<sup>10</sup> Stamp became secretary<sup>11</sup> until 1837 when he was finally dismissed for falsifying the accounts.<sup>12</sup> Hutchinson and Rickman remained, and the company got into worse and worse trouble. Sums were borrowed to keep it afloat and to pay dividends, 4 per cent, 1837-9 and 5 per cent in 1840.<sup>13</sup> One hundred and fifty thousand pounds of 6 per cent 'blue'

London CW, 28 Dec. 1834.
 London DM, 24 Jun. 1833.
 <u>King's Treatise</u>, op.cit. Vol. 1 p.48.
 London DM, 16 Feb. 1836.
 London CW, 22 Jan. 1835.
 London DM, 24 Aug. 1837.
 Ibid., 23 Jul. 1835.
 Ibid., 6 Aug. 1835.
 Ibid., 3 Aug. 1835.
 London SHM, 24 Jan. 1848.
 London DM, 23 Jul. 1835 and 13 Aug. 1835.
 Ibid., 9 Feb. 1837, 16 Feb. 1837, 22 Feb. 1837, 2 Mar. 1837 and 30 Mar. 1837.
 London SHM, 24 Jan. 1848.

preference shares were issued in 1840, and in 1845, despite being rotten to the core, it managed to pass an Act of Incorporation.<sup>1</sup> In 1843-6 a 6 per cent dividend was paid, but a year later Spottiswoode was forced to announce a reduction to 5 per cent and this precipitated the familiar committee of enquiry by shareholders.<sup>2</sup> This revealed that, among other things, Spottiswoode with the collusion of other directors had bought himself a £30,000 coal mine using company money.<sup>3</sup> In 1848, the whole board resigned but not before, due to 'circumstances' that came to the notice of the board, Hutchinson had been forbidden to enter the works, where they found 'ordinary repairs had been neglected and a system of reckless extravagance pursued throughout'.4

The new board, chaired by J.R. Hall, who had been behind the enquiry, raised an immediate loan of £100,000 from shareholders and went to Parliament to raise a further £150,000 'red' shares with preference over the previous 'blue' issue.<sup>5</sup> The old board was sued for the £30,000 but this was settled out of Court for £10,000.<sup>6</sup> Drastic economies were made and recovery was slow.<sup>7</sup> Not until 1858 was any dividend paid on ordinary shares and then only 3 per cent.<sup>8</sup> The company seemed bedevilled with ill fortune. When the lease of their Vauxhall works fell in, the Duchy of Cornwall refused to renew and a completely new works had to be built at Nine Elms, which was opened in 1865. The same year, an explosion demolished two gas holders, a governor house and the works offices and killed eleven men - the worst disaster in the history of the London gasworks.<sup>9</sup>

Throughout this early period there were complaints made by consumers against the gas companies for poor service, weak or impure gas and high prices. Indeed, the tradition continues to the present day. In the early years, however, agitations amounted to political campaigns. Consumers, among which were local

- Stewart (1957) op.cit. p.105.
  London SHM, 6 Oct. 1847.
  Ibid., 24 Jan. 1848.
  Ibid., 28 Dec. 1849; DM, 22 Jan. 1848; Ibid., 24 Jan. 1848.
  London SHM, 9 Mar. 1849.
  And the summendam of 128 shares in the commany. Ibid. 12 J
- 6. And the surrender of 128 shares in the company, Ibid., 13 Jul. 1849 and 22 Nov.
- 7. In 1852 London £50 shares sold for £2 5s., King's Treatise, op.cit. Vol. 1 p.58.
- 8. JGL, 26 Apr: 1859 p.235.
- 9. Stewart (1957) op.cit. p.69.

authorities, continually threatened to set up their own companies<sup>1</sup> and at times it seemed that this is what happened. In fact, behind these 'consumer companies' invariably lay speculators more concerned with capital gain than the interests of the consumer. Many of the consumer 'campaigns' were organised by capitalists for However, the multiplication of the number of consumers now made them this end. a possible source of capital. The London Company was the first to attempt to tap this source - unsuccessfully. No more successful was a company set up in the East End in 1839. It arose out of dissatisfaction with the British, which charged a higher price than its neighbours in the 1830s.<sup>2</sup> The idea of a consumers' company was put forward by Charles Hunt of Stepney in 1836.<sup>3</sup> A canvass of consumers was made to estimate demand, and in 1839 a company was formed by Deed of Settlement to raise £100,000 in £5 denominations with greater proportional voting rights to small shareholders.<sup>4</sup> However, the Commercial, as it was called, was unable to raise its full capital; it failed to get an Act of Parliament and failed to get the permission of the local authorities in some parishes to lay mains. The hostility of the Whitechapel Paving Board forced the company to tunnel under the pavements to lay service pipes.<sup>5</sup> The company's works was completed by Hunt at Stepney on the Regent's Conal, but Hunt left soon after.<sup>6</sup>

Short of capital and customers, the company approached ruin. The original chairman was replaced by C.S. Butler, later MP for Tower Hamlets, and he and another director purchased pipes out of their own pockets.<sup>7</sup> In 1843, the company finally lit Whitechapel High Street despite attempts by the British Company to have all the directors imprisoned for doing so. Capital was raised by the issue of preference shares, a districting agreement was made with the Chartered and the City companies and, in 1846, it passed its Act of Incorporation.<sup>8</sup> From there the Commercial proceeded to prosperity, buying out the Poplar in

- 2. Returns from the Gas Companies (1847) op.cit. pp.22-5.
  3. The Co-Partnership Herald (of the Commercial Gas Company) Vol. I (1931) p.22.
  4. Prospectus of Commercial Gas Light and Coke Company (1839).
  5. King's Treatise, op.cit. Vol. 1 p.52.

- Co-Partnership Herald, op.cit. p.22.
- Ibid., p.41.
- Ibid., p.88.

<sup>1.</sup> e.g. Clerkenwell in 1834, Imperial DM, 21 Feb. 1834; Chelsea in 1845, Everard, op.cit. p.172.

1850 and the British in 1852. Henceforth, the British concentrated on the The Commercial sold mains to the newly formed West Ham Company in provinces. 1855, <sup>2</sup>by which time it had a profitable and compact monopoly district.

By 1838, the four West End companies had ceased to compete on the basis of price, but districting was not felt desirable since, unlike the case with past agreements, the companies had no natural centre of operations and each would be reluctant to give up areas of the lucrative West End. In 1845, further competition arrived with the formation of another company, probably by the redoubtable G.H. Palmer. Doubtless on the advice of Palmer, the Western Company determined to produce cannel gas and attack the established companies on quality. A works was built at Kensal Green and coal was brought from the north by train.<sup>3</sup> The high quality gas was a relative success in the wealthy areas of town and the other companies were forced to offer it in return. The Western, however, was not a success. Their works, designed by Palmer with a twelve sided retorthouse with retorts radiating inward, was unsatisfactory. and eventually had to be pulled down.<sup>4</sup> By 1851, with enforced cuts in the price of gas, the Western had still been unable to pay a single dividend.<sup>5</sup>

In 1849, the last two companies in the history of London's gas industry were formed, one in the City and the other south of the river. On the surface both were "consumers' companies' but in practice both were the work of speculators. The leading figure in the City was Angus Croll. Croll was born in Perth, Scotland in 1808, the son of a weaver's reed maker, a trade he followed himself until the depression caused by the advent of the power loom. In 1837, Croll came south, first as deputy and later superintendent of the Chartered's

1. JGL, 7 Apr. 1874 p.472.

2. Commercial SHM, 4 Oct. 1855.

3. G.L. Taylor, <u>On Gas Works and the Introduction of Cannel Coal Gas (thoroughly</u> <u>purified) into the Metropolis (1848) pamphlet describing the Kensal Green Works.</u> 4. JGL, 25 Nov. 1856 p.661; Stewart (1957) op.cit. p.56. 5. JGL, 11 Dec. 1854 p.585. 6. GW, 11 Jun. 1887 p.741.

Brick Lane works. He had an inventive bent and took out many patents but he was a better businessman than engineer. In 1844. he left the Chartered to go into partnership with Richards to manufacture dry meters 1 and the following year he undertook to build a works and supply gas in the Tottenham area. The Imperial were unprepared to expand in this direction and Croll paid the company  $\pounds2,000$  for a site in Edmonton.<sup>2</sup> He built and ran the works himself until, in 1847, he set up the Tottenham Gas Company, of which he remained a director and major shareholder. Emboldened, Croll determined to attack the lucrative monopoly in the City.

For many years, companies had attempted to enter the City but had been thwarted by the unwillingness of the City government to allow mains to be laid and the ability of the City Company to undercut any potential competitor. In the 1840s, however, the City consistently charged a higher price than the East End companies and paid fat dividends.<sup>3</sup> Around 1846, Angus Croll met Charles Pearson and suggested that they use the latter's political influence in the City to set up a gas company. Pearson was a solicitor who had supported a number of other companies' attempts to enter the City. He appeared for the London before the Court of Sewers in 1838 and 1839 and later had attempted to raise a new competitive company to buy gas in bulk from existing firms and pipe it into the City. <sup>4</sup> Later, Pearson had become City Solicitor but to Croll's suggestion in 1846 he is reported to have said that the time was not ripe and that he should wait for people to get over the railway mania.<sup>5</sup> Croll left to run a gasworks in Coventry but in 1848 was urged to return by Pearson.<sup>6</sup> Croll and Pearson then set about orchestrating dissatisfaction with the City Company.

1. See above p.39.

Everard, op.cit. p.173.
 Returns from the Gas Companies (1847) op.cit. pp.22-25.
 Everard, op.cit. p.155.
 JGL, 10 Apr. 1849 p.43.

- 6. Tbid., 13 Feb. 1852 p.122.

Pamphlets were issued and public meetings were held, many of which turned unruly and police had to be called. The trade journal thought the capital had not seen the like since the reform agitation of 1832.<sup>1</sup>

Croll claimed that he would supply the City with gas at 4s per 1,000 cubic feet compared to 6s from the present companies. He would run the works by contract and sell gas to the Company for 1s 41d per 1,000, and on this basis the Great Central Gas Consumers' Company was formed in 1849.<sup>2</sup> The City's Commissioners of Sewers had planned to go to Parliament for power to run their own works but this was dropped when the new company was seen to be going ahead.<sup>3</sup> Due to opposition from the old companies, the Great Central failed to pass its Act of Parliament but, with the influence of Pearson and others in the City Corporation interested in the new company, permission to lay mains in the City was granted without the Act.<sup>4</sup> The biggest problem of the new company was raising the capital. As with all previous attempts to enlist consumers, it was found that the latter were far more prepared to accept cheap gas than they were to risk their capital to achieve it. At one stage Pearson and Alderman Dakin, who was to become chairman of the new company, offered the City and the Chartered the chance to -buy them out but refused an offer of £10,000 from the old companies.<sup>5</sup>The promotors, therefore, had to go ahead and raise the capital among themselves and other speculators

A works was built at Bow Common, connected by rail to the Thames at Limehouse. A costly main had to be laid into the City and there were further problems with Croll's patent retort settings - a combination of clay and iron retorts which soon had to be abandoned. Neither did Croll run the works particularly

JGL, 11 Mar. 1850 p.179.
 Ibid., 10 Apr. 1849 p.39.
 Ibid., p.41.
 Ibid., 10 Dec. 1849 p.139.
 Ibid., 11 Feb. 1850 pp.171-3.
 Ibid., 10 May 1850 p.207 and 24 Jan. 1857 p.287.
 Stewart (1957) op.cit. p.22.

efficiently, but the bankruptcy which detractors predicted from selling gas at 4s did not befall. Other companies also dropped their price to 4s but such was the increase in demand that it was more than the old companies could cope with and so the Great Central took an adequate share of the market. The drop in price very nearly ruined the City Company whose dividends fell from over 10 per cent in 1848 to 21 per cent in 1855-6. One of their problems was their cramped works where they found it difficult to expand to meet the extra demand. A number of attempts were made by the City to amalgamate with the Great Central in the 1850s but the latter would not agree.<sup>2</sup> In 1857, when Croll's original contract ran out, he demanded extra money. The board, however, found a new contractor and when he proved inadequate they took over the running of the works themselves in 1859.

Croll claimed that he had been under-paid by his contract and he was awarded £14,378 by the courts.<sup>4</sup> In the proceedings it came out that Pearson had been paid a secret royalty by Croll of 2d for every 1,000 cubic foot of gas sold, estimated to have made the City Solicitor and Liberal MP for Lambeth  $\pounds2,000$  a year. <sup>5</sup> Pearson pursued his concern to improve the amenities of the capital, always provided they had the advantage of being lucrative to himself, when he became the leading promotor of the world's first underground railway - the Metropolitan line opened in 1863. Croll too continued his speculations including the electric telegraph, negotiating the sale of companies to the Government. He became a Sheriff of London and Middlesex,

 Returns from Gas Companies (1850) op.cit. p.7 and (1865) op.cit. p.2.
 JGL, 6 Jan. 1857 p.287.
 Ibid., 10 May 1859 p.262.
 Ibid., 2 Feb. 1858 p.47.
 Ibid., 3 Feb. 1857 p.39. Despite having told the Parliamentary Committee in 1849 that he 'had no pecuniary interest in this Bill beyond having taken fifty shares' JGL, 10 Apr. 1849 p.43. 6. F. Sheppard, London 1808-1870: The Infernal Wen (1971) p.141.

President of the British Association of Gas Managers in 1872 and he died in 1887 leaving £37,000 in his will.<sup>1</sup>

Another of the projects Croll was involved in was the other 'consumers' company', also started in 1849, in south London. The company was initiated by Stephen Hutchinson soon after he was ejected from the London works.<sup>2</sup> Only £2,000 of the nominal capital of £70,000 however, had been taken up until an agitation for cheap gas similar to that in the City was started by a Southwark woollen draper, John Thwaites. The old companies in the south still  $\frac{3}{1000}$ charged: 6s in 1850 and Thwaites' 'Anti Gas League' got 5,000 signatures of consumers who would contract to take gas from any company that would sell at 45. All the old companies declined but Hutchinson took up the offer.<sup>4</sup> The problem was raising the necessary capital and this was achieved in part by local businessmen, principally Thomas Pocock, a Southwark leather dealer.<sup>5</sup> Hutchinson was found incapable of managing the works at Rotherhithe and dismissed. At this point Croll was called in and offered to run the works under contract, and to put £12,000 of his own capital into the venture, which had begun selling gas in 1851. The company was called the Surrey Consumers with Pocock as chairman and Thwaites as 'consumers' trustee'.<sup>7</sup> Thwaites' financial involvement in the company is not clear but his actions were not those of one with the interests of the company's customers in mind. The Surrey Consumers had failed to get their mains into Southwark despite Thwaites being a leading Liberal politician in the Borough and chairman of the Board of Guardians. However, Thwaites was also chairman of the election committee of Apsley Pellatt who was duly elected MP for Southwark. In return, Pellatt nominated Thwaites as Commissioner for Southwark on the new Metropolitan Board of Works where he became

G.W., 11 Jun. 1887 p.741.
 JGL, 5 May 1874 p.615.
 Garton, op.cit., G.W., 5 Apr. 1952 p.351.
 JGL, 1 Mar. 1850 p.181.
 IDid., 5 May 1874 p.615.
 Ibid., 10 Oct. 1851 p.192.
 S.C. on Gas (Metropolis) Bill, P.P. (1859) III p.519.

the first chairman, and later, Sir John Thwaites. Pellatt, however, was also a director of the Phoenix, which was being badly pressed by the competition from the Surrey Consumers. It is easy to explain, therefore, why Thwaites, still as 'consumers' trustee' pledged to see the company sell gas at 4s, should have a rapid conversion against competition and in 1853 negotiate a districting agreement with the old companies. Under the terms of the agreement the three old companies each gave the new company £8,000 of additional rental while the four companies agreed districts in areas nearest their works and exchanged mains, meters and service pipes.<sup>2</sup> In 1854. the Surrey Consumers passed their Act of Parliament and in the same year the companies south of the river increased their minimum price of gas to 4s 6d. 3From this point, all the companies moved to prosperity. Croll's contract ran out in 1861 and the company took over the running of the works themselves.<sup>4</sup>

North of the river, the City and West End companies had also been hit by the renewal of price competition and to some extent by an increase in the price of coal in the mid 1850s. As a result, the advantages of districting began to outweigh the disadvantages and in 1857 the highly complex process of allotting monopoly districts to the five West End companies was completed.<sup>5</sup> The unsatisfactory nature of the result in part explains why the exercise had not been undertaken before. Most companies had two or more districts so that gas had to be piped through the territory of other companies. Only the Imperial kept a unified if widespread district to the north, but its main works was in Fulham, in the London's area, and two miles from its nearest customer. Only amalgamation

1. Ibid., 5 May 1874 p.615.

- S. Metro. DM, 8 Jun. 1853 and 2 Sep. 1853.
  L.W.S. Rostron, <u>The Powers of change of the Metropolitan Gas Companies</u> (1927) p.6; Garton, op.cit. GW, 5 Apr. 1952 p.353.
- 4. JGL, 3 Apr. 1861 p.268.
- 5. Rostron, op:cit. p.7; JGL, 3 Mar. 1857 p.88.

was now capable of rationalising the distribution system. The Commercial had already achieved this, while the Independent's monopoly area had never been challenged. Districting in the City between the Great Central and the City Company was found impossible although price competition had ended almost as soon as it had begun.<sup>1</sup>

The London gas industry provides an interesting case study of capitalism in the first half of the nineteenth century. Apart from the partnerships which were the forerunners of the City and Phoenix companies, all the concerns were joint stock companies.

Most of the largest London companies passed Private Acts of Parliament before raising their capital<sup>2</sup> but the smaller companies, like the Independent, British and Equitable, and as large an enterprise as the London, raised capital (£250,000 by the London) and traded for several years under a Deed of Settlement and unlimited liability.<sup>3</sup> The Western Company never acquired its own Act of Parliament and went unlimited until it registered under the Joint Stock Companies Act of 1855.<sup>4</sup> Once set up the companies were reluctant to raise further capital by public sale of shares and until the 1850s most expansion was financed out of profits. Bank loans were rare and fixed interest preference shares and debentures were only issued <u>in extremis</u>, as in the case of the highly geared London Company, when ordinary shares would not have been taken up. Up to 1860, any issue of shares was usually to existing holders at par, a lucrative procedure for proprietors and one which kept share ownership

- 1. Returns from Gas Companies (1865) op.cit. pp.2 and 4.
- 2. GLCC, 50 Geo 3, c 163 (1810); Imperial, 182 Geo 4, c 117 (1821); Phoenix, 5 Geo 4, c 78 (1824).
- 3. Stewart (1957) op.cit. pp.47, 97 and 73.
- 4. JGL, 25 Nov. 1856 p.661.
- 5. In common with most British companies, P.L. Cottrell, Industrial Finance 1830-1914 (1980) p.88.

concentrated, by today's standards, in relatively few hands (see Table 2) even in the so-called 'consumers' companies'. Shares were usually issued in 150 or, in the case of the City, 1100, while shares denominations of in the 'consumers' companies' had a flo face value. By mid-century, gas shares were bought and sold on the regular stock exchange but in the 1820s they were still auctioned in coffee houses such as Garroways, where, in the fevered days of 1824-5, the police frequently had to be called in to restore order.<sup>2</sup>

Shareholders met twice a year, usually in a City tavern.<sup>3</sup> The types of shareholder fell into distinct categories. Most companies had some consumers as shareholders - publicans, shopkeepers and small businesses - but the bulk of capital came from the classical 'blind' investors of the nineteenth century.4 A return made to Parliament in 1867 felt the need to identify, out of a total number of shareholders in the London gas companies of 8075, 2217 'Ladies', 345 'Clergymen'', and 1409 'holdings on trust account'. 5 Provincial doctors, lawyers and other professional people were also prominent. An important category was City capital\_coming from City merchants and businessmen. At the South Metropolitan, the chairman, G.H. Forster, was also a director of the London Joint Stock Bank and he was followed by Farncombe, a City merchant, shipowner, and director of the London and Westminster Bank and the Argus Life Assurance Company. Benjamin Hawes MP, Governor of the Chartered 1857-60, was also chairman of the Victoria Assurance Company. The Stansfelds of the City Company were an old City merchant family.<sup>9</sup> Mathias Attwood of the Phoenix and British was also a director in two City insurance firms. Capital also came from local landowners

1. Cottrell shows less than 10% of companies 1856-82 had shares in denominations of £50 or above in Britain, ibid. p.83.

- -2. Times, 8 Sep. 1825.
  - 3. Or coffee house, City CM, 6 Jan. 1818.
  - Rutter (1849) op.cit. p.32; Cottrell, op.cit. p.96 found in a sample survey of companies in 1860, 30.5% of shareholders from unoccupied leisured classes, 17.49% from the professions and 21.82% from trade and commerce. The picture in the gas industry is confirmed by Cotterill, op.cit. pp.190-4 with regard to Scottish companies although there most capital seemed to have been raised locally. 5. See Table 2. The total number of shareholders will be an exaggeration since many
  - companies had shareholders in common.
  - 6. Who's Who (1849) p.168.
  - 7. Ibid., p.168.
- 8. Ibid., p.229.
  9. Everard, op.cit. p.143.
  10. Who's Who (1849) p.173.
- 11. Garton, op.cit. G.W., 2 Feb. 1952 p.124.

## TABLE 2

Number of shareholders and average amount of nominal capital per holding for

the London gas companies in 1867

Company	Number of	Average capital
and the second	sharenolders	per holding
·		1n 1
S. Metro	162	1412
Phoenix	645	1378
Imperia]	1382	1313
Equitable	277	1083
City	450	1007
Independent	222	926
London	807	899
Ratcliffe	137	832
Western	527	655
Commercial	671	652
Surrey C.	488	503
GLCC	1663	487
Great Central	644	413
Total	8075	889

<u>Sources:</u> <u>Return of the Number of Shareholders in each of the Thirteen</u> <u>Metropolitan Gas Companies</u>... P P (1867)XIIp.585 and <u>JGL</u> 25 June 1867 p.462.

•

investing in companies that contracted to light their estates. This was the case with Lucas of the Imperial and Lord Holland at the Phoenix.<sup>1</sup> Funds also came from other industries. Brewers, of course, were heavy investors in the rail-ways but the names of Barclay, Perkins, Young and Meux also appear as gas proprietors. The Brentford Company was founded in 1821, largely with the capital of Sir Felix Booth, the local gin magnate.<sup>2</sup> Crawshay Bailey, the coal and iron merchant, had a large stake in the Equitable, while the Fry family, the cocoa and chocolate makers of Bristol, had large holdings in the Equitable and the Phoenix. Finally, the firms who supplied the London gas works with coal and iron and the contractors who built the works also invested in the companies. The names of Barlow, Peto and Aird are prominent, but the scale of the enterprises in London precluded them from taking the dominant role that they seem to have done in smaller towns,<sup>3</sup> with the possible exception of Angus Croll.

The Boards of Directors, mostly between six and ten in membership, usually met once a week and, in even the smallest London companies, had organised themselves into committees. The Imperial, for example, had a General Purposes Committee, an Accounts Committee and a Works Committee. The boards were invariably composed of major shareholders and the chairmen were usually either City businessmen or, very often, lawyers, and frequently Members of Parliament, a reflection of the close relationship between the industry and the legislature. The frequency with which the boards met and the detail of their minutes shows that they kept a close hold on the running of their businesses, which ensured constant attention to the maximisation of profits. This was done in the name of the shareholders but, if the gas industry is a guide, this was no golden age of the power of individual shareholders.<sup>6</sup> Except at the notorious beginnings of many companies, when they were being fraudulently run, there are remarkably few instances of the directors being overruled by a shareholders' meeting.

1. Garton, op.cit. G.W., 2 Feb. 1952 p.124.

Stewart (1957) op.cit. p.24.
 M.E. Falkus, 'The British Gas Industry before 1850', Economic History Review (1967) pp.505-8.

Indeed, only George Livesey seems to have been able to accomplish the feat.

The background of the directors equipped them well for looking after the interests of the companies financially and in Parliament but very few of them had a detailed knowledge of engineering and to a greater or lesser extent the running of the works was left, in the early years, to a salaried engineer. This did cause problems and led to conflict in many firms between the directors, who were profit conscious, and engineers, who wished to enhance their own reputations and personal fortunes. They experimented with new methods using the company's time and capital, and also liked to take time off to act as consultant engineers to other companies. This work by engineers was important since the companies made no formal provision for research and development in gas technology and any advances came via this, usually unofficial, work. Later in the century, firms specialising in supplying the industry undertook improvements but their founders, like West at Manchester<sup>1</sup> and Foulis at Glasgow,<sup>2</sup> usually began their work as gasworks engineers.

The social origin and training of these engineers is of interest. In the early years of the industry, the engineers tended to come from a background in what might be called the traditional technologies. William Murdoch was the son of a millwright; George Lowe, engineer at the Chartered from 1821 to 1862 and a co-founder with Telford and Cubitt of the Institute of Civil Engineers, was the son of a small brewer from Derby and followed the trade himself until coming into the gas industry. John Barlow was a partner in an iron foundry in Sheffield before becoming a gas contractor in the earliest years of the industry. Once the industry was well established, however, the most important source of training was the gas industry itself. The process was set

- 1. Braunholtz, op.cit. p.285.
- 2. Cotterill, op.cit. pp.631, 641 and 1728.
- 3. See above, p.7.
- 4. JGL, 5 Jan. 1869 p.9.
- 5. Ibid., 5 Nov. 1872 p.913.
- 6. <u>G W</u>, 11 Jun. 1887 p.741

in train when Murdoch taught the Creighton brothers who went on to build gasworks at Manchester and Glasgow, <sup>1</sup> the Brunton brothers who became leading gas engineers<sup>2</sup> and Samuel Clegg at Soho. Clegg, in his short stay at the Chartered, initiated a remarkable number of engineers either personally or by his example. These included John Perks,<sup>3</sup> who went on to build the City works, the Malam Brothers,<sup>4</sup> John Grafton,<sup>5</sup> John Holsworthy Palmer<sup>6</sup> and others who, together with Clegg himself, probably accounted for a fair proportion of the gasworks built in this country and abroad in this early period.<sup>7</sup> Not all of this activity was successful, as can be illustrated by the career of Palmer which, though not typical, is of interest. After leaving the Chartered, where he was a storekeeper,<sup>8</sup> he became superintendent of the Shoreditch works of the Imperial. Dismissed from there for negligence in 1824,<sup>9</sup> he next turned up as engineer of the South Metro-10 politan but was sacked in 1836, leaving a purifying house which blew up. Despite this he was appointed engineer by the Equitable in 1839.<sup>11</sup> Next he helped raise the Western company and built them a largely unmanageable works and was fired in 1851. From there he became engineer to a 'consumers' company' in Sheffield, only to be discharged in 1853.<sup>12</sup>

In the early years, therefore, it is clear that entry as a gas engineer was open not to the unskilled working class but at least to the artisan, or small businessman, class in the older technologies. As the century progressed, however, it seems that although by no means impossible, entry to the highest levels became restricted because the industry trained its own engineers and to an extraordinary

Cotterill, op.cit. p.1348; Matthews, <u>Historical Sketch</u>, op.cit. p.21.
 See above p. 23; Brownlie, op.cit. p.65.
 GLCC CW, 11 Apr. 1815; see above p.54.
 Stewart (1962) op.cit. p.27.
 Matthews, <u>Historical Sketch</u>, op.cit. p.91; Cotterill, op.cit. p.104; <u>JGL</u>, 19 Feb. 1872 p.171.
 JGL, 21 Jan. 1868 p.48.
 King's Treatise, op.cit. Vol. 1 p.32.
 GLCC CW, 18 Nov. 1815.
 Imperial DM, 24 Feb. 1824.
 S. Metro. DM, 23 Jun. 1836.
 Equitable SHM, 27 May 1841.
 JGL, 10 May 1854 p.445 and 21 Jan. 1868 p.48.

extent son followed father. John Kirkham, another Scot, who worked under Grafton at Edinburgh gasworks<sup>2</sup> came from Leith gasworks as engineer to the Imperial in 1829,<sup>3</sup> and was followed at the company by his son, Thomas. At the Chartered, John Evans began as a clerk in 1814 but took charge of the two East End works in 1816 and Westminster in 1821. He resigned in 1848 and took a seat on the Court.<sup>4</sup> He was succeeded by his son, F.J. Evans, who had been educated at grammar school and had entered the company's service in 1834, less than sixteen years old. To increase his experience, he went as superintendent of the Berlin works of the Imperial Continental Gas Company only two years later. In 1884, he had returned as superintendent of Brick Lane and became effectively chief engineer before he formally assumed that title from George Lowe in 1863. He went on to plan and build Beckton, not with unqualified success, but when it was completed he too retired onto the Court until his death in 1880.<sup>5</sup> John Barlow was succeeded in his business by his sons, one of whom went on in 1849 to found and edit the first trade paper - the Journal of Gas Lighting - and another became engineer of the Australian Gas Company.<sup>6</sup> Livesey followed Livesey at the South Metropolitan while Corbett Woodall was the son of a gas engineer and was followed into the industry by his sor. The Jones family came originally from Chester gasworks. Richard Jones became engineer of the London Company in 1855,<sup>7</sup> while his cousin Robert became engineer of the Commercial. His son, Henry, served articles in the locomotive shops of the London and South Western Railway and at the age of twenty became engineer to the Wandsworth gasworks and, later, chairman of the company. He moved to the Ratcliffe in 1869 and on amalgamation in 1875 became joint engineer with his father at the Commercial, taking sole charge when his father died in 1880. He was elected onto the board

Noted also in other industries. See C. Erikson, British Industrialists: Steel and Hosiery 1850-1950 (1959).

- 2. Cotterill, op.cit. p.158.
- 3. Everard, op.cit. pp.173-4.
- 4. Ibid.
- 5. JGL, 27 Jul. 1880 pp.132-3. 6. Ibid., 5 Nov. 1872 pp.913-4.
- 7. Ibid., 23 Oct. 1860 p.691.

in 1902. Henry, in turn, was followed by his son Stanley.<sup>1</sup> Finally, William Foulis was also the son of a gas engineer and was apprenticed at Hyde Park Engine Works in Glasgow before going abroad for further experience.<sup>2</sup>

It is interesting to note that both Jones and Foulis took apprenticeships outside the industry, but most of the leading engineers were trained in the industry. This was true of George Livesey and Corbett Woodall and of George Trewby and Charles Carpenter, the chief engineers of the Gas Light and Coke and the South Metropolitan in the closing decades of the century. Trewby was a pupil of F.J. Evans in 1853 at the age of fourteen<sup>3</sup> while Carpenter joined the Phoenix at sixteen in 1874 fresh from Birkbeck 'full of enthusiasm for the application to technology of physical and chemical sciences'.<sup>4</sup> Also interesting is the fact that no technical education was attempted by the gas companies in this period although William Woodall MP, Corbett's brother, who went from the gas industry into pottery, was a leading advocate of the technical ducation movement.<sup>5</sup> The gas engineers' professional bodies often bemoaned the lack of technical or scientific education and research especially compared to the continent. But little or nothing was done due to an unpreparedness of the industry to provide finance. It was left to the City and Guilds of London Institute to organise classes and examinations in gas manufacture starting in 1874.<sup>6</sup> By 1914 there were 170 ordinary and 125 honours candidates in gas manufacture and 446 ordinary and 225 honours candidates in gas supply.<sup>7</sup> With regard to research, as noted above, almost the only effort was undertaken by engineers within their own gasworks or by specialist firms. The Gas Institute set up an Investigation and Research Committee in 1881 but this petered out for lack of funds.<sup>8</sup> In 1903 a

1. Co-Partners Magazine Vol. 15 1925 p.114. 2. Cotterill, op.cit. pp.641 and 1728.

Braunholtz, op.cit. p.289; JGL, 26 Jul. 1910 p.253.
 Braunholtz, op.cit. p.60; JGL, 14 Sep. 1938 pp.653-654; G W, 10 Sep. 1938 p.213.
 M. Argles, South Kensington to Robbins. An Account of English Technical and Scientific Education since 1851 (1964) p.32.

- 6. Braunholtz, op.cit. p.201.
- 7. Ibid., p.206.
- 8. Ibid., p.173.

Gas Heating Research Committee was formed and in 1907 reported in conjunction with the Department of Applied Chemistry at Leeds University and the appeal for funds to the industry was sufficient to endow a research fellowship at Leeds worth £100 a year.<sup>1</sup> George Livesey was also a believer in education. He saw to it that the fourth generation of Liveseys, represented by his brother's son Frank, had the best education available. Frank went to Charterhouse and Pembroke College, Cambridge to study Engineering Science.<sup>2</sup> Significantly, he did not become half the engineer that his father and uncle had been. When George died £10,000 was raised by subscription to endow a Livesey Memorial Professorship in Gas Engineering at Leeds.<sup>3</sup>

Mention has been made of the engineers' involvement abroad and it is worth making the point that, as with railways, British engineers and contractors and British capital very largely took gas technology to the rest of the world. Of the two companies that lit Paris, one was British. In 1824, the Imperial Continental Gas Association was formed by Joseph Clarke, Congreve and Thomas Attwood and, though its origins were highly speculative, it developed into a huge concern with works, largely built by John Perks,<sup>4</sup> for coal or oil gas in Berlin, Amsterdam, Hanover, Rotterdam, Brussels, Vienna and many other cities.<sup>5</sup> Malam erected works in Oslo, Hinde in St. Petersburg, Clegg himself in Portugal,<sup>6</sup> William Richards in Barcelona.<sup>7</sup> In 1833, George Lowe with a group of London bankers formed the European Gas Company with a capital of £200,000, after a similar French concern could only raise £10,000.<sup>8</sup> The European Company, with works built by Thomas Barlow, lit many of the towns in northern France.<sup>9</sup> Another British concern, the Continental Union Gas Company, lit Genoa, Milan, Strasbourg and Roanne. A little later, British engineers and capital went further afield. The Oriental Gas Company was

Ibid., p.197.
 G.W., 15 Apr. 1911.
 Ibid., 12 Dec. 1908 and 31 Jul. 1909.
 King's Treatise, op.cit. Vol. 1 p.40.
 Ibid., p.47.
 Stewart (1962) op.cit. p.32.
 JGL, 19 Sep. 1865 p.687.
 Ibid., 7 Apr. 1874 p.471.
 King's Treatise, op.cit. Vol. 1 p.49.

formed in London in 1853 to bring gas light to India,<sup>1</sup> the Rio de Janeiro Company was formed in 1855,<sup>2</sup> the Malta and the Mediterranean in 1861,<sup>3</sup> the Singapore in 1862,<sup>4</sup> the Hong Kong and China in 1863<sup>5</sup> and the City of Moscow Company in 1866.<sup>6</sup>

Many gas engineers in this period were also entrepreneurs in the widest sense, raising the capital, building and running the works often as a contractor, besides being salaried employees. Moreover, as the importance of technology grew, most companies found it useful to have an engineer on their board; some effectively ran the company, often, like Livesey and Woodall, as chairman. Indeed, the situation was rather flexible and there was movement the other way, in the sense that in the early years it was possible for clerks in the companies with no engineering training to pick up the rather rudimentary technology of the gas works and become accepted as a engineers. This is how John Evans and G.H. Palmer of the Chartered and Thomas Livesey of the South Metropolitan advanced themselves. As an insight into the importance of technical education in this period, it is difficult to envisage a company obtaining a better engineer than George Livesey yet he had no formal engineering training and the story is told of how he obtained the stresses and curvatures for his gasholder domes by stretching rubber over a piece of pipe and inflating it from beneath.

The engineer, therefore, could be the decision maker in the gas company, but this varied from company to company. By and large, the Chartered kept their engineers in their place. The commercial side of the business there, was, for most of the period, in the hands of a secretary who had a leading say in affairs. Charles Burls, 1832-1862, set the pattern followed by J.O. Phillips who, starting on a salary of £600 a year and coming from a post as managing clerk to a firm of parliamentary agents, soon took firm control of the affairs of the company and acquired the further title of General Manager in 1885. In 1892, he retired to a seat on the Court and was replaced by John Field, an

JGL, 10 Jun. 1853 p.154.
 Ibid., 8 May 1860 p.303.
 Ibid., 4 Jun. 1861 p.384.
 Ibid., 25 Mar. 1862 p.172.
 Ibid., 7 Jun. 1863 p.367.
 Ibid., 17 Apr. 1866 p.285.
 G.W., 10 Oct. 1908 p.429.

accountant and son of the chief accountant of the Imperial and originator of Field's Analysis . The day to day running of the company therefore varied from company to company and depended more on the personalities involved than on the title of their position. In 1885, for example, the Gas Light and Coke was led by their secretary and General Manager, Phillips; the South Metropolitan by the chairman of the Board of Directors, George Livesey, and the Commercial by their salaried engineer, H.E. Jones.

Recruitment through familial ties ran throughout the industry, from the humblest stoker to chairman of the board. Of the latter, the Liveseys at the South Metropolitan, the Richards at the Imperial and the Stansfelds at the City Company are good examples, but at all levels fathers introduced sons into the company. Where this system justifies the term nepotism is by no means clear. In the early years of the Equitable, when the company's accountant, a brotherin-law of a director, was found to be incompetent he was made superintendent of works, while the chairman made his son secretary, another inappropriate appointment.<sup>2</sup> In the early years of the South Metropolitan, Blaksley, the managing director, seemed to-find jobs for his whole family. At some companies there existed the practice, prevalent in the early years of the railway companies, of giving directors, in rotation, the right to nominate new members of staff. As the century wore on, however, the system was augmented and then superseded by written and oral examination and interview.

Every recruit had to deposit with the company a bond or surety, typically £200, in case of dishonesty. However, although the accounting procedures of

- 1. Everard, op.cit. pp.282-3.
- 2. Equitable SHM, 29 Jan. 1840.
- 3. P.W. Kingsford, <u>Victorian Railwaymen</u> (1970) p.5. 4. Everard, op.cit. p.268.

the gas companies were good by the standards of the time, and indeed were regularised by law in 1860, these were not sufficient to prevent continual dishonesty by the companies' staff. The incidence of this tended to vary with the level of honesty at the head of the concern. The fraudulence of the early years of the Imperial, for example, went from top to bottom. Dishonesty also increased during years of stock exchange speculation. None of this, however, was a necessary condition. The most spectacular example of embezzlement came to light at the Great Central Company in 1869. For the previous six or seven years their accounts clerk, Higgs, had substituted small gas bills for large once he had pocketed the difference out of the cash handed in by the collectors. This difference showed up in the accounts as arrears of payment by customers and although these increased dramatically it was not spotted by the auditors. In total £71,149 went missing and Higgs, on a salary of £160 a year, had built himself a mansion at Richmond. The fraud meant that during these years the company was in effect paying 10 per cent to its shareholders and 5 per cent to its accounts clerk. Higgs fled the country before he could be apprehended.

The relationship between the companies was an interesting one - a combination of sporadic but ferocious hostility and often simultaneous co-operation.<sup>3</sup> During periods of competition companies were quite capable of co-operating with regard to legislation or dealings with local authorities. They also shared technological information and, as during the 1834 strike, gave mutual support and took concerted action against their workforce.<sup>4</sup> Companies competed on price and quality and canvassed each others' customers, offering inducements to swap companies. They would also accept customers who had run up arrears with a

Rostron, op.cit. p.157.
 JGL, 4 Mar. 1869 pp.215 and 294.
 Everard, op.cit. p.103.
 See below p.262.

competitor. Competition also took forms that would not be found in any economicstextbook. The minute books of the companies abound with instances of competitors tampering with their mains.<sup>1</sup> A valve or a simple lump of clay could be introduced into a rival's main, disconnecting their customers. A customer could also deliberately be linked up to a competitor's main, although with five mains in the same street this could be accomplished equally by accident.<sup>2</sup> The company's workmen seem to have entered into this competition with a will.<sup>3</sup> The sabotaging of a rival's works was not unheard of. In 1823, the City Company found a wooden plug inserted into their condenser.<sup>4</sup> Competition could become at times quite literally violent, the most famous incident of which was the 'Battle of Bow Bridge'. In 1850 the Great Central was attempting to lay its main from the Bow works across a canal bridge and into the City. The Commercial Company had laid mains to forestall them. After the legal niceties had been tried, a frontal assault by the Great Central workmen on the Commercial's men was necessary before the main could be put down.<sup>5</sup>

1. Imperial SHM, Apr. 1835; GLCC SHM, Nov. 1831; London DM, 3 Jul. 1834.

- 2. King's Treatise, op.cit. Vol. 1 p.57.
- 3. Everard, op.cit. p.101.
- 4. City CM, 9 Jan. 1823.
- 5. JGL, 17 May 1850 p.287.

# Chapter 4: Amalgamation and the Sliding Scale: the era of George Livesey 1860-1914

In 1860, there were thirteen metropolitan gas companies, apart from a number of smaller suburban works. By 1883, there were only three. This period, therefore, saw the consolidation and rationalisation by amalgamation of the monopoly districts established in the 1850s. It also saw an increase in the amount of government and Parliamentary interference in the industry, culminating in the unique contract by which gas dividends varied in proportion to gas prices - the sliding scale. It was the period of a revolution in the uses to which gas was put and the multiplication of the number of consumers. It saw a transformation in the technology applied to gas manufacture and, finally, it was the period when labour relations in the industry grabbed the national attention. Since in all these issues a leading part was played by one man - George Livesey - it is important that this chapter begins with a biography in some detail of this great industrialist.

Without doubt, George Livesey was one of the leading entrepreneurs of the age, not just in the gas industry but in British industry as a whole. Indeed, in almost every respect he was the archetypal late Victorian capitalist. George was born in Islington in 1834, one of the two sons of Thomas Livesey, who six years later became the secretary and engineer of the South Metropolitan gas company. As such, Thomas lived in a company house adjoining the works in Old Kent Road and, as George would later put it, the gasworks was the playground of his youth. Educated at private schools, with no particular engineering or scientific training, George began work at Old Kent Road in 1848, at the age of fourteen, on the customary salary for a junior - £50 a year. His ability soon showed itself, and by 1859 he had become assistant manager to his father, on a salary of £250 a year, which allowed him to marry Harriet Howard.

1. The background of this biography comes from the obituaries in <u>G W</u>, 10 Oct. 1908 pp.423-30; <u>JGL</u>, 10 Oct. 1908 pp.13-26 and <u>Times</u>, 5 Oct. 1908 p.11.



The marriage, which lasted until George's death, produced no offspring, a rare aspect of his life not typically Victorian. In 1862, when his father moved onto the board, George became the company's engineer, and in 1871, when his father died, he succeeded him as secretary and engineer and effective controller of the company. He was then thirty-seven and on a salary of £1,000. In 1882, he was elected onto the board and supreme power, in name as well as in practice, came when he was elected chairman in 1885. Often threatening to but never actually retiring, Livesey died of undiagnosed causes at home in Reigate in 1908, aged seventy- four. He left an estate worth £157,063, the bulk of which went to the eight children of his late brother Frank and only £5,000 to his wife, who only outlived him by a few months.

For thirty or forty years, George Livesey was the acknowledged leader of the gas industry, not just in London but the whole country. The basis of this was his leadership of the successful South Metropolitan Company, founded on his technical grasp as an engineer, together with a wider commercial vision of what was required, the tactical ability to carry it out and a ruthless determination to let nothing or no-one stand in his way. There are many illustrations of this strength of will. In 1861, for example, Thomas Livesey had been elected as director at the neighbouring Crystal Palace Company but this displeased the South Metropolitan board and he was forced to resign his new post. George keenly resented this dictation to his father and promptly got himself elected at the Crystal Palace, a company of which he later became chairman. Again in 1875, Livesey became convinced of the benefits of the sliding scale but the South Metropolitan board were against the idea. He packed the next shareholders' meeting with the company's employees, who were modest shareholders but who would vote as Livesey told them. A vote against the wishes of the board

and their eighty-five year old chairman and in favour of the sliding scale was duly carried. Two years later, Livesey was again in conflict with the board over the amount of consultancy work he was doing outside the company. This could have resulted in his resignation but again he took the matter to the shareholders and won the day over the heads of the board. By this time he had established indisputable power within the company and under his guidance and negotiating skill he took them into amalgamation with the two neighbouring companies in South London and emerged triumphant. Then, as chairman of the second largest and most rapidly growing company in London, Livesey led the South Metropolitan to become a pioneer in a number of fields. It led the way in the adoption of pre-payment meters, the hiring out of stoves, advertising via showrooms, the manufacture of the company's own brand of lights and other fixtures and the extensive use of mechanical stoking.

The considerable family wealth meant that Livesey held shares not only in the Crystal Palace but in many other gas companies and he began, from the early years, the practice of attending shareholders meetings and using these as a platform for his views on matters affecting the industry as a whole. In the seventies, he was a propagandist for general amalgamation and he also started his career as a consummate witness before Parliamentary enquiries in this period when he advocated the sliding scale to the Forster Select Committee in 1875. He was not opposed in later years to being described, as the <u>Times</u> did in his obituary, as the author of the sliding scale. This he was not, but he was certainly a leading proponent of the scheme. Livesey's public role, however, revealed further sides to his character. He was quarrelsome, had a fierce temper and could bear a personal grudge for many years. In 1887, he split the Gas

1. JGL, 12 Oct. 1875 p.542-545. 2. Ibid., 9 Oct. 1877 p.553.

Institute, the gas engineers organisation formed in 1849, when he quarrelled with George Bray who had accused him of favouritism to William Sugg, an old South Metropolitan man, over the matter of exhibiting gas burners at the International Electric and Gas Exhibition at Crystal Palace in 1882. Livesey caused a schism in the whole organisation by leaving the Gas Institute, taking with him almost half the engineers, a measure of his standing, and forming the Institution of Gas Engineers. This personal feud with Bray lasted twelve years.

In 1887, the Gas Light and Coke unsuccessfully prosecuted the South Metropolitan for selling gas to a railway company in their territory at Nine Elms, and this led to another feud, this time with William Makins, the Governor of the Gas Light and Coke. Regularly, at every half yearly shareholders meeting in the 1890s, Livesey would give the Court the benefit of his advice and berate them for incompetence, particularly in comparison with his own achievements at the South Metropolitan. On a number of occasions he inspired votes calling for Makins' resignation, although in vain.<sup>2</sup> These criticisms Livesey repeated to the Select Committee of 1899, despite a personal 'reconciliation' between Makins and himself  $\frac{3}{2}$ , and he continued to attack the company in public until Corbett Woodall was elected onto the Court in 1903 and, presumably, began running the company to Livesey's liking. In 1901, Livesey led the Parliamentary attack on the Welsbach patent monopoly of incandescent mantles and also led the moves to allow the reduction in the illuminating power of gas and to end the requirement for sulphur purification. Livesey also regularly used the press as a forum for his championship of the gas interest and his own viewpoint. He was a frequent correspondent in the national press and wrote many articles for the trade journals.

Everard, op.cit. p.279.
 <u>G W</u>, 12 Feb. 1898 p.242.
 Ibid., 4 Feb. 1899 p.163.

Pre-eminent as an industrialist, Livesey was also one of the leading gas engineers of the day. As an engineer, as in commercial matters, he had no great inventive imagination but with no theoretical training he had the ability to work out sound practical and sophisticated solutions to problems as they arose. In 1870, he developed a washer which became the standard plant of the period and bore his name. Livesey's real forte, however, was the design and construction of gasholders where he led the whole industry in increasing their size, and therefore economy, culminating in 1892 in the largest holder in the world at East Greenwich. As a consultant, he designed gasworks at Tynemouth in 1869, at Manchester in 1876 and the East Greenwich works, for his own company, in the 1880s. Always a prominent member of the Gas Institute until the split, he gave many papers and made frequent contributions at meetings. Moreover, his engineering reputation extended outside the gas industry when he became its first representative on the Council of the Institution of Civil Engineers. Although a practical engineer himself, he was no backwoodsman and fully appreciated the need for scientific and technological theory, helping to found the Department of Fuel Science at the University of Leeds. On his death, a public subscription raised £10,000, enough to endow the Livesey Memorial Professorship in Gas Engineering at Leeds.

Despite all this achievement, however, Livesey is remembered in history, and only came to national prominence at the time, due to his involvement in the 'Labour Question'. It is not difficult to understand how traumatic the effect must have been on a man who would brook no opposition to his will, from whatever quarter, to be forced to concede the eight hour day by his own workers. The South Metropolitan was a typical paternalistic employer and Livesey doubtless looked upon his men as he would have done a family or domestic servants. To Corbett Woodall 'He was an employer who really loved his men', but if they

were trade unionists or socialists he offered them an implacable hatred. He set out to smash the union in his works and this he achieved in a strike involving considerable violence and the slow grinding down over several months of hundreds of his former employees into abject destitution. Nor in this case did Livesey's Christianity urge forgiveness since, as far as is known and apart from the odd oversight, he would not take a single unionist back into employment. This was not, however, the aspect of the affair emphasised by contemporaries who shared Livesey's viewpoint. To Charles Hunt, the engineer of the Birmingham gasworks, "The working man never had a truer or more judicious friend than he." While in the eulogy at his funeral it was said 'He went through the dark distressful days of 1889, when he fought and won a grand fight, not in his own interest but in that of his fellow men. Sir George Livesey fought that battle on his knees, doing what he felt to be right and he came out victorious because God was on his side'. Above all else, what Livesey really wished to be remembered for from 1889 was his co-partnership scheme and doubtless would not have been displeased by a further obiturist who gave him 'a high place amongst those who have spent their lives in trying to ameliorate some of the hard conditions of the common lot of workers in a world which is often cruellest the most deserving'.<sup>2</sup> 'To lift a body of workmen in the scale of life is a noble task and worth much effort' was how Livesey himself put it.

What was given far less publicity was Livesey's active role in strike breaking in and outside the gas industry and his support for the murky strike breaking organisation, the National Free Labour Association of William Collison.<sup>3</sup> After the 1889 strike, Livesey himself had a register of workers

Canon Ransford at the funeral, <u>G.W.</u>, 17 Oct. 1908 p.425.
 <u>G W</u>, 10 Oct. 1908 p.427.
 John Saville, 'Trade Unions and Free Labour...' in <u>Essays in Labour History</u>, A. Briggs and J. Saville Ed., (1967) pp.336-9; W. Collison, <u>Apostle of Free</u> Labour (1912) Chan WYY C. Alder Mathematical Free Labour (1913) Chap. XXV; G. Alderman, 'The National Free Labour Association' International Review of Social History (1976) p.329.

prepared to act as blacklegs and these were used in strikes at Bromley, West Drayton and in the Liverpool docks. Collison, who devoted a whole chapter in his autobiography to Livesey, relates how Livesey was attracted to the NFLA in 1894 by its opposition to the Employers' Liability Bill. According to Collison, Livesey saw Free Labour as 'the greatest social, economic and industrial movement of modern times' and became a regular subscriber to its funds and, from 1897, met the expense of the organisation's annual Congress dinner. The NFLA apparently supplied the South Metropolitan with bricklayers during a strike at the company. Typically, Livesey kept a close watch on the organisation and had been known to pose as a workman and turn up at one of the NFLA offices, register, and offer his services as an 'engineer'. Nor did Livesey's attitudes to 'Socialist trade wreckers' temper with age although in 1904 he conceded to the Royal Commission on Trade Disputes that trade unions had in many cases done good and had 'secured rights for their men that they would not have secured without'. He would. however, have made even peaceful picketing illegal<sup>2</sup> and referring to the 1906 Trade Disputes Act, he said he ignored the trade unions but 'perhaps if this Bill becomes law employers may have to establish a force such as the Pinkerton Police of America for the protection of men who wish to work in face of a strike'.<sup>3</sup>

For his role in the 'Labour Question' Livesey was offered a place on the Royal Commission on Labour which sat from 1891-94, and to which he was himself a major witness. He used the Commission to justify his own stand and to advocate co-partnership and

For this more

#### than anything else

#### Livesey was knighted in 1902.

In so many ways, Livesey was the high minded Victorian. He was deeply religious, probably low Anglican, and the extent of his piety can be judged by an anecdote with the breath of authenticity to it. In his fifties, Livesey

- 1. <u>R.C. on Trade Disputes and Trade Combinations</u> PP (1906) LVI p.258 Q 4579. 2. Ibid., p.249 Q 4335.
- 3. Times, 5 Oct. 1908 p.11.

was in Glasgow looking into the causes of a gas explosion. Having caught the train back on a Saturday he arrived at St. Pancras only to realise that to continue home to Tonbridge would involve travelling by train on the Sabbath. Instead, he decided to walk the journey, only stopping off at Rochester to worship and arriving in Tonbridge at four o'clock Sunday afternoon. Livesey was also a great philanthropist, never, it is said, giving less than a tenth of his income to charity. In 1874, after hearing a coloured missionary speak at Surbiton Church, he gave £20,000 of South Metropolitan stock to the Christian Missionary Society and £250 annually thereafter. He put up most of the money for the building of Heath Church, Reigate, took a keen interest in the British and Foreign Bible Society, was a governor of Reigate and Redhill Hospital and left £10,000 in his will to the King's Hospital Fund. Also in his will he left £15,000 to go to the relief of 'bad cases' at the South Metropolitan and the Surrey Suburban companies. Livesey would always give a meal and a handout to any unemployed who came to his house in Reigate. It is not recorded whether any of those who were starving as a result of the 1889 strike came to his door, but it would have been a final irony.

In politics, Livesey was a Liberal of the old school, <u>laissez faire</u>, individualist and imperialist variety who took his tenets from Cobden, Bright, Mazzini, Spencer and Kingsley and was a great admirer of Kipling and Bismarck. Livesey never took an active role in politics, however, and, although he had the ability to be a successful politician, not to devote his whole energies to matters of the gas industry seems never to have occurred to him. Perhaps, in any event, his inability to compromise would not have made him a suitable politician.

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Yet despite this outward highmindedness - Corbett Woodall called him 'the straightest man I ever met' - all was not quite what it seemed. Livesey's egotism did not resist the mantle of originator of the sliding scale and co-partnership which was laid on him, even though he knew this not to be the case. He could also, when necessary, treat the facts to suit his own purpose. In evidence to the Royal Commission on Labour, for example, he stated that the 1872 strike in the London gasworks was due to a pay dispute when in fact it was due to anti-union activity by the companies, very similar in nature to the cause of the South Metropolitan strike of 1889. Another habit of Livesey's was to claim that any concessions made to his men were not forced on him but would have been made anyway. Thus, the abolition of Sunday working in 1872 was not bargained by the union but arose due to the intervention of the Lord's Day Observance Society.<sup>3</sup> The Eight Hour Day was no victory for the union since he had urged the men to adopt it years earlier but they had not wanted it. <sup>4</sup> To a different audience, however, 'He might advise them, if the demand should be made upon them to adopt the eight hour system to resist it in every way they possibly could. The London Gas companies made the greatest mistake in conceding this system'.<sup>5</sup> Again, the co-partnership scheme was not a reaction to the union since he had also urged it years before, but the board had turned it down.<sup>6</sup> Whether all this was conscious public relations or a subconscious inability to admit weakness is unclear. Certainly Livesey gave his high principles a clear order of priority. Like his father,

1. 'I was the author of the sliding scale' Livesey to <u>R.C. on Trade Disputes and</u> <u>Trade Combinations</u>, op.cit. p.257 Q 4569; 'The idea of the sliding scale had first been put forward by George Livesey in 1873' Garton, <u>G W</u>, 28 Jun. 1952 p.700.

- 4. S. Metro. DM, 26 Jun. 1889 p.315.
- 5. To the shareholders of the Imperial Continental Gas Association. <u>G W</u>, 10 May 1890 p.516.
- 6. G W , 17 Oct. 1908.

<sup>2. &</sup>lt;u>R.C. on Labour</u> (1892-3)XXXIV p.222.

<sup>3.</sup> Ibid., p.222.

Livesey was a total abstainer and would not allow alcohol on the South Metropolitan works - except, that is, during the 1889 strike when blacklegs were plied with free beer to keep them with the company, and the various works at night became the scene of drunken revelries.

Handsome, with a full beard, Livesey was unostentatious in dress and His pleasures were simple. He liked walking and would often walk action. the fifteen miles from home in Reigate to the Crystal Palace works. He was a keen cyclist and motorist when both came in in the 1890s. He lived quietly, considering his wealth, or as he put it, his wealth consisted not in the abundance of his riches but in the fewness of his wants. Lunch, indeed, would usually consist of a sandwich and a glass of water. Yet the modest exterior concealed an impressive ego. Fractious, as Corbett Woodall admitted, 'he came into conflict with others because he always thought he was right.' He made a fearsome adversary; again in his own words, he was 'a man to fight the bear with.'<sup>Z</sup> His personal courage was proved during the 1889 strike when, although very public threats had been made on his life, he presented a calm and steadfast example to all around him. He was, it is clear, a great leader of men even within the limited opportunities for such as head of a gas company. In 1889-90 he smashed the union and humiliated the men to whom he showed no mercy. Yet at his funeral almost the entire workforce, all that could be spared, some 6-7000 gasworkers, followed his coffin as he was 'buried amid demonstrations of public sorrow and sympathy such as South London has never seen before,  $\mathbf{\ddot{s}}$  a testimony as much to the mentality of the British working class as to the character of their scourge and master, Sir George Livesey.

### 1. <u>GW</u> 17 Oct 1908 2. Ibid 10 Oct 1908 3. Ibid 17 Oct 1908

The creation of monopoly districts in the 1850s and, south of the river at least, an increase in price led to renewed agitation against the companies. In 1855 the South London Gas Consumers Mutual Protection Society was formed, led by John Challice, the Bermondsey Officer of Health. They approached the existing companies for a reduction in the price of gas with no success.<sup>1</sup> Basically consumers had three sources of redress open to them: firstly, central government or legislative regulation of existing companies; secondly, municipal intervention, either by local authorities buying out existing concerns or setting up works in opposition to them; finally, consumers might encourage competing companies to set up as they had done in the past. With regard to the latter solution, an agitation was begun north of the river by Samuel Hughes.<sup>2</sup> Hughes, a civil engineer who had been involved in assessing gas companies for rates, had written the standard treatise on gas manufacture in 1853 and was a delegate to the Metropolitan Board of Works (M B W ). He wrote many well argued pamphlets and appeared on numerous Parliamentary committees on behalf of the consumers but saw no conflict between this role and his own financial advancement. In 1858, with John Kirkham, who had left the Imperial in 1853, he set up the Borough of Marylebone Gas Consumers Company, not the first time that a proposal to attack the Imperial's monopoly in this area had been made. The company was to have a works at Greenford and a capital of £150,000 in £1 shares. It was, however, unable to raise this sum and, moreover, although its bill passed the Commons it was thrown out by the House of Lords. A similar fate befell a second company, the United Gas Consumers, The disadvantages of competition, of who planned a works at Hammersmith.

S.C. on Gas (Metropolis) Bill PP (1859) III pp.518-9; JGL, 30 Mar. 1858 pp.195-6.
 S.C. on Gas (Metropolis) Bill PP (1859) III pp.611-635.
 JGL, 2 Feb. 1858 p.149.

leakage and the constant disruption of the roads and pavements had never made it the ideal solution for consumers, and at this stage, also, the Government became convinced of the evils of competition.<sup>1</sup>

By the end of the 1850s, therefore, it was clear that competition from private companies in London was not likely to recur and in 1858 a deputation from the metropolitan parishes met the Home Secretary to urge the setting up of a local authority owned gasworks.<sup>2</sup> Despite many attempts, however, this was never to be achieved in London and the Government turned instead to renewed attempts at legislative regulation of existing companies. From the first Act of the Chartered, Parliament had never ceased to place some regulation into gas companies' legislation as it had previously done for canals.<sup>3</sup> The Acts of the City Company (1817), the Imperial (1821), the Ratcliffe (1823), the Phoenix (1824) and the Independent and British (1829) gave no restriction on dividend or on price as had the Acts of the Nottingham, Oxford and Bristol Companies in 1818-19,<sup>4</sup> except that parishes should be supplied with gas at a price cheaper than oil, while some were allotted monopoly districts.<sup>5</sup> No companies passed an Act in the 1830s but in the Acts of the Equitable and South Metropolitan (1842), the London (1844) and the Commercial (1847) the companies' dividends were limited to 10 per cent although they could pay back dividends for any previous year to make up the 10 per cent and further build up a reserve fund equal to 10 per cent of nominal capital. These and other minor terms were consolidated into the Gas-Works Clauses Act (1847)<sup>6</sup> and were then applied to any future company coming to Parliament, as did the Great Central (1850), the Surrey Consumers (1854), the Imperial (1854), the Ratcliffe (1855) and the City (1857).7 'In addition, these last five companies had maximum prices imposed on them; yet since, as with the dividend, the maximum

1. Ibid., 12 May 1858 p.650.

- 2. Ibid., 27 Apr. 1858 p.238.
- 3. M. Falkus, 'The Development of Municipal Trading in the 19th Century' <u>Business</u> <u>History</u> (1977) p.141.
- 4. Ibid., p.146-7.
- 5. Rostron, op.cit. pp.11-2.

6. 10 & 11 Vict. c 15, paralleled by the Waterworks Clauses Act 10 & 11 Vict c 115. 7. Rostron, op.cit. p.4.
prices were set well above what the companies were charging (the Imperial charging 4s 6d was given a 6s maximum), all these regulations had no tangible effect.<sup>1</sup>

Continued consumer discontent led the London parishes with Marylebone taking the lead<sup>2</sup> to promote legislation in 1858 and a Select Committee was set up to look into the whole situation.<sup>3</sup> Challice and Hughes, on behalf of the consumers, argued that since districting the price of gas had increased, illuminating power had fallen, the gas was less pure and companies had become high-handed in disconnecting customers. Among other things, they wanted the maximum price of gas to be 4s (i.e. what it was in the City; the West End companies charged 4s 6d). The price was higher in London than in the provinces, they maintained, due to the high capital expenditure of the London companies.<sup>4</sup> The companies replied that their prices were due to higher costs of coal and labour, that districting had conferred advantages and that they were not as prosperous as was claimed.<sup>5</sup> The Act that emerged<sup>6</sup> in 1860 was a victory for the companies whose boards, of course, were well represented in Parliament. The monopoly districts were confirmed by law; illuminating power and purity of gas were to be tested but fines were paltry; maximum price was to be 4s 6d unless costs of production increased, while maximum dividends remained at 10 per cent and back dividends could be paid on the previous six years.<sup>7</sup>

In the 1860s the London companies continued their progress to prosperity and by 1864 all, including the previously desperate London Company, were paying 10 per cent dividends and many were paying back dividends.<sup>8</sup> To the Great Central, for example, this meant an extra 5 per cent in 1863, 43 per cent in 1864 and 6 per cent in 1865.<sup>9</sup> In 1861 the City companies increased their price to 4s 6d.<sup>10</sup>

1.	Ibid., p.5.			
2.	J. Roebuck,	Urban Development in	n 19th Century London (1979) p.109.	
3.	S.C. on Gas	(Metropolis) Bill Pl	P (1859) III pp.507-598; (1860) XXI	pp.29-454
4.	S.C. on Gas	(Metropolis) Bill PR	P (1859) op.cit.	

5. Ibid.

- 7. Rostron, op.cit. pp.9-12. 8. Ibid. p.12.
- 9. Great Central SHM for each year.
- 10. Everard, op.cit. p.210.

<sup>6.</sup> Metropolis Gas Act (1860) 23 Vict c 125.

This broke the Great Central's Act of 1850 but the courts ruled that they were entitled to come under the 1860 Act. In addition, the practice of issuing new shares at par to existing holders continued when share prices for the London companies were at a healthy premium. In contrast to the City companies the South Metropolitan and the Independent reduced their prices to 3s 6d by 1865 in the case of the former company and 3s 4d in the case of the latter.<sup>1</sup> Not surprisingly, therefore, consumer hostility in the City continued, this time led by George Flintoff, 'a paid agitator' as the trade journal called him.<sup>2</sup> Meetings were held, like the one convened by the Lord Mayor at Guildhall in 1865,<sup>3</sup> and the old remedies of setting up competing companies – even one monster company to supply the whole of London – were rehearsed.

In 1866 the Corporation of the City of London promoted a bill to supply gas in competition themselves.<sup>4</sup> The bill was referred to a Select Committee under Sir John Trollope which was also to enquire into the working of the 1860 Act.<sup>5</sup> Evidence very similar in nature to that given to the 1860 Committee was proferred by both sides and the Committee, while rejecting the Corporation's bill, agreed that gas was better and cheaper in the provinces; gas in the City should be made more powerful and testing more stringent; back dividends should be limited to three years, and that 'regulated monopoly' should be extended either by amalgamation or by voluntary purchase by a public body. In 1867 the MBW and the City Corporation promoted a bill along these lines and this went

1. Rostron, op.cit. p.12.

2. JGL, 11 Jul. 1865 p.655; Cotterill, op.cit. pp.1114-1190, however, emphasises the unselfish nature of Flintoff's activities in Scotland in 1860s and attributes to them the wave of municipalisation in the 1870s.

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- 3. JGL, 11 Jul. 1865 pp.544-6. 4. Everard, op.cit. p.226.
- 5. S.C. on London (City) Corporation Gas etc. Bills PP (1866) XII pp.63-489.

to another Select Committee under Lord Cardwell.<sup>1</sup> The promoters wanted a reduction in dividends until the charges for interest on capital reached a reasonable figure, working costs to be reduced, either by amalgamation or compulsory purchase by public authorities, and 3s 6d to be the maximum price for eighteen candle power gas.<sup>2</sup> The companies agreed to amalgamation but felt that the authorities should not break faith with the 1860 Act and offered a 4s maximum price - the price charged at the time for fourteen candle gas.<sup>3</sup>

The Cardwell Committee was unprepared to impose terms on the companies and the original bill was dropped, but in 1868 the City Corporation again applied for powers of supply, and faced with this the three City companies agreed to an Act<sup>4</sup> which contained Cardwell's detailed recommendations for regulation. Dividends were limited to 10 per cent and the maximum price was to be 3s 9d for sixteen candle gas. But this price was to be revised either up or down on application by either the companies or the City Corporation to the Board of Trade which took over responsibility from the Home Office. Three commissioners would then be appointed to assess a price which would grant the companies a 10 per cent dividend provided they exercised 'due care and management', including the economies that might have been made had amalgamation taken place. Gas referees and examiners were to be appointed to test gas for strength and purity. Amalgamation schemes would not need an Act of Parliament but could be agreed by Order in Council on application to the Board of Trade. The City Corporation was empowered to Purchase any of the City companies with their consent.<sup>5</sup>

Special Report of S.C. on Metropolis Gas Bill (1867) PP (1867) XII pp.1-428.
 Rostron, op.cit. p.15.
 Ibid., p.16.

- City of London Gas Act (1868) 31 Vict c 125.
- Rostron, pp.20-23.

A further source of hostility towards the London companies was the nuisance caused by the location of their works in the built-up areas of town and there was constant pressure from sanitary reformers and others for the companies, particularly in and around the City, to take their works elsewhere. The increase in demand gave the companies a constant need to expand, and the high cost of land in the City and the advantages of having the space to lay out the works to the best advantage also urged the companies to look for a rural location which would then enable them to close down their cramped and muddled old works. At the time, apart from the City Company, the Chartered was the company in most need of a new works, and being the larger of the two had the better resources. The Chartered's chairman, Simon Adams Beck, a solicitor, set about a solution, together with the driving force of the company, Phillips, the secretary, and its engineer, F.J. Evans. Sites at Greenwich were contemplated in 1862 and even at Millbank \_\_\_\_, but these came to nothing. In 1866, the company applied for an Act to build a works on Hackney Marshes and to amalgamate with the City Company but the site was rejected by the House of Lords as too near existing settlement.  $3^{24}$ In 1868, however, the company finally passed an Act to raise £650,000 new capital to build a works at Barking Creek, although in return they had to accept that the provisions of the City of London Gas Act 1868 would apply to the whole of the company's district, not just to the City.<sup>4</sup> Meanwhile the Imperial Company, now twice the size of the Chartered, had been applying to build a similar works but in 1868, with more to lose, had refused to come under the provisions of the Cardwell Act. But. along with the South Metropolitan, they were forced to do so a year later in 1869.6

1. e.g. JGL, 12 Apr. 1859 pp.180-1; Garton, op.cit. <u>G W</u>, 3 May 1952 p.454; S. Metro. DM, 17 Oct. 1849. 2. Everard, op.cit. pp.224-5.

. 3. JGL, 13 Nov. 1866 p.823.

- 4. Rostron, op.cit. p.23. 5. JGL, 26 May 1868 p.385.
- 6. Rostron, op.cit. pp.23-4.

Beckton, as the Chartered's new works was called after their chairman, was built on a 150 acre site and designed by Evans.<sup>1</sup> Unfortunately, it was costly to build. It was well located on the Thames Estuary for the reception of coal, but a 400 foot jetty had to be built to receive the colliers. Built on a marsh, the foundations had to be sunk deep and an embankment was necessary to prevent flooding. For such a windswept spot, Evans believed that to use multi-lift gasholders would be dangerous, so the initial holders were single lift and, at only 1 million cubic feet capacity, were uneconomically small. Further, the isolation of the location meant that road and rail links with the City had to be built as well as a monster 48 inch trunk main to carry the gas. Moreover, in typical Victorian fashion, little expense was spared on the architecture, which included a clock tower. Finally, when Beckton opened in 1870, it was already too small and only a year later the decision was taken to double its capacity from four retort houses to eight. Yet nothing could detract from the impressive nature of the Beckton works and with limitless room for expansion, it quickly became the largest gasworks in the world. The Imperial works at Bromley was also costly to build, did not have as good a waterside site as Beckton and, crucially, opened two years later, by which time the initiative had moved decisively to the Chartered.<sup>2</sup>

Throughout this period the pressures for amalgamation had been building up. The technical and commercial economies of scale, and therefore of merger, were relatively weak. However, coal and other materials could be bought in greater bulk and competition in the by-products market could be reduced. Staff, and particularly Boards of Directors could be rationalised but this was usually a long-term saving since directors who retired on merger were heavily

 See Everard, op.cit. pp.234-5; King's Treatise, op.cit. Vol. 2 pp.293-299; JGL, 7 Apr. 1869 p.578; Illustrated London News, 2 Nov. 1878 p.411.
 Stewart (1957) op.cit. p.29; JGL, 3 Mar. 1874 p.283.



Beckton in 1877.



Beckton from the Thames in 1880. Print from oil painting by W.L. Wyllie, RA.

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compensated out of the companies' reserve funds. When the South Metropolitan took over the Surrey Consumers and the Phoenix they saved £8,250 a year in salaries, out of a total expenditure of £750,000, but they paid out £86,428 in compensation. The major saving came from the rationalisation of the system of mains, which the districting agreements of the 1850s had left in a chaotic state. There were other factors also at work. The Journal of Gas Lighting had been a constant advocate of general amalgamation from its inception, with the idea that it would give the companies greater strength in resisting the interference of, firstly, competing companies, and, later, local and central governments.<sup>3</sup> Paradoxically, both of these institutions set up their own pressure for the companies to merge so that savings could be made and the price of gas reduced. The immediately decisive factor, however, was probably plant capacity. For the older companies with works in built-up areas and needing to expand, it was costly to do so in their own locality even if they could get permission, while they were too small to afford to completely relocate in the country. This was where Beckton became decisive and the smaller companies fell into the Chartered's lap. On the other hand, the expense of Beckton for the company made savings, and therefore amalgamation, even more of a necessity.

Proposals for amalgamation between the City companies had been constantly discussed throughout the 1850s and 60s. Terms had been agreed in 1866 but the necessary bill had foundered.<sup>5</sup> Finally, in 1870, the Chartered took over the two City companies under the terms of the 1868 Act, with Board of Trade approval. Included in the terms with the City Company was the provision that production at the Blackfriars works would cease two years after Beckton opened

- 1. S. Metro. DM, 14 Jul. 1880.
- 2. JGL, 10 Feb. 1849 p.1.

3. Ibid., 6 Aug. 1867 p.652.
 4. e.g. JGL, 25 Nov. 1856 p.648; Everard, op.cit. pp.225-6; GLCC SHM, 2 May 1851.
 5. Everard, op.cit. p.228.

and the works would close completely in five years.<sup>1</sup> The shares in the City Company were simply converted into new £10 shares in the Chartered.<sup>2</sup> It. was also imperative, still being a competitor in the City, that the Great Central be brought into the scheme. The Great Central however was in a much stronger position than the City Company both in its capital structure and location of its works and was able to bargain what at the time seemed a better deal than the City, taking 10 per cent preference shares in the Chartered.<sup>3</sup> its shareholders accepted unanimously. Both the boards of the City and This Great Central were to go into the Chartered Court but were not to be replaced when they retired. In the same year the Board of Trade contemplated a bill for compulsory amalgamation, but this was dropped.<sup>4</sup>

In 1871, the Chartered turned to the Equitable, another profitable company but with a cramped works in Pimlico, which they were having difficulty getting permission to extend.<sup>5</sup> Moreover, they were in need of extra capital which could only have been raised at a maximum interest of per cent, which Parliament 7 had placed on all new capital since 1868. They would also have had to come under the terms of the 1868 Act. The initiative, however, came from the Chartered. They wanted Pimlico to handle their cannel gas production to allow them to close Westminster as they had Curtain Road and Brick Lane.<sup>6</sup> They could make savings in administration and from the duplicate mains, and they received the Equitable's reserve fund of  $\pounds 20,000$ . They therefore offered 10 per cent preference shares for all the Equitable stock which the Equitable shareholders were happy to accept. An Act of Parliament was needed authorising the scheme but this included a clause conferring on the Chartered the right to merge with

1. Closed in 1873, Stewart (1957) p.19.

2. JGL, 18 Jan. 1870 p.56.

3. Ibid., 15 Mar. 1870 pp.201-2. 4. Ibid., 2 Nov. 1870 p.843. 5. Ibid., 14 Feb. 1871 p.107.

6. They closed Brick Lane and Curtain Road in 1871, Westminster in 1875, Stewart (1957) op.cit. pp.27, 37, 110.

7. JGL, 14 Feb. 1874 p.109.

any other London company with Board of Trade approval. Under this provision the Chartered now approached the Western Company in 1872. Despite the Western now being one of the most prosperous companies in London, the Chartered had the previous year strengthened its position by receiving Parliamentary sanction for fl million extra capital at 10 per cent rather than 7 per cent.<sup>2</sup> The price of cannel coal was also on the increase, which posed a further problem for the Western. Therefore, the Chartered only offered amalgamation on equal terms and at the Western Company's meeting the shareholders present rejected the offer in favour of holding out for 10 per cent preference. The move was carried only by use of proxies printed in the chairman's name. The Chartered used the merger to phase out the use of cannel, Kensal Green being converted to common coal in 1873.

The 'coal famine', as it was called, <sup>3</sup>was caused by the extraordinary boom in industry and the various accompanying strikes, and began in the spring of 1872 and reached a peak in 1873, when the average price of coal in London was 31s 7d compared, for example, with 16s 9d in 1869.<sup>4</sup> As a result of this, the Chartered applied to the Board of Trade under the revision clauses of the 1868 Act for permission to increase its price of gas.<sup>5</sup> The three commissioners heard evidence from the company and from the MBW and the City Corporation, who claimed that the company's inability to pay a 10 per cent dividend was due to a want of 'due care and management', particularly in the buying arrangements for coal, excessive expenditure of capital, bad working in the retorts and excessive leakage. Expert witnesses, including Livesey, were pleased to confirm these claims but in the event the commissioners granted an increase in price from 3s 9d

Ibid., 14 Feb. 1871 pp.108-110.
 Ibid., 27 Aug. 1872 p.732.
 Rostron, op.cit. p.24.
 Field's Analysis for both years.
 Rostron, op.cit. p.25.

to 4s 4d in 1873 and a further increase the following year to 5s.<sup>1</sup> This enabled the Chartered to pay 10 per cent dividends for 1873- 4, something they had not been able to do for the previous five years. Other companies were also successful with applications. The Imperial gained an advance to 4s 8d in 1874; the London, Phoenix and Surrey Consumers to 4s 6d; the Independent increased from 3s 2d to 3s 6d, while the South Metropolitan managed to continue the cheapest at 3s.<sup>2</sup>

The increases fully exposed the beneficence of the 1868 Act toward the companies and led to a renewed consumer agitation, again led by George Flintoff and the London Gas Consumers Association. Meetings were held and MPs of all shades of party opinion called on the companies to reduce their price or be taken over.  $\frac{3}{10}$  In January 1874 the London Gas Consumers Association introduced its own bill to get the MBW and the City Corporation to take over gas supply  $\frac{4}{100}$  and later in the year the MBW and the Corporation promoted three bills in Parliament, one to set up a works and sell gas in competition, another to compulsorily purchase the existing companies and a third to regulate the existing companies to the extent of a standard price of 3s 9d and a sliding scale by which dividends would be reduced by  $\frac{1}{4}$  per cent for every 1d charged above this. The Chartered and the Imperial reduced their prices to 3s 9d and even agreed to be bought out by the MBW 'fair' price.<sup>5</sup> But the MBW was hopelessly divided and, under at a

Ibid. p.26-27.
 Ibid. p.27.
 JGL, 26 May 1874 p.725.
 Ibid., 13 Jan. 1874 p.41.
 Ibid., 1 Dec. 1874 p.725.

Government pressure, agreed to withdraw the first two bills but proceeded with the Regulation Bill. This went to a Select Committee under W.E. Forster in June 1875. To this committee the Government made it known that it was against a sliding scale where dividends could only fall with an increase in price but favoured one where dividends could also increase beyond 10 per cent with a fall in price.

It would seem a priori to be at least doubtful whether any Government Department, or any official Commissioners, however zealous and competent, can succeed in dictating to a trading Company the terms and conditions of manufacture on which they can make the greatest amount of profit and to fix the price of their article accordingly.

The 'due care and management' would now be achieved automatically by companies needing to reduce their price in order to increase their dividends. The idea had been debated during the passage of the 1860 and 1868 Acts<sup>3</sup> and had been introduced into the Acts of the Sheffield Company in 1866 and the West Ham in 1869.<sup>4</sup> The Board of Trade, mindful of the need to keep the companies' capital to a minimum, also recommended that future funds be raised not by issue at par to existing shareholders but by loan at the lowest rate of interest possible, or - as several provincial companies already did - by auction to the highest bidder. 5

The MBW agreed to accept the sliding scale in both directions, it having received powerful support from George Livesey, the MBW's own witness. Any 1d change in price from the standard of 3s 9d was to mean a 1 per cent increase or decrease in dividend. At first most companies were opposed to the idea. <sup>7</sup> They feared that, once agreed to, the MBW would try to lower the

- Rostron, op.cit. p.31.
  Ibid. p.33.
  JGL, 2 Apr. 1867 p.204.
  Rostron, op.cit. p.30.

Ibid. p.174; the Liverpool company raised shares by auction as early as 1834, Falkus (1977) op.cit. p.151.
 Rostron, op.cit. p.35.

- 7. Ibid. pp.44-45.

standard price. It also involved them giving up their guaranteed 10 per cent at a time when the increase in coal prices was fresh in the memory. Livesey's own company even opposed it at a standard price of 3s 9d, which would have given them an immediate dividend of 12½ per cent.<sup>1</sup> The Commercial was the first to accept the sliding scale in July 1875 in order for it to pass its Act amalgamating with the Ratcliffe<sup>2</sup> and to raise further capital. The auction clause, however, was not imposed. Shares could still be issued at par although an equal amount had to be raised by loan.<sup>3</sup>

It was the continued process of amalgamation which brought the sliding scale on the companies. In 1874, Phillips at the Chartered had contemplated amalgamation with the Surrey Consumers but this was dropped. 4 In 1875, the Imperial had promoted a bill to amalgamate with the Independent but had withdrawn it, being unwilling to accept the sliding scale.<sup>5</sup> The Chartered then stepped in and offered amalgamation to them both. The Imperial at first held out for 10 per cent preference but finally agreed to merger on equal terms. Vaughan Richards, the Governor of the prosperous Imperial, confessed that he saw no immediate gain from the merger but that rationalisation of the mains and the fact that the Board of Trade and Parliament recommended it was reason.<sup>6</sup> This the shareholders accepted.<sup>7</sup> The sharesufficient holders of the Independent saw even less reason for a merger and voted it out on a show of hands but it was passed by use of proxies. The shareholders

Ibid. p.43.
 JGL, 24 Aug. 1875 p.285.
 Rostron, op.cit. p.45.
 Everard, op.cit. p.246.
 Ibid. pp.246-7.
 JGL, 23 Nov. 1875 p.762.
 Ibid. p.765.
 Ibid., 7 Dec. 1875 p.844.

of all three companies agreed the amalgamation before knowing the full terms to be imposed by the Government. The MBW objected to the inclusion of the Independent since they feared the rounding up of that company's gas prices. The Chartered, in their Bill in 1876, were forced to accept the sliding scale and the auction clauses and in addition the reduction of the size of the Chartered Court from thirty-eight to fifteen, seven directors coming from the Chartered, six from the Imperial and two from the Independent.<sup>3</sup> As part of this process Beck, the Chairman, was either voted out or, at the age of 73, had resigned. He left amid the plaudits of the Chartered shareholders 4but to the Journal of Gas Lighting 'Mr. Beck has been a well-abused man but he has successfully vindicated himself from the charges brought against him'.<sup>5</sup> The problem may have been that he negotiated the purchase of the land on which Beckton was built while he was also clerk to the Ironmongers Company - the landowners. Beck was replaced on the Court of the Gas Light and Coke Company, which formal title now replaced the 'Chartered', by Richard Howe Browne, fifth son of Lord Kilmaine, while Vaughan Richards became Deputy.

An amalgamation on the south side of the river had long been in contemplation. In 1867, when the Cardwell Select Committee was sitting, the South Metropolitan Board had recognised the advisability of amalgamation if the right terms could be agreed. <sup>8</sup> This was not found possible, nor was it two years later when both the Phoenix and the Surrey Consumers courted the more prosperous company with an offer of 10 per cent preference shares.

- 1. JGL, 23 Nov. 1875 p.765.
- 2. Rostron, op.cit. p.47. 3. JGL, 11 Apr. 1876 p.535. 4. Ibid. pp.532-6. 5. Ibid. p.529.

- 6. Everard, op.cit. p.249.
- Since 1849, Garton, op.cit. G.W., 5 April 1952 p.351.
  Ibid., 3 May 1952 p.456; JGL, 15 Oct. 1867 p.863; S. Metro. DM, 4 Jul. 1867.
  S. Metro. DM, 15 Feb. 1869 and 15 Mar. 1869.

In 1870 the Phoenix offered 10 per cent preference shares for ten years, but the South Metropolitan wanted 10 per cent preference for both its £300,000 of called up capital and on its £200,000 of uncalled capital.<sup>1</sup> The following year agreement was finally reached between the Phoenix and the South Metropolitan who were to get 10 per cent preference on all paid up capital and £100,000 of uncalled capital.<sup>2</sup> A bill was introduced but was dropped on the opposition of the South Metropolitan consumers who feared a price increase from the 3s 2d they paid then to the 3s 9d charged by the Phoenix, similar to the increase in the Independent's district after amalgamation with the Chartered.<sup>3</sup>

In 1875 and again in 1876, the South Metropolitan rejected offers of amalgamation from the Gas Light and Coke and proceeded with their own plans.<sup>4</sup> They successfully passed an Act which allowed them to raise fi million by auction and a similar amount by loan. Manoeuvred into it by Livesey,<sup>5</sup> the board finally accepted the sliding scale with 3s 6d as the standard price, and they also received the right to amalgamate with any company south of the river.<sup>6</sup> The MBW had objected to amalgamation since they feared an increase in price and had wanted a standard price of 3s 3d.<sup>7</sup> Frightened by the South Metropolitan's new powers, the Surrey Consumers had offered themselves to the Gas Light and Coke, but without success.<sup>8</sup> The South Metropolitan now called in the London, the Phoenix and the Surrey Consumers for a general amalgamation south of the river but this time the MBW successfully

Ibid., 27 Jun. 1870; Phoenix DM, 31 May 1871 and 14 Jun. 1871.
 JGL, 2 Jan. 1872 pp.23-25; Phoenix DM, 19 Jul. 1871.
 JGL, 2 Jun. 1871 p.247; S. Metro. DM, 3 Jul. 1871.
 Everard, op.cit. pp.248 and 259.
 JGL, 12 Oct. 1875 pp.542-545.
 Rostron, op.cit. pp.52-3.
 Ibid. p.51.

8. Everard, op.cit. pp.254-5.

objected that this would increase gas prices. Meanwhile, during all these negotiations, the MBW was proceeding with its Regulation Bill which had been before the Forster Select Committee in 1875 and had been reintroduced in 1876. The Board of Trade tried to persuade the MBW to wait until each company came to Parliament for capital and then insert the sliding scale and the auction clauses.<sup>1</sup>, but finally the Board of Trade introduced its own bill to cover the Surrey Side Companies, excluding the South Metropolitan.<sup>2</sup> But this in turn was dropped when the companies objected to a standard price of 3s 6d, that is, lower than the rule north of the river.

In 1878, the Gas Light and Coke again took the initiative for a general amalgamation.<sup>3</sup> The Phoenix and the Surrey Consumers agreed merger on equal terms<sup>4</sup> but the South Metropolitan, which under the sliding scale was now paying 111 per cent on its 3s gas, was offered £110 for £100 stock Land bid this up to £115.<sup>5</sup> As a result, the Phoenix now began to ask for more, and, faced with the problems of the price differential between themselves and the South Metropolitan and other legal problems, the Gas Light and Coke pulled out of the negotiations with Livesey's company, although they continued to pursue the Phoenix, the Surrey Consumers and the London.<sup>6</sup> The South Metropolitan, however, fearing isolation, stepped in and made an offer to the Surrey Consumers, a company half their size. The South Metropolitan, able to out-bid the Gas Light and Coke, offered the Surrey Consumers dividends of 11 per cent On their (B) stock 'with any further increase in profits to go to the South Metropolitan's (A) stock.<sup>7</sup> The Board of Trade, objected that the (B) stock would not be subject to the sliding scale and the scheme was amended to pay

1. JGL, 4 Apr. 1876 p.503. 2. Ibid., 20 Jun. 1876 p.933.

- Everard, op.cit. p.256.
  Ibid. p.257; Surrey Consumers DM, 16 Aug. 1878.
  Ibid., 20 Aug. 1878; S. Metro. DM, 25 Nov. 1878.
  Ibid. DM, 25 Nov. 1878; Surrey Consumers DM, 28 Mar. 1879.
  S. Metro. DM, 24 Mar. 1879 and 31 Mar. 1879.

1 per cent on the (B) stock for every 1d below 3s, the companies sharing an equal dividend up to  $10\frac{1}{2}$  per cent. This was agreed in August 1879. Hearing of the terms the Surrey Consumers had received, the Phoenix, which had been twice the size of the South Metropolitan before the above merger but was now only marginally larger, also wanted to be taken over. It managed to bargain equal dividends up to 11 per cent with the South Metropolitan and received similar terms to the Surrey Consumers thereafter? One Surrey Consumer director joined five Phoenix and seven South Metropolitan directors to form the new board, <sup>3</sup> and within a year the price of gas which had been 3s 4d in the Phoenix and 3s 9d in the Surrey Consumers' district. had been brought down to parity with the 3s of the South Metropolitan.<sup>4</sup>

There remained the thorny problem of the London Company, with a district both south and north of the river. In 1879, both the Gas Light and Coke and the South Metropolitan had made an offer to the London but had been turned down. In 1880, the Gas Light and Coke approached the South Metropolitan with a proposal to jointly take over the London, offering 10 per cent preference stock, with the intention of splitting its district at the Thames with the southern company taking the Nine Elms works. The two companies, after protracted negotiations, could not agree terms, but after pressure from its shareholders the Gas Light and Coke made an individual bid for the London in 1881.<sup>6</sup> The offer of equal terms with the Gas Light and Coke's (A) stock on the sliding scale or 10 per cent preference was at first rejected <sup>7</sup>but was finally agreed in 1883. To the agreement, the Board of Trade added the proviso that they charge no more

- Ibid., 11 Aug. 1879; Surrey Consumers DM, 8 Aug. 1879.
  JGL, 23 Dec. 1879 pp.979-980 and 30 Dec. 1879 pp.1013-4; S. Metro. DM, 15 Sep. 1879, 20 Oct. 1879.

- JGL, 25 Nov. 1879 p.809.
  Ibid., 31 Aug. 1880 p.329.
  GLCC DM, 29 Oct. 1880; S. Metro. DM, 27 Oct. 1880, 3 Nov. 1880 and 10 Nov. 1880.
  JGL, 18 Oct. 1881 pp.680-3; Everard, op.cit. pp.260-1.
- 7. JGE, 7 Jun. 1881 p.964 and 18 Oct. 1881 pp.680-3.

for gas south of the river than did the South Metropolitan.<sup>1</sup> In 1885, the South Metropolitan took over a further two companies, the Woolwich Consumers and the Woolwich Equitable<sup>2</sup>, and in 1909 the Gas Light and Coke amalgamated with the West Ham Company.<sup>3</sup> But, practically speaking, amalgamation in the metropolis came to a standstill in 1883. The remaining three major companies, the Gas Light and Coke, the South Metropolitan and the Commercial were the companies nationalised in 1948.

The terms of the amalgamation with the London Company, particularly the need for a differential price south of the Thames, split the Gas Light and Coke Court in two and led to the resignation of the conservatives, Howe Brown and Vaughan Richards, and to the advent of the architect of the move, Colonel William Thomas Makins M.P., as Governor.<sup>4</sup> For the next twenty-three years Makins was the counterpart of George Livesey at the South Metropolitan and, not surprisingly with two such strong-willed men, they cultivated a high degree of personal animosity. Indeed, in almost every respect Makins was Livesey's antithesis. Born in 1841, seven years Livesey's junior, he was classically educated at Harrow and Trinity College, Cambridge, graduating in 1861.<sup>5</sup> He read law, was called to the bar in 1863 and went into practice as a Parliamentary barrister. A reactionary Tory, Makins was elected M.P. at the second attempt in 1874 for the Essex constituency which included Beckton. In Parliament until

Rostron, op.cit. p.54..
 Ibid. p.55; S. Metro. SHM, 12 Aug. 1884.
 G.W., 14 Aug. 1909 p.197.
 Everard, p.270.
 JGL, 3 Feb. 1906 p.223.

# Colonel Sir William T. Makins Bart.



1892, when he did not seek re-election, he took a close interest in gas and water legislation, having become a director in the Western Company in 1862. He was also a director and later deputy chairman of the Great Eastern Railway Company. When the Western was taken over in 1872, Makins went onto the Gas Light and Coke Court and played a leading part in advocating further amalgamation, which brought him to the chair in 1883. From this vantage point he found himself, almost continually for the next twenty odd years, defending his position at shareholders' meetings - and in Parliament on one occasion - from the personal attacks of George Livesey. However, different in education, social standing, politics and, crucially from Livesey's point of view, lacking a knowledge of engineering, Makins more or less successfully withstood his great rival. Livesey's knighthood in 1902 caused Makins much chagrin but an active canvass brought him a similar honour some months later. Makins' other title was derived from a long association with the Volunteer Corps, in which he became Colonel of the 1st Essex Artillery Volunteers in 1870. He died in harness as Governor of the Gas Light and Coke in 1906.

Makins' interest in amalgamation did not end with the London but almost as soon as he became Governor he proposed a general amalgamation with the other two companies.<sup>2</sup> The Commercial opted out but it seems the Gas Light and Coke and the South Metropolitan had agreed terms until, in 1884, the Board of Trade quashed the move on the grounds that any new London municipality might wish to take over the whole of the London gasworks.<sup>3</sup> In 1887 the southern company took the lead in proposing amalgamation during one of the periodic rapprochements between Livesey and Makins. This time the Board of Trade did

1. G.W , 11 Aug. 1894 p.155.

- 2. Everard, op.cit. p.272.
- 3. JGL, 22 Jan. 1884 p.133.

not seem to object but the proposal was dropped, possibly because the Court of the Gas Light and Coke entertained fears over the position of Livesey in the new company. The whole correspondence on this issue between Makins and Livesey was later published in the Times. The fact is that the impetus had gone out of the amalgamation movement. No further rationalisation of mains was possible, further economies in staffing would have been minimal, while the authorities, both local and central, probably feared the strength that one large London company would have had. The continuing price differences between the companies also posed problems to merger.

In general, the commercial history of the London gas industry from 1883 to 1914 was far less hectic than the preceeding years. The mechanism of the sliding scale kept the companies and the legislature apart by seeming to provide a community of interest between consumers, who wanted prices reduced, and shareholders desiring increased dividends. Under the sliding scale the price of gas fell by 1914 to 2s 2d for the South Metropolitan, 2s 4d for the Commercial and 2s 6d for the Gas Light and Coke, and the gas interest liked to compute how much more the consumers had benefited than the companies. Between 1875-1899 the consumers of the three companies, it was said, had received £18 million in reduced prices while the shareholders had received only £3 million in increased dividends. Such calculations tended to obscure the fact that the gas companies were now paying handsome dividends on capital invested in a relatively risk free business. In 1898 the South Metropolitan was paying 13 1/3 per cent, the Commercial 131 per cent and the Gas Light and Coke 121 per cent, and, as the

, 18 Oct. 1887 p.697; 8 Nov. 1887 p.829; 6 Mar. 1888 p.410. 1. Ibid.

Field's Analysis.
 Rostron, op.cit. p.68.

companies feared in 1875, in view of these high dividends, the sliding scale did not go unchallenged. In 1881, the MBW attempted to reduce the standard price of the South Metropolitan when the company went to Parliament for increased capital, but without success.

The main cause for consumer agitation in this period was the price differential between the Gas Light and Coke and the South Metropolitan. In 1889 the northern company charged 2s 6d while the southern sold for 2s 3d. In 1894, due to increasing coal prices, both companies increased their prices but the Gas Light and Coke increased to 3s 1d while the South Metropolitan price rose to only 2s 5d. This led to a violent protest by consumers and the London County Council (which had assumed the role of the MBW in 1888) asked the Board of Trade for an enquiry, but a deputation of consumers were told by Bryce, the President of the Board of Trade, that a bargain had been struck and, good or bad, Parliament must honour it. The agitation abated somewhat when the Gas Light and Coke reduced its price to 2s 10d. To forestall unnecessary questions as to the South Metropolitan's high dividends, Livesey in 1894 determined to convert its existing 10 per cent stock to 4 per cent. Following the example of other gas companies and railways, this cosmetic would also have the effect, according to Livesey, of reducing the premium on the market value over nominal value, making shares more attractive to the small investor. The South Metropolitan had been in the practice of offering new capital under the auction clause, giving first option, unofficially,

JGL, 24 May 1881 p.872.
 Rostron, op.cit. p.74.
 Ibid. p.70 nl.

4. S. Metro. SHM, 4 Aug. 1894.

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to their consumers at market price, so, as part of the conversion scheme, the right to sell shares direct to consumers was also included. The company's Bill was thrown out in 1895 and Sidney Webb urged the London County Council (LCC) to oppose the new bill a year later on the grounds that the measure would enhance the market value of the shares, making it more expensive for them to take over the company when the time came. Webb, 'the gas and water socialist' and the Progressive Party on the LCC, had made repeated but unsuccessful attempts to persuade the Council to municipalise the gasworks and they failed on this occasion to get an absolute majority to oppose the South Metropolitan bill, which passed into law in 1896.<sup>2</sup>

In 1898 the Gas Light and Coke passed a similar conversion despite a move to hold up the measure until the company reduced its price to 2s 6d. On the contrary, the company had increased its price to 3s and there was renewed agitation to which the Government could remain deaf no longer and agreed to a Select Committee under Sir James Rankin to look into the whole question of gas supply in the metropolis. 4 The main evidence of the Committee, to which George Livesey made a full contribution, dealt with the shortcomings of the Gas Light and Coke, particularly in comparison with the South Metropolitan. Both the Board of Trade and the LCC thought that, by and large, the sliding scale and auction clauses had worked well, although the LCC urged that the system should be shifted more to the advantage of the consumer. In the case of the Gas Light and Coke, the system might be suspended until the company reached a proper price of, say, 2s 9d which would show that the company was fulfilling its obligations. The

S. Metro. SHM, 31 Jul. 1895.
 Ibid., 1 Aug. 1896.

- 3. Everard, op.cit. p.284.

S.C. on the Metropolis Gas Companies PP (1899) X pp.21-429.

Committee found a want of good management on the part of the Gas Light and Coke and recommended that its southern district be acquired by the South Metropolitan at a fair price.<sup>1</sup> The sliding scale should be retained but when companies next came to Parliament for capital, in view of the changed technical situation since 1875, the standard price should be reduced to 3s 3d and, in addition to the ½ per cent increase or decrease in dividend per penny, an extra ½ per cent should be allowed for every whole 3d increase or decrease in price.<sup>2</sup> This arrangement was only to last five years before revision could take place.<sup>3</sup>

In fact, in detail few of the Select Committee's recommendations were implemented. In 1900 the South Metropolitan passed an Act which reduced its standard price to 3s 1d but for fourteen candle gas as opposed to the normal sixteen candle gas.<sup>4</sup> This was due to Livesey taking the initiative in getting the legislature to recognise the reduction in the importance of candle power as opposed to the heating or calorific power relevant to the incandescent mantle, heating and cooking. This led eventually to the complete substitution of a heat measure (the therm) for the old illuminating measure under the Gas Regulation Act 1920.<sup>5</sup> In 1901 the South Metropolitan passed another Act to raise fl; million of ordinary stock and, finally, to legally offer stock at market price first to their consumers, the final piece in Livesey's co-partnership scheme designed to give workers, consumers and shareholders a common interest in the company. Eight-and-a-half per cent of the company's capital was said to be owned by consumers in 1901. Also as part of the Act, the South Metropolitan obtained powers to take over the Gas Light and Coke's district south of the river and the Nine Elms works.

Ibid. p.29.
 Ibid. p.28.
 Ibid. p.29.
 Rostron pp.81-83.
 Ibid. p.84; Stewart (1958) op.cit. p.44.
 Rostron, op.cit. pp.85-6.
 <u>G.W</u>, 27 Oct. 1901.

The two companies, however, could not agree a price and after another bout of acrimonious correspondence between Makins and Livesey the matter was dropped.<sup>1</sup>

In 1902 the Commercial passed a similar Act to that passed by the South Metropolitan in 1900, but the Gas Light and Coke took no action until, in 1903, the LCC introduced a bill to reduce that company's standard price to 3s 1d for fourteen candle gas. They also proposed a fund for the redemption of capital out of profits, in order to reduce the problem of overcapitalisation identified by Rankin. The company proposed their own bill with a standard price of 3s 6d and a compromise was reached whereby the LCC bill was withdrawn and the company's Act was passed with a standard price of 3s 4d for sixteen candle gas and a redemption fund whereby £10-40,000 per year was to be set aside, up to a total of £1 million, to reduce the company's capital debt. In 1909, to bring them into line with the other two companies, the slide in dividend was increased on their 4 per cent capital from 1s per cent to 4 1s 4d per cent for each 1d movement in price.

In their nature, the gas companies of the thirty or forty years prior to the First World War, were rather different to those of the first sixty years of the industry. Gone was the competition, the uncertainty and the constant battle in Parliament. Gone, too, were the audacious and dishonest speculators and their dealings with unscrupulous local and national politicians. The era of the grand swindles had passed. The decades before 1914 saw the gas industry evolve into the secure bureaucracy that is so familiar today. Neither the

- 1. Everard, op.cit. p.286.
- 2. Rostron, op.cit. p.86.
- 3. Ibid. pp.86-7.
- 4. Ibid. p.93.

complaints of the consumers, without doubt more vociferous than they are today, nor the activities of government, not technological revolutions nor the coming of electricity or trade unions could really shake this complacency. Organisationally, the companies had little difficulty in coping with the increased scale of operations that came with amalgamation and the increased demand for gas. The biggest problem fell to the Gas Light and Coke. On the production side, the Committee of Works of the Court included a constructing and carbonising engineer and a distribution engineer.<sup>1</sup> The former was responsible for the construction and running of the works of which, for example, there were ten in 1880.<sup>2</sup> Under him each works was run by a semi-autonomous engineer. The distributing engineer, in 1883, had responsibility not only for mains and service laying but also sales and fitting.<sup>3</sup> The company's area was divided into four districts: Central, Eastern, Northern and Western, each with a local office from which the inspectors, collectors and fitters worked. These offices were merged with the new showrooms as they were introduced in the 1890s.<sup>4</sup> As the complexity of business increased, the company evolved the departmental system under departmental heads with clearly defined responsibilities and operating from head office in Westminster. In 1903, for example, a Rental Department under a Chief Inspector took over responsibility for inspectors, district offices, showrooms and fitters from the distribution engineer, who remained in charge of mains.<sup>5</sup>

In terms of leadership, the period was, of course, dominated by George Livesey, since not only was he pre-eminent while he lived but he also influenced events after his death. He was followed at the South Metropolitan by Charles Carpenter, an engineer whom he had groomed to fill his place at the head of the company. Like Livesey, Carpenter combined the talents of engineer and administrator. He succeeded Frank Livesey as Chief Engineer in 1899, was elected onto

Everard, op.cit. p.274.
 GLCC CW, 9 Jan. 1880.
 Everard, op.cit. p.275.
 Ibid. p.278.
 Ibid. p.288.

the Board on the death of George Livesey in 1908 and became chairman, or President, a year later and remained so until 1937 a year before his death at the age of 80. During this time he had become 'one of the greatest engineers and administrators who ever devoted his life's work to the gas industry'.<sup>1</sup>

Before Livesey died he also had the pleasure of seeing his friend and virtual nominee, Corbett Woodall, take control of the Gas Light and Coke. And, if Makins was Livesey's opposite, Woodall was his mirror image. Like Livesey, he was born into the gas industry, being one of three sons of the manager of the Wolverhampton gasworks who all followed their father into the industry. Corbett was born in Liverpool in 1841<sup>2</sup> and was educated at an Independent school but joined his brother William, who was manager of the Burslem gasworks, at an early age. In 1859 he came to London as an apprentice to Robert Morton, then engineer of the Woolwich Equitable. Then, in 1855, at the age of twenty-four, he became engineer at the Stockton-on-Tees Corporation gasworks. Four years later he returned to London to work with Morton, now engineer in charge of the Phoenix's Vauxhall works, where he eventually became chief engineer. However, on amalgamation with the South Metropolitan in 1880, Woodall was paid off and he set up in London as a consultant engineer. At this he was extremely successful, advising companies all over the world, visiting America in 1889, for example, on behalf of the Gas Light and Coke and recommending the introduction of water gas. This work led companies to offer him directorships, which he accepted from many of them including the Imperial Continental Gas Association, the British, the Tottenham, the Croydon, the Danish and finally the Gas Light and Coke in 1897, becoming the unanimous choice as Governor on the death of Makins in 1906.

Woodall was also Livesey's choice and certainly to the <u>Journal of Gas</u> <u>Lighting</u>, 'He checked the downhill progress of the Gas Light and Coke Company produced by a former stubborn adherence to an erroneous and stunted traditional

Braunholtz, op.cit. p.60; see also <u>G W</u>, 10 Sep. 1938 p.213 and <u>JGL</u>, 14 Sep. 1938 pp.653-4.
 <u>JGL</u>, 23 May 1916 pp.384-6 and <u>G W</u>, 20 May 1916 pp.563-4.

policy'.<sup>1</sup> After many talks with Livesey, Woodall introduced co-partnership to the company and in the years before 1914 the Gas Light and Coke undoubtedly increased in prosperity. In 1912 the company celebrated their centenary in elaborate style and a year later Woodall was knighted. When he died of heart disease in 1916 the tributes to Woodall tell of his ability as an engineer, his energy, his generosity and philanthropy, of a man who always had the welfare of his men at heart, if one often sensitive to criticism - all attributes uncannily applied to George Livesey. Moreover, Woodall was a staunch Liberal in politics and a committed nonconformist in religion. He helped build the Woodall Memorial Congregational Church in Burslem as a tribute to his brother William. Woodall left a large family of ten. Three of his sons followed him into the gas industry, Henry being the pioneer of the first successful continuous vertical retort.

Woodall did not set a trend for engineers to govern the Gas Light and Coke, however. Within three years he had been followed into the chair by another in the long tradition of lawyers. David Milne Watson was, however, a professional in the sense that he was the first Governor to have built his Career within the company. As a young barrister from Edinburgh, Milne Watson had joined the company in 1897 as assistant general manager to Field and, in 1903, when Field retired onto the Court, he took his place. A violent tempered martinet , but with undoubted ability, Milne Watson became managing director in 1916 and then Governor in 1919 until his death in 1945. He was followed in turn by his son Michael, who led the company into nationalisation in 1948 and emerged as the head of the North Thames Gas Board.<sup>2</sup>

JGL, 23 May 1916 p.373.
 Everard, op.cit. Chapters XX to XXIII.

# Chapter 5: Analysis (1)

The previous chapters have set out the origins, technical and commercial development of the gas industry in London in a more or less descriptive fashion. The purpose of this chapter is to analyse the underlying processes of causation at work and to look at the economic and social influences that the coming and development of the gas industry may have had.

The introduction of gas lighting is of particular interest since it occurred in the middle of the classic Industrial Revolution period in Britain and gives a number of insights into that phenomenon. This can best be done by focusing attention on the specific question as to why there was a time lag of over 100 years between the discovery of how to manufacture coal gas, which can be attributed for convenience to the Reverend John Clayton and dated at 1684, and its commercial exploitation, first to light factories from 1803 and then the streets of London in 1813.

The history of the inception of gas lighting given in Chapter One might suggest a number of factors at work. The poor state of communications for the transmission of knowledge from the amateur scientists who had discovered coal gas in the seventeenth century to practical engineers who could use it commercially may be suggested. Certainly the knowledge seems to have been 'discovered' a number of times. Yet it is probably fair to say that by the mideighteenth century coal gas manufacture and its properties were knowledge yet were not commercially utilised. A number of unfortunate accidents seem to have dissuaded some pioneers from pursuing the idea yet this too would hardly seem a sufficient explanation for it not being used more widely.

Nor can particular technological difficulties in the manufacture and distribution of coal gas be pointed to as retarding factors in the timing of innovation. In essence, the engineering involved in gas production was no more complex than that found in traditional iron furnaces, chemical works or breweries. Gas technology did not need to await the arrival of an inventive genius before it could be perfected. The patient work by trial and error of able engineers over a short span of years was all that was required. The fact that both William Murdoch and Samuel Clegg both worked for the premier engineering firm of the age, Boulton and Watt, and one which owed its existence to the period of rapid industrialisation, may be thought significant. There were, however, other successful engineers working in the field at the same time and the innovation when it came was made on a relatively broad front.

Many economic historians have emphasised the importance of science in the development of industry in the eighteenth century  $^2$  and on the surface it might seem likely that it had some bearing on the gas industry. Clayton himself was an amateur scientist and as such his discovery of coal gas arose out of the upsurge of enquiry into natural phenomena that took place in the seventeenth century. Moreover, during the eighteenth century the development of chemistry, particularly the investigation of gases, made steady progress. In 1756 Joseph Black in Edinburgh, believing air could be an active constituent in a chemical reaction, demonstrated the absorption of carbon dioxide by quicklime to form chalk and the reversal of the process on heating.<sup>3</sup> This line of enquiry led to the discovery of oxygen around the same time in the 1770s by both K.W. Scheele and Joseph Priestley.<sup>4</sup>This in turn led to a satisfactory theory of combustion by A.L. Lavoisier.<sup>5</sup> Yet these developments had no bearing on the commercial innovation of coal gas which was a matter of practical

- For the placing of gas plant in its technological context see Clow and Clow op.cit.
  See A.E. Musson (Ed.), <u>Science Technology and Economic Growth in the 18th Century</u> (1972); and the issue is critically analysed in A. Thompson, <u>The Dynamics of the Industrial Revolution</u> (1973) Chap. 5.
  J.G. Crowther, <u>Scientists of the Industrial Revolution</u> (1962) pp.10-11.

- 10. reatise, op.cit. (1904) p.11.

engineering. In one respect alone - purification - may science lay claim to have played a part. Here one of the claimants to priority - Samuel Clegg did have a scientific education having studied under John Dalton, famous for his atomic theory of chemistry. Moreover, early in the eighteenth century, chemistry had discovered and analysed the 'affinities' certain elements had for one another leading to the formation of compounds, and a scientist, William Henry, who went on to make the first detailed analysis of coal gas, was a close associate of Clegg's and claimed to have suggested lime as a purifying agent. Yet Murdoch also maintained he had been the first to use lime and indeed whatever was the case the role of science as such cannot have been crucial. Simple trial and error would probably sooner rather than later have hit on the correct solution.

A further factor that must be considered is the availability of capital since unlike oil or candles, the lighting agents gas replaced, the manufacture of coal gas required the outlay of relatively large sums. Even the small scale apparatus that Boulton and Watt installed at the cotton manufacturers Phillips and Lee cost £5,000-£6,000, for example <sup>1</sup>, while the initial capital of the Chartered was £200,000. Was the availability of capital on such a scale a factor in the timing of the introduction of gas lighting? It is possible that earlier in the eighteenth century risk capital for such a manufacturing venture would not have been forthcoming. Certainly firms like Phillips and Lee were a result of industrialisation while the raising of capital for canal, dock and water companies in the late eighteenth century created a stock market for gas companies to use which would not have been available earlier. Once again, however, it is difficult to see capital as a significant factor in the timing

1. Evidence of Lee to the S.C. on the Bill to set up the Gas Light and Coke Company PP (1809), III, p 353.

of the introduction of coal gas.<sup>1</sup> Joint stock manufacturing companies with a monopoly and a royal charter similar to the first gas company date, of course, from Tudor times - the Mines Royal and the Mineral and Battery Companies,<sup>2</sup> for example. Moreover, the South Sea Company gives evidence of the amount of risk capital that was around in the early eighteenth century which would have been available to any company offering a good chance of success.<sup>3</sup>

How then is the delay in the commercial exploitation of coal gas to be explained? The answer is in fact straightforward. Table 3 takes reliable comparisons between the relative cost of sperm oil and gas lighting in 1841 and projects these back to the 1720s when reliable prices for sperm oil are known. The hypothetical price of coal gas for the eighteenth century is estimated by assuming the technology and cost structure of 1841. This, if anything, will underestimate the price of gas lighting in the eighteenth century although this would be counterbalanced somewhat by improvements in the efficiency of oil lamps. Coal and iron costs alone are assumed variable; labour costs are small enough a proportion of total costs to be discounted. The results of this exercise, even allowing a wide margin for error, are clear and are set out graphically in Figure 1. The fact was that lighting by sperm oil was cheaper than it would have been by coal gas until the closing decades of the eighteenth century and accounts entirely for gas not being introduced. This, of course, says nothing of tallow, the major source of light in the eighteenth century. There is some evidence of the increase in tallow prices,<sup>4</sup> and the importance of the recent advantage of coal gas over tallow during the period of innovation of gas lighting is clearly emphasised by this letter from Benjamin Cook who had adopted gas plant made for him by Pemberton in 1808 'especially now through the present rupture with Russia and the other

4. Robins, op.cit. p.19.

<sup>&</sup>lt;sup>1</sup>. Falkus (1976) op.cit. p.268, says that municipal improvements were never short of capital in the 18th century.

J.H. Clapham, <u>An Economic History of Modern Britain</u> (Cambridge 1926) Vol. 1 p.186.

<sup>3.</sup> A. Thompson, op.cit. p.119 argues to the contrary but offers no evidence in support of his view.

### TABLE 3

# <u>A comparison between the cost of lighting by sperm oil and by coal gas</u>

<u>(actual figures for 1841, estimated for the previous years)</u>

	1841 <sup>1</sup>	1801	1790	1780	1770	1740	Late 1720s
Cost of lighting by sperm oil in £s.	15.7	13.8 <sup>2</sup>	8.6	11.4	3.7	2.3	1.1
Cost of equivalent light by coal gas in £s.	4.1	7.4 3	7.1	7.0	7.0	6.4	6.5

#### Sources and notes:

- The cost of lighting one Argand from sunset to 11 o'clock for one year. Quoted in T.S. Peckston, The Theory and Practice of Gas Lighting (1841) p.37. Relative costs are born out by J.O.N. Rutter, <u>Practical</u> Observations on Gas Lighting (1847) pp.24-5.
- Prices of sperm oil for 1801 late 1720s from Gordon Jackson, <u>The British</u> <u>Whaling Trade</u> (1978) pp.51, 137 and 268-9.
- 3. Estimates for gas costs 1801 late 1720s assume the cost structure of 1841 (see Table 10) with all costs stable except cast iron as 50 per cent of capital costs, Cotterill, op.cit. pp.830-1 and 1161, and 121 per cent of total costs: taken from Charles K. Hyde, Technical Change and the British Iron Industry 1700-1870 (Princeton 1977); and coal prices as 25 per cent of total costs from B.R. Mitchell and P. Deane, Abstract of British Historical Statistics (1962) p.480.

# Figure 1

A comparison between the cost of lighting by sperm oil and coal gas.

Source: See Table 3 together with additional detail on sperm oil prices for 1770-1801 from Jackson, op.cit. pp.268-69.

'Coal gas

Sperm oil



northern powers, the want of importation of tallow has increased to a very considerable height the price of candles, soap etc. The rise of candles has of course been the occasion of an equal rise in oil, as lamps are substituted in the place of candles.' The spirit of tar from Russia had increased from 3s to 3s 6d a gallon to 20s.<sup>1</sup> Of most relevance was the price of whale oil since although gas replaced tallow candles in some situations it mainly took over from oil for streets and shops.<sup>2</sup> Moreover as tallow and oil were substitutes their prices might be expected to move broadly in the same direction.

The several decades delay between the final innovation of coal gas and when it first became price competitive can also be explained since as gas required a considerable investment of capital it would have to show a pronounced and sustained cost advantage over oil for the risk to be justified. Even one year when the unstable price of oil dipped below that of gas lighting could have been disastrous for a gas undertaking. As Figure 1 shows, not until after 1800 were these conditions fulfilled. This factor will also explain why the relatively small scale and therefore lower risk gas lighting of factories preceded by a decade the investment of large sums in street lighting.

What accounts for this reversal in the relative cost of oil and gas lighting? It is in answering this question that the innovation of coal gas can be seen as a result of industrialisation and the growth in the economy generally in the eighteenth century. The first point to be made is that there was a large increase in the demand for lighting in the eighteenth century. Public street lighting in London only dates from the 1730s and 40s and from then it is clear there was a sustained increase in the demand for both public and private light. The monopoly Convex Lights Company had some 1,000 lights. By 1739 local authorities provided 4,800 and by the mid-1750s -15,000, in the area covered by the Bills of Mortality.

1. Hunt, op.cit. p.80.

 F.C. Accum, <u>A Practical Treatise on Gas-Lighting</u> (1818) Chap. 5 p.vii;
 A. Adburgham, <u>Shopping in Style</u>, <u>London from the Restoration to Edwardian</u> <u>Elegance</u> (1979) p.73; Cotterill, op.cit. p.1131.
By 1809, however, there were 35,000 street lights in the City and a further 12,000 in Westminster.<sup>1</sup> This increased demand for light is to be accounted for by rising living standards and rising expectations, the increase in population generally but more especially of an urban population, and finally, as a further result of economic growth, a multiplication of the number of factories, shops and counting houses. This increased demand, which seemed to come from all levels of society, accelerated toward the end of the eighteenth century. Figure 2 shows how the output of tallow increased in line with population up to 1790 whereafter it moved significantly ahead. As has been mentioned tallow was the light of the poor and as such was not the major competitor with gas in the early years. Of more relevance was the demand for oil, the increase in which was even more pronounced at the end of the eighteenth century. The historian of the whaling trade notes a trebling of oil imports in the decade 1794-1804 due to a 'huge increase in the domestic demand for oil'.<sup>2</sup>

As significant as this increase in demand for lighting was the clear inability of the traditional sources to expand supply sufficiently to meet it in full. As a consequence the price of sperm oil, for example, rose from a mere £7 per tun in the late 1720s to £84 per tun in 1801.<sup>3</sup> With signs that whale oil was becoming scarce already in the early nineteenth century<sup>4</sup> and with the supply of tallow linked to the output of mutton and wool and already by the eighteenth century needing to be imported this relative inelasticity in the supply of the traditional lighting materials was contrasted with the expansion in output and relative price stability of the two major inputs of the gas industry - coal and iron. The elasticity of supply of these twin pillars of early industrialisation in Britain provides the final reason for the innovation

1. Falkus (1976) op.cit. p.261.

- 2. G. Jackson, The British Whaling Trade (1978) p.82.
- 3. Ibid. pp.51 and 268-9.
- 4. Robins, op.cit. p.114.



of coal gas. A comparison in the relative prices of coal and sperm oil is shown in Figure 3. In fact, while the price of sperm oil went from £7 to £84 between the late 1720s and 1801, coal prices in London only increased from 29s per chaldron to 51s.<sup>1</sup> Also significant were developments in the iron industry since approximately half of the capital cost of a town gas company was made up of iron.<sup>2</sup> Here technological innovation was particularly important since the use of coke smelting, from the 1750s on, allowed the pig iron industry to cope with a rapid expansion in demand to the extent that the price of pig for the comparable period in the 1720s and the turn of the century increased from £6 a ton to only £6 15s.<sup>3</sup> It is also possible that, irrespective of price, the cast iron industry would have been incapable of supplying the sheer quantity required by industries like water and gas using the old charcoal technology. In 1788, for example, John Wilkinson fulfilled an order for forty miles of cast iron pipe for the Paris Waterworks 'the size of which to the previous generation would have appeared fantastic.'4

In a real sense, therefore, the gas industry can be seen as a by-product of industrialisation and economic growth in eighteenth century Britain which, by increasing the demand for lighting, put pressure on the existing materials with which they could not satisfactorily cope. This left the way clear for using coal and iron, the supply of which had been transformed by technical improvement and the industrialisation process. The expansion of the coal industry and its relative cheapness was the key factor and here an interesting comparison can be made with the French economy which has received much comment recently.<sup>5</sup> As it turned out, Britain was a decade or so ahead of France in the

1. Prices for Westminster School, B.R. Mitchell and P. Deane, Abstract of British Historical Statistics (1962) p.480. 2. Cotterill, op.cit. pp.830-1 and 1161.

 Cotterin, op.cit. pp.830-1 and 1101.
 Charles K. Hyde, <u>Technological Change and the British Iron Industry 1700-1870</u> (Princeton 1977) p.44 and Mitchell and Deane, op.cit. p.492.
 P. Mantoux, <u>The Industrial Revolution in the 18th Century (1948) p.315.</u>
 See N.F.R. Crafts, 'Industrial Revolution in England and France: Some thoughts on the Question "Why was England First?"', <u>Economic History Review</u> (August 1977) pp.429-441 and subsequent discussion by W.W. Rostow November 1978) op.cit. pp.610-14.

introduction of gas lighting. Yet in the 1790s, France, through the work of Le Bon, was as technically advanced as the British. The reason why Britain eventually took a decisive lead is clear. It will be remembered that Winsor failed to raise capital backing for his plans on the continent but was successful in London. Undoubtedly the idea was more viable in Britain. Significantly, in France Le Bon chose to work with the inferior raw material - wood. Equally naturally when Winsor came to England he used coal as had Murdoch before him. It was the availability and price differential for coal between the two countries which was the deciding factor. In 1820 for example France produced 1,094,000 metric tons of coal while the UK produced 17,700,000.<sup>1</sup> And the contrast also applied to Germany, very clearly stated in a letter by Justus Liebig, 'The price of the materials from which gas is manufactured in England bears a direct proportion to the price of corn; there the cost of tallow and oil is twice as great as in Germany, but iron and coal are two-thirds cheaper.<sup>12</sup>

This section analyses technical change in the gas industry subsequent to its establishment. It is important to distinguish two separate though related questions. Firstly, what factors determined the rate of innovation, that is, the first successful commercial use of a new invention? Secondly, what factors

B.R. Mitchell, <u>European Historical Statistics 1750-1970</u> (1975) p.360.
 Clow and Clow, <u>op.cit. p.432</u>.

influenced the rate of diffusion of the innovation within the firm and the industry?

Many explanations of the pace of innovation have been identified in the literature although many factors talked of as the most potent do not seem relevant to the nineteenth century gas industry <sup>1</sup>. Firstly, the technical advance, impressive as it often was, was made with no formal expenditure by companies on research and development. It was accomplished by working engineers as a sideline. Great emphasis has also been placed by economists on the degree of competition or monopoly in an industry. Yet the nineteenth century gas industry had rapid technical progress during periods of intense competition, in the 1850s for example, and during the era of monopoly in the 1890s and 1900s. Equally, little or no change took place during periods of competition like the 1830s and monopoly like the 1880s. Another consideration often discussed - the size of the firm - also seemed of little relevance except on the occasions when, for example, large works could not use clay retorts in the early years nor small works machine stoking in the later period. Nor. for the industry as a whole, did the price or availability of capital seem to have been a factor.

By and large economists and historians have tended to emphasise demand side factors when explaining innovation rates. Economists have pointed to the importance of the demand for innovation created by bottlenecks in the production process and to the need to solve a particular technical problem  $^2$ . Economic historians have tended to explain innovation rates as a function of relative factor costs; that is, changes in the price of labour relative to capital cause

 The large literature is summarised in P.S. Johnson, The Economics of Invention and Innovation (1975) and K. Norris and J. Vaizey, <u>The Economics of Research</u> and Technology (1973).
 E.g. J. Schmookler, Invention and Economic Growth (Cambridge, Mass. 1966).

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the substitution of one for the other. Neutrality in costs leads to weak demand for innovation <sup>1</sup>. It has been argued that the gas industry provides a classic example of this importance of relative factor cost with the introduction of labour saving techniques in the 1890s. By engineers at the time and by subsequent writers <sup>2</sup> it has been claimed that this came about as a result of the rise of the union in 1889 and the increase in labour costs due to the eight hour day. In its most completely developed form <sup>3</sup> the theory maintains that in the 1880s the gas industry, a monopoly with as yet no competition from electricity, was in a technical rut. Attempts to mechanise the stoking process had failed due to the cheapness of labour. However, after 1889 the wage bill shot up enough to wipe out declared profits and as a result the metropolitan companies began to introduce labour saving techniques. This was shown by the fact that, whereas between 1880-4 the annual average expenditure by the companies on 'new buildings and machinery in extension of works' was £127,000, between 1890-2 it was £320,000. Mechanisation advanced more rapidly in Britain than elsewhere, although the effect of this investment did not show itself until after 1900.

Very little of this argument can be accepted. In the first place the implication that because of its secure position the gas industry was technically complacent in the 1880s will not stand up to scrutiny. In fact repeated, determined, and costly attempts were made to introduce machinery prior to 1889 and any charge of lack of effort must be levelled at George Livesey. The South Metropolitan Company had been experimenting with West's wire rope system

- e.g. H.J. Habakkuk, American and British Technology in the 19th Century (1962) and D.A. Aldcroft, 'Factor Prices and the Rate of Innovation in Britain 1875-1914', Business History (1967) p.126.
- 2. Popplewell, op.cit. p.174.
- 3. E.J. Hobsbawm, Labouring Men (1964) Chapter 9.



Thousand

at East Greenwich and had decided to go ahead with its introduction prior to the union being formed . Secondly, the increase in the companies' wages bill was not as traumatic as is suggested. As Table 4 shows, the declared profits of the companies were certainly not wiped out although they were halved between 1888 and 1890. Using its reserve fund meant that the South Metropolitan only had to reduce its dividend from  $13\frac{1}{2}$  per cent to 12 per cent<sup>2</sup> Moreover, the bulk of the fall in profits was not due to the increase in the wage bill at all but to an increase in the cost of coal. Because wages represented such a small proportion of total costs, although the wage bill increased by 45.5 per cent between 1888-1890, of the fall in profits of £596,494 only f156,599 or 26.2 per cent was due to increased labour costs. Thirdiy, the increased investment by the London companies in the period 1890-2 is no evidence of the rapid introduction of labour saving techniques. To fit up a retort house with charging and drawing machinery cost approximately £5,000<sup>3</sup> whereas investment by the Gas Light and Coke Company alone reached £306,350 in 1891, most of which was spent on mundane extensions to works withheld in the previous decade (see Figure 4). Much of the £102,350 spent by the South Metropolitan in 1892 went on building a gasholder In fact.

labour saving technology was only introduced into the London gasworks gradually. Even by 1898, the South Metropolitan, which was more advanced than the other companies on the issue, still had more of its horizontal retorts manually stoked than by machine  $\frac{6}{6}$ 

- 1. S. Metro. DM, 27 Feb. 1889 p.278.
- 2. JGL, 4 Mar. 1890 p.395.
- 3. S. Metro. DM, 19 Jun. 1889 and 13 Nov. 1889.
- 4. GLCC SHM, 11 Aug. 1891 and 9 Feb. 1892.
- 5. Garton, op.cit., <u>G W</u>, 9 Aug. 1952 p.352.
- 6. See above p.26.

## TABLE 4

Profit and Expenditure for the three metropolitan gas companies 1889-1892(in £s).

Year	Net Profit	Carbonising Wages	Coal	Total Expenditure
1887	1,400,313	331,746	1,489,441	2,769,729
1888	1,395,354	343,864	1,513,531	2,822,377
1889	1,151,252	415,434	1,593,201	3,051,471
1890	798,860	500,463	2,065,194	3,748,364
1891	876,795	513,468	2,277,153	4,005,863
1892	1,241,666	474,361	2,025,094	3,726,002

Source:

Field's Analysis

How then is the timing of the first introduction of machine stoking to be explained? Fortunately there is enough information available to make a rough estimate of the situation facing a company considering introducing machinery and this is set out in Table 5. This shows that, even allowing a wide margin for error, cheapness of labour will not account for the lack of innovation in the 1880s. Such were the savings in labour by machine, which required fourteen men per shift compared to thirty by manual stoking, that the savings in operating costs far exceeded the capital costs of the machinery. The reason why the machinery had not been more widely adopted was due to technical difficulties - it kept on breaking down. Column 1 in Table 5 adds hypothetical breakdown costs (mainly the wages involved in repair and replacement manual stoking) to the calculation and shows how costly these need to have been in order to make machinery unprofitable. It is assumed that these breakdown costs had been falling with each improvement through the 1880s to the extent where the situation was marginal by 1888. Column 2 sets out how the massive increase in wage costs caused by the eight hour day and other improvements could have played a part in the short term timing of the initial innovation. It is noteworthy, however, how even a 40 per cent increase has only managed to convert a marginal disadvantage for machinery into a marginal advantage. Clearly the technical problems of the machinery were the paramount consideration in the timing of the innovation.

Another demand side factor which has been said to have caused innovation in the gas industry was competition from the electricity industry. The argument maintains that the threat of electric lighting prompted the gas industry into innovation to improve its costs in general but also specifically to promote gas cooking and heating when its lighting market was threatened <sup>2</sup> The actual

JGL, 19 Nov. 1891, article by Tysoe on use of West machines in 1887.
 PEP Report on the Gas Industry in Great Britain (1939) pp.41-55; M.E. Falkus, (1967) op.cit. p.495; H.C. Passer, <u>The Electrical Manufacturers 1875-1900</u> (Harvard 1953); Hobsbawm, (1964) p.168.

Estimated costs (in fs) in an average London returthouse in 1888 and 1890 stoked either manually or by machine, assuming machinery to cost f5,000, with annual depreciation at 5 per cent<sup>(1)</sup>. Manual stoking requires sixty men and machine stoking twenty-eight<sup>(2)</sup> with wages in 1888 at 36s per week.

	1		2		3		4	
	1888 capital at 5%		1890 capital at 5% and 40% increase in wage costs		1890 capital at 5% and 20% increase in wage costs		1890 capital at 10% and 20% increase in wage costs	
	Manua 1	Machine	Manual	Machine	Manua 1	Machine	Manua 1	Machine
Wage costs	5616	2620	7862	3668	6739	3144	6739	3144
Capital costs	· _·	500	-	500	-	500	-	750
Breakdown costs (hypothetical)	-	2600	-	3640	_	3120	-	3120
Total costs	5616	5720	7862	7808	6739	6764	6739	7014
Savings (-) or increases (+) in total costs for machine over manual		+104		- 54		+ 25		+275

#### Sources:

1. S. Metro DM 19 June 1889 and 13 November 1889.

2. JGL 13 October 1891, p.668.

challenge of electricity can, however, be exaggerated. Right up to the First World War gas remained a cheaper form of light and at no stage did electricity check the upward progress of the demand for gas. Moreover, the timing of the gas industry's interest in its non-lighting market pre-dated the active competition from electricity. In London, gas companies began promoting gas for cooking in the 1870s, twenty years before the arrival of any significant competition from electricity. Even if it is assumed that the gas companies acted with foresight or supposed the threat from electricity to be greater than it was, to attribute to this the increased use of gas for cooking and heating is also to assume that the industry had previously ignored profitable custom and that it had control over demand for its product. Neither can have been the case. The increased demand for gas cooking and heating came almost entirely as a result of the 40 per cent fall in the price of gas from the 1860s to 1890. This, allied to the incandescent mantle and the slot meter, took gas into working class homes for the first time in the 1890s where it also began to oust the old coal-fired kitchen range, which had been cooker, space and water heater in one. It would be possible to argue that the invention of the incandescent mantle came as a response to the threat of electric light yet since attempts to improve gas lighting in this way date from the beginning of the industry this would surely over-simplify the invention process.

Yet gas cookers and heaters do provide examples of innovations arising out of demand side pressure and there are a number of others. Multi-lift gas holders came as a result of the increased need for storage in confined space as the industry grew. Dry lime and oxide purification can be seen as responses to the problem of 'blue billy' which multiplied with the growth in output. The gas meter was introduced with the growing number of private gas consumers.

1. A rough estimate put the cost of cooking a 91b leg of mutton at 2.22d by gas and 3.80d by coal in 1867, with gas at 4s 5d and coal at 22s a ton (King's Treatise, op.cit. Vol. 3 pp.232-3). By the 1890s however, coal was about the same price while gas had almost halved. (See Fig. 6) In 1853 Rutter estimated that to heat a room by gas cost 9d a day but to heat the same room cost 4d by coal, with gas at 5s per 1000 and coal 25s a ton (JGL, 11 Apr. 1853 p.93). Again by 1890 gas would have been much more competitive.

Interestingly these innovations arose as a result of the growth of the gas industry before in their turn playing a part in further growth. A further characteristic of these improvements was that for the most part they posed few technical problems.

Yet, as the above analysis of machine stoking has indicated, as important as the demand for innovations in the timing of their introduction are retarding factors on the supply side. A number of economists have placed emphasis on supply side factors <sup>1</sup> but these have tended to be ignored by historians. In this context it is noteworthy how seldom the classic Schumpeterian distinction between invention and innovation can be made. There are remarkably few examples in the gas industry of practical inventions not used due to a lack of demand for them. There are many instances of good ideas which took many years to be adopted commercially because of the time taken to bring them to technical adequacy. In this sense the distinction between invention and innovation

What factors on the supply side influenced the pace of innovation? Certainly the emphasis placed by many writers on the 'spark of inventive genius' finds no support in the gas industry. The history of attempts to replace hand stoking, dating from the origins of the industry, give ample evidence of the ingenuity of the engineers yet it was not imaginative genius that brought eventual success but patient and cumulative endeavour. The question to be answered is why, given the known ability of the engineers, progress was not more rapid? One factor, of course, is that.trial and error takes time and is expensive and the more expensive the trial - for example of vertical or inclined retorts - the less frequently it will be attempted. But the main retarding

e.g. J. Jewkes, D. Sawers and R. Stillerman, <u>The Sources of Invention</u> (1969); N. Rosenberg, 'Science, Invention and Economic Growth', <u>Economic Journal</u> (1973). factor, well illustrated in the gas industry but not hitherto identified by either economists or historians is that by its nature technical progress is inter-dependent. Progress in one field very often waits on developments in another and is unavoidably held up without it. The crucial development often comes in a totally unrelated field and the solution to a technical problem will often arrive from a direction which minds trained on the original problem could not reasonably have been expected to have developed. To take an example from outside the gas industry, in electric lighting many inventors strained to perfect the filament lamp. The main problem was producing an adequate vacuum in the bulb and this was only achieved after the invention in 1865 of the mercury vacuum pump by Sprengel working on a different problem. This was improved by Crookes in 1875<sup>1</sup> and the electric light bulb was then perfected simultaneously by Swan and Edison.<sup>2</sup>

The inter-dependent nature of technical progress accounts for the timing of much of the innovation in the nineteenth century gas industry. The clay retort was 'invented' in 1820 but could not be used in large works where the pressure was too great. In 1832 the 'through' retort was patented but failed because it had to be made of clay not iron. Not until the exhauster, originally designed to reduce carbon build up in iron retorts, was perfected in 1847 could the adoption of through, clay retorts in conjunction with the exhauster go ahead. Engineers had been attempting to use gravity to charge and discharge retorts set vertically or at an angle since the beginnings of the industry but these had always failed due to the heating problem. This was only solved by indirect firing by producer or Mond gas initially developed in the steel and chemical industries. After this the perfection of inclined and vertical settings went ahead. Again, hand stoking was originally attempted with steam power but had to wait for success until the development of the compressed air, electricity and hydraulic technologies. William Foulis, for example, struggled for many years to perfect hydraulic stoking machinery but did not finally succeed until

W.T. O'Dea (1958) op.cit. p.58.
 C. Singer et al, op.cit. pp.214-215.

he went into partnership with William Arrol who had developed hydraulics for his work on bridges in the 1880s<sup>1</sup> It is therefore on the supply side, particularly the inter-related nature of technical progress, that the pace of innovation in the nineteenth century gas industry is to be explained. It might be noted in passing, particularly with regard to the supposed need for differential movements in factor cost, that the one sufficient demand side stimulus is that companies attempt to maximise their profits.

Turning now to the rate of diffusion of a new innovation through the firm and the industry, the analysis and the factors involved are broadly similar to those explaining initial innovation. Some economic theory will be found useful here as a starting point. According to the accepted model<sup>2</sup> firms will scrap an old technique and adopt a new one when the operating costs of the old are greater than the operating costs plus the capital costs (interest and depreciation) of the new. The capital cost of the old plant is judged to be irrelevant since it is embodied in specific capital whose scrap value is the only consideration. 'Bygones are bygones': old plant will stay in operation as long as its operating costs are being met. Interest on past capital is seen merely as a contractual obligation, while plant would be run by the Receiver in bankruptcy if the running costs could be met.

The accepted model correctly identifies the key considerations in the scrap/replacement decision and therefore in the rate of diffusion of an innovation the amount the change will cut operating costs and the capital cost of making the change. What cannot be accepted, despite having a history in economic theory going back to Jevons and Marshall, is that bygones, in terms of past investment decisions, are bygones and have no influence on present or future

Ibid. p.535.
 W.E.G. Salter, Productivity and Technical Change (1969) Chapter 4.

decisions. Indeed the history of the gas industry illustrates that investment decisions cast a long shadow ahead of them and influence all kinds of Company matters. The first point to be made is that in the long term at least, (the time period in the accepted model is not specified) plant will not be kept going if it is merely covering its operating costs since no replacement capital could be raised by whatever means. Indeed, fixed interest capital not able to pay a return would probably see creditors liquidating the company sooner rather than later. The most serious weakness with the accepted model, however, is the fact that the past capital stock of a company has a direct bearing on the capital cost of new investment;

since the profitability of existing plant will affect the price at which new capital can be raised. Whether the new capital is raised by fixed interest loan or by the issue of shares the unprofitable company will pay a higher price than the profitable one. This price, of course, will have a vital bearing on whether a scrap/replacement decision will be made. It will also determine how profitable an investment will be once it is made. This can be illustrated simply in Table 6 which shows three hypothetical companies operating with the same revenues and costs and faced with the same scrap/replacement decision. Company A is highly over-capitalised and unprofitable, could only raise new capital at punitive rates and therefore would not take the scrap decision. Company B represents the marginal case, while Company C is highly profitable, could raise new capital cheaply, would therefore make the scrap decision and, moreover, would receive a greater return from doing so than the other two companies.

The above effect stems from the fact that although plant may be scrapped, financial obligations, either in terms of share capital or fixed interest loans, cannot, and will, as has been shown, influence investment decisions in the future. This raises the importance of amortisation, that is, of companies

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TABLE 6.

<u>Before and after a scrap/replacement decision for three hypothetical companies</u> with the same operating revenue and costs but different capital structures. <u>The new technique offers a 10 per cent reduction in costs for a £100,000</u> investment raised at differing fixed rates of interest.

	Compa	iny A	Compa	any B Company C			
n in an	Before	After	Before	After	Before	After	
Share capital	400,000	400,000	200,000	200,000	100,000	100,000	
Loan capital	5 / e,	100,000	· · · · · · · · · · ·	100,000	All States	100,000	
Revenue	100,000	100,000	100,000	100,000	100,000	100,000	
Costs	90,000	81,000	90,000	81,000	90,000	81,000	
Interest % on capital		15,000 15	an a	10,000 10		5,000 5	
Profit % dividend	10,000 2.5	4,000	10,000 5.0	9,000 4.5	10,000 10	14,000 14	

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making adequate provision for the depreciation of their capital. The early gas companies in fact made inadequate provision, to say the least, for depreciation and this left most of them with what they called 'the deadweight of unproductive capital' or 'the burden of old capital'.<sup>1</sup> This there can be no doubtowas a major influence on company policy. The more a company had amortised its capital the cheaper and more profitable was future investment. Indeed, even for the best run company, making full provision for depreciation, a scrap decision was cheaper and more profitable the nearer to full amortisation the investment had run.

It is only by using the above analysis that the marked reluctance of the gas industry, indeed the British economy as a whole, to scrap existing workable plant can be fully explained. It remains accepted that a decision to scrap will be made if the operating cost of the old plant is greater than the operating, plus capital cost of the new. What the old model fails to appreciate is that the capital cost of the new plant is determined by its likely profitability which in turn depends not only on the cost saving involved but, often primarily, by the past capital obligation which the new investment must carry with it into the future. This points up the importance, in explaining diffusion rates, of the extent of amortisation and, since as a matter of observed fact companies rarely found it profitable to scrap, investment which could come about without the need to write off workable plant. This could occur when old plant simply came to the end of its physical life, which indicates the significance of the durability of capital, but it could also come about as a result of the growth of output. Finally, some innovations, gas meters or oxide purification for example, by their nature required no scrapping.

This analysis will now be applied to diffusion rates in the nineteenth century gas industry taking again, for the sake of convenience, the example

1. London DM, 22 Feb. 1837.

of machine stoking. The situation that needs explaining here is why the South Metropolitan Company adopted machinery quicker than the other companies. Table 7, giving carbonising wages per 1,000 cubic feet of gas produced, shows the South Metropolitan consistently saving labour throughout the 1890s while the other companies were not doing so to any extent until the end of the decade. Several factors suggested by the above analysis may be put forward to explain this. Firstly, the South Metropolitan itself did not scrap existing plant in order to install machinery 1. While entire retorthouses often had to be demolished to accommodate the machines the retort benches always needed replacing. Therefore the Gas Light and Coke Company maintained to the 1899 Select Committee that they were handicapped because most of their retorthouses had not been built with machinery in mind whereas the East Greenwich works of their rival south of the river had. This raises the importance of the age of existing plant and investment due to growth where the South Metropolitan had the advantage of the other companies. Between 1890-1900 the output of the Gas Light and Coke grew by 13.2 per cent, the Commercial by 24.8 per cent and the South Metropolitan by 43.6 per cent. Put another way, in 1900, 86 per cent of the Gas Light and Coke's output could have been produced by plant built before 1890. The comparable figure was 75 per cent of the Commercial's output but only 56 per cent of the South Metropolitan's.

The second factor of relevance was the relative cost of labour for the companies. Table 5 shows in a rough way how a company faced with a 40 per cent increase in wages might find it profitable to mechanise whereas one with only a 20 per cent increase would not. Table 7 shows that indeed the South Metropolitan wage bill increased by 40 per cent between 1888 and 1890 while the Gas Light and Coke increased by 30 per cent and the Commercial only 24 per cent.

(1. George Livesey in evidence to the S.C. on the Metropolitan Gas Companies PP (1899) X p.176.

# TABLE 7

Carbonising wages in pence per 1,000 cubic feet of gas produced in four London companies 1888-1914. Source: Field's Analysis.

Year	Gas Light and Coke	Commercial	South Metropolitan	Crystal Palace
1888	3.49	3.55	3.27	2.98
89	3.80	3.70	4.23	3.50
90	4.54	4.40	4.61	4.43
91	4.56	4.68	4.01	4.29
92	4.15	4.61	3.78	4.30
1	4.25	4.48	3.66	<b></b>
	. 4.27	4.38	3.32	4.20
95	4.24	4.48	3.06	4.17
96	4.26	4.42	2 <b>.</b> 99	4.13
97 <sup>1</sup> 97	4.19	× 4.25	2.78	<b>4.59</b>
98	4.08	3.49	2.79	4.05
99	3.96	3.33	2.77	3.69
1900	4.06	3.52	2.82	2.79
15 OT 15	3.90 · · · · · ·	8° <b>3:57</b> 88 2	2.90	2.79
02	3.42	3.25	2.56	2.47
03	3.33	3.13	2.43	2.29
04	3.14	3.02	2.44	2.49
05	2.97		2.36	2.33
06	2.56	2.81	2.25	2.13
07	2.21	2.71	2.27	1.93
08	2.06	2.52	2.20	1.79
09	1.90	2.12	1.89	1.39
10	1.87	1.72	1.70	1.39
11	1.91	1.55	1.75	1.27
12	1.97	1.54	1.84	1.50
13	1.89	1.50	1.79	1.23
14	1.69	1.49	1.80	1.26

However, with regard to the investment decision it is the actual wage costs that are relevant not the rate of increase and, in fact, in 1890, the South Metropolitan wage bill was only 1.5 per cent above that of the Gas Light and Coke and 4.7 per cent above the Commercial.

There is further evidence to suggest that neither the level of wages nor the rate of growth of the companies was the decisive factor in the innovation of machinery since the Crystal Palace Company had an even faster rate of growth than the South Metropolitan and again only a marginally cheaper wage bill but did not use machinery any sooner than the other companies. The major factor, as the earlier analysis would suggest, seems to have been the capital situation of the companies. Table 5 again shows the effect that a difference in the price of capital would make on an investment decision, and the Gas Light and Coke Company gave their capital situation as the second reason why they had not adopted machinery by 1898. The contrast between themselves and the South Metropolitan in this respect was stark. The Gas Light and Coke had £6.08 of capital per ton of coal carbonised where the south London company had only £4.68. This affected the profitability and therefore the price of any new capital raised, since both companies were on the auction clause. Both the Commercial and the Crystal Palace had lower capital burdens than even the South Metropolitan; they, however, were whot on the auction clause which meant that since capital could be raised by the sale of equity to existing shareholders at par any investment had to offer a greater return than the existing rate (13.1 per cent in the case of the Commercial) for it to be justified. By comparison the South Metropolitan could, indeed had to, raise capital at around 5, per cent and this was the major reason why it took the lead in innovation.

- 1. See Table 7 p 154.
- 2. Ibid and Field's Analysis

3. <u>S.C. on Metropolitan Gas companies</u> op cit p223 4. <u>Field's Analysis (1898) pp</u>1-2

This is not the entire story, however. It remains to be explained why the retarded companies all began to mechanise at more or less the same time toward the end of the nineties. Since, although there was a modest wage increase in 1898, there was no significant change in wage costs, nor did the relative capital situation of the companies alter, these factors do not explain the eventual innovation by the other companies. For the answer it is necessary to refer back to supply side factors, since a further vital factor in the rate of diffusion was the influence on the capital cost and the operating costs. saved that came about as a result of any reduction in the cost of the innovation and improvements in its performance, efficiency and reliability. The above analysis has assumed that all companies, whether they adopted machinery or not, took the decision which maximised the company's profitability. As Table 5 suggests, however, the calculation was a marginal one only because of the unreliability of the machinery. The only satisfactory explanation, therefore, why mechanisation went ahead in all companies when it did was that an improvement in the reliability of the machinery reduced breakdown costs to the extent that it made machinery profitable for all companies whatever their situation.

Turning now to the commercial history of the gas industry, its most significant feature, as Table 8 and Figure 5 show, is its record of sustained, almost uninterrupted, growth. The output of gas nationally, but especially in London, was unaffected by the trade cycle since its principal demand came not from industry but from municipal, commercial and domestic consumers not influenced by the state of trade. As Table 9 shows the rate of growth in output did vary and this was for a number of reasons. In the early years growth was rapid as gas pushed into new areas. In the 1850s the high price

## TABLE 8

Volume of gas made by the metropolitan gas companies 1822-1914 and UK total 1882-1914 in million cubic feet.

•	• · · ·	and she are an	t i se s	·.		
Year	- London	UK	an ann an An Ann an Ann An	Year	London	UK
1822	<sub>397</sub> (1)			1892	29,640	111,481
1830	1,054 <sup>(2)</sup>	an de la construcción de la constru Construcción de la construcción de l		1893	28,666	110,780
1840	2,097		1	1894	29,173	114,294
1850	3.454			1895	31,257	121,421
1861	8,121 <sup>(3)</sup>			1896	32,601	127,041
1869 <sup>(4)</sup>	10,873			1897	34,324	132,692
1870	11,385			1898	34,833	138,146
1871	12,447			1899	36,227	147,154
1872	12,267			1900	36,611	152,007'
1873	13,290			1901	37,241	156,686
1874	14,065			1902	37,531	160,578
1875	14,888			1903	37,183	164,207
1876	15,629			1904	38,136	168,646
1877	16.364			1905	38,604	174,903
1878	17.468			1906	39,316	181,839
1879	18.860			1907	40,164	188,485
1880	$19.402^{(6)}$			1908	39,903	189,916
1881	20.229		•	1909	40,970	193,545
1882	21.006	72,583 <sup>(5)</sup>		1910	43,763	198,731
1883	21.989	78,450		1911	44,369	205,614
1884	22.598	82,186		1912	46,635	215,491
1885	23.873	84,637		1913	47,433	219,603
1886	24,623	87,931		1914 (0)	46,960	224,517
1887	25,590	91,371		<b></b>		
1888	26,494	94,709				
1889	27.434	98,080			1	•
1890	28.324	103,010	12			•
1891	29,751	108,693				•

#### Sources and Notes:

- 1. S.C. on Gas-Lighting Establishments PP 1823 V.
- 2. Estimates extrapolated from the various companies' balance sheets.
- 3. Z. Colburn, The Gas-Works of London (1865).
- 4. From 1869 to 1914 Field's Analysis of Gas Companies.
- 5. Parliamentary Returns for each year 1882-1914.
- Make for the suburban London companies, 2,478 million 1880, 14,347 million -1914.



#### TABLE 9

Average percentage annual increase in make of gas by the metropolitan gas

## companies.

1820s		18.3
1830s		9.8
1840s	, ,	6.4
1850s		13.5
1860s		4.4
1870s		7.0
1880s		4.5
1890s		2.9
1900s	1986) 1997 - Carlos Maria, 1997 - 1997 - Carlos Maria, 1997 -	1.9
	1	1

Source:

See Table 8.



of whale oil may have been a factor  $(1)^{1}$ , while the slow growth in the 1900s owed something to the competition from electricity but more to the increasingly efficient use of gas in domestic uses. Generally, though, the rates of growth were a function of changes in the price of gas. In the long term, increased demand must have owed something to increased incomes and to the increase in population, yet the roughly threefold increase in London's population, from 1,504,000 in 1821 to 4,541,000 in 1911<sup>2</sup>, bears no relationship to the comparatively astronomical increase in the output of gas in the same period. The overwhelming reason for this was the elasticity of demand for gas in the face of a fall in price from 15s to 2s 4d.per thousand cubic feet from the beginning to the end of the period.

Figure 6 shows the course of the price fall. By far the most dramatic period of falling prices occurred from the late 1820s to the 1850s which saw, typically, a drop from 15s to 4s per thousand cubic feet. Looking at this early period first, it is clear that the mechanism which forced prices down was actual or threatened competition from new companies. But what allowed this fall was a reduction in the companies' unit costs. Unfortunately, it is not possible to say accurately how the Chartered arrived at their initial price of 15s for gas. Undoubtedly guesswork was involved as to what the market would bear. Very shortly, however, the revenue and cost structure must have been established and Table 10 gives a stylised profile of the unit costs of two London companies for which accurate data is available, showing the major components involved. The major costs were coal, wages and profit, which can be crudely seen as the cost of capital, and also, more important

Jackson, op.cit. p.148; JGL, 8 Jan. 1856 p.8.
 Mitchell and Deane, op.cit. p.20, 22.

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#### TABLE 10

# Output (millions of cubic feet) revenue and costs (pence per thousand cubic feet) for the Imperial and Independent gas companies 1830-1874

·					•
Imperial	1830	1840	1850	1861	1874
Output	216	448	898	1982	3995
Profit	35.6	26.7	22.5	15.1	16.8
Coa 1	34.4	23.5	18.9	23.5	30.9
Wages	15.2	8.0	6.9	4.5	4.0
Other	19.2	13.1	9.8	11.4	11.7
Total	104.6	71.7	58.1	54.5	63.5
Residuals	19.1	12.8	9.4	9.6	11.0
Wastage	76.4	49.1	23.3	10.9	4.7
Price	162	108	72	54	56

		•			
Independent	1830	1840	1850	1861	1874
Output	45	95	164	402	567
Profit	33.6	23.2	14.9	8.9	7.1
Coa1	41.0	27.7	21.6	20.2	32.4
Wages	14.4	9.3	7.7	5.3	4.1
Other	17.6	18.8	13.7	10.3	9.4
Total	106.6	79.0	57.9	44.7	53.0
Residuals	20.7	14.6	10.3	8.3	14.4
Wastage	58.1	31.6	12.4	17.6	3.4
Price	144	96	60	54	42

#### Sources:

1. Company accounts for the years 1830-1850.

2. Z. Colburn, op. cit. for 1861.

3. Field's Analysis for 1874.

Figure 7

Manufacturing wages per ton of coal carbonised for three London gas companies 1830-1914.

Sources: Company records 1830-1869 Field's Analysis 1869-1914



than any of these in the early years, a notional cost included in the price of gas to account for the discrepancy between gas made and gas paid for, put here under the general heading 'wastage'. If these and other costs per 1,000 cubic foot of gas made are totalled and the revenue from the sale of residuals is subtracted this will give the price of gas per 1,000 to the consumer.

These cost profiles show clearly the four main reasons for the fall in price in the early years. Firstly, as Figure 7 confirms, labour costs fell substantially from, for example, 13.6s per ton of coal carbonised at the Imperial in 1830 to 3.1s in 1860. This was as sharp a drop as for any of the costs but since wages were a relatively small proportion of total costs it accounted for only some 10 per cent of the overall fall in price. It is worth noting that the fall in labour costs was more dramatic in this early period than during the period of active innovation of labour saving techniques and must be explained by improvements via the humble scoop, in retort . settings and retorthouse layout and in improved discipline and works practice.

Secondly, there was a secular fall in coal prices in this period, as illuscrated in Figure 6. The price the Chartered paid for coal, for example, fell from 27s 5½d per ton in 1830 to 17s 8½d in 1860. In addition, the make of gas per ton improved from perhaps 8,500 cubic feet per ton in 1830 to 9,200 cubic feet in 1860.<sup>1</sup> In all, the drop in coal costs accounted for some 15 per cent of the fall in the price of gas 1830-60. Thirdly, the cost of capital fell. The early companies were for the most part badly overcapitalised, but, by paying for expansion out of profits, by buying up and cancelling their own shares and, with the fall in the price of iron and other materials, expansion itself becoming cheaper, the companies reduced the claims of capital on their

1. Colburn, op.cit. p.86.

Figure 8

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1840

Nominal capital per ton of coal carbonised for four London gas companies 1830-1914

Sources: Company records 1830-1869 Field's Analysis 1869-1914

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1860



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1890

1900

1910

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1880

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revenue: This is illustrated in Figure 8 where, among other companies, the Imperial cut its nominal capital from £30 per ton of coal carbonised in 1830 to £6.2 per ton in 1860. In 1830 the Imperial paid only 5 per cent on its ordinary shares but this cost 35.6 pence per 1,000 cubic feet of gas made. By 1860 the same company paid over 10 per cent in dividend but this cost only 15.1 pence per 1000. This drop in capital costs accounted for some 20 per cent of the reduction in the price of gas. Finally, the most significant contribution to the drop, indeed one more important than coal, labour or capital put together, was the reduction in wastage. In 1830 over 40 per cent of the price of gas was due to an allowance made for the loss of gas due to leaky mains, surreptitious burning under the contract system, faulty or tampered with meters and bad debts. With better mains, better and more meters and districting agreements between companies, wastage was down to 20 per cent of price by 1860 and the fall accounted for half of the drop in gas prices. the industry

The question is raised as to why, being a natural monopoly with considerable barriers to the entry of new firms, the period up to 1860 was one of competition which saw the proliferation of new companies. Clearly it was no coincidence that the period of rapidly falling prices also saw competition and the multiplication of companies while this ceased when prices stabilised or began falling more slowly. The same factors were involved and need to be identified. One permissive feature might be mentioned at the start in that, above a certain size small enough to be irrelevant in the London context, there were no significant economies of scale in gas making. Size; therefore, was no barrier to the entry of new firms. New firms gained entry to the market in two ways; in the early years by attacking territory which existing companies were not serving adequately if at all and, secondly, in later years by invading well covered territory by means of offering a price cut to consumers. There

were, however, considerable costs and risks involved in setting up a new gas company in competition with existing firms so that the question that really needs answering is why the established companies were either unable or unwilling to keep out the new, either, in the first case, by adequately covering and expanding into vulnerable territory or, in the second case, by cutting prices ahead of a new company making it not worth their while setting up. Many putative companies were forestalled in this way and the City Company managed to keep its monopoly district intact for over forty years. Why did not all companies find this possible?

There are two fundamental reasons for this, both intimately connected with the fall in gas prices. The first point relates, as so much in the history of the gas industry, to the capital structure of the companies. For three basic reasons the capital costs of new entrants were likely to be lower than for existing firms. Firstly, any new firm would have the advantage of the old in its ability to use the most modern technology in its plant without the cost of scrapping. Secondly, as Figure 10 shows, the first fifty years of the nineteenth century were a period of a long run fall in iron prices which meant that, as half the capital cost of a new gas works was represented by the cost of iron, if a new company chose its time correctly it would be cheaper to set up than the existing firms and have a lower capital burden. For example, pig iron prices roughly halved in price between 1824 when the Phoenix Company was raised and 1849 when the Surrey Consumers set up in competition with it. Given that iron was half the capital cost and profits represented 25-30 per cent of the price of gas, all things being equal, the new company could have been as profitable as the old and still undercut it some 6-7 per cent in price.

The most crucial advantage that a prospective company considering attacking established firms would have was that most of the old companies were overcapitalised. By this it is meant that a company had a level of nominal

capital, perhaps due to wasteful or unfortunate expenditure in the past, which made it inherently less profitable than a new firm even though operating costs and revenue may be similar. The effect of this is illustrated in Table 11 which shows a hypothetical situation but one which roughly corresponds to the early years of the gas industry. Company A is an old heavily capitalised firm which is relatively unprofitable and Company B is a completely new enterprise. Both contemplate serving the same previously uncovered territory. The capital, operating costs and revenue involved in the new territory are the same for both companies but as is clear it represents only a marginal improvement in profitability for the old company, one for which it may not be able to raise new capital, but to the new firm it is a handsome investment. This explains, therefore, why the Chartered in the early years was unable or unwilling to expand into territory which was subsequently taken by the Imperial or the Phoenix without the need for a price cut.

Turning now to the situation where a price cut is made, Table 11 shows how the overcapitalised company is again at a disadvantage. If Company B decides to make a 10 per cent price cut in order to enter the new territory and this would reduce its revenue in proportion it might judge it still to be a worthwhile investment. To Company A, however, a similar cut would make the whole company less profitable than if it had stayed out of the new territory which, to maximise its profits, it would do. It may, however, be argued that such was the elasticity of demand for gas that a cut in price would in fact lead to an increase in revenue for both companies. The fact still remains that, whatever the elasticity of demand, a new company will always be more profitable than an over-capitalised one while charging the same price or be as profitable while charging a lower price. This was why old companies, like the Chartered, the Phoenix and, in its turn, the Imperial, were vulnerable to attack on the

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# TABLE 11

Capital, Costs, Revenue, Profit and Dividend for two hypothetical companies.

		Company A	an a	Company B		
	01d Territory	01d and New Territory	10% price cut	New Territory	10% price cut	
Capita1	500,000	570,000	570,000	70,000	70,000	
Costs	50,000	70,000	70,000	20,000	20,000	
Revenue	75,000	102,000	91,800	27,000	24,300	
Profit	25,000	32,000	21,800	7,000	4,300	
Dividend	5%	5.6%	3.8%	10%	6.1%	
basis of price cutting from the Independent, Equitable, South Metropolitan and others.

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Yet this by itself would still not explain why the existing companies were unwilling or unable to cut prices to keep competitors out. The answer to this is bound up with the second major factor in the situation - the reluctance of all companies to cut prices voluntarily even as an attempt to stimulate demand. At first sight this seems difficult to understand since the gas industry faced highly price elastic demand. Between 1830-50, the Imperial Company, for example, reduced its price by 33 per cent while demand increased by 107 per cent (see Table 10). As a result total revenue went up by 38 per cent. Yet no matter how elastic demand, a price cut would only improve profitability if the increase in revenue were greater than the increase in costs. Gas companies operated at full capacity so that any increase in output involved expenditure of capital and an increase in running costs. Only if unit costs fell more than price would the exercise be worthwhile. But, as has been noted, there were no economies of scale of any significance in the gas industry while the savings in costs that were made, in wastage, capital, coal and wages, came only very marginally as a result of the growth in output. Companies, therefore, had very little or nothing to gain by price cutting. It did, however, involve a company and its directors in a lot more work and it had potential risks from creating either a gas shortage if demand were underestimated or redundant capital if it were overestimated. Moreover, while the output of the Imperial more than doubled between 1830-50, its dividend increased from 5 per cent to only 6 per cent. This could have been accomplished in 1830 by a cut in costs of only 7 per cent. It is clear, therefore, why companies like the Imperial did not cut prices until they were forced to do so and concentrated on cost cutting and reducing their capital burden as ways of improving profitability.

This unwillingness of established companies to cut prices meant that as costs fell this left scope, in addition to their capital advantages, for new companies to enter the market on the basis of cheaper gas. Yet it still remains to be explained why established firms did not finally cut their prices when not to do so certainly meant a new company setting up. Firstly, it would be wrong to assume perfect knowledge on the part of companies as to the intentions of possible competitors. It was not possible to know for certain if a rival was serious, or was able to raise the capital. On many occasions companies did make cuts to forestall competition. In 1832, for example, the Imperial made calculations very similar to the above analysis as to the viability of a potential rival and in fact dropped its price sufficiently to stop a new company forming But the success of such a manoeuvre depended on the strength of the threat. A new company in a position to offer a major cut in price probably could not be stopped since even if the established company made an early cut such would be the increased demand that there would be more than the old company could cope with and sufficient to make the new company viable.

A further factor in the situation was that, such were the hazards of floating a new gas company, involving either the cost of passing an Act of Parliament or the risks in raising large sums with unlimited liability and having to obtain permission to take up roads and lay mains, most new companies were decidedly speculative in nature. Indeed, it might have been suggested that pure financial speculation accounted for the proliferation of companies were not the economic reasons so sound. Yet in their early years most companies were run with varying degrees of villainy and this meant that although the main reason new companies were allowed to enter the market <u>ex ante</u> was the overcapitalisation of the old companies, <u>ex poste</u> the new, due to fraud

1. Imperial DM, 31 Aug. 1832.

## Sources and notes:

- Economic activity on a scale of 0=5 as used by Gayer Rostow and Schwartz,op.cit.
- 2. Price of pig iron, Mitchell and Deane, op.cit.pp.492-94.
- 3. Year of formation of a company is taken from when capital was first raised.



and incompetence, became as overcapitalised and vulnerable as the companies they had attacked.

Finally, the timing of the formation of new companies needs a comment. Had the reasons for the formation of competitive companies been primarily speculative it might be expected, as has been suggested <sup>1</sup>, that they would be promoted during the peaks of the business cycle. However, in London at least, although the speculative boom of 1824 may have played a part in the short term timing of the floating of three companies, as Figure 9 tends to suggest, if there was a pattern at all, the introduction of new companies owed more to the price of iron which tended to be at its lowest during periods of slack business.<sup>2</sup>

In 1850, both the dramatic fall in prices and the setting up of new gas companies, which had characterised the first thirty or so years of the industry, came to an abrupt end. No new companies were formed after 1850 while, as Figure 6 shows, gas prices held steady until the late 1860s, fell slowly until 1890 after which they fluctuated slightly, falling back to the 1890 price by 1914. The reasons for the transformation after 1850 in both price and competition are to be found in the cost structure of the industry. For a number of reasons the fall in costs began to level off in mid-century. Labour costs it is true fell throughout the period as Figure 7 shows, but, as before, with only modest impact on overall price. The really major improvements in wastage, as the cost profiles in Table 10 reveal, had been made by 1850. As Table 12 shows, further improvements were modest and came as a result of districting in the 1850s and amalgamation in the following decades, but by 1880 the possibility of further significant improvement had been exhausted. Significantly, the long run fall in coal prices, shown in Figure 6, reached its nadir in 1850. Coal prices rose on average till the early 1870s, fell

1. Falkus (1967) -- op.cit. p.495.

2. This analysis is borne out by Cotterill's research in Scotland where gasworks in Aberdeen and Perth owed their timing in large part to the price of iron, op.cit. pp.1133 and 1140.

## TABLE 12

<u>Output (millions of cubic feet) revenue and costs (in pence per thousand cubic</u> <u>feet) for four London gas companies.</u>

· · ·			i	· ·		
	1861	1874	1888	1898	1914	
Output	1,186	4,669	18,613	22,396	29,224	]
Profit	10.6	19.5	14.3	12.5	8.1	
Coal	25.6	31.2	13.9	13.3	14.1	aas
Wages	5.0	3.9	3.1	3.8	1.5	5
Other	13.1	11.5	8.9	11.1	15.1	ht
Total	54.8	66.1	40.2	40.7	38.8	and
Residuals	9.5	11.9	9.0	7.7	7.7	Cok
Wastage	10.6	8.6	1.4	1.6	2 t <b>1.7</b>	נע - יייי
Price	54	63	33	35	29	

Output	282	814	5,891	9,823	14,031	
Profit	18.7	8.5	12.6	9.2	6.0	S
Coa1	20.4	25.3	12.9	12.5	14.3	out
Wages	9.3	5.1	3.0	2.6	1.6	n M
Other	15.4	7.9	8.8	10.7	15.9	etr
Total ·	63.8	46.8	37.3	35.0	37.8	opo
Residuals	13.6	14.0	9.3	8.5	8.8	itan
Wastage	3.0	3.8	0.8	0.5	0.6	
Price	53	37	29	27	26	

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	1861 /	1874	1888	1898	1914	
Output	598	927	1,989	2,613	3,704	1
Profit	12.0	9.1	13.1	9.7	6.2	1
Coal	20.4	29.2	14.1	13.4	14.0	0
Wages	5.2	4.0	3.3	3.2	1.3	<b>N</b>
Other	8.9	10.5	7.8	8.8	14.2	erc
Total	46.5	52.8	38.3	35.1	35.7	ial
Residuals	8.4	11.3	9.5	6.6	6.7	
Wastage	11.9	6.6	1.1	1.2	. 1.0	
Price	50	48	30	30	28	
	_					

	1888	1898	1914	
Output	746	1,120	2,285	
Profit	10.1	8.1	6.8	
Coal	16.6	15.8	22.7	rys
Wages	2.8	3.7	2.1	tal
Other	12.0	11.0	8.3	Pa
Total	41.5	38.6	39.9	lace
Residuals	9.8	8.8	8.1	۲V
Wastage	0.8	0.9	1.0	an an taon Taona
Price '	33	31	28	

# Source:

Field's Analysis.



Price of pig iron 1801-1913 in £ per ton.

Source: Mitchell and Deane, op.cit. pp.492-93.



again to the late 1880s and then fluctuated around this level or increased slightly to 1914. There was also a modest improvement in gas made per ton of coal in this later period, from some 9,200 cubic feet per ton in 1861 to perhaps 11,000 cubic feet by 1914 in the best practice vertical retorts. Notwithstanding the advent of water gas after 1890, which tended to reduce the importance of coal, in the period from 1850 coal became the single most important factor in the price of gas both in the long term, where, as Figure 6 shows, in broad terms gas prices followed coal, and also in the short term where the leaps in coal prices in the early 1870s, early 1890s and the turn of the century all caused short run increases in gas prices.

The final cost which had reached the end of a secular decline by the 1850s was capital, as can be seen from Figure 8. And, while the fact that all costs were no longer falling as rapidly after 1850 had implications for the disappearance of competition, since new companies had less scope for price cutting, capital costs were especially significant. After years of selfdenial, by the 1850s most companies had reduced their capital burden to the extent which gave new companies no particular advantage over the old. This was further reinforced by the fact that iron prices too had reached the bottom of a long run fall in 1850, as Figure 10illustrates. Therefore, whereas on average gasworks became successively cheaper to build up to then, after 1850 they became progressively more expensive and consequently new gas companies less viable.

One aspect of the business of gas companies which might have been expected to have made a more important impact than in fact it did was byproducts. They are worth some attention, however, for the insight they give

on the British economy in general. Unfortunately an assessment of the value of residuals for the gas industry in this period depends largely on how they are measured. In one sense the significance of by-products for the gas companies increased, since, as the price of gas fell more than the price of residuals, their relative value grew. Tables 10 and 13 show that residuals realised only 13 per cent of gas sales in 1830 but 20 per cent by 1861 and 28 per cent by 1914. Yet, viewed by itself, the performance of by-products has to be seen as disappointing however it is measured since on average they earned less in proportion to output at the end of the period than they had at the beginning. Per thousand foot of gas made, residuals earned 19.9d in 1830, 10.5d in 1861 and only 7.7d in 1914. Per ton of coal carbonised, residuals made 202.6d in 1830, 82 d in 1861 and 109d in 1914. That is, although both methods of measurement add distortions to the 'real' value of residuals, the overall picture of dull performance is the same. The point should be made at the outset that this was not due to a lack of appreciation on the part of gas companies of the potential of their byproducts nor of a lack of energy in attempting to fulfil this potential. Rather it was due to the machinations of supply and demand in the British economy in general outside the control of the gas interest. Moreover, within the general performance there was dynamic change and some success.

The by-products of gas making can, in this period, be summarised as coke (together with small quantities of breeze), tar and ammonia, the latter either as a liquor or worked up into sulphate. Throughout the period coke was the most valuable of the residuals always, apart from a brief spell in the 1880s, being more valuable than the other two put together. Indeed, in the early years of the industry coke was virtually the only by-product of value, and although with the growth in the value of the others its importance declined somewhat, it was 80 per cent of the total value of residuals in the

London gasworks in 1869 and still 71 per cent in 1914. As it was usually about half the value of coal the gas companies used 33 per cent of their own coke as the fuel in the furnaces.<sup>2</sup> For the rest demand came from other industries, for example from maltsters, railways and, later on, cement manufacturers.<sup>3</sup> From time to time coke was exported<sup>4</sup> but, in London at least, the main market for coke was as a domestic fuel, primarily for the poor although it was used in later years in schools, offices, shops and hotels.<sup>5</sup> In both long and short-term, coke prices generally followed those of coal, as can be seen from a comparison between Figures 6 and 11. Coke prices, however, failed to rally in mid-century as did coal and continued a secular decline which hit bottom in the 1880s. In 1816, for example, coke sold in London for 28s a chaldron; by 1887 it had reached an all time low of 4s 5d per chaldron. As with coal, the price of coke turned up after 1890 and reached perhaps 19s 7d by 1913.<sup>6</sup>

In the early decades of the industry, the London gas companies literally could not give their tar and ammoniacal liquor away. They attempted to use tar as a fuel in the furnaces and to carbonise it in special retorts.<sup>7</sup> They evaporated the ammonia up their chimneys and dumped both it and tar down sewers<sup>8</sup> and into the Thames.<sup>9</sup> What demand there was for tar, in the making of pitch, creosote, naphtha or varnish,<sup>10</sup> was swamped as the output of gasworks increased and each ton of coal carbonised produced ten gallons of tar and thirty gallons of ammoniacal liquor. When it could be sold, tar never fetched more than 1d per gallon<sup>11</sup> and, more perhaps to solve the problem of disposal than with great hopes of gain, the

- Field's Analysis (1869) p2; (1914) p10
  Hughes' Treatise, op.cit. (1853) p.107.
  S. Metro. SHM, 30 Jan. 1896.
  JGL, 13 Feb. 1880 p.243.

- 5. By 1910 the S. Metro. sold coke in small paper bags to the poor, Garton, op.cit. GW, 4 Oct. 1952 p.857.

- 7. Clegg, op.cit. p.74; Matthews, <u>Historical Sketch</u> pp.35-37.
- 8. JGL, 10 Oct. 1854 p.238.
- 9. Surrey Consumers DM, 28 Feb. 1879.
- 10. Peckston (1819) op.cit. p.398. 11. JGL, 10 Apr. 1849 p.46 and 1 Apr. 1856 p.181.

<sup>6.</sup> See Figure 11.



[8]

Chartered, Imperial and City companies all built product works to work up their own residuals in the early years, but all these ventures failed.<sup>1</sup> In the 1840s and 50s, however, the uses of tar and ammonia began to multiply. Benzene was discovered in 1845 and its importance in the production of analine dyes was established by Perkins in 1856.<sup>2</sup> At around mid-century, too, phenol from the oil of tar began to be used extensively as an antiseptic and disinfectant.<sup>3</sup> Also, the use of sulphate of ammonia made from the liquor from gasworks began to be used as a substitute for guano as an agricultural fertiliser. As a result of these developments, gasworks began to find a regular market for their tar and ammonia, which figured as a continuous feature of their balance sheets from the 1840s either as a result of working up their products themselves, as did the London Company, or as a result of sales to local chemical firms like F.C. Hills of Deptford.<sup>4</sup> Figure 12 illustrates the increased value of tar and ammonia for the gas companies in the second half of the century, which to some extent compensated for the fall in the value of coke.

The improvement in the performance of the two products did owe something to the efforts of the companies to improve the value of their own by-products. In 1879, the Gas Light and Coke opened a product works on a twenty-four acre site at Beckton<sup>5</sup> and the South Metropolitan also had its own product works which even took waste from other firms in South London to process. The Gas Light and Coke gave demonstrations of sulphate of ammonia to farmers to educate them as to its merits.<sup>6</sup> while at Beckton it also had its own laboratory which, it is claimed, was the first to produce saccharine from coal tar.<sup>7</sup> Yet all

- Everard, op.cit. pp.89-90; Imperial SHM, 15 Feb. 1825 and 8 Oct. 1829.
  King's Treatise, op.cit. Vol. 2 p.270; Clow and Clow, op.cit. p.448.
  King's Treatise, op.cit. Vol. 2 p.319.
  Independent DM, 20 Jun. 1862; Equitable CW, 22 Jan. 1849; Imperial CW, 4 Jun. 1851; Great Central DM, 3 Jun. 1859; City DM, 1 Mar. 1867; Surrey Consumers DM, 21 Jun. 1878.
- 5. JGL, 21 Aug. 1877 p.289; Weber, op.cit. p.88.
- Co-Partnership Magazine (1913) p.52.
  Hughes' Treatise (1904) op.cit. p.292.



Value of tar and ammoniacalliquor in pence per ton of coal carbonised for the Imperial Gas Company 1829-1871 and South Metropolitan 1869-1914.



this effort showed very little return. The Commercial Company made no attempt to work its residuals and was as profitable in this regard as its two larger neighbours.

In fact, the improved value of tar and ammonia for the gas companies. which began in the 1850s and 60s, came as a result of their being able to sell all their residuals consistently rather than any long-term increase in their price. The by-products market remained, however, highly volatile. as Figure 12 shows. Tar and ammonia prices rocketed in the early 1870s as a result of the industrial boom and, to some extent, the demand for munitions for the Franco-Prussian war. Tar prices rose from ad a gallon in 1869 to 3<sup>1</sup>d in 1873. In the same year, sulphate of ammonia prices peaked at an all time high in the nineteenth century of £19 15s a ton. Not so easy to explain is the continued buoyancy of product prices into the early 1880s even though the Gas Light and Coke Company were complaining of the lack of profitability of its new product works in 1879. The analine business was dull, farmers could not afford sulphate of ammonia while disinfectants needed another cholera outbreak, complained the chairman with no hint of irony <sup>2</sup> business was to get a lot worse. In the early 1880s tar and ammonia were earning the gas companies more than coke sales but by the mid-1880s, probably as a result of the industrial and agricultural depression, prices had crashed. In 1887, tar was down to a  $\frac{1}{2}$ d per gallon and the South Metropolitan went back to burning almost half its tar as fuel in its furnaces <sup>4</sup> Subsequently prices rallied<sup>5</sup> but they continued to fluctuate widely and on average were little higher than they had been in the 1850s and 60s. In the first ten years of the twentieth century tar averaged 1.35d per gallon and sulphate of ammonia £11 15s <sup>6</sup>

- 1. JGL, 10 Oct. 1871 p.754. 2. Ibid. 19 Aug. 1879 p.281.
- 3. S. Metro. SHM, 2 Feb. 1887.
- Ibid. 9 Feb. 1888.
- increasingly used in road making from the turn of the century, Garton, Tar became Oct. (1912-13) VII, p.192. and PP

The reason for the relative lack of success by the gas industry with its by-products was due to the weak demand from the British economy and its notoriously backward chemical industry in the face of increasing supply. In 1886, for example, 80 per cent of sulphate produced was exported, mainly to Germany but also to Belgium , and by 1907 this had increased further to 87 per cent Clearly, the ever increasing supply had outstripped demand In later years a rival source of ammonia from coke ovens had in Britain. further spoiled the market for the gas companies. In 1886 gasworks had produced 77 per cent of the total UK output of 106,610 tons of sulphate? In 1900 they still produced 65 per cent of the 213,726 ton total, coke ovens supplying a per cent. By 1914, however, while gasworks produced only 41 per mare 5 cent of the total output of 426,412 tons, coke ovens now accounted for 32 per cent <sup>5</sup>

The arrival of electricity is another factor that might be supposed to have had an impact on the fortunes of the gas industry. It has already been suggested, however, that electricity had little to do with the technical progress of the gas industry; did the two have any influence on one another commercially? The answer again would appear to be - very little. The first point to make is that, since the main uses of electricity in 1907 were 40 per cent for traction, 22 per cent in power and 32 per cent in public and private lighting, gas was a direct competitor in less than a third of the electricity

<sup>1.</sup> Report of the Alkali Inspectors PP (1887)XVII p.26.

<sup>2.</sup> Census of Production PP (1912-13) CIX p.835.

<sup>3.</sup> Report of the Alkali Inspectors PP (1887) XVII p.28.

<sup>4.</sup> Ibid. (1901) IX p.446.

<sup>5.</sup> Ibid. (1914-16) VII p.247.

market <sup>1</sup> . Within this limit, did the cheapness and efficiency of the gas industry retard the growth of electric lighting? Again, the probable answer is - by very little, although since much hypothetical estimation is involved no exact answer can be given. In 1902 it was calculated that to produce the light of 1,000 candles per hour would cost 12.5d by fifty watt electric light bulb, 2.1d by incandescent gas mantle and 11.2d by Argand gas burner 2 . What market share electricity had taken by this date, therefore, it had done while being more expensive than gas, as a result, in fact, of being more convenient. It was the light of the well-to-do middle class and, therefore, since in all probability those that could afford it already used electricity, the price of gas lighting was largely irrelevant or, at most, marginal to the size of the electric light market. The fall in price of gas and improvements in its efficiency had gained gas a new mass market among the working class since the 1890s. This was not taken at the expense of electricity but of oil, candles and plain darkness. The exact proportion of the middle class market that withstood the attraction of electricity because of the cheapness of gas is, of course, guesswork, but it was probably of small importance. The major constraint on the adoption of the new light was its own high costs. This is largely proved since as its efficiency increased<sup>4</sup> and the price of electricity fell it took customers irrespective of the price of gas.<sup>5</sup> The fortunes of the electricity industry lay in its own hands.

How much of the gas market had electricity taken by the end of this period? Again no precise figures exist. The Gas Light and Coke calculated that in 1893 electricity had taken the equivalent of 4.3 per cent of its market by

Census of Production, op.cit. pp.834 and 845.
 W.J. Dibdin, Public Lighting by Gas and Electricity (1902) p.425.
 D. Knoop, Principles and Methods of Municipal Trading (1912) pp.205-6.
 The efficiency of the light bulb alone increased from 3.5 lumens per watt in 1884 to 10 lumens in 1912, W.T. O'Dea, Lighting (1967).

<sup>5.</sup> I.C.R. Byatt, The British Electrical Industry 1875-1914 (1979) p.3.

volume and 13.6 per cent in 1898 . The South Metropolitan, it claimed, had not been affected by electricity at all. In 1907, the UK electricity lighting market was valued at £2.7 million. The total gas market amounted to £23.1 million but, unfortunately, the value of the lighting load in the total was not identified . However, it is known that in 1910 55 per cent of gas demand came in the daytime from 6 am to 6 pm when the bulk of the load was for cooking and heating 3. It may be estimated, therefore, that perhaps 45 per cent of the load was for lighting in 1907 or £10.4 million in value. If this is roughly correct it would make electric lighting 20 per cent of the combined market by value. However, since electricity was still three or four times more expensive than gas, by volume of light, electricity probably accounted for no more than 6-7 per cent of the market

The role of the Government in the history of the gas industry in this period needs some comment. The gas industry, together with other public utilities like railways, water supply and electricity, posed a real and an ideological dilemma for the nineteenth century ruling class. On the one hand, they were clearly natural monopolies wherein competition between private Companies was wasteful and often self-evidently against the public interest. Yet admitting the desirability of the otherwise anathema - monopoly - involved the further necessity that it should be controlled and regulated by the state,

S.C. on the Metropolitan Gas Companies (1899) op.cit. pp.214 and 303.
 Census of Production, op.cit. pp.836 and 845.

<sup>3.</sup> Popplewell, op.cit. p.207; lighting was estimated at 20-25% of load in 1923,

Brownlie, op.cit. p.67. 4. Byatt, op.cit. p.26 gives electric light as 17.7% of the total by volume of light in 1904. However he assumes no cooking and heating load for gas and no use of the incandescent mantle. Although to some extent these errors cancel each other out it still leaves his figure as an overestimate.

which further conflicted with the well established shibboleths of <u>laissez</u> faire, free enterprise and private property.

The resolution of this ideological conflict was achieved by the simple expedient of making the existence of natural monopolies in itself the justification for state regulation and indeed public ownership. In this respect the history of the railways runs a parallel course to that of the gas industry. Just as many safeguards against the abuse of monopoly were written into the act of the first gas company so the act of the Liverpool to Manchester railway limited its dividend to ten per cent <sup>1</sup>. All subsequent private legislation relating to both public utilities contained some regulation while, of course, Gladstone's Railway Act of 1844 contained provisions for the eventual state purchase of rail companies <sup>2</sup>. Such pragmatic policies were given theoretical legitimacy and nowhere better than in J.S. Mill's <u>Principles of Political Economy</u>, published in 1848, which is worth quoting at length.

There are many cases in which the agency of whatever nature by which a service is performed is certain, from the nature of the case, to be virtually single; in which a practical monopoly, with all the power it confers of taxing the community, cannot be prevented from existing. I have already more than once adverted to the case of the gas and water companies, among which though perfect freedom is allowed to competition none really takes place, and practically they are found to be even more irresponsible and unapproachable by individual complaint than the government...In the case of these particular services, the reasons preponderate in favour of their being performed, like paving and cleansing the streets, not certainly by the general government of the state but by the municipal authorities of the town and the expenses defrayed as even now it in fact is, by a local rate. But in the many

Clapham, op.cit. p.384.
 Ibid. p.419.

analogous cases which it is best to resign to voluntary agency, the community needs some other security for the fit performance of the service than the interest of the managers; and it is the part of government either to subject the business to reasonable conditions for the general advantage or to retain such power over it that the profits of the monopoly may at least be obtained for the public. This applies to the case of a road, a canal or a railway.

Joseph Chamberlain put forward the same argument when he municipalised Birmingham's gasworks in 1875.

I distinctly hold that all monopolies which are sustained in any way by the state ought to be in the hands of the representatives of the people - by the representative authority should they be administered and to them should their profits go and not to private speculators.<sup>2</sup>

Yet the extent of the radical nature of this state interference and public ownership must not be exaggerated. While seeming to regulate and deal with the problems of the natural monopoly, the nineteenth century legislature never brought itself to contravene the hallowed rights of private property. This can be seen in the history of state regulation of railways and it will be looked at in detail here with regard to the gas industry. The issue is given point since a number or historians have felt justified in writing the whole commercial history of the gas industry in terms of Government policy, which is seen as being a further contravention of the prevailing philosophy of laissez faire  $\stackrel{3}{}$ . According to this theory, Government or Parliament imposed districting agreements on the London gas companies in the 1820s, but a change of policy with the new Whig Government in 1830 led to a period of open

- 1. J.S. Mill, Principles of Political Economy (1848) p.581; see also Falkus (1977) op.cit. p.142.
- 2. Short History of the Passing of the...Gas Act and...Water Act (Birmingham 1875) p.9.
- 3. Everard, op.cit. p.57 and D.A. Chatterton, 'State Control of Public Utilities in the 19th century: the London Gas Industry' Business History (June 1972).

competition. Slowly, however, the evils of competition became apparent and by the 1840s the Government became pursuaded of the need for regulation which, beginning with the limiting of dividends and other matters, culminated in the outlawing of competition entirely in the 1860 Act. From this point the gas companies were under close control by the authorities. Regulation increased under the 1868 Act. The London companies were forced to amalgamate, some were forced to relocate their works outside the city and the sliding scale was imposed from 1875.

The major problem with seeing Government policy as the prime mover in the affairs of the London gas industry is that, as the analysis above has shown for the industry in general and the following section will argue for the fortunes of individual firms, change is fully explained by technical and economic factors contained within the industry itself. Secondly, no single instance of legislative or Government action can be shown to have conflicted with the commercial self-interest of the companies involved in any significant way. Thus no proposed Government regulation, for example on the size of gasholders, was ever carried into force in the 1820s. Nor were districting agreements imposed except where the companies themselves desired them. If there was a change of Government policy in 1830 it had no effect. Competition had continued under the Tories in the 1820s, while districting agreements were made in the 1830s, although they became less frequent since, unlike competition in the early years, new companies attacked territory already well covered by existing firms which made the carving out of districts far more difficult. When districting was found to be in all the companies' interests in the 1850s it owed nothing to Government activity.

Undoubtedly, Government interest in the gas companies increased from the 1850s but significantly this arose not as a result of an exogenous change in policy but of changes within the gas industry itself. To begin with, due

to the fall in price the 1840s and 50s saw a rapid increase in the number of consumers of gas. Secondly, by the 1850s, for commercial reasons previously explained, the likelihood of new gas companies setting up in competition to the old had disappeared. As a result consumers with a grievance turned to the authorities for redress. In response the Government and Parliament took some action but again at no point damaged the interests of capital or materially altered the likely course of the industry's history. The Act of 1860, although seeming to abolish competition, merely confirmed a fait accompli . It seemed to limit dividends to 10 per cent but by allowing back payments did no such thing. The 1868 Act appeared to control the price of gas but the revision clauses allowed price increases in the event of the companies' profits being threatened by rising costs. Again, the sliding scale was seen as a mechanism for reducing gas prices but the bargain struck also allowed the companies to pay increased dividends. Although impossible to prove quantitatively, what seemed to result, in terms of gas prices and company profits, from Government policy was what would have happened had free competition been allowed. From 1860, for example, with no government control, as company dividends increased new companies would again have been attracted in and gas prices forced down, which was the result achieved by the sliding scale.

In other respects, too, Government policy seemed to follow, not cut across economic forces. Parliament ordered gasworks out of the built-up parts of the ĉity yet financial considerations would also have made this necessary. For example, in 1864 the Chartered, needing to expand its capacity, was offered the site of the old Millbank Prison for £135,000. In the event it acquired the land, many times larger than Millbank, on which Beckton was built, for a mere £50,000 <sup>1</sup> The outward migration was in line with moves by most of London's

1. Everard, op.cit. pp.224 and 229.

heavy industry in this period <sup>1</sup>. The amalgamations seemed to result from Government pressure yet it was clearly in the self-interest of the companies, while the timing of the movement owed everything to the building of Beckton. The amalgamations came to an end when the economic advantages that had motivated them in the first place had run out. Government policy on the issue changed accordingly.

The implication, therefore, is that the economic fortunes of the gas industry (and the other public utilities for that matter) determined Government policy toward it and not the other way round. Particularly noteworthy is the lack of impact or relevance of political parties to the commercial development of the gas industry. Whether administrations, local or central, were Tory, Liberal or even Socialist seemed to make no difference and nowhere is this better exemplified than in the history of municipalisation - on the face of it the ultimate in public interference with private capital. The London gasworks were never municipally owned and so a brief look outside the metropolis is necessary. The Manchester gasworks, for example, were publicly owned from the first. The Police Commissioners raised the police rate by 3d in order to light the town by gas for the first time in  $1817^2$ . In 1823, the radical shop keepers wanted cheap gas and supported a private company's attempts to supply the city. They were, however, successfully opposed by the Tory mill and warehouse owners who had their own gas plants and wanted dear gas to relieve the rates. The Tory arguments make interesting reading.

The existing gasworks are productive of a profit which instead of being applied to the private advantage of individuals is available for general objects...more likely to be obtained by a general establishment conducted under an effective public control than by any private association founded solely for immediate gain.

See P.G. Hall, The Industries of London since 1861 (1962).
 D. Fraser, <u>Urban Politics in Victorian England</u> (1976) pp.95-8; <u>One Hundred and Forty Three Years of Gas in Manchester</u> (1949) published by City of Manchester Gas Department pp.12-15.
 Ibid. pp.14-15.

Manchester's Police Commissioners Act of 1824 was in fact the first to sanction the use of rates for municipal trading. In 1834, the Tories this time proposed a motion to pass the gasworks to private enterprise and although this was defeated<sup>2</sup> the conflict between those who wanted dear gas and the surplus used 'in aid of rates' and those who wanted cheap gas continued. By 1843, when the Borough Council took over and the works was run by the Gas Committee, some £261,700 had been handed over, including the cost of a new town hall, and for the succeeding years to 1887, £30,000 a year went from the gas enterprise for further improvements, a new water supply among others.<sup>3</sup> This policy did not go unchallenged and there were periodic agitations from consumers who wanted cheaper gas, but without success.

Manchester was the exception in the early years in municipally running its gasworks. In most towns and cities gas supply was initiated and carried on by private companies. Gradually, through the century, however, more local councils began to take over the ownership of gas supply. These were a trickle up to the 1850s but then municipalisation accelerated, reached a peak in the 1870s, then slowed up somewhat in the eighties, revived in the nineties and This development was, of course, paralleled by slowed up again thereafter similar take overs of water companies and in their turn electricity companies, both of which utilities became more heavily municipalised than gas. By 1885, 33 per cent of gas sold by volume was produced by local authorities, 37 per cent by 1913, and still only 36 per cent in 1938. In contrast 54 per cent of electricity sales in 1900-1 were by local authorities, 68 per cent in 1913-14 and 63 per cent by 1937-8 5Interestingly, in a number of authorities,

- Ibid. p.15.
  Ibid. p.16.
- 3. Ibid. p.17.
- 4. H. Finer, Municipal Trading (1941) p.46. 5. Ibid. pp.51 and 58; in 1909 of the 327 county and municipal boroughs in England and Wales 70.9% owned their water supply, 45.2% their electricity and 32.4% their gas, Knoop, op.cit. p.101.

Manchester for example, the Gas Committee initiated and ran the first electricity supply\_1

What factors determined the course of municipalisation and whether companies were taken over or not is a complex matter. Certainly, most of the local authority run works were found in the industrial Midlands, North and Scotland, but, for example, Liverpool, Sheffield and Wolverhampton remained privately run. Again, although Liberal run councils tended to predominate in the take-overs some Tory councils favoured municipalisation, while some Liberal and, in later years, even Socialist authorities chose not to take over their gasworks.<sup>2</sup> In London the Progressive regime controlled the LCC from 1889 to 1907,<sup>3</sup> while the Labour Party gained control in 1934. <sup>4</sup> The point that must be re-emphasised is that, whether a gasworks was taken over or not, there was no interference with the rights of property ownership. Except in exceptional circumstances no compulsory power to buy gasworks was ever given by Parliament<sup>5</sup> nor, it follows, were companies bought out at anything less than full market price. Such expropriation was never countenanced by the nineteenth century Parliament as, indeed, it was not by that Moreover, the operating performance of local authority run gasworks of 1948. shows little or no difference from those privately run. This was the opinion of a contemporary observer who found that on average the 293 local authorities in 1909-10 had expenditure at 74.15 per cent of receipts compared to 75.67 per cent for the 501 companies<sup>6</sup> but that 'in the absence of any evidence to the contrary... the only safe conclusion to accept is that the better average results obtained in municipal gasworks are due entirely to the more favourable conditions under which they operate and have not been increased by more efficient, nor diminished by less efficient, management than that displayed by company gasworks'.<sup>7</sup> To bear this out

- 5. Falkus (1977) op.cit. p.136.
- 6. Knoop, op.cit. p.351.

7. Ibid. p.353.

 <sup>&</sup>lt;u>Gas in Manchester</u>, op.cit. p.49.
 The pragmatic and undoctrinaire motive behind municipalisation is argued by J.R. Kellett, 'Municipal Socialism, Enterprise and Trading in the Victorial City', Urban History Yearbook (1978), and Falkus (1977) op.cit. p.137. The Politics of London Government 1880-99', Public Administration

<sup>3.</sup> K. Young, (1973) p.96.

<sup>4.</sup> R. Moore, The Emergence of the Labour Party 1880-1924 (1978) p.126.

#### TABLE 13

Output, revenue and costs of gas manufacture for selected local authorities and companies in the UK in 1883 and 1914.

	1883		19	14
	LAs <sup>(1)</sup>	Companies <sup>(2)</sup>	LAs <sup>(3)</sup>	Companies <sup>(4)</sup>
Output <sup>(5)</sup>	10,143	8,811	31,124	18,769
Profit <sup>(6)</sup>	14.6	10.8	6.7	5.6
Coa1	13.5	15.9	14.4	14.9
Wages	3.3	3.6 ·	2.1	1.9
Other	8.7	9.8	9.8	10.4
Total	40.1	40.0	33.0	32.8
Residuals	10.2	9.1	9.3	8.3
Price	30.0	31.0	23.3 <sup>(8)</sup>	24.3 <sup>(8)</sup>
Wastage <sup>(7)</sup>	7.0	7.7	4.6	5.4

#### Source: Field's Analysis

Notes:

- 1. Birmingham, Bolton, Halifax, Leeds, Leicester, Manchester, Oldham, Salford.
- 2. Bath, Brighton, Bristol, Derby, Liverpool, Newcastle, Plymouth, Portsea, Preston, Sheffield.
- 3. Birmingham, Bolton, Bradford, Carlisle, Leeds, Leicester, Manchester, Nottingham, Oldham, Salford, Widnes.
- 4. Bath, Brighton, Bristol, Derby, Newcastle, Plymouth, Portsea, Rochester, Sheffield.
- 5. Millions of cubic feet.
- 6. Per thousand cubic feet of gas sold (pence)
- 7. Percentage of gas made.
- 8. Including rent for meters and stoves, i.e. 0.28 d per thousand for LAs, 2.73 d per thousand for companies.

Table 13 gives the cost profiles of a random selection of gasworks under both types of ownership for two years, 1883 and 1914, and shows the remarkable similarity in both the price of gas sold and operating costs. The marginal differences, while perhaps not statistically significant, were probably due to the influence on the price of coal and value of residuals of the bias in the location of the private companies away from the industrial areas. Significantly, the local authorities seemed to take a higher rate of profit or surplus from their undertakings and certainly, as the price of gas and the wage costs show, neither the consumers nor the gasworkers gained by municipalisation.

Indeed it is clear that public ownership of gasworks should be viewed as a straight investment decision by ratepayers for which they expected a return. 'The leading idea of the English system of municipal government' wrote Joseph Chamberlain is that of a joint stock or co-operative enterprise in which the dividends are received in the improved health and the increase in the comfort and happiness of the community'.<sup>2</sup> He might also have added a reduction in rates since this was how he convinced the Birmingham council to buy up the city's two gas companies in 1874 estimating an annual profit of £14,000 rising to £50,000 within fourteen years.<sup>3</sup> As it turned out, the Gas Committee paid over £25,000 a year 'in aid of rates' for these years and this gives some idea of how marginal the benefits of take-over were since, as the two private companies were bought out for just over £2 million, 4 ratepayers were getting a return on their investment of only  $1\frac{1}{2}$  per cent, and by 1908-9 - 3.1 per cent.<sup>5</sup> In the same year 69 borough gasworks paid a total of £453,530 in aid of rates, while 34 boroughs simply covered capital costs and two small works subsidised the price of gas.<sup>6</sup>

1. For further discussion of this matter see Falkus (1977) op.cit. pp.156-158.

Quoted in A. Briggs, Victorian Cities (1963) p.207.
 Fraser, op.cit. p.106.

4. Gas Undertaking, published by the City of Birmingham Gas Department, (1947) p.14.

- 5. Knoop, op.cit. p.330.
- 6. Ibid. pp.313-315.

With such a marginal benefit it becomes clear why some local authorities, facing slightly differing circumstances, chose not to take over their gasworks. In London, where again the gas companies professed themselves to have no objection to being bought out 'at a fair price', the sheer scale of this operation must have been one consideration. In 1875, for example, when Joseph Chamberlain was creating the largest local authority owned gas enterprise in the world with an expenditure of £2 million it would have cost the MBW and the City Corporation just under £20 million to buy out the London companies, a sum more than the total investment in the rest of the UK put together<sup>1</sup> and at a time when the entire consolidated stock of the MBW stood at just over £8 million.<sup>2</sup> However, the scale of expenditure did not prevent the creation of the Metropolitan Water Board in 1902 which was capitalised at £47 million.<sup>3</sup> Nor for the same reason can the weak and divided Metropolitan government<sup>4</sup> or the suspicions of central government<sup>5</sup> be used to explain why the London gasworks were not taken over. The probable reason is to be found in the particular circumstances of the London gas companies, especially their capital structure.

 Falkus (1977) op.cit. p.136.
 Board of Works Report PP (1875) LXIV pp.768-7.
 Falkus (1977) op.cit. p.137; see also A.K. Mukhopadhyay, 'The Politics of London's Water ' The London Journal (1975).
 Suggested as the reason by Gladstone in 1884, Falkus (1977), op.cit. p.159 nl5. 5. Kellett, op.cit. p.40.

So far analysis has centred on the gas industry in London collectively. It remains to explain the relative performance of individual firms. Once again the key factor here will be found to be the companies' capital history. In the early period the most successful company in London was undoubtedly the City - it paid the highest dividends and was always able to cut its gas prices to forestall any attack on its monopoly district. Later the Independent was in a similar position. The reason for this was that the capital burden on these companies was less than for their competitors. In 1822, for example, whereas the South London Company had £25.3 of nominal capital per ton of coal carbonised and the Chartered had £21.8, the City Company had a mere £11.4 This left the overcapitalised companies vulnerable to competition and no option but to restrict their dividends, plough back profits and improve their capital structure. The results, as Figure 8 shows, were quite dramatic. The South Metropolitan, for example, had £20 of capital per ton of coal in 1838; by 1850 this had been reduced to f5.8 per ton <sup>2</sup> In 1830 the Chartered had a nominal capital of £660,000 but by 1853 this had been reduced to £580,690, despite a huge increase in output, by a process of buying up and cancelling its own shares and paying for £309,491 worth of extensions out of profits Most companies did similarly, though the Phoenix had only managed to improve its position from £22.5 of capital per ton in 1829 to £11.1 in 1849. The Citv Company, on the other hand, chose, quite rationally, to enjoy the fruits of its position, paid high dividends and bonuses and in addition paid calls and increases in share capital out of profits. For the Phoenix and the City Company, therefore, competition duly arrived in 1849-50.

1. S.C. on Gas Lighting...op.cit. PP (1823) V pp.327-41.

2. S. Metro. SHM for 1838 and 1850.

JGL, 10 Nov. 1854.
 Ibid., 17 May 1864 p.353.

It is interesting to note how unimportant was the working efficiency, compared to the capital structure, in the relative fortunes of companies. In 1861, the South Metropolitan, for example, was a relatively high cost producer yet in terms of its price of gas and dividend paid to shareholders it was one of the most successful of companies. The importance of capital compared to running costs also explains the relative success of companies in the amalgamation movement of the 1870s. North of the river there was nothing to choose between the Imperial and the Chartered with regard to operating efficiency while the Imperial was almost twice the size of the other company. The Chartered, however, had a better capital structure than the Imperial and for a number of other reasons made the crucial investment in Beckton before the Imperial started Bromley. Beckton, and the huge capital outlay involved, gave the Chartered both the ability and the necessity to take over the northern companies, the Imperial included. South of the river, although the South Metropolitan had marginally lower costs than its rivals it was its capital advantage which allowed it to outbid larger companies, including the by now over-burdened Gas Light and Coke, and emerge supreme.

The central issue in the later period was the relative success of the South Metropolitan compared to the Gas Light and Coke Company. Explanations at the time as to the lower price of gas south of the river and the greater profitability and faster rate of growth of the southern company tended to focus on the managerial performance of the two concerns. Makins, the barrister and old Harrovian, was easily contrasted with Livesey, born into the gas industry and its acknowledged leader in Britain for thirty years. Even the historian of the Gas Light and Coke Company felt obliged to condemn his company's management in this period 1 as did a House of Commons' Select

1 Everard, op.cit. Chapter 18.

Committee after an extensive enquiry in 1899. The gas industry seems to present a clear example of the importance of entrepreneurial ability, usually given a leading explanatory role in economic history, and indeed it can provide an interesting comment on the controversial issue.

Although the 1899 Select Committee found the Gas Light and Coke 'in want of good management', Makins in fact put forward a sound defence in explanation of the high cost of his company's gas. It is important to compare the Gas Light and Coke not just with its major neighbour, as the Committee mainly did, but also with the smaller Commercial and, more interestingly, the Crystal Palace. The Commercial emerged blameless from the Select Committee and was managed by an engineer, H.E. Jones, for whom Livesey had much respect. The Crystal Palace was under the control of Livesey himself. With this in mind the cost profiles of the four companies for 1898 (see Table 12) are revealing. Looking at the operating costs, the widest discrepancy between the two major companies was in wage costs and Livesey's main criticism of the Gas Light and Coke was its failure to introduce labour saving machinery. Yet the Commercial and the Crystal Palace had been no quicker to do so than the condemned company and for reasons previously explained. The next major difference between the two largest companies was in the cost of coal. Livesey, in evidence, ascribed this to the poor buying policy of the Gas Light and Coke, yet again that company's costs were below those of the two smaller companies. In fact, the major factor in coal costs was the location of the works, with those sited inland at a disadvantage. Table 14 sets out the remaining operating costs in detail and again shows no evidence of managerial deficiency on the part of the Gas Light and Coke whose only significant expenditure greater than that of the other companies was in the payment of local authority rates - an unavoidable tax on supplying the West End. As to

1. S.C. on Metropolitan Gas Companies (1899) op.cit. p.27.

### TABLE 14

<u>Operating costs other than carbonising wages or coal for four London gas companies</u> <u>in 1898 (per thousand cubic feet of gas sold in pence</u>)

	Gas Light and Coke	Commercial	South Metro- politan	Crystal Palace
Salaries	0.33	0.46	0.36	0.39
Purifying wages	0.82	1.01	0.68	0.81
Wear and tear	3.43	3.61	4.14	4.02
Distribution	2.99	1.78	2.64	3.03
Public lamps	0.39	0.62	0.38	0.52
Rates and taxes	2.51	1.42	1.47	1.18
Management	1.00	1.08	0.90	1.52
Law and Parliament	0.06	0.03	0.01	0.01
Bad debts	0.12	0.11	0.07	0.09
Superan nuation Profit sharing	0.31	0.02	0.77	0.72
Total	11.96	10.40	11.42	12.29

Source:

Field's Analysis

the sale of residuals, the company suffered by having half its coke produced at Beckton which was still outside the built up area and therefore away from its market.<sup>1</sup> With regard to wastage, the company claimed that heavy traffic in the West End put it at a disadvantage,<sup>2</sup> but probably as significant was that, for historical reasons, particularly its slower growth rate, its mains were older than the other companies.

Finally, the single most important factor which accounted for the difference in price between the companies was the respective charges for capital. The Gas Light and Coke paid a smaller dividend than any of the companies but this cost significantly more per thousand feet of gas produced. Virtually the entire reason for this was the huge cost of Beckton, which had left the company with a crippling capital burden. As Figure 4 shows, the company made efforts in the 1880s to limit investment and improve the company's capital structure but from Table 15 it can be seen that even after years of stringency, by 1888 it was still at a disadvantage with the other companies. Moreover, by 1890 this low investment had caught up with the company; long delayed extensions had to be made which together with the introduction of pre-payment meters put the company even further behind its neighbours. In 1898, capital costs could account for 41 per cent of the difference in price between the South Metropolitan and the Gas Light and Coke, 56 per cent of the difference with the Commercial and the entire difference with the Crystal Palace.

Beckton, then, was crucial and although its shortcomings cannot be levelled at Makins, capital investment is as important a test of managerial ability as day-to-day operations. Indeed, because of its significance for the future, it is more important. Since the South Metropolitan and the Commercial were able to build new works, at East Greenwich<sup>3</sup> in 1888 and Poplar<sup>4</sup> in 1878, at less cost and with no lasting detriment to their capital position, was

Beckton

Ibid.
 Ibid. p.223.
 S. Metro. SHM, 9 Feb. 1888; Garton, <u>G W</u>, 19 Jul. 1952 p.167.
 Stewart (1957) op.cit. p.76.

## TABLE 15

<u>Capital employed by the three London companies (in £ per ton of coal carbonised</u> <u>for 1861, 1874 and 1888 and per thousand cubic feet of gas sold for 1898 and 1914.)</u>

	Gas Light and Coke	South Metropolitan	Commercial
1861	4.87	5.32	5.08
1874	9.56	4.61	5.06
1888	6.10	4.67	4.30
1898	12.50	8.83	8.66
1914	11.33	8.33	8.58

## Sources:

Z. Colburn, op.cit. for 1861 and Field's Analysis for 1874-1914.

a managerial blunder on a large scale? The mistakes have already been catalogued<sup>1</sup> but there were mitigating circumstances. Soon after it was built King's Treatise offered their 'admiration of the design and general arrangement of this colossal establishment.<sup>2</sup> Moreover the builders of Beckton suffered from it being the first works in the world to be built on such a scale. Those who followed benefitted from the mistakes made. The sheer scale of the project meant that it had to go further out of the city than other new works. Greenwich, for example, was an ideal site but it was on the wrong side of the river for the Gas Light and Coke. A further gratuitous advantage that the East Greenwich works had was that it was built at a time when the cost of iron was at an all time low in contrast to the inflated price of iron in the early 1870s when Beckton was being built and extended (see Figure 10). Finally, it should be mentioned that Beckton was built at a time when the company was controlled by J.O. Phillips, who had earned the sobriquet 'the Bismarck of Gas'<sup>3</sup> and whom Livesey himself described as 'very able'  $\frac{4}{2}$  . Perhaps, therefore, there is some justification for not seeing the high cost of Beckton and the subsequent problems of the company as the result of managerial incompetence.

The above analysis does not attempt to prove that managerial ability was of no importance but it might tend to indicate that it was of much less importance than the many impersonal factors present in any situation in which entrepreneurs found themselves. Chief among the constraining factors operating on company decisions, it has been suggested, is the capital structure brought about by past investment. Within this framework it might be argued that the joint stock nature of an enterprise, with its pressure

1. See page 106.

2. King's Treatise, op.cit. Vol. 2 p.299.

3. Everard, op.cit. p.243.

4. S.C. on Metropolitan Gas Companies (1899) op.cit. p.152.

to maximise profits, or more precisely the long term maximisation of dividend, tended to ensure that the correct decisions were taken in the interests of the company. The evidence from the gas industry would, therefore, support those historians who tend to give less importance to individual entrepreneurship and point rather to the market situation in which it found itself. There must, however, be a note of caution in using evidence from the gas industry for this purpose. Comparatively speaking, it was a sheltered industry with little competition. It was also largely unaffected by the trade cycle and was unconcerned with the need to export. Thrusting and dynamic managers prepared to take risks and quick decisions were, therefore, of no great advantage in the gas industry.

This analysis concludes with a brief discussion of the economic and social impact of the gas industry in this period. Unfortunately the absence of reliable statistics allows little meaningful quantification of the role of the gas industry in the nineteenth century but what evidence there is would tend to suggest this was relatively modest. In 1907, income from the sale of gas represented 1.1 per cent of net national income at factor cost and at current prices As capital intensive as it was, investment in the gas industry was dwarfed by that in railways. Estimates of total capital investment in gas range from £10 million by 1847<sup>2</sup>, £10.5 million in 1848 In any event this was about half the annual and fll.8 million in 1846

1. P. Deane and W.A. Cole, British Economic Growth 1688-1959 (1969) p.330; Census of Production, op.cit. p.836. 2. G.R. Porter, Progress of the Nation (1847) p.631. 3. Rutter (1849) op.cit. p.24.

- 4. Falkus (1967) op.cit. p.504.

gross capital formation of £20.1 million in railways, 1845-54.<sup>1</sup>. By 1885, total capital raised in the gas industry had reached £55.1 million<sup>2</sup>, and while this was certainly an underestimate because of the extent of ploughed back profits, it was still only 0.7 per cent of total UK reproducible capital stock compared to 10.5 per cent for railways and canals<sup>3</sup>. Gas investment probably had its most significant impact prior to the coming of the railways although this must still have been of minor importance. Gas companies did, however, seem to figure prominently in the stock exchange boom of 1824-5

As to other backward linkages with the rest of the economy, the following chapter will show how small were the demands of the gas industry on the labour market. Indeed, the industry made only two substantial demands on other sectors with its needs for iron and coal. Again, the gas industry probably made its major impression on the iron industry prior to the peak of railway construction in the late 1840s. No precise estimate of the gas industry's demand for iron can be made but it was probably no more than 2-3 per cent of total iron output between the start of the industry and 1846  $\frac{5}{2}$ .

- 1. Deane and Cole, op.cit. p.233.
- <u>Return Relating to all Authorised Gas Undertakings</u> PP(1915-16)CVII pp.224-5 and 290-1.
- 3. Deane and Cole, op.cit. p.274.
- 4. Henry English, <u>A Complete View of Joint Stock Companies formed in 1824 and 1825 (1827).</u>
- 5. Assuming capital expenditure by the gas industry at fll.8 million and iron representing 50 per cent of this. From company records between £6-fll per ton was paid for iron castings (mains, pipes, lamp-posts, gasholders and retorts) in the period 1812-1846. This gives a demand of 0.53-0.98 million tons or 1.8-3.4 per cent of the total iron output, 1812-1846, of 28.3 million tons. (Philip Riden, 'The Output of the British Iron Industry before 1870', Economic History Review, Aug. 1977 p.455.
# TABLE 16

<u>Proportion of the demand for coal from the gas industry in the total UK</u> <u>output of coal (millions of tons).</u>

	A	В	С
Year	Consumption of coal by UK Gas Industry	Total UK output of Coal	A as a % of B
1848	1.125	45 - 50 2	2.25 - 2.5
1861	<b>3.</b> 50 <sup>3</sup>	83.6 4	4.1
1882	7.2	156.5	4.6
1890	10.2	181.6	5.6
1900	13.9	225.2	6.1
1913	16.9	265.7	6.3

Sources and Notes:

1.	J.O.N. Rutter, Practical Observations on Gas Lighting (1849) pp.24-5.
2.	P. Deane and W.A. Cole, British Economic Growth 1688-1959 (1969) p.216.
3.	Parliamentary Returns, estimated for 1861, actual 1882-1913.
4.	Mitchell and Deane, op.cit. p.115 for 1861-1913.
5.	The above compares with estimates of the percentage of total UK coal output consumed by gas and electricity as follows:
	1840 11% 1869 6 % 1887 6 % 1913 8 % Deane and Cole, op.cit. p.219.
	and consumption of coal in gasworks compared to total coal consumption (excluding exports) in Great Britain and Ireland.
	$Gasworks (1)  Iotal (2)  (1)as \ b \ old (2)$

		uasmoins (1)	100001 (-)	(1)== / = (	-,
	1869	6.3	94.4	6.7	
	1887	11.5	130.4	8.8	
	1903	15.0	167.0	9.0	
	1913	18.0	189.1	9.5	· ·
	1920	18.6	185.8	10.0	
••				Duitich Cont	Inductory 1

A.M. Neuman, Economic Organisation of the British Coal Industry (1934) p.98.

This compares with recently estimated demand from the railways for UK pig iron output for various periods as follows:

1835-43	7.2 %
1844-51	17.9 %
1852-59	8.6 %
1860-69	8.0 % 1

Estimates of the demand for coal can be made more firmly (see Table 16) and this probably grew in importance through the period from something over 2 per cent in 1848 to just over 6 per cent in 1913. In both the iron and coal industries, of course, demand from the gas industry bore more heavily on certain sectors. In iron the cast iron industry benefitted disproportionately and certain companies, Newton and Chambers of Sheffield and the Butterley Company in Derbyshire, for example, relied heavily on demand for castings from the gas industry. Demands on the coal industry fell heavily on the coking coals of the north-east and, until the 1890s, on the cannel coals of Scotland. In addition, of course, the gas industry spawned a number of subsidiary industries and companies. In the early years these included gas meter manufacturers and makers of gas burners and these multiplied in later years into a gas appliance industry of some significance, usually centred in London, Manchester or Newcastle, and ranging from gas cookers, heaters, geysers and gas engines to mantles and light fittings. In addition there was the developing engineering involved in gas manufacture particularly stoking machinery but again no quantitative estimate of the extent of this subsidiary industry can be made.

An assessment of forward linkages would include the benefits to commercial, industrial and domestic users from the sale of coke as a cheap fuel. Yet, as

1 G.R. Hawke, <u>Railways and economic growth in England and Wales 1840-1870</u> (1970) p.214.

has been outlined above, the backwardness of the British chemical industry minimised the benefits that might have accrued to the British economy from the plentiful supply of tar and ammonia from the gas industry. As it was, these made a modest contribution to the export trade. In fact, as was to be expected, by far the major significance of the coming and development of the gas industry was in the use of gas as a lighting agent and as a fuel. Again, however, it is possible to exaggerate the qualitative and quantitative significance of coal gas. In the early years of the industry gas provided a markedly cheaper form of light than oil or tallow, where it could be afforded. This was primarily as public street lighting and privately to light factories, shops, counting houses, public houses, theatres, clubs and the doorways and hallways of the rich. For sections of industry and commerce and society, therefore, it involved a cost saving; yet the smal: proportion that lighting formed in total costs must have made any benefits marginal at most. Moreover. it is unlikely that gas cast light where there had been none before or indeed led to any great qualitative change, such as manufacturing firms being able to organise night shifts<sup>2</sup> or shops opening later hours. Indeed the trend was for businesses to close earlier through the nineteenth century.

On the other hand, the likely effects had gaslight not been invented might be contemplated. If the above analysis is correct, gas was introduced because of the inelasticity of supply of traditional lighting agents. Without gas light these sources, basically whale oil and tallow would have been under even more strain. In 1849, for example, it was estimated that to produce the equivalent amount of light by candle to that produced by gas would have taken an extra 153,061 tons of tallow at a cost of £11.4 million or 147,918 tons of sperm oil costing £13.2 million. Clearly, with regard to sperm oil, production would probably have been incapable of rising to meet this demand. Sperm oil

1. As was the seemingly smaller premium for fire insurance due to gas light, B. Supple, The Royal Exchange Assurance, A History of British Insurance 1720-1970

(Cambridge 1970) pp.90-1, 158. 2. O'Dea (1958) op.cit.; Cotterill, op.cit. p.36 maintains that gas light allowed Glasgow handloom weavers to increase their hours of work from 9 in 1800 to 14-16 in 1825 but offers no evidence that this would have been impossible without gas.

- 3. Adburgham, op.cit. pp.73, 128.
- 4. Rutter (1849) op.cit. p.43.

imports totalled only 5,552 tuns in 1844 and would surely not have been capable of the thirty-fold increase required. Without gas, therefore, tallow would have been required to bear the brunt of the increased demand for light in the nineteenth century and here supply does seem to have been relatively elastic. Home output of tallow candles increased from 29,910 tons in 1801, to 52,165 tons in 1830 to around 100,000 tons in 1880 and in addition imports increased from 59,000 tons in 1846 to 100,000 tons in 1880 <sup>3</sup> against this, to give an equivalent amount of light but without gas, the total demand for tallow in 1847 would have been in the region of 250,000 tons, perhaps twice the actual supply. It is probably not stretching this counterfactual speculation too far, therefore, to say that without gas there would have been less light at a higher cost but this would hardly have been of the order to retard the progress of the British economy or to make a major change to the standard or quality of life. It may be noted as a by-product of this discussion that probably not until the final decades of this period did the growth of the gas industry cause any decline among its competing forms of lighting. The weak influence of gas on the progress of electricity has already been noted.

The social effects of gas lighting might also be exaggerated at first glance. One obvious gain that might be suggested was the effect on education and the level of literacy from the provision of illumination for reading. Particularly able to benefit, since by its nature it was a night activity, was adult education. The founding of the Mechanics Institutes by Birkbeck in 1823<sup>6</sup> might be thought to owe something to the spread of gaslight. Yet it is difficult to see why developments of this nature would not have progressed equally under traditional forms of lighting. The use of oil lamps would surely not have been

- 1. Jackson, op.cit. p.137.
- 2. Porter, op.cit. p.580.
- 3. O'Dea (1958) p.215.
   4. As suggested by Cotterill, op.cit. p.37.
- 5. And led according to Cotterill, ibid. p. 37, to an 'extraordinarily rapid increase in the rate of intellectual development and study in the mid 19th century. 6. T. Kelly, <u>A History of Adult Education in Great Britain</u> (Liverpool 1970) p.121.
  - Kelly makes no mention of the significance of gas light.

prohibitively expensive. To burn two Argand oil lamps or sixteen tallow candles for one hour in 1841 would have cost for example 2d Moreover. since absolute levels of literacy owed most to the daytime schooling of children, the most that can be said is that gaslight was a marginal help to educational improvement.

It might also be suggested that the advent of gas street lighting had some affect on the level of street crime. Certainly this was one of the spurs to its introduction, notably by the Police Commissioners in Manchester. Yet it must be remembered that the strongest commonly used gas lamp prior to 1890 gave the light of only sixteen candles, equivalent to only a fifty watt electric light bulb<sup>2</sup> . Although this was twice as bright as the previous oil lamps, by today's standards of street lighting it would be considered little better than total darkness. Not surprisingly, what is known of crime rates in the early nineteenth century show no diminution in levels, although the statistics are notoriously unreliable. Between 1805 and 1841, committals in Middlesex increased by 194 per cent compared to an increase in population of 94 per cent This rise could easily, of course, represent increased detection rates. A recent historian has been prepared to commit himself only to the following extent - 'There was a steady trend to less violence but it is difficult to be certain of any movement in the level of crime between 1815 and the middle 1850s...crime flourished unchecked'

What then were the economic and social gains from the gas industry? The backward linkages with the rest of the economy were minor, while forward from the point of production it brought an increase in light and a saving in total

- 1. Peckston (1841) op.cit. p.425; subscription rates for institutes were about 3d per week per person, E. Royle 'Mechanics Institutes and the Working Classes 1840-1860', The Historical Journal Vol. XIV p.314.
- Dibdin, op.cit. p.425.
   V.A.C. Gatrell and T.B. Hadden, 'Criminal Statistics and their interpretation' in E.A. Wrigley (Ed.) <u>Nineteenth Century Society</u> (Cambridge 1972).
- 4. Porter, op.cit. p.642.
- 5. J.J. Tobias, Crime and Industrial Society in the 19th Century (1972) p.46.

cost at most marginal. It was probably domestically that gas made its biggest impact. As gas lighting passed down through the nineteenth century class structure, available from the first to the wealthy, passing to the middle classes from the 1840s and 50s , it still only represented a small improvement in the quality of life and a fractional reduction in the cost of living. When gas reached the working class in the 1890s, however, it represented a qualitative improvement in the standard of life. Gas cooking and heating still represented only a peripheral reduction in the cost of living although the improvement in convenience over the old kitchen range was the first herald of the consumer revolution of the twentieth century. Gas lighting via the incandescent mantle, however, meant that for the first time in history the mass of the population could afford to light their homes after dark to a level almost equivalent to daylight.

### Part 2

#### The Gasworkers

# Chapter 6: Gaswork

This chapter will give as complete a picture as possible of the everyday nature of employment in the nineteenth century gas industry. The nature of the work, conditions, hours, wages, holidays, provisions for sickness, accident and old age — the day-to-day relationship between the companies and their menhave generally been subject to neglect by historians. But the standpoint of this history of the gasworkers is very much that of the ordinary worker, and therefore this chapter is as important as the succeeding chapters which relate the more spectacular episodes in the relationship between capital and labour.

Table 17, column 1 gives the census returns of employment in gasworks service in London, which consistently underestimate the totals, while column 2 gives a more realistic though by no means completely accurate estimate. It is immediately clear that the capital intensive gas industry made relatively modest demands on the London labour market and, since it has been estimated there were only 80,000 gasworkers in total in 1911, this was true of the economy as a whole. In 1840, the two largest gasworks in London, Pancras and Westminster, employed 200-230 at the winter peak while the smallest works, the Ratcliffe or the South Metropolitan, would employ a mere 40-50.<sup>2</sup> Inevitably The largest of all - Beckton - employed 1,000 men gasworks increased in size. when it opened in 1870, over 2,000 by 1878, 3,000 by 1886<sup>4</sup> and some 7,000 by 1912.

Employment at the gasworks fell into three categories: retorthousemen, yardmen and outsidemen. From the 1820s, when the use of the scoop became general, retorthousemen were grouped, typically, into gangs of five. In

 <u>G W</u>, 20 May 1911 p.620.
 Estimated from wage bills in company minute books; Layton (1920) op.cit. p.151.
 <u>Illustrated London News</u>, 2 Nov. 1878; <u>King's Treatise</u> Vol. 2 op.cit. p.293. JGL, 6 Apr. 1886.

## TABLE 17

Census Data and Estimates of Employment in London Gasworks

column 1		column 2	
Date of census	Census of employment in Gasworks Service	Year	Estimate of employ- ment in Gasworks
1841 June 7	460	1841	1500
1851 March 31	1702	1851	2500
1861 April 8	2788	1861	4-5000
1871 April 3	3317	1873	8300
1881 April 4	3831	1889	12000
1891 April 5	5776	1891	15000
1901 April 1	7366		
1911 April 3	8041	1911	21000

Sources:

1. Censuses of Population in PP for each year.

 Estimates using gas company minute books and newspaper reports. Also Z. Colburn, The Gas Works of London (1865) for 1861 and PP (1912-13) Vol. XLIII p.952 for 1911. All estimates are for peak winter demand.

descending order of seniority and wage rate, these were a scoopdriver, two stokers in front of the scoop, a fireman to tend the furnaces and a wheeler who carried coal in and coke out by barrow. In addition there were odd men such as 'pipe jumpers' whose job it was to keep the ascension pipes clear. Up to the 1890s, retorthousemen accounted in the height of winter for some 50-60 per cent of total gasworks employment, but with the introduction of producer gas, water gas, slopers and machine stoking the above pattern was broken up and the proportion of retorthousemen in the total force fell to perhaps 35 per cent by 1906. Whereas for hand stoking in Beckton a shift might have had thirty or so men made up of six gangs of five plus oddmen, a mechanised retorthouse required only six stokers, two door shutters, two machine drivers, three firemen, a conveyor man and a 'scrappy' who picked up odd falls of coke - fifteen men in all. The supervisory staff probably did not vary throughout the period. Each shift would have a foreman, in turn responsible to a superintendent or carbonising foreman for the whole works, usually directly accountable himself to the engineer.<sup>5</sup>

Yardmen included the skilled craftsmen vital to the operation of the gasworks: smiths, mechanics, joiners and, most importantly, the bricklayers responsible for the rebuilding of the retort settings. Skilled men, however. accounted for no more than five per cent of the total workforce. The bulk of yardmen were unskilled labourers who carted coal and coke or worked on the valves and purifiers. These were probably 20 per cent of the total workforce. Outsidemen, as the name suggests, were the main layers and gas fitters who operated outside the works including the lamplighters though not the meter inspectors and collectors who were usually salaried staff. Lamplighters

- <u>Illustrated London News</u>, 2 Nov. 1878.
   <u>G W</u>, 20 May 1911 p.620.
   <u>Hughes' Treatise</u> (1904) op.cit. p.112.
   <u>JGL</u>, 13 Oct. 1891 p.668; Interviews with Bob Lawrenson Cassette No. 3 and George Hollingsworth Cassette No. 4.
- 5. Bob Lawrenson Cassette No. 3.
- 6. Details in paper in Commercial DM for 1877.

accounted for 5-10 per cent of the workforce, depending on the number of public lamps the company supplied. In 1840, for example, the Imperial had 40-50 lamplighters, the South Metropolitan only eight or nine, while by 1870 the Imperial, then the largest company in London, had 220.

Since output of gas fluctuated considerably with the season so did employment. The extent of this varied according to the weather. The peak winter make could be more than four times the summer low, or it could be less than double, with perhaps two-and-a-half to three times being the average. As a result, two-thirds less retorthousemen were required in the height of summer than the depths of winter and most were gradually laid off in the spring. The extent of sackings was usually not as extreme as this, however, since the companies used the summer to replace worn out retort settings or to extend the works and so many stokers got jobs in the yard at a reduced rate of pay. Exceptionally the company would even be employing more men in the summer than the winter. On average though the companies employed 30 per cent less men in the slack period than at the peak of winter. The extent of seasonality probably increased slightly from the early years, when public lighting was a high proportion of demand, to the 1860s when the more variable private lighting load reached its peak of importance.<sup>3</sup> From then the increasing use of gas for cooking and heating undoubtedly reduced seasonal fluctuations, so that by 1891 only 20 per cent of men were sacked and by 1910 only 15 per cent  $^{4}$  , although this was still almost a third of retorthousemen since these were now a smaller

1. Imperial CW, 12 Oct. 1872.

Colburn, op.cit. p.25; Popplewell, op.cit. p.5; <u>SC on Gas-lighting</u> (1923) op.cit. pp.328-336.
 The Equitable carbonised 2.3 times more coal in the peak in 1838 and 1839 and

the South Metropolitan had the same average proportion for 1846-62. The latter company, 1862-79, carbonised on average 3.2 times as much at the peaks. Taken from the companies' minute books.

4. <u>G W</u>, 20 May 1911 pp.620-1.

proportion of the total workforce. By the inter-war period no men were laid off at Beckton 1, although the practice was still common at other works.<sup>2</sup>

Sooner than stay in the retorthouses in summer, or take a lower paid job in the yard, many stokers were happy to leave the gasworks and take other jobs, the most common of which was in the brickfields. This was an open-air job equally paid to gaswork and required the same characteristics of muscle and endurance. It was also seasonal work with an exact counter-cycle to gaswork, being closely linked to the summer building trade. Other sources of employment included building itself, coopering, mill sawing, clothing, quarrying, dock work and agricultural work. particularly harvesting fruit and hops, and by the end of the period brickmaking had reduced in importance because of the introduction of machine-made bricks. Despite seasonality there was, however, considerable continuity in gasworks employment since most of the men laid off in the spring would return to the same job, often with the same gang, in the autumn. Yet there was, too, much unemployment. One commentator at the end of the period traced the progress of forty-nine men who on average were fully employed for twenty-two weeks of the year in the gasworks and seventeen weeks elsewhere, were partially employed for 3.3 weeks and totally unemployed for 9.7 weeks or 22 per cent of the year.

Gasworks, it is clear, relied heavily on casual labour. Interviews with contemporary gasworkers show vividly how the system worked. At Fulham gasworks 'when he (father) first started in the industry there was so much casual labour and that's how you started...you never became a regular employee until you had

 Interviews with George Hollingsworth Cassette No. 4, Alfie Blundell Cassette No. 2, Bob Lawrenson Cassette No. 3.

- 2. Interview with Ted Green Cassette No. 1.
- 3. L. Levi, Wages and Earnings of the Working Classes (1867) pp.112-3.
- 4. G.W , 20 May 1911 p.620.
- 5. Ibid., p.621.

been casual labour for about two or three years. This casual labour used to line up outside the works every morning and the foreman would come out and just say "you, you and you, the rest sorry no more", and people used to literally cry for work'.<sup>1</sup> At Beckton, before the First World War as many as fifty men would line up on the 'Sewer Bank' outside the works hoping for a shift's work and from this pool of casual labour the company could fill the places of absentees or take on extra men as required.<sup>2</sup> Their plight is made clear by another old gasworker: 'They used to come in, always hungry, never had no food and we used to muck in and give them what food we had'.<sup>3</sup> Once workers became established, however, gas work could be a secure job because of its immunity from the booms and slumps in trade.

The major source of recruits into the gasworks (as it was on the railways)<sup>4</sup> up until the final decades of the period was agricultural labourers. To a varying extent throughout the period many of these were Irish immigrants, probably reaching a peak of importance in the 1860s as they did in the London labour market generally.<sup>5</sup> During the height of the Fenian troubles in 1868 the authorities felt it necessary to get Irish gasworkers in London to sign a petition expressing loyalty to the Queen<sup>6</sup> but, looking at the names of gasworkers as they crop up in written sources, Irish workers probably never amounted to more than a guarter of the total and usually less.<sup>7</sup> Interestingly, in the second half of the period German immigrant labour was used in the winter months, returning home in the summer.8

- Interview with Reg Schmidt Cassette No. 10.
   Interview with Ted Coley Cassette No. 5.
- 3. Interview with George Hollingsworth Cassette No. 4.
- 4. P.W. Kingsford, Victorian Railwaymen (1970) p.2.
- 5. H.A. Shannon 'Migration and the Growth of London 1841-1891, Economic History Review (1935) pp.81-3.
- 6. GLCC DM, 10 Jan. 1868.
- A recent estimate puts the proportion of Irish immigrants who worked in the category 'Gas and Fuel' as 0.2% in 1851 and 0.5% in 1861, virtually the least important occupation. L.H. Lees, Exiles of Erin: Irish Migration in Victorian London (Manchester 1979) pp.93, 119. This, however, ignores seasonal migration and other parts of the country probably saw more Irish in the gasworks. Cotterill, op.cit. p.681.
- 8. E.G. Howarth and Mona Wilson, West Ham A Study in Social and Industrial Problems (1907) p.173.

To a remarkable extent in later years recruitment into the gas industry came by sons following their father.<sup>1</sup> However, even in the era of machinery, work in the retorthouses was too arduous for a youth and lads would either take up traditional employment as delivery boys or messengers outside the industry<sup>2</sup> or light yard work in the gasworks<sup>3</sup> until such time, invariably in their twenties, when they were strong enough for the retorthouse. Starting there as a wheeler or an oddman they would look for promotion to stoker and then scoopdriver, but the career was short. In the days of hand stoking, a stoker in his forties was coming to the end of his days and was given a job in the yard or as a lobbyman or was simply sacked from the gasworks altogether. When machine stoking came in, however, a stoker could continue into his sixties.<sup>4</sup>

The reasons for the short working life of the stoker, before machinery, are not difficult to find since the job must have been one of the most taxing in British industry.<sup>5</sup> In the retorthouse, at the end of a charge, the retort lids had to be opened, usually sending out a jet of flame.<sup>6</sup> The red-hot coke had to be broken up and raked out onto the retorthouse floor or, if the house was staged, through into a coke hole. The coke was then quenched with water and barrowed out into the yard by the wheeler. Originally the fresh coal was put into the retorts by long shovel but in the 1820s the scoop, holding at first less than one hundredweight, was introduced. As the length of retorts increased through the century so did the size and weight of the scoops and by the end ten-foot scoops were being used holding 11 hundredweight.<sup>7</sup> Two or three scoops or two scoops and a few shovels-

1. Interviews with Alfie Blundell Cassette No. 2, Bob Lawrenson Cassette No. 3, Ted Coley Cassette No. 5, Ernie Blewitt Cassette No. 6, Reg Schmidt Cassette No. 10.

2. Interviews with Ted Green Cassette No. 1, George Hollingsworth Cassette No. 4, Ted Coley Cassette No. 5, Ernie Blewitt Cassette No. 6, Tom Hall Cassette No. 8, Reg Schmidt Cassette No. 10.

- 3. Interviews with Bob Lawrenson Cassette No. 3 and Alfie Blundell Cassette No. 2.
- 4. Interview with Bob Lawrenson Cassette No. 3.
- 5. 'very severe' Hughes Treatise (1853) op.cit. p.109.
- 6. For a description of the working of a retorthouse in the early period see 'A Day at the Westminster Gas Works', Penny Magazine Vol. XI (1842) pp.81-88 and Hughes' Treatise (1853) op.cit. pp.107-112.
- 7. JGL, 2 Jul. 1889.



Artist's impression of the interior of the Brick Lane retorthouse of the Chartered Company - 1821.





ful were required to each retort. The lid was then closed and later luted with lime to make it gas-tight. Each team of three stokers would do ten to fifteen mouthpieces in a charge, taking on average three quarters of an hour.<sup>1</sup> With breaks in between, each gang would do six or eight charges per twelve hour shift. Estimates of temperatures in front of the retorts vary from 180°F in the August of 1867<sup>2</sup> to 154<sup>o</sup>F 3 feet from the mouthpiece and 109<sup>o</sup>F 10 feet away on a cool summer's day in 1889.<sup>3</sup> In a single charge men would lose pounds in body weight and this contemporary account gives a good picture of the situation:

In the hottest of the work men frequently strip to the waist and many will, while reeking of perspiration, stand under the open louvres in the roof no matter how strong the draught. At many works the men are provided with an unlimited supply of a drink composed of oatmeal and water called 'skilly' of which the men of Horseferry Road consume seven quarts a day. One of the men at these works while incautiously drinking freely, not long since of cold water when overheated dropped dead to the ground.

If, added to the heat, the cramped and badly ventilated early retorthouses,<sup>5</sup> more or less filled with sulphurous smoke and fumes, are imagined, the picture of working conditions for the stokers emerges. Moreover, the companies at first made no provision whatever for eating, washing, rest or toilet facilities for the men who thus endured these unrelenting conditions for twelve hours a day, seven days a week and - for those not laid off - fifty-two weeks of the year. All this for a wage which allowed a bare minimum of existence.

Gradually, conditions in all respects improved, but it is important to place the reasons for all such progress in the context of the increasing bargaining power of the men and attempts, in the face of this, by the companies to keep control and discipline over their workforce. There is no distinction to be made between advances of a 'welfare' nature and those more usually associated with collective bargaining, namely hours and wages. Their source is the same - the

Hughes' Treatise (1853) op.cit. p.109.
 Bee-Hive, 24 Aug. 1867 p.4.
 Labour Elector, 22 Jun. 1889 p.11.

<sup>4.</sup> Colburn, op.cit. p.25.

<sup>5.</sup> King's Treatise, op.cit. Vol. 1 p.119.

improved bargaining position of the men. Needing to make concessions, by and large the companies preferred to give 'welfare' improvements since usually they were cheaper and seemed to make a more positive contribution to controlling their workforce. Either way concessions were only made when it was considered necessary to do so.

Taking first the case of hours and holidays, not all gasworkers worked the twelve hour day, seven day week even at the beginning. Skilled yardmen usually worked a ten hour day and a six day week,<sup>1</sup> and this was reduced to nine hours in  $1872^2$  and eight hours in 1897 at Beckton,<sup>3</sup> keeping in line with changes in craft conditions nationally. Unskilled yard labourers also usually worked shorter hours on a day-time only shift. In the retorthouses, however, the two twelve hour shift system turning at 6 am and 6 pm remained the rule.<sup>4</sup> Moreover, the turn round from days to nights on Saturdays, fortnightly or monthly, involved a twenty-four hour shift. The first let up in this regime came as a result of the men's agitation in 1859. In theory at least the men won the right to the Sunday off following the changeover<sup>5</sup> and in 1861 this was followed by the right to leave the works at  $1 \rho$  m Saturday afternoon at the Phoenix and the South Metropolitan.<sup>6</sup> The men continued to agitate for a complete abolition of Sunday work and by 1872 most companies had conceeded that as little work as possible would be done on Sunday,<sup>7</sup> the men, of course, receiving no pay. Sundays, however, continued to be worked, although in 1889 the men were at least able to bargain double time for work between 6 am and 10 pm.<sup>8</sup> Sundays were still worked regularly on this basis at Beckton in the interwar period.<sup>9</sup>

- 1. Livesey to <u>RC on Labour</u> PP (1893-4) XXXIV p.233. 2. GLCC DM, 17 May 1872.
- 3. Ibid., 18 Jun. 1897. 4. 'A Day at the Westminster Gas Works', op.cit. pp.81-88; Colburn, op.cit. p.24; City CM, 23 Jan. 1818. The same regime obtained on the railways, Kingsford, op.cit. p.115.
- 5. Imperial CW, 29 Jun. 1859; Equitable DM, 31 May 1859; Independent DM, 5 Aug. 1859; City CM, 8 Jul. 1859.
  Garton, op.cit. G.W., 19 Apr. 1952 p.393; Phoenix DM, 30 Apr. 1861.
  Times, 3 Dec. 1872.
  GLCC DM, 15 Nov. 1889.

- 9. Interviews with Alfie Blundell Cassette No. 2, Bob Lawrenson Cassette No. 3, George Hollingsworth Cassette No. 4.

In 1867, the men in London first began a serious agitation for the eight hour day and by 1889, when they achieved their goal, the three shift system had already been introduced in other towns and cities, much to the discomfort of London engineers who at first claimed the system was not possible to operate. Liverpool introduced the system in 1844, Hull in 1871, Burnley, 1894, while Bristol, Birkenhead and Darlington also had the eight hour day before 1889.<sup>1</sup> By and large the men did as much work in eight hours as they had in twelve. The year 1889, of course, saw the system adopted over most of the country, including London. Even then the men did not do a third less work; at the South Metropolitan it was a quarter and at the Gas Light and Coke a fifth. Moreover, at the South Metropolitan three of the works reverted to the twelve hour shift, which in 1906 was still the rule in a quarter of the gasworks in the country.<sup>2</sup>

At the start of the industry the only holidays the men got, as on the railways,<sup>3</sup> were what they granted themselves in absenteeism. All the south London companies began to give Christmas Day and Good Friday off with pay soon after 1840, while the South Metropolitan gave Whit Monday and the Phoenix, New Year's Day.<sup>4</sup> The Independent granted Good Friday and Christmas Day with pay in 1865.<sup>5</sup> The South Metropolitan was the first company to grant a full week's holiday with pay in 1860 and later increased this to double pay for men with three years' service. On amalgamation in 1880 this concession went to the workers of the Phoenix and the Surrey Consumers with the condition, which gives a good idea of the paternalistic attitude of the company. 'that the holidays are spent in a visit to the country or seaside'.<sup>6</sup> The Gas Light and Coke did not give a week's holiday with pay until the stokers petitioned the company in 1886 and this was always conditional on good time-keeping and attendance.<sup>7</sup> This was increased to double pay for men with three years' service in 1911<sup>8</sup> and the Commercial followed suit a year later.<sup>9</sup>

JGL, 21 May 1889.
 G W , 20 May 1911 p.620.
 Kingsford, op.cit. p.115.
 Livesey to the <u>R.C. on Labour</u>, op.cit. p.234 Q 26710.
 Independent DM, 13 May 1965.
 S. Metro. DM, 19 May 1880.
 GLCC DM, 28 May 1886.
 G W , 2 Sep. 1911 p.264.
 Commercial DM, 22 Feb. 1912.

Improvements in facilities for the men also came slowly. The pioneer company in providing any amenities at all was the Equitable who, when they built their Pimlico works in 1830, included hot and cold baths, water closets and a room for taking meals.<sup>1</sup> In 1848, the London Company also built baths for five persons at a cost of  $\text{f50}^2$ , while Croll included 'baths and cupboards' when he built Tottenham.<sup>3</sup> But these were the exception. The Chartered contented itself with a 20 guinea contribution to the erection of local public baths and washhouses in Westminster in 1850 'in consequence of the great advantage which will result from them to stokers and their families'.<sup>4</sup>

1859 was a year when many companies became aware of the needs of their workmen although they need not be taxed with altruism since it was also the year of agitation among the men, and Alderman Dakin, chairman of the Great Central, summed up the attitude of the companies. 'I believe there is no better way of preventing strikes and to have our work well done than by paying proper attention and regard to the condition of our workmen'.<sup>5</sup> As a result, the Great Central erected a lavatory and dining room.<sup>6</sup> In the same year the Phoneix built several 'lobbies' where men could take their rest periods, eat their meals and change their clothes.<sup>7</sup> They also had hot and cold baths attached. The Commercial built a lobby and dining room, while the Imperial fitted up eight baths for the men. The provision of eating facilities also had another advantage for the companies since previously men had to be allowed out at meal times or wives allowed to bring food in. Now the men could be kept on the works for

JGL, 22 Nov. 1859 p.632.
 London CW, 26 Apr. 1848.
 JGL, 10 Apr. 1849 p.47.
 GLCC DM, 11 Oct. 1850.
 JGL, 8 Nov. 1859 p.54.
 Great Central, 6 May 1859.
 JGL, 1 Feb. 1859 p.54.
 Commercial DM, 8 Jul. 1859.

the full shift.

Nor did the men always act with gratitude for these provisions. One manager complained that he had provided hot and cold baths and soap but that they were never used  $^1$ , while at the Equitable they were only used by the 'higher class of workmen'. At the Phoenix the lead pipe and the brass cocks on the baths gradually disappeared!<sup>2</sup> Facilities at most works remained primitive as can be judged from a speech by a Chartered stoker in reply to a letter from the company secretary to the <u>Times</u>, protesting the good treatment the men received.

The bath which Mr. Phillips said the men had to wash in was an old galvanised pail with a hole in the bottom which required to be plugged up with fire-clay before it would hold water; while the reading room, lobby and sitting room referred to by him were not fit for a pigstye. The lobby door faced the retorthouse and was open all day; if the men laid their "grub" on the table it became black, and there was no ventilation in the place except what was obtained from a small sky-light.

When Beckton was built a public house was added separately for the men where they could get hot meals and beer, but it was the latter facility which was most used. The Lightship Inn, or the 'Shant' as it was known, was originally run by a brewery and when it was taken over by a trust they claimed in 1910 to have sold 89,897 hot meals in a year. For example, roast beef and three vegetables was available but the majority of the men still brought their own food - steak, a pie, bacon or sausages and perhaps a potato - and this would be heated up by the lobbyman, usually an old stoker,

- 1. Ibid., 1 Feb. 1859 p.58.
- 2. Colburn, op.cit. p.26.
- JGL, 17 Sep. 1867 p.799.
   Interview with Ted Coley Cassette No. 5.
- 5. JGL 30 Mar. 1912.
- 6. Co-Partners Magazine (1914) p.3.

on stoves or in ovens in the lobby. The Beckton stokers carried their food in a characteristic red handkerchief and at the end of a shift on the Sewer Bank they had the choice of giving any leftovers to hungry children who lined up or, on the other side of the path, to the company's ponies. By the end of the period adequate washbasins, baths and showers were provided for the retorthousemen but the day workers were not so lucky. Similar facilities obtained at the South Metropolitan.

The most backward of the companies was the Commercial. There, in 1889, beside the eight hour day, the men made more prosaic demands. 'Lobbies to be put to better condition and some better convenience for the men to wash or bath after their labour is done. Also that the waterclosets kept cleaner than hitherto. That seats or stools be supplied to the lobbies with better cooking stoves... The men at Wapping also ask that they may have a light to their watercloset' But the situation does not seem to have improved by 1892 when a witness to the Royal Commission on Labour complained that none of the works had baths or washhouses and there was only one lobby at Poplar with a fire at one end where all the men had to strip, cook and eat.

Gasworks were dangerous and unhealthy places to work. The extremes of heat and draughts and the grit and fumes meant that in 1898 gasworkers were 40 per cent more likely to die of bronchitis than other males, 33 per cent more likely to die of pneumonia and 20 per cent more likely to die from influenza or cancer. These, together with the biggest killer, tuberculosis, (although here the incidence was not above average) accounted for 52 per cent of all deaths

- 1. Interviews with Bob Lawrenson Cassette No. 3 and George Hollingsworth Cassette No. 4.
- 2. Interview with Ted Coley Cassette No. 5.
- 3. Commercial DM, 19 Jul. 1889.
- 4. A. Linton in evidence to the R.C. on Labour, op.cit. p.173 Q25475.

among gasworkers between the ages of twenty-five and sixty-five in the three years 1890-92. Accidents accounted for some 5 per cent of deaths and clearly gaswork was safer than, for example, railway work or coalmining. Explosions like the one which killed nine people at Nine Elms in 1865 were spectacular but not common. More typical were deaths on the railway lines in later years in the large works like Beckton and East Greenwich, or the three men killed in 1871 when a retort setting they were demolishing collapsed on top of them. 2 A macabre incident took place when a well was being excavated at Beckton in 1870. Two men working at the bottom were initially overcome by gas. The man sent down to help was himself suffocated while yet another followed and did not return. A halt was not called to this chain of events until the death toll had reached seven. Another untypical fatality had been reported in the Observer in 1840 when a coke dealer fell from his cart. The implication, however, was that this was no accident since the dealer had refused to pay the usual gratuity of for a drink for the company's **1**s men who had loaded the cart. 4 Most accidents, of course, were not fatal and the minute books in the early years of the companies abound with the misadventure of their workforce in the form of broken fingers and other bones; falling off stages into coal or coke holes was a common way of accomplishing this.

From the beginning all companies made provision for the accidents, sickness or death of their employees on a paternalistic ex gratia basis.<sup>5</sup> The Chartered sometimes paid a full week's wages, or sometimes a fraction, to workers off sick. The City Company granted half pay to workers 'genuinely

- 1. G W, 15 Jan. 1898 p.90.
- 2. JGL, 14 Feb. 1871 p.118.
- 3. Ibid., 24 May 1870 p.405. 4. Observer, 15 Dec. 1840.
- 5. Similar to that of the railway companies, Kingsford, op.cit. p.153.

sick' while the Imperial paid full wages to, for instance, a labourer who, when wheeling coal on a stage, fell into an empty coal room and broke both ankles, but 10s to a worker with a broken finger and to another 'old servant of the company unable to work due to a violent cold'. It also paid the funeral expenses of its employees. The Phoenix usually gave \$5 to the widows of dead employees such as the stoker killed falling off a stage in 1829.

The Chartered was the first company to establish a formal scheme in 1830. Under the Workmen's Provident Society scheme the men contributed 6d a week if they earned over 15s, 4d a week if less, and in return got 12s or 10s a week for the first six months of absence and 6s and 5s for the next six months. The company contributed £20 a year to each of the works funds and a doctor was paid a £40 a year retainer to visit those on sick leave and to make general reports on the health of the men. From 1832 a funeral grant was added whereby the usual £5 ex gratia payment was replaced by £10 plus £3 funeral expenses. In addition the men got free medical attention for themselves, their wives and Once again, however, shareholders could not accuse the company of family. largesse with the introduction of this formal scheme since to some extent it represents the shifting of the financial burden onto the workers themselves. From 'free' ex gratia awards the men now had to contribute £300 to the company's £100. By 1887 the men contributed £7,128 to the company's £2,296. Clearly, if ex gratia payments had continued the burden on the company would have been onerous. In return the men did however get a guaranteed benefit

City CM, 15 Jun. 1817.
 Imperial CW, 16 Feb. 1831.
 Phoenix DM, 22 Jul. 1829.
 Everard, op.cit. p.121.
 As did the railway schemes, Kingsford, op.cit. pp.157 and 167.
 GLCC SHM 1887.

rather than one at the discretion of the company, which was paid only to 'deserving' cases. In the past, relief had been dispensed with due moral Propriety, as when a petition came to the Chartered in 1825 from Mary Kennedy 'only friend' of Denis McCarty, a stoker's labourer who had died as a result of an accident. Mary had the body in her home and asked for help to bury it. The company refused, offering the advice that she apply to the Overseer of the Poor of the Parish. <sup>1</sup> The scheme was therefore popular with the men and, although not compulsory, by the end of the period a majority of the company's workers belonged. Old gasworkers speak highly of the scheme, particularly the free medical treatment for their families.<sup>2</sup> Yet the 12s a week benefit was not usually enough to live on and the 'whip round' for colleagues off sick was common practice.<sup>3</sup>

Most of the gas companies followed the Chartered's example. In 1839 the Equitable introduced a popular scheme known as the Birmingham Club, after its city of origin, whereby anything left over from the club at the end of the year was redistributed to the men.<sup>4</sup> In 1842 the Phoenix and the South Metropolitan introduced schemes.<sup>5</sup> In 1848 the London Company set up one in a roundabout fashion: the men were to contribute 3d a week toward the cost of providing hot baths and any surplus was to go to a sick fund to which the company contributed and which in the event was sufficient to pay the men 6s a week.<sup>6</sup> The troubles of 1859 also seem to have provoked a number of sick funds, like those at the Great Central, the Imperial and the

GLCC CM, 29 Jun. 1825.
 Interview with Ted Coley Cassette No. 5.
 Interview with George Hollingsworth Cassette No. 4.
 JGL, 22 Nov. 1859 p.632.
 G W , 11 May 1895 p.585; Phoenix DM, 16 Nov. 1842.
 London CW, 2 Aug. 1848 and 26 Jul. 1854.
 Great Central DM, 12 Apr. 1861.

Commercial, although the last company seems to have had the least successful scheme of the three London companies that finished the period since only a small number of their men belonged by 1912.

The most generous sick fund seems to have been the South Metropolitan's. Under the scheme the men only paid per week while the company made 3d up the balance, sufficient to pay a week benefit and an extra 12s 6s if due to accident not caused by carelessness of the man himself. In 1894, with the scheme now practically compulsory, the men contributed 58 per cent to the cost, the company 42 per cent. The details of the scheme allow an estimate of the extent of sickness. Two thousand six hundred and eighty-seven pounds paid out in one year at 12s per week gives 4,478 weeks absence in an average workforce of 4,000 men in 1894 or 2.1 per cent. This compares with 3.7 per cent in 1859 and 2.5 per cent at the Gas Light and Coke in 1892.4 To some extent, too, ad hoc payments continued. In 1881, for example, the Gas Light and Coke gave workers with smallpox full pay for a month.<sup>5</sup> Most companies also continued to make payments to local hospitals. In 1904, for example, the Commercial subscribed sums ranging from 15 quineas to 100 guineas to four local hospitals. In 1912, the companies sick funds ran up against the National Insurance Act, parts of which the South Metropolitan workmen had unsuccessfully opposed. All the funds, however, were able to form 'Approved Societies' under Section 25 of the Act, which guaranteed to the men

<u>G W</u>, 24 Aug. 1912 p.233.
 <u>Ibid</u>., 11 May 1895 pp.584-7.
 <u>JGL</u>, 6 Dec. 1859 p.652.
 <u>Evidence of Trewby to R.C. on Labour</u>, op.cit. p.221 Q26646.
 <u>GLCC CW</u>, 29 Apr. 1881.
 Commercial DM, 22 Dec. 1904.

the statutory benefits but allowed the continuation of the private schemes more or less as before.<sup>1</sup>

Towards the end of the period the legislature came to the assistance of the men with regard to accidents and the courts were used by the gasworkers against the companies. Under the Employers Liability Act of 1880 a workman was awarded £200 by the courts when a retort lid fell on him.<sup>2</sup> Characteristically, the South Metropolitan, who in all matters stoutly resisted attempts by the State to interfere between them and their men, effectively got their employees to contract out of the 1880 Act by compensating for accidents out of the sick fund. If the worker chose to take the company to court he lost his sick benefit. They never had cases under the 1880 Act, Livesey could tell the Royal Commission in 1892. The company was equally quick to contract out of the 1897 Workmen's Compensation Act with a contributory scheme to which the company put a week and the men and in return they would 1d ₿₫. get the minimum compensation under the Act, perhaps more, together with weekly benefit of a week if due to the man's negligence, 12s 18s 24s if the company was at if pure accident and Most men contracted out although one man who had an ankle crushed by fault. a tank successfully sued the company and was awarded £234 on appeal.

However, the scheme did not go as Livesey would have liked since a year later he was complaining in a letter to the <u>Times</u> that it had led to an increase in accident claims from 110 a year, or 3 per cent of the workforce, in the

G W , 24 Aug. 1912 p.233.
 JGL, 10 Jul. 1888 p.77.
 Livesey in evidence to R.C. on Labour, op.cit. p.259 Q27037.
 G W , 6 Nov. 1897 p.697 and 29 Jan. 1898 p.169.

five years prior to the scheme to 10 per cent in the first nine months of the new scheme. The men were claiming for trivial things. Livesev's answer was to devise a jury system whereby claims were assessed by fellow workmen and, if this did not lead to less accidents, it certainly led to less claims, these coming from only 4 per cent of the workforce by 1912.<sup>2</sup> The Gas Light and Coke and the Commercial made no such provisions but took every case as it came. In 1898, the Gas Light and Coke was sued for negligence when a man was overpowered when emptying a purifier and was awarded  $\pounds40.3$ In 1900. a man gained  $\pounds$  50 after an explosion when cleaning purifiers  $\frac{4}{1000}$  and in 1901 the widow of a worker killed when a gas engine fell on him was granted £185.<sup>5</sup> The Workmen's Compensation Act of 1906 seems to have further improved matters. The Commercial, wishing to insure against the provisions of the Act, found the premium would be £912 a year. Compensation for the company in the previous eight years had averaged £110. The company decided to insure itself and set aside £250 a year. This was not enough since in 1908 eightytwo accidents led to total compensation of £400. 7 In 1911, the Gas Light and Coke paid out £290 and £278 to two cases of fatal accidents under the 1906 Act  $\overset{\circ}{}$ , some improvement on cases prior to this but a vast difference to the 15 a widow could have expected eighty years previously.

Ibid., 7 May 1898 p.695.
 Ibid., 13 Sep. 1913 p.303.
 Ibid., 3 Dec. 1898 p.856.
 Ibid., 20 Jul. 1900.
 Ibid., 29 Dec. 1901.
 Commercial DM, 18 Jul. 1907.
 Ibid., 11 Mar. 1909.
 GLCC DM, 3 Nov. 1911.

Formal pension schemes were less common among the companies than sick funds. They were of less direct relevance to the company while ex gratia pensions were less onerous, due to the short lives of most gasworkers. Some

companies had formal schemes: the Phoenix had introduced one by 1858, and the Independent added a superannuation element to its sick fund in 1863. The South Metropolitan established a voluntary scheme in 1855.4 The men contributed 3d or 6d a week which entitled a pensioner to 10s or

14s a week after ten years service providing the age of 55 had been reached. The scheme was to save a workman the necessity of applying for parish relief in the event of incapacity for work due to age. It was not intended for retirement at a fixed age. The men

could go on working into their eighties and some did. Most of the men joined; the company contributed up to 40 per cent of the men's contribution and 100 per cent by 1891. The funds were at first invested in Great Indian Peninsular Railway stock, later in the company's own shares. In later years sixty-five became established as the age of retirement and in 1891 the scheme was made compulsory, according to Livesey, by a unanimous vote of the men. By 1905 the men could retire at fifty-five provided they took proportionately less pension. Yet the extent of the scheme must not be exaggerated. In 1904, the 10s - 18sa week out company had only 112 pensioners receiving of a total winter workforce of 5,500. In that year none the less, the chairman of the Government committee on industrial accidents suggested to the chairman of the South Metropolitan with regard to the company's pension scheme, 'You have followed the lead of the Germans'. 'We led the Germans', replied Livesey.

The Gas Light and Coke and the Commercial both relied throughout the period ex gratia non-contributory pensions. Pensions were granted from the on

- 1. JGL, 6 Dec. 1859 p.653.
- 2. Phoenix DM, 8 Sep. 1858.

- Independent DM, 17 Jul. 1863.
  Independent DM, 17 Jul. 1863.
  S. Metro. DM, 27 Nov. 1855; G.W., 11 May 1895 p.586.
  For an interesting outline of the development of a fixed retirement age see: Janet Roebuck 'When does Old Age Begin?: The Evolution of a Definition', Journal of Social History (Spring 1979).
  G. G.W., 30 Dec. 1905 p.1236.
- 7. Livesey to R.C. on Labour, op.cit. p.235 Q26718.
- 8. <u>G W</u>, 30 Dec. 1905 p.1236.
- 9. Ibid.,p.1235.

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beginning on the basis of length of service, character and the final wage of the worker. As at the South Metropolitan, they were only granted when the worker was of no further use. A typical entry in the minute books would be -'Labourer 35-40 years with the company worn out and nearly blind, of good character - 10/- per week' 1 or 'Pension to disused workman of Westminster Station - 10/- a week'. From time to time contributory schemes were considered, as in 1880 and 1910, but not until 1923 was one finally set up. Indeed, in 1880 the company resolved that no pension be given for mere length of service, yet this seems to have been ignored<sup>4</sup> and in 1893 the Court laid down that future pensioners with twenty-five years service get one-third of retirement wage and, two years later, that every workman was to retire at sixty-five or after one extra year.<sup>6</sup> One advantage of the noncontributory scheme was that it could be made conditional on the character of the workman involved, as indicated by a minute of 1873 granting a fitter with the Commercial, who had given 'long service and good conduct during the a week.<sup>7</sup> 15s Moreover, men had to strike', a pension of give extraordinarily long service, like the seventy-six year old worker, a week,<sup>8</sup> with the company forty-two years given a pension of 8s while, for example, a seventy-two year old labourer with only seven years and twenty-one years continuous service and retired of 'senile decay' received only

GLCC CW, 25 Jun. 1880.
 Ibid., 11 Feb. 1876.
 Ibid. DM, 23 Jul. 1880, 4 Nov. 1910.
 Ibid., 23 Jul. 1880.
 Ibid., 6 Jan. 1893.
 Ibid., 19 Jul. 1895.
 Commercial DM, 28 Feb. 1873.
 Ibid., 2 Mar. 1905.

4s a week.<sup>1</sup> When the state Old Age Pension came in in 1908 the companies simply cut the company pension by the value of the state pension, although the South Metropolitan's funded scheme had to remain unchanged. Some companies also had widows' pensions added to their sick funds and <u>ex gratia</u> payments were also given, again taking all factors into account. A widow of a former Commercial worker asked for assistance in 1912 but this was declined since the man had repeatedly refused to join the co-partnership scheme.<sup>2</sup>

Why did the companies set up these sick and pension funds? They were exceptional employers in the nineteenth century for doing so. The stability of the gas industry gave the companies the ability to set up these long term schemes while the need for a stable and reliable workforce also made it important for them to do so. It would be interesting to see the paternalistic attitude of the companies as being due to them taking over the noblesse oblige of the landowners and squirearchy in the rural scene from which the majority of their workforce sprang. Indeed, this was how the companies preferred to view things. 'It is sad to see such men constantly closing their days in workhouses' said the trade journal in  $1859^3$ , while to George Livesey his company's superannuation scheme had been set up out of 'kindness of heart'.4 Yet these sentiments were always expressed alongside other considerations more likely to appeal to the less sentimental shareholder. The schemes, of course, were a means of control and of attaching workers more closely to the interests of the companies. Sickness could lose the company a good worker if the home were broken up and the family were forced onto parish relief. A sick fund and,

Ibid., 11 Apr. 1907.
 Ibid., 11 Jul. 1912.
 JGL, 6 Dec. 1859 p.653.
 <u>GW</u>, 30 Dec. 1905 p.1237.

particularly, a pension made gaswork a better job and one a worker would be less likely to risk losing. Most benefits were conditional on good behaviour in one way or another and this was never more relevant than in the face of mass action by the men, as in 1859. In the same article as quoted above the trade journal made the point that welfare schemes were an antidote to strike action. 'It is unnecessary again to urge the expediency of uniting together in the closest bond the employers and employed and to remind the employers that the inducement of a superannuation fund will tie down the workmen to the shop; and the leaven of a few men actuated by so reasonable and legitimate a motive will tend to leaven the other workmen'. The Commercial, who set up their sick fund as a result of the 1859 strike, explained the move to their shareholders 'as one of the surest means of attaching our workmen to our service and interest'.2 Finally, towards the end of the period Livesey articulated a further motive for the welfare schemes of the companies which he saw as preferable to 'the ruinous collectivism of the Socialist Trade Union Congress'.<sup>3</sup> His company's scheme had arisen 'in a manly and independent self-help manner vastly better and more satisfactory than it could have been done, as the Socialists desire, by any Government or state'. 4

Interestingly, the gas companies, and George Livesey in particular, seemed Unaware of the contradiction between their paternalism and their belief in self-help. Livesey at one and the same time would demand obedience from the men in return for kindly treatment yet urge them to stand on their own feet in a spirit of self-help and independence. The moment the men began to organise themselves and to take action independent of the company, however, they were condemned for disobedience and disloyalty. The welfare schemes and the closely

- 1. JGL, 6 Dec. 1859 p.653.

- Z. Ibid., 24 Apr. 1860 p.265.
   GW, 11 May 1895 p.587.
   Ibid., 30 Dec. 1905 p.1237.

5. This paradox has recently been noted in the wider context of social control in A.P. Donajgrodzki (Ed.) Social Control in Nineteenth Century Britain (1977) p.18.

allied though more ambitious co-partnership schemes (dealt with in Chapter 9 ) were all presented as acts of self-help counterposed to state collectivism. They were, of course, since the companies took the entire initiative, clear acts of paternalism.

Whether the schemes had the desired effect is to be doubted. The events of 1889 showed the men to be remarkably ungrateful in the companies' eyes. This might have been predicted since, although they valued the benefits, the men felt under no obligation because of them and, indeed, in public could take an extremely jaundiced view. One speaker in 1867, referring to the Chartered sick scheme, had this to say: 'as to the medical assistance said to be provided for them in case of sickness, they had to pay 6d a week for it, and on obtaining a ticket to call upon the doctor, they were kept waiting in his kitchen for hours and then supplied with a few pills which they could get at any chemist's for a penny or were told the best thing they could do was to go into the hospital'.<sup>1</sup>

Welfare schemes were not the only, nor the main, method of control used by the gas companies, but before the others are considered it is necessary to look at the problems of discipline, other than collective action, which the companies faced. On the surface probably the biggest problem in the early years was associated with drink.<sup>2</sup> From the beginnings of the industry the gas companies supplied free beer to their men at work. It would be interesting, again, to see this consumption of beer at work and its supply by employers as a continuation of rural traditions which the men expected. Certainly, the beer must have performed three essential functions for the gasworkers: replacing

1. JGL, 17 Sep. 1867 p.799.

2. As it was too on the railways, Kingsford, op.cit. p.20.

3. P. Horn, Labouring Life in the Victorian Countryside (1976)p.152.

lost body moisture, providing energy and nutrition and, finally, acting as a drug to dull the edges of their harsh existence. For whatever reason, it is clear large quantities of beer were drunk on the works in the early decades. As well as free beer - the Chartered granted the stokers a pot (i.e. two pints) of porter per man each day 1 - the men also took their own beer, or a publican or their wives brought it onto the works for them. The South Metropolitan men had their own cellar where they kept their barrels. At other companies the men were allowed to leave the works to visit local pubs. The companies attempted to control the problem, as indicated by this rule at the Chartered: 'No beer or other liquor to be allowed on the works or publican be permitted to enter with same except between 10 and 10.30 am and 4 and 4.30 pm. A half hour bell will ring at each of these periods'. Yet drunkenness on the works was a problem and the companies' minute books give many instances of the dismissal of workmen for intoxication.

From the mid-century the practice of companies giving free beer began to die out. Perhaps this was influenced by the rise of the temperance movement strong, for example, in the leadership of the South Metropolitan, but more probably it was an attempt to limit the problems drink was causing, or it was a straight economy measure. In 1853, a wage increase granted by the Chartered was made conditional that henceforth the men would have to find their own beer.<sup>6</sup> In 1859, the Great Central determined that any future wage increase was to be granted in lieu of beer, which they calculated to be worth 1s 6d per man per week. The Phoenix gave free beer until at 8 least 1867, while it was only discontinued at the old Imperial works when the

GLCC DM, 5 Apr. 1814.
 Livesey to <u>R.C. on Labour</u>, op.cit. p.222.
 Interview with Reg Schmidt Cassette No. 10.
 GLCC CW, 16 Dec. 1815.
 e.g. GLCC CW, 20 Jun. 1816.
 GLCC DM, 12 Jul. 1853.
 Great Central DM, 5 Aug. 1859 and 12 Aug. 1859.
 JGL, 17 Sept. 1867 p.799.

week's holiday was granted in 1886. Perhaps it is possible to detect some diminution of the problem of drunkenness on the works as the century wore on and therefore a reduction in attendant problems of insubordination and, probably, the accident rate. Yet drinking was also the men's main leisure activity and this brought further problems of bad time-keeping, absenteeism and sickness. To a witness in 1892, 'Thirty years ago the men were in such bad condition it was painful to go into our retorthouses. We had to employ a special class of men for lifting the very heavy scoops and every chance the men got they drank a great deal of beer'. Often the men felt the need to defend their drinking habits. 'Everyone acquainted with gasworks knew that the men were obliged to be on the premises twenty minutes or half an hour before commencing operations so as to get ready and if they were a few minutes behind hand they were called to account. There was an allowance made on Sunday mornings because as they were all aware the men sometimes met their friends and got a little 'elevated' on Saturday so that they were not always 'up to the tick'.'<sup>4</sup> And at the same meeting on the eight hour day another stoker also alluded to the problem. 'If the men had some little time at their disposal they would be able to improve their minds and they would not be so often found in the public house where they were now driven owing to the exhausting nature of their work'. Often 'they were hardly able to stagger into the house and had it not been for beer they could not have gone in for another draw'. It had been asserted that beer did not assist the men, said the speaker, but he appealed to those present whether they could possibly get through the work without it. Often they could not eat the beef or mutton they took for their meals because they were so overcome with the atmosphere of the works whereas they could relish a drink of beer.

1. JGL, 3 Jun. 1890 p.1034.

2. In common with most of the working class in the 19th century, B. Harrison,

Drink and the Victorians (1971). 3. Valon in evidence to R.C. on Labour, op.cit. p.188 Q25752.

4. JGL, 17 Sep. 1867 p.799.

Will Thorne in his autobiography also apologises for the men's drinking in this extract:

In the way of drinking we had a custom at the gasworks that when a coke wheeler was promoted to the position of stoker which meant an increase of 1/- per day in his wages, he had to pay his 'floating'. This would be done by him giving a sum of 10/- to 15/- to which we would all add 1/-. When the money was collected we would arrange to meet at a public house and have a spree. Nobody would get very intoxicated, though we would all be jolly, singing songs and congratulating the stoker on his promotion.

Thorne himself signed the temperance pledge in 1885.<sup>1</sup>

By the end of the period drinking had ceased to be a major problem but it continued on and off the works none the less. At Fulham the stokers were allowed out between charges to the four pubs outside the works into the 1920s  $^2$ . while at Beckton there was a pub - The Shant - on the works. The heaviest users of The Shant seem to have been the purifying gang, who had one of the worst and dirtiest jobs, manhandling the spent oxide and lime. Three or four pints would be their regular drink at the end of a shift in the afternoon. The stokers would have perhaps two pints in The Shant before the last draw but they relied mainly on 'skilly', made up by the lobbyman with some lemons, for replacing lost body liquid. After work on the way home, however, ten pints was regularly consumed. 4

The companies' problem of disciplining the men, of course, did not stem fundamentally from drink so much as from the basic difficulty of fitting a labour force used to rural ways into the necessarily rigid regime of the factory, particularly one as unpleasant as that of the gasworks. Regular attendance and

<sup>1.</sup> Will Thorne, My Life's Battles, n.d. p.44.

Interview with Reg Schmidt Cassette No. 10.
 Interview with Alfie Blundell Cassette No. 2 and Ted Coley Cassette No. 5.
 Interview with George Hollingsworth Cassette No. 4.
punctuality had to be instilled into the ex-agricultural labourers as did orderly behaviour. Fighting on the works was not uncommon. As Thorne relates:

The gas workers were a jolly comradely lot of men but sometimes we had our disagreements. I remember one night when I was charging retorts, my mate on the opposite end slackened down, making my work much harder. After we had finished I went around and told him about His contribution to the argument was to give me a punch in the it. mouth. To fight in the works meant getting the 'sack' so I challenged him to fight the matter out later.

This they did for a 10s side stake which Thorne lost and both men were off work for a couple of days. Perhaps Thorne was lucky; the Journal of Gas Lighting related in 1870 a 'strange case of assault but one which we are sorry to read is of frequent occurrence among the stokers of the Chartered Company. A man at one end of a retort threw in a pailful of water and scalded the man at the other end'.<sup>2</sup> Perhaps the violence was related to the drinking since by the 1920s and 30s it had become relatively rare.<sup>3</sup>

In disciplining their men the companies used the familiar combination of stick and carrot.<sup>4</sup> Faced with collective action, as the succeeding chapters will reveal, the companies had little hesitation in using the police and the courts but internally a variety of weapons were used. The Chartered made the following regulations in 1815: 'Workmen and labourers coming to work after their time be fined. Those coming over ten minutes late be turned back and not admitted till after breakfast and ten minutes after breakfast not until dinner and ten minutes after dinner not for the rest of the day'. The advantages of not letting workers leave the works during the day soon appealed to most companies, as illustrated by these orders to stokers of the new London Company:

- 1. Thorne, op.cit. p.45. 2. JGL, 24 May 1870 p.405.
- 3. Interviews with Ted Coley Cassette No. 5, George Hollingsworth Cassette No. 4, Bob Lawrenson Cassette No. 3.
- 4. See S. Pollard 'Factory Discipline in the Industrial Revolution', Economic History Review (1963); E.P. Thompson 'Time, Work, Discipline and Industrial Capitalism', Past and Present (1967).
- 5. GLCC CW, 3 Mar. 1815.

- All stokers to be on the stage and their fires to be cleaned 1. and charged by 7 o'clock.
- No stoker to go out of the works during the twelve hours he is 2. on duty under any pretence whatsoever.
- No stoker to bring beer or other liquor on the stage until after 3. the clock has struck ten in the morning.

Instant dismissal for drunkenness and disobeying a foreman. As on the railways<sup>2</sup> fines were frequently dispensed. For example, in 1818 the City Company ordered that lamplighters be fined 6d for every lamp left lit after 3 while in the same year a man was fined a week's wages for 'neglect of duty', to be kept out of his wages at a week. 5s When the Chartered started its sick fund the fines were added to the income but the £6-7 coming from this source in the 1880s indicates their relatively limited use. Indeed. the use of fines seems to have died out. Once the Chartered began giving a week's paid holiday, lateness and absenteeism were punished by taking days off the holiday allowed. <sup>6</sup> In addition, being ten minutes late as a stoker meant being sent home and losing a shift's work.

Throughout this period, of course, the biggest sanction the companies had over their men was dismissal. This power they delegated to the foremen who, up to the Second World War, had almost absolute right to 'hire and fire'. Indeed, the foreman with this power overrides all other considerations of discipline. The tyranny of the foremen dominated the lives of the men in this period and the relationship between them and the company. Men waiting at the gate ready to take the places of those inside was the almost ever-present reality in the discipline of the men both as individuals and collectively. Interviews

- 1. London CW, 21 Oct. 1834.
- 2. Kingsford, op.cit. p.22.

- City CM, 9 Mar. 1818.
   Ibid., 28 Jul. 1818.
   JGL, 2 Aug. 1881 p.213.
   Justice, 27 Apr. 1889.
   Interviews with Ted Coley Cassette No. 5, Bob Lawrenson Cassette No. 3, Alfie Blundell Cassette No. 2.

with old gasworkers leave no doubt of this. 'The fear of unemployment created its own discipline because for the least thing you'd get the sack...going in the lobby when you shouldn't be in there could be the sack, all depends how the foreman felt. 'You were disciplined right up to the hilt because if a foreman said...you were out the gate no messing'.<sup>2</sup> 'The discipline was strict. You couldn't say much because there was mass unemployment, there was always two or three ready to do your job.<sup>3</sup> Thorne relates how Livesey attended the South Metropolitan works every Monday morning to listen to any worker who believed he had been wrongly dismissed but as far as he remembered there were very few cases in which the foreman's decision was overruled. 4

This absolute power of the foremen was, of course, open to abuse and there are hints of petty corruption although no evidence this was extensive. At one time at the Commercial the foreman kept lodging houses for the men but this was ended, so it was said, because it was open to abuse. In 1866 the head foreman at Westminster works was sacked for taking a commission on men's wages in return for their getting a job. <sup>6</sup> It is easy to see, therefore, why when the men had any bargaining power one of their grievances was invariably the bullying foremen and their powers of dismissal.

Yet from the companies' point of view dismissal was a blunt instrument. In the face of collective action by the men, completely replacing the workforce

- 1. Interview with Reg Schmidt, Cassette No. 11.
- 2. Interview with George Hollingsworth, Cassette No. 4.
- 3. Interview with Ted Coley, Cassette No. 5. 4. Thorne, op.cit. p.51.
- 5. Co-Partnership Herald (of Commercial Gas Company) (1933), Vol. 1, p.222.
- 6. GLCC DM, 7 Dec. 1866.

was expensive and hazardous, while individually sacking otherwise good workers was often a waste since the replacement, though quickly found, had to be trained - which in stoking could take two to three weeks - and was of unknown reliability. As a result, encouragement to good behaviour was frequently used as being cheaper and more effective than dismissal. Up to 1825 the Chartered gave their stokers and labourers a quarterly gratuity of 6s per man, conditional on good behaviour.<sup>2</sup> Instead of fining for bad time-keeping the South Metropolitan in 1872 introduced a payment of 1s 6d per week 'good time money' which was forfeited in the case of lateness or absenteeism.<sup>3</sup> Treats were a common inducement, usually linked to some assessment of individual conduct. On application by the men the Chartered, in its early years, granted a gratuity for an annual bean feast, 4 and the City Company laid down that 'each gang of retort men be allowed a treat not to exceed 2/6 per head each'. Gifts were given at Christmas and, once more, it is interesting to speculate as to how much this was the continuation of a rural tradition, since many companies gave joints of meat. Again, this was conditional. At the Great Central the manager was instructed in 1859 to give the men 'on his list a joint of mutton this Christmas', while at the Phoenix in 1872 each man who had not taken part in the strike got a joint of meat 'about 81bs' and a pound Other Christmas boxes came in cash: 4s at the City, of tea. 5s at Fulham and an extra day's pay at the Equitable, conditional on good

Livesey to R.C. on Labour, op.cit. p.232 Q26696.
 Gratuities were also common on the railways, Kingsford, op.cit. p.28.

Garton, op.cit., <u>GW</u>, 17 May 1952 p.508.
 GLCC CW, 9 Jun. 18T6.
 City CM, 17 Jan. 1818.

- 6. Horn, op.cit. p.158.
   7. Great Central DM, 16 Dec. 1859.
   8. Phoenix, 18 Dec. 1872.
   9. City Out Letter Book; letter to the Equitable, 10 Dec. 1853.
   10. Interview with Reg Schmidt Cassette No. 11 speaking of the 1920s.

attendance during Christmas week. The most singular gift from company to men was from the Phoenix which, from an early date, gave their workers a suit of clothes each summer. The foremen got a suit worth 27s 6d in 1870, the men received a fustian suit costing 12s 6d. A new suit each year must have made the employees of the Phoenix the best dressed workers in London.

A more positive method of control, particularly with regard to absenteeism and lateness by workers often forced to live some distance from the works, was for the companies to build their own housing. The Ratcliffe let cottages to their men at 4s per week in 1840, while the South Metropolitan built cottages for their workers in 1850. They had four rooms, a kitchen and garden front and back, and were let for 5s a week, although by 1889 they had been split into two flats let for 4s 9d to 5s. At Fulham in 1863 only eleven of the fifty-five men expected turned up for work on Christmas Day. Kirkham had to scour London for men at high wages to keep up the pressure. As a result the company built thirty-five cottages at a cost of £6,500, which still stand today. $^{6}$ Companies with works in rural areas had the worst problem, of course, and none more so than at In the early years most of the men lived in Canning Town, Beckton. three miles from the works, and during one bad winter a storehouse was fitted up for the men to sleep in rather than their making the journey home on foot.7 Later a special railway was built for which the

1. Equitable DM, 24 Dec. 1867.

- 2. Phoenix DM, 24 Aug. 1870.
- 3. Never as extensive as on the railways, Kingsford Chap.7.
- 4. Ratcliffe CM, 20 Jul. 1840.
- 5.
- Livesey to R.C. on Labour, op.cit. p.263. JGL, 19 Apr. 1864 p.279; Interview with Reg Schmidt Cassette No. 10. Times, 6 Dec. 1872 p.10. 6.
- 7.

2d. later men were charged 4d, a day for the return journey. Βv 1889 the company had also built 118 cottages at Beckton but these were mainly for foremen and 'principal men' who needed to be near the works, and this was probably the case for most gasworks' houses.

Another inducement that companies adopted, many doing so after the 1859 strike in place of the men's demands for Sundays off, was the annual excursion into the country or to the seaside. A popular spot was Epping Forest and this description of the Imperial's outing in 1861 gives a flavour of the affairs:

The men accompanied by their wives started in several vans and other vehicles for the Bald Faced Stag, Woodford, the ride being enlivened by the works' brass band. There was a substantial dinner, dancing, donkey-races and other sports occupied the afternoon and evening and at 10 o'clock the return to works was effected in good order to which the excellent generalship of Mr. Hasslen, the foreman and the presence of Mr. Harris, their much respected superintendent very much contributed. On the arrival of the excursionists at the works one of the number in a few manly words alluded to the two day enjoyment and called for cheers for the directors, Messrs. Harris and Hasslen and other officers of the company which were given and responded to in genuine old English style. The band concluded the proceedings with God Save the Queen.<sup>2</sup>

The men of the Commercial, Equitable, Phoenix and Crystal Palace all went on In 1871, the latter company provided transport and meals to such outings. the 'Three Horse Shoes' at Knockholt Beeches for the 100 staff and men at the end of which all drank a toast to the prosperity of the company.<sup>3</sup> In 1879, they went on a day train excursion to Brighton after which the men gave three cheers for the directors. These outings died out when the companies gave

Evidence of Trewby to R.C. on Labour, op.cit. p.226 Q26651.
 JGL, 30 Jul. 1861 p.565, the Pancras outing which went in two excursions on successive Sundays.
 Ibid., 1 Aug. 1871 p.591.
 Ibid., 29 Jul. 1879 p.170.

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week long summer holidays but were revived to some extent in the fetes associated with the co-partnership schemes.

In the excursions can be seen an attempt by the companies to win the hearts and minds of the men or, as the trade journal put it, that 'the employed should be bound to the employer by the silken cords of regard and esteem'.<sup>2</sup> In 1859, it lectured the companies as to their duty.<sup>3</sup> The best way of combating the union, it claimed in a long article, was by paying more attention to the needs of the men besides just wages. The men were intemperate and dirty because of the nature of their work and companies must attempt to improve the moral outlook of their men by improving their comfort and working facilities, and they also had a duty over the homes, tastes, education and habits of the workmen and their wives. The men should be treated with 'more kindness and liberality' as at the Greenwich works of the Phoenix where, for some time, they had paid great attention to the moral and intellectual condition of the men. Meetings for religious instruction were held on Thursday evenings and Sunday afternoons and during the winter several classes in reading, writing, arithmetic and music were held. Meetings, it was admitted, were better attended in the winter than in the summer. But only the previous Monday the men had been lectured by a cleric on the subject 'Air, Earth, Fire and Water'. After this the senior superintendent took the opportunity of a few words with the men, 'upon whom he impressed the desirableness of reflection as to whether they had sufficiently appreciated the privileges which the past year had afforded them and urging them to value these privileges more highly during the coming year'. If the lectures were successful it was intended to set up In response to the <u>JGL</u>, however, a gas manager a library for the men.

S. Metro. DM, 19 May 1880.
 JGL, 6 Dec. 1859 p.652.
 Ibid., 1 Feb. 1859 p.54.

replied that some years previously he had fitted up a small room for a curate to deliver a lecture every week but only three or four men attended and he received no better response to starting a library with fl2 worth of books and this was abandoned.<sup>1</sup>

But clearly some companies saw religion and education as means of disciplining their men. The idea that education might make the men less manageable does not seem to have been considered. The Phoenix, the Equitable and the Chartered all had libraries in the 1860s and most companies made subscriptions to the local schools. The London gave 2 quineas to the parochial school and guineas to another school in Vauxhall Square attended 5 by the children of some of the workmen;  $^2$  the Equitable gave 2 guineas a year to Hart Schools of Covent Garden <sup>3</sup> and, as many of the children of the Imperial's Shoreditch men used the Sunday and National Schools of Haggerston, a yearly subscription of £5 was granted. 4 The Phoenix gave 5 quineas to the West Greenwich Ragged Schools<sup>5</sup>, and in 1874 the Chartered started an annual donation of 10 guineas to Barking National Schools. Livesev. too, was convinced of the beneficial effects of education and in 1888 he gave land and built a free library for the Camberwell Vestry because, as he said, 'I am desirous of doing something that may be useful to the inhabitants especially the working classes and will add some enjoyment to their lives.

Ibid. p.58.
 London CW, 29 Jun. 1853 and 1 Mar. 1854.
 Equitable DM, 30 Dec. 1858.
 Imperial DM, 18 Feb. 1859.
 Phoenix DM, 28 Aug. 1872.
 GLCC DM, 15 May 1874.

After much consideration I think a free public library would best promote union among classes and give the people the means of spending their spare time pleasantly and profitably'.

The companies also fostered leisure pursuits of a constructive, nonalcoholic nature, especially the setting up of working men's clubs. In 1866, the Equitable granted £15 to the Workmen's Tea Meetings<sup>2</sup> and in 1864 the , Independent gave 2 guineas to the Shoreditch Workingmen's Club. In 1869, the London Company helped set up a Workman's Club and Institute with Morton, the company's chief engineer, as president, and Hunt, another engineer as honorary secretary. At the opening the Reverend G.M. Murphy gave a prayer and Hodgson Pratt, honorary secretary of the Workingman's Club and Institute Union, made a speech. The club's brass band played airs and glees to which the 270 members sang. The company had provided rooms and fitted them up. The reading room had twenty-seven newspapers and periodicals, while in the games room there was bagatelle, chess, dominoes and backgammon. Lectures and concerts were held in the winter; there was also a drawing class and a cricket A typical concert was an evening of recitations by Henry Lloyd and music club. In 1893, Livesey opened an Institute at West Greenwich by the brass band.<sup>4</sup> for entertainments and also to promote philanthropic projects for the local children.<sup>5</sup> By the end of the period Beckton also had an Institute where the men could relax and play games including billiards.<sup>6</sup>

- 1. JGL, 3 Apr. 1888 p.608.
- Eouitable DM, 23 Jan. 1866.
   Independent DM, 3 Jun. 1864.
   JGL, 21 Dec. 1869 p.972 and 14 Feb. 1871 p.117.
   GW, 16 Nov. 1901.
- 6. Interviews with Alfie Blundell Cassette No. 2 and Bob Lawrenson Cassette No. 3.

The companies actively encouraged sporting pursuits among their men, and it is interesting to note how the winning of Sunday and Saturday afternoons off and, finally, the eight hour day was reflected in the increased interest in a wide range of sports. Cricket seems to have been the most popular. The London had a team by 1869; Pancras works had a cricket club which held an annual dinner by 1877 ; the Commercial had a cricket club by the turn of the century to which it subscribed £5 , while by the end of the period the Gas Light and Coke had a league composed of its various works playing regular fixtures.<sup>3</sup> By 1897 a match between Beckton and Brentford Gasworks was a long established event, and after the match the teams would repair to a local public house for dinner and refreshment provided by Morris, the Brentford engineer.<sup>4</sup> But the range of activity by the end of the period was very varied. In 1909, the Commercial fitted up a room at Wapping as a gymnasium for £25-30 and a gymnastics club was formed.<sup>5</sup> Being near the river, the Pimlico works of the Gas Light and Coke formed a rowing club in 1895 to which the company subscribed fl0 a year.<sup>6</sup> The Gas Light and Coke also had a men's netball team while Beckton contributed the backbone of the Barking Football Club. The Rotherhithe works of the South Metropolitan had a cycling club by 1901.

Interestingly, in the years leading up to the First World War, it is possible to detect an increasing emphasis on militarism. The Gas Light and Coke had their own branch of the Territorial Army - the Rangers - and company men who joined were given half of their summer training time with pay and a half day a year on their shooting course. In 1906, a miniature rifle club

- GW, 5 Dec. 1903 p.953.
   Commercial DM, 27 Oct. 1904.
   Co-Partners Magazine (1913) p.14.
   GW, 10 Jul. 1897 p.67.
   Commercial DM, 19 Nov. 1909.
   GLCC DM, 2 Aug. 1895.
   JGL, 16 Nov. 1901.
- 8. Ibid., 22 May 1908.

was formed at Beckton. The company built a range on the works and presented a Challenge Vase for competition. The Rangers went intact into the Great War and all the companies gave every encouragement to their men to join up and fight in 1914.

Did the companies succeed in winning the hearts of the men? Looking at the long history of conflict between the companies and their workforce and in getting the reactions of old gasworkers the answer would seem to be, only to a very limited extent. Yet in detailing the history of conflict it is important to bear in mind that, superficially at least, for most of the time period of this history the men worked in harmony with their employers. Despite.

the bad conditions, the bullying foremen, the constant threat of unemployment, the physically exhausting work and, up to 1889, grindingly long hours, one reaction of the men, or at least some of them, was affection for their masters. The feelings of the hundreds of the South Metropolitan's men who followed the coffin of Thomas Livesey in 1871, and the in 1908, must thousands who followed his son's funeral procession always be borne in mind. The attachment of men to their more immediate employers is illustrated in the gifts which were exchanged. In 1853, when Kirkham left the Imperial, he was given a silver claret jug by the men 'as a token of kindness to them over twenty-three years service with the company'.<sup>3</sup> At the Great Central in 1858 the more deserving of Croll's workmen assembled 'with newly washed faces beaming with happiness and gratitude' to receive their annual joint of mutton and in return presented the manager with an inscribed ormolu clock 'because they appreciated such a master'.4 In 1861, the

1. Ibid., 8 Jun. 1906.

2. <u>Co-Partners Magazine</u> (1914) p.210. 3. <u>JGL</u>, 11 Jul. 1853 p.174.

4. Ibid., 4 Jan. 1859 p.14.

manager of the Surrey Consumers received a silver cup from the men 'for his kindness to them<sup>1</sup>, and in 1863 F.J. Evans was presented with a silver flower stand inscribed 'Presented to F.J. Evans Esq. in testimony of their respect and esteem by 497 men employed at the Westminster Station of the Chartered Gas Light and Coke co. on the occasion of his retirement from the office of Superintendent'. The band of the company's workmen played at the ceremony.<sup>2</sup> At the Imperial in 1873 Joseph Clarke received a silver cup worth £44 on his retirement. Four hundred men attended the ceremony when the company's band played and Clarke provided the refreshments.<sup>3</sup> The Shoreditch stokers gave their engineer a gold watch in 1876 due to 'his kindness when they served under him'.<sup>4</sup> Of course. many of the contributions from the men on such occasions must have been a little less than spontaneous, but neither can they be entirely ascribed to coercion from foremen.

The experience of the gas industry has some comment to make, therefore, on the issue of labour discipline and social control which has received considerable attention recently from social historians. Some writers have placed emphasis on the importance of indirect forms of control. Thus: 'Social order is maintained not only, or even mainly by legal systems, police forces and prisons but is expressed through a wide range of social institutions from religion, to family life, and including, for example, leisure and recreation, education, charity and philanthropy, social work and poor relief'.<sup>5</sup> Virtually all these methods of control are reflected in the attempts by the gas companies to discipline their workforce. Equally, however, the history of these methods tends to support those h istorians who emphasise the ineffectiveness of these attempts at 'bourgeois hegemony' and the resistance of the working class to them.<sup>6</sup> It is noteworthy that in the quotation above the control most relevant to the gasworker in the

- Ibid., 10 Sep. 1861 p.645.
   Ibid., 23 Feb. 1864 p.100.
   Ibid., 4 Nov. 1873 p.980.
   Ibid., 20 Jun. 1876 p.935.

- 5. Donajgrodzki, op.cit. p.9.
- 6. F.M.L. Thompson 'Social Control in Victorian Britain', Economic History Review, (May 1981)

nineteenth century, that of work discipline figures not at all either as a direct or indirect instrument of control. Moreover, even those historians who give the factory a central role in social control<sup>1</sup> or sociologists looking directly at control in the factory $^2$  tend, on the evidence of the nineteenth century gasworks at least, to overvalue ideological, cultural and political influence and to underestimate or ignore the unsubtle but all-important sanction of dismissal.

Finally, this chapter concludes with the most crucial of all the relationships between company and men - the remuneration. Throughout the period gasworkers were paid regularly on a weekly basis, to begin with on Saturday night, later in the century, Friday night. Early on, some companies used the foremen to pay the men and these, in league with local landlords, would often deduct what the man owed in beer before he was paid his wage. Various attempts were made by the companies to pay stokers by results. Piecework was tried. In 1837, the London Company introduced a system whereby the stokers were paid 2s 9d per ton of coal carbonised.<sup>3</sup> The idea was a failure since it is not difficult to imagine how stokers, by increasing furnace temperatures and reducing the length of charge, could increase the tonnage carbonised while even reducing the make of gas and burning out the retorts. Coal could also get lost under retorts, in coke or in the furnace. Piecework was, however, used extensively in coal porting, purifying and, in later years, engine driving.<sup>4</sup> Incentive payments were more viable with regard to stoking. Up to 1865 at the Equitable the men

1. P. Joyce, Work, Society and Politics: The culture of the factory in later Victorian England (1980). 2. C. Ken Watkins, Social Control (1975) Chap. 4. 3. London CW, 14 Sep. 1837.

4. Interviews with Ted Coley Cassette No. 5, Alfie Blundell Cassette No. 2, Tom Hall Cassette No. 8.

got 2s a week extra if they did not produce less than 4,500 cubic feet per day.<sup>1</sup> At the South Metropolitan the men got an extra 2s 6d a week if they produced 10,000 cubic feet a day and, from 1872, an extra 6d for every 200 cubic feet above  $10,000.^2$  Most companies, however, relied on the foreman to provide any incentive necessary. Thorne describes how at Beckton the head foreman would keep a check on the men by observing the station meter. If one shift was making more than another he would order the foreman on the slack shift to speed up.<sup>3</sup>

Sub-contracting was another method of employment which was tried but failed. In 1816, at the Chartered, a contractor arranged with the company to charge and draw its retorts at 9s 6d per retort per week, but the system did not last long.<sup>4</sup> The contractor was taken on as superintendent, and he and the men were paid by the company in the normal way.<sup>5</sup> Clearly the system did not give the company enough control over their men, who were in a situation to do considerable damage to their capital by neglect or malice. The contracting arrangement whereby Angus Croll sold gas at a fixed rate to the Great Central and the Surrey Consumers and undertook the manufacturing expenses, including wages, himself, was a little more successful, but once Croll left, the problems of his successor leave little doubt why sub-contracting was ended. An officer of the Great Central reported how, around Christmas,

the men having received their week's wages in the evening had neglected to return at the proper time and in consequence a large number of the charges had remained undrawn for two hours and the make of course considerably lowered by reason of this and the drunken and riotous condition of the men.

Equitable DM, 26 Sep. 1865.
 South Metro. DM, 28 Oct. 1872.
 Thorne, op.cit. p.65.
 GLCC CW, 2 Mar. 1816.
 Ibid., 6 Jun. 1816.

A disturbance occurred in the retorthouse at this time. I went in and found two men fighting while a large number of the remainder were struggling on one side or the other, the retorts left open. When I came, the foreman interfered. On Sunday the men had again neglected their duty during the night by running away and hiding themselves. I went and got 6 stokers from the Equitable and Wright was to arrange 4 from Kensal Green.<sup>1</sup>

On an hourly basis, the highest paid men in the gasworks were undoubtedly the skilled men, mechanics, bricklayers and carpenters. However, since they usually worked a six day week and less hours than the stokers, their take-home pay was often not that different. For example, in 1838 the mechanics at the South Metropolitan earned 24s-27s for a ten hour, six day week, while a stoker earned 26s for a twelve hour seven day week.<sup>2</sup> By 1890, the mechanics earned from 35s 5d to 45s and the stokers 33s 6d to 38s 10d, but now the stokers, or some of them, worked shorter hours - eight as opposed to nine-and-a-half for the mechanics - so the differential in hourly rate between the two had changed The next highest paid were the retorthousemen. A foreman would earn little. 5-15 per cent above the highest paid stoker. In 1859, at the Imperial for example, the scoop drivers earned 31s at Pancras, 32s 6d at Shoreditch and 33s at Fulham, while the foremen at all stations earned 35s.<sup>3</sup> In the retorthouse gangs there was a clear hierarchical structure reflected in wage differentials which endured through time as follows:

	Scoopdriver	Stoker	Cokeman
1859	37s a week	35s	285 <sup>4</sup>
1872	38s 6d	36s 2d	29s_9d <sup>5</sup>
1890	39s 1d	37s 4d	31s <sup>6</sup>

1. Great Central DM, 4 Jan. 1859.

Livesey to R.C. on Labour, op.cit. p.233.
 Imperial CW, 10 Aug. 1859.
 Cabinet Newspaper, 9 Aug. 1859 (Imperial).
 Imperial CW, 11 Oct. 1872 (Imperial).
 JGL, 10 Jun. 1890 (GLCC).

Next down the scale came the yard labourers. At the South Metropolitan a stoker in 1838 earned 26s a week, while a yard labourer earned 17s 6d.<sup>1</sup> The yard labourer worked only days of ten hours, however. In 1889 the stoker earned 35s 6d per week for an eight hour day, while the yard labourer earned 27s 7d for ten hours. Lowest paid of all the gasworkers came the lamplighters who consistently earned 2s or 3s less than even the yard labourer. In 1877, for example, at the Commercial where a stoker earned 35s 5d for eighty four hours a week a yard labourer 24s 6d for sixty hours, the lamplighters earned 22s for fifty six hours.<sup>2</sup>

To chart the progress of gasworkers' wages through time, the stoker's wage can be taken as representative. There is little concrete evidence prior to 1825. In 1814 the Chartered stokers asked for 31s 6d a week.<sup>3</sup> In 1817, the same company, in an experiment, costed labour at 33s a week,<sup>4</sup> while in a letter to the Pioneer in 1834 the men claimed that wages at the beginning of the industry were 33s a week.<sup>5</sup> Perhaps, therefore, 33s a week can be taken as relatively accurate. Clearly wages had fallen rapidly by 1825: the Phoenix in that year increased wages from 24s 6d to 26s,<sup>6</sup> while the Chartered paid 27s.<sup>7</sup> In 1830, the Chartered made wage cuts<sup>8</sup> and in 1834 was paying only 25s a week.<sup>9</sup> At the Chartered wages seemed to remain constant into the 1850s, but the South Metropolitan stokers gained a pay increase from 26s to 28s in 1840.<sup>10</sup> Wages increased in the early 1850s: at the Chartered by 3s to 28s a week in 1853.<sup>11</sup> But they were cut in 1855. They increased again in the late 1850s so that by 1860, 30s a week was a general wage in London.<sup>12</sup> The 1860s saw further gains. In 1865, the Imperial wages

Livesey to R.C. on Labour, op.cit. p.233.
 Commercial DM 1877.

- GLCC DM, 5 Apr. 1814.
   GLCC CW, 3 Apr. 1817.
   Pioneer, 15 Mar. 1834 p.252.

- 6. Phoenix DM, 11 May 1825.
  7. GLCC DM, 9 Sep. 1825.
  8. Ibid., 23 Jul. 1830.
  9. Pioneer, 15 Mar. 1834 p.252.
  10. Livesey to R.C. on Labour, op.cit. p.233.
  11. GLCC DM, 15 Jul. 1853.
  12. Cabinet Newspaper 6 Aug. 1859 p.7: Indep 12. Cabinet Newspaper, 6 Aug. 1859 p.7; Independent DM, 14 Jan. 1859; Great Central DM, 12 Aug. 1859.

increased by 2s and the Chartered by 1s 6d.<sup>1</sup> In 1866, the South Metropolitan was paying 35s a week and by 1871,35s 6d, the same as at the Chartered,<sup>2</sup> while 36s 2d was the Imperial wage.<sup>3</sup> In 1872 there was a further increase, complicated now by whether the worker was on the seven night shift - in which case the wage ranged from 37s 4d at the Chartered, to 38s 9d at the Imperial - or on the six day shift with Sunday off, for which the Imperial paid 33s 3d and the South Metropolitan 32s 6d.<sup>4</sup> Rates remained more or less the same until 1898 when, significantly, for the first time, although gaps had been narrowing throughout the period, all companies paid the same rate. In 1898, wages increased to 42s and 36s<sup>5</sup> and again in 1911 to 45s 6d and 39s.<sup>6</sup>

Table 18 sets out indices of money and real wages for the Gas Light and Coke and the South Metropolitan. Allowing for inaccuracy, it seems clear that from mid-century (before which there had been little improvement) the standard of living of the gas stokers probably doubled by the end of the period, despite, according to one index, wages not keeping pace with inflation during the last decade or so. Moreover, the index of money wages does not take account of multiple rates paid for Sunday working from 1889, or the small addition due to the co-partnership schemes. More importantly, they do not show the improvements in facilities, the reduction in the arduous nature of the work which mechanisation brought, nor the holidays and the one-third reduction in hours worked. Clearly there had been a vast improvement in the standard of life. Yet the parting impression should not be one of the sweetness of life at the end of the period but of its bleakness in the earlier years. This could not be better illustrated than to quote from two gasworkers relating their experience of the later age. The first worked at Beckton. His father had come from Worcestershire and worked at Beckton on and off as a stoker.

1. Equitable DM, 3 Oct. 1865; Independent DM, 6 Oct. 1865.

- GLCC DM, 17 Nov. 1871.
   Imperial CW, 11 Oct. 1872.
   JGL, 3 Dec. 1872 p.997; Imperial CW, 11 Oct. 1872; Livesey to <u>R.C. on Labour</u>, op.cit. p.233.
- 5. JGL, 18 Oct. 1898; GLCC DM, 21 Oct. 1898.
- 6. GW, 2 Sep. 1911; GLCC DM, 8 Sep. 1911; Commercial DM, 24 Aug. 1911,

## TABLE 78

<u>Index of money and real wages (1911=100) for the Gas Light and Coke and South</u> <u>Metropolitan Gas Companies</u>

	Index of Money Wages		Index of Real Wages			
Year	GLCC	S. Metro	GLCC	ls. Metro	GLCC (	S. Metro
1814	72.5		48.6			
1825	59.3		41.7			
1834	54.9		53.4			
1838		57.1		47.7		
1840		61.5		47.0		
1849	54.9		52.2		-	
1850		61.5		62.5		
1860		65.9		49.3		55.9
1866	an an Arran an Arran An Arran an Arran	76.9		58.3		65.2
1871	78.0		58.1		66.7	
1872		82.7		59.0		66.5
1890	n an Angelan an An Angelan an	85.2		88.5		93.1
1898	92.3	92.3	92.5	92.5	102.0	102.0
1911	100	100	100	100	100	100

## Sources:

- (1) E.H. Phelps Brown and S.V. Hopkins, 'Seven centuries of the prices of consumables compared with Builders' Wage-Rates', <u>Economica</u> XXIII (1956).
- (2) C.H. Feinstein, National Income Expenditure and Output of the United Kingdom (1855-1965), (1972), Table 125.

(3) For money wage rates of stokers see pp 255-256

When I was born (1894) my poor old mother had to pawn the blankets... Several times he (father) had to march to Romford Workhouse with the unemployed and they used to have to break stones or do a bit of gardening for a food ticket...There used to be a man at Barking and he would come around, but you wouldn't get hardly anything. When some of the men at Beckton had their sons out of work he would come around and say 'you'll have to keep him'. One lad was given 2/6 to live on. Some couldn't get nothing out of him. This place (Barking) used to be governed by nearly all farmers on Essex County Council and Romford Workhouse and when you went in front of them you wouldn't get much out of them. My Dad did so many hours breaking stones or gardening before you got a food ticket and go into any shop and get your bit of food, but you never got no money.

Existence was no easier for those regularly employed, as was the father of a Fulham gasworker who also worked at Fulham as an oddman in the retorthouses.

My mother always kept a good table but it was the old pawn shop that got us out of trouble. It was a regular routine with my mother, our best clothes every Monday morning, on the pram, down the pawn shop. Every Saturday morning down the pawn shop to get them back so we could wear them Sunday - back again Monday. If it hadn't been for that and shopping at the same shop and getting credit we could not have survived.

Interview with Ted Coley Cassette No. 5.
 Interview with Reg Schmidt Cassette No. 10.

## Chapter 7: Early Conflict 1812-1872

From the very beginnings of the industry gasworkers bargained collectively with their employers, although in the early years the gas companies tried to avoid this by making any concessions granted conditional on the merit of individuals. This, however, soon had to be abandoned. The method of bargaining used by the men was to present a petition, signed by those involved, to the companies.<sup>1</sup> In 1816, the attempts of the Chartered to cut wages drew petitions from the Journeymen Mechanics and from the labourers, and the Court's reaction was to order a list of the company's best workmen to be drawn up, indicating some thought of making the cuts discriminatory.<sup>2</sup> A good example of a petition, which clearly illustrates the paternalistic nature of the companies' relationship with its men which was accepted by both sides, comes from the Journeymen Bricklayers handed to the Court of the Chartered in 1817:

We the bricklayers of this station feel ourselves dissatisfied at the wages we now receive, when our brother tradesmen are receiving more at a common building enjoying the sweet air, when we are working in all the disagreeables imaginable, the destructive wear and tear both of constitution and apparrel that we cannot afford these necessaries we stand in need of. Gentlemen we do not wish to leave the company at a non-plus as we know that strangers would be useless, firework Gentlemen is always allowed something extra but we ask but moderately that is only 5/- a day - there is no doubt men to be had but not accustomed to firework as we have observed would be useless. Gentlemen we hope this will be taken into consideration as soon as possible as otherwise we must certainly leave to better ourselves which we have not the smallest doubt Gentlemen this is our sentiments and we humbly subscribe ourselves your humble servants. The petition was signed by nine bricklayers <sup>3</sup> and shows clearly what a keen

The same as the procedure on the railways, Kingsford, op.cit. p.67.
 GLCC DM, 20 Dec. 1816. spelling
 GLCC CW, 31 Mar. 1817, grammar, and punctuation as recorded in the minutes.

eye for the state of the labour market the men had. The company's reaction was also typical of the early years since again it was discriminatory - it gave six of the men the increase and sacked the other three.

The first recorded strike in the history of the London gas industry took place in the boom year of 1825. In April, a petition was handed in to the Court of the Chartered from the stokers and labourers asking for an increase in wages.<sup>1</sup> The Court referred the petition to the Committee of Accounts and took no action. The following month the foremen and stokers of the Phoenix also petitioned for a wage rise which the company conceded without a fight.<sup>2</sup> In July, the Chartered, conscious of the agitation among its workmen, gave an increase in wages to its labourers, or ordinary stokers, to

a week - what the leading stokers earned. <sup>3</sup> This led 27s in turn to a petition from the leading stokers. The Court again procrastinated and on 8 September twelve men, probably the leading stokers, struck, 'abruptly leaving their employment' as the company minutes phrased it. What happened then is confused, but the company certainly used the local police to each expenses, 'for their apprehend the men and paid them £2 2s trouble'.<sup>5</sup> The men, however, were not prosecuted and, moreover, the following day, leading stokers' wages were raised to 30s, paid for in part by ordering that newly employed stokers start at Presumably the company hired the policemen to bring the 24s a week. strikers back to work and at the same time conceded their demands.

GLCC DM, 22 Apr. 1825.
 Phoenix CM, 11 May 1825.
 GLCC DM, 12 Jul. 1825.
 GLCC CW, 29 Aug. 1825.
 Ibid., 29 Sep. 1825.
 GLCC DM, 9 Sep. 1825.

The 1825 episode is interesting in that the men were able to win wage increases and to strike without having formed a union or even co-ordinating their efforts between companies. The year 1825 was one of many strikes in the economy generally and this has been associated with the repeal of the Combination Acts in 1824.<sup>1</sup> The gas industry presents further evidence that the law was not a major factor, either when in force or when repealed. The state of trade was the primary consideration. In the depression of 1830 the Chartered again made a cut in wages despite a petition by the stokers against the move  $^2$ 

The next agitation by the men came in the period of rising trade in 1834. On 20 February a note was circulated in London's major gasworks, 'to whom it may concern', giving notice that a meeting was to be held on the following Monday at the Duke's Head in Westminster.<sup>3</sup> The meeting was attended by 200 stokers and labourers, mainly from the Chartered but also from the Phoenix and the Imperial. A union was formed and 147 men were enrolled on the first night. Thomas Mance emerged as secretary and wrote to the Pioneer, as the official organ of the Grand National Consolidated Trades Union, asking for help in enrolling further men. Briefly, and at the Chartered at least, recruitment seems to have been strong enough for the men to attempt a closed shop. Pollock, the Governor of the Chartered, later gave the following picture to shareholders.

Several very glaring acts of insubordination on the part of the Company's men and a spirit of dictation to the superintendent as to the individuals whom he should be allowed to employ in the works led to an enquiry by your Committee of Works as to the source of such conduct when it was discovered that a combination existed among them, in consequence of which none of the members of such combination could

H. Pelling, <u>A History of British Trade Unionism</u> (1963) p.22.
 GLCC DM, 23 Jul. 1830.

- 3. Pioneer, 8 Mar. 1834 p.239.

be discharged, however gross his misconduct without risking a general strike and it also appeared that the Company were not to be permitted to employ anyone who was not enrolled in the union.<sup>1</sup>

Subsequently, according to the <u>Times</u>, the men formulated a plan to strike the Chartered, Imperial and Phoenix simultaneously in support of a pay increase to  $35s.^2$  Writing to the <u>Pioneer</u>, however, Mance denied the men formulated a definite figure <sup>3</sup> and, indeed, the men were given no time to plan a campaign since the companies acted first.

Unfortunately for the men, the landlord of the Duke's Head, who also delivered beer to the Westminster works, communicated the events of the union's meetings to the Chartered Court which was aware of the men's actions from the first.<sup>4</sup> On 28 February the Chartered called a conference of all the London companies and a common plan of action was worked out.<sup>5</sup> They firstly resolved to find replacement non-union labour and, when this had been done, to sack all their workers who belonged to the union. A blacklist of the union men was to be circulated to all companies so they would not be re-employed. The Imperial took the lead in procuring blacklegs, who came largely from distant rural areas, in part through a Mr. Philpotts of Hungerford Market then being constructed - for which he received £5. The Chartered also wrote to local workhouses to see if they had men to offer but only one, St. Lukes, seems to have been able to help. The companies wrote to all local authorities whose streets they lit to allay alarm and also sent a deputation to the Secretary of State for the Home Department, informing him of the situation and asking for police help to deal with any disorder. <sup>6</sup> The enthusiasm of the

GLCC SHM, 10 May 1834.
 Times, 5 Mar. 1834.
 Pioneer, 15 Mar. 1834 p.252.
 GLCC CW, 13 Mar. 1834.
 Imperial DM, 7 Mar. 1834.
 Ibid., 28 Feb. 1834.

Government to help in this respect can be judged from the following letter dated 8 March 1834 in reply to correspondence from Pollock once the strike had commenced.

Sir. I am directed by Viscount Melbourne to lose no time in acknowledging your letter of this morning addressed to me and informing him that all the regular and experienced men in the employ of the Gas Light and Coke Company have ceased work and that you are now proceeding with other men unaccustomed to the business and inadequate to the duty. Viscount Melbourne agrees with you that this will be a sufficient apology for a deficiency of gas during a few nights to come, but he desires me to add that this and even much greater inconvenience will be trifling and inconsiderable compared with the serious mischief which would result from concession to demands unreasonable in themselves, and enforced by means the most violent and unjust.

The Commissioners of Police have received instructions to give the most effectual protection both to the property of the Company and the workmen who may engage in their service. The Directors will be good enough to communicate with them for that purpose and they may rest assured upon all the assistance and support which it is in the power of the Government to afford.<sup>1</sup>

On Tuesday, 4 March, the Imperial were ready and struck first. The Governor, Parry Richards, personally supervised the sacking of seventeen stokers and eleven labourers at Pancras who were known union members, whereupon nineteen other workers struck in sympathy and were sacked in their turn, making forty-eight men in all - perhaps one-third of the retorthousemen at Pancras.<sup>2</sup> Yardmen took no part in the strike. New men were quickly installed and there was no break in the supply of gas. As Richards was able to tell his shareholders at their next meeting, 'the only parties to have suffered are the deluded men

PRO, HO 43/44 p.518.
 Imperial CW, 5 Mar. 1834.

whose places are now occupied by an industrious and contented set of labourers'. At the company's Fulham works eight men were sacked, but there was no union at all at Shoreditch. According to the Times, the unionists at Pancras 'seemed much astonished' at the turn of events and 'quietly left the premises' in the face of a strong body of police assembled 'to repress any tumult that might occur<sup>1</sup>:<sup>2</sup> The following day, Wednesday, 5 March, Munro sacked seventeen workers at the Bankside works of the Phoenix, only a small proportion of the total workforce, and there was no disturbance.<sup>3</sup>

The Chartered was not in as strong a position as the other companies. Next to Pancras, Westminster was the largest works in London; the union was strongest there and the company had difficulty replacing such a large body of March, they took on five new hands which the unionists men. On Friday, 6 doubtless correctly interpreted as being in preparation for a repetition of events at Pancras earlier in the week. As a result, well over 100 men, probably all the retorthousemen, struck and were sacked. Once again, the withdrawal was peaceful. As the Pioneer related it,

serious apprehensions having been entertained that a riot would take place, a strong body of police was in consequence posted in the factory and neighbourhood; but no attempt to disturb the peace occurred. The road in front of the premises during the past two days presented crowds of persons who, broken into groups, were conversing on the subject. Extra parties of police are kept on duty in the neighbourhood throughout the night.

On Saturday, the day after the Westminster men came out, forty men from the Brick Lane works struck and were sacked but there was no strike at Curtain Road.

Imperial SHM, 10 Apr. 1834.
 Times, 5 Mar. 1834.
 <u>Companion to the Newspaper</u>, Apr. 1834 p.71.
 <u>GLCC DM</u>, 6 Mar. and 22 Apr. 1834.

<sup>5.</sup> Pioneer, 15 Mar. 1834 p.252.

The Chartered strikers had early success. The new men took time to learn the job. According to the <u>Pioneer</u>, a charge took them over an hour and threequarters - twice the normal time.<sup>1</sup> The company sent out a circular to all its customers on Saturday urging them to economise on their use of gas and sent its secretary to visit personally all the West End clubs to warn them of a possible failure of light. Indeed, at 10 o'clock Saturday night the entire length of the Strand and surrounding districts were plunged into darkness as the Chartered's gasholders grounded. This occurrence probably did more than anything to bring home to the upper classes of London the mood of the working class in 1834 and caused not a little apprehension among those with most to fear. <u>John Bull</u> gave a great yowl. As the strike would obviously

be the signal for the outbreaking of the atrocities which characterise all popular movements we beg to suggest in order to thwart the designs of the plunderers and murderers who are lying ready to spring forward the moment the reign of anarchy begins - that every householder in the Metropolis should be prepared to illuminate all his windows the moment the event occurs, by this measure the villainous designs of the Unionists will be frustrated and light given to the troops to act if necessary.

Fortunately for <u>John Bull</u> its paranoia was unjustified, as was Melbourne's accusation that the men intended to enforce their demands by violence. In fact they do not seem to have attempted even peaceful picketing. To have stopped the new men entering the works was really their only chance of success, but this was not attempted. Perhaps they did not believe the blacklegs could do their jobs; more likely they were intimidated by the police presence. Either Way, Saturday night saw the only serious failure of light and as the ability of the new hands improved the danger passed and the first strike of any significance by the London gasworkers had failed almost as soon as it had begun.

Pioneer, 15 Mar. 1834 p.252.
 John Bull, 23 March 1834.p.95.

Once the men realised this the majority of the strikers contritely asked for their jobs back. The companies had already agreed not to take back the men and circularised their blacklists to the other companies. The seventeen union men of the Phoenix petitioned the company to be taken back but were refused. The Chartered's men asked for 'forgiveness' and 'repented their action' but were turned away. The Chartered went further since, together with the Imperial, they sent their blacklists to all the local workhouses asking that under the circumstances the men not be given poor relief.<sup>2</sup> The Imperial contemplated presenting the 'document' for the men to sign, but rather than a renunciation of union membership this seems to have been a detailed contract of employment which Kirkham advised against as 'he sometimes found it necessary to dismiss and take on new hands as well as to alter the duties of others permanently employed'. The Chartered contented itself with a resolution 'that any man belonging to the Grand National Consolidated, or London Labourers Conjunctive Union and who does not withdraw himself therefrom on or before Saturday next be no longer employed by this Company'.<sup>4</sup> On the other hand, the companies were reasonably generous to the men who stayed at their jobs during the strike. The Imperial's foremen got £2 each while thirteen loyal stokers at Shoreditch shared The Chartered gave its loyal men a week's wages each, and some weeks <sup>c</sup> .013 for 'steadily after the strike gave all its employees 2s 6d attending to their duty' ; they also indemnified all its clubs and public institutions for losses caused by the failure of light.

Phoenix CW, 12 Mar. 1834.
 GLCC CW, 7 Mar. 1834 and Imperial DM, 7 Mar. 1834.
 Imperial CW, 11 Mar. 1834.
 GLCC CW, 11 Mar. 1834.
 Imperial CW, 11 Mar. 1834.
 GLCC CW, 22 Apr. 1834.

After its defeat the union was never heard of again, having lasted not much more than a fortnight. Mance at least seems to have had pretentions to making the union permanent, with funeral and unemployment benefits, but it probably never got round to paying even the registration fee to the Grand National or the London Labourers Conjunctive Union. The main object of the union was a wage increase and when this was lost so was the union. On 19 March, Mance wrote in pathetic tones to the <u>Pioneer</u> of the privations the strikers were now suffering and asking it to raise a subscription for their relief. All that Morrison, the editor, could offer was an appeal to shopkeepers and others that consumed gas to switch their supply from the Chartered to the Equitable, 'because the Equitable study the welfare of their men'.<sup>1</sup> The union world as a whole was soon engaged by the martyrdom of the labourers of Tolpuddle and the gasmen of London were forgotten.

Strikes of a more minor nature were not unheard of in the gas industry in these early years. In 1836, when Palmer was dismissed from the South Metropolitan at their Old Kent Road works, the board took the opportunity to change the rules and regulations applied to the workmen. On hearing the new rules the foremen and workers struck. Blaksley , the managing director, was sent down to the works with the power to sack any or all the men not prepared to comply with the new rules.<sup>2</sup> The strike was settled quickly, but nothing is known of the issues or on what basis the men returned. Again, neither the company nor the authorities took any chances. Police were kept on the premises throughout the trouble and for a fortnight afterward.<sup>3</sup>

1. Pioneer, 22 Mar. 1834 p.261.

- 2. S. Metro. DM, 28 Jun. 1836.
- 3. W.T. Layton, The Early Years of the South Metropolitan Gas Company 1833-1871 (1920) p.32.

Little is known either of a 'partial strike' which took place at Westminster in 1846. According to the historian of the Chartered Company, the strike was directly political in origin, deriving from the Chartist movement,<sup>1</sup> but it is not clear how he arrives at this conclusion. The company's records merely record that a partial strike of stokers took place on 10 March and that Kirkham from the Imperial sent thirty men to help out, of which twelve subsequently quit.<sup>2</sup> Two of the Chartered's men were convicted at a Police Court of intimidating a man sent as a replacement from Brick Lane and were ordered to find bail to keep the peace or be imprisoned for three months.<sup>3</sup> A week later the new hands were reported to be doing well while many old hands who had asked for their jobs back had been refused.<sup>4</sup>

The next major movement among the gasworkers of London came in 1859. The trade journal reported in January that insubordination in one gasworks had spread to all the gas companies in London and that a union, the Loyal Gas Stokers Protection Society, had been formed.<sup>5</sup> Little is known of the union, but early in July an anonymous stoker sent a letter to the <u>Journal of Gas</u> <u>Lighting</u> setting out the claims of the men. They wanted an increase in pay by 1s a day or to 35s a week; for the first time they also asked for a reduction in hours from twelve to ten and lastly, they wanted one Sunday off per month.<sup>6</sup> It is this latter demand that, according to the correspondent, the men first 'unanimously petitioned' their employers for. Virtually all the companies gave in to this rather modest demand as a

Everard, op.cit. p.124.
 GLCC CW, 11 and 12 Mar. 1846.
 GLCC DM, 13 Mar. 1846.
 Ibid., 19 Mar. 1846.
 JGL, 15 Feb. 1859 p.77.
 Ibid., 21 Jul. 1859 p.388.

minute at the Equitable Company explained, it being a Sunday 'and causing the Company no inconvenience'.<sup>1</sup> The men, of course, received no pay for the holiday and the Phoenix were prepared to give two Sundays a month to the day gang and one to the night. The Imperial, however, decided to give their men a paid holiday a year, spent as a day trip to the countryside.<sup>2</sup>

The men were comparatively successful, therefore, in their initial demand, but when they proceeded to the more ambitious claims on wages and hours their drive was badly co-ordinated. The first move came from the men at the Fulham works of the Imperial who sent a memorial to the directors requesting an increase of a week to bring them up to the .1s 31s a week earned at the Shoreditch works, or a day's holiday a month instead. While the Committee of Works was 'favourably looking at this' Kirkham arrived from Fulham to say that the men had struck. The Committee declined to proceed further and Kirkham was to inform the men of this and find others to replace them. 3 The upshot of the matter is not clear, but presumably for the time being the men went back to work.

Just over a week later the men at the Westminster works of the Chartered and at the Equitable struck for their full demands of 5s a week and two hours a day less. The Chartered had obtained a few men from the South Metropolitan and the Surrey Consumers but neither they nor the Equitable had enough extra men to man successfully their works and both gave way to the men's demands. Neither company accepted defeat, however. The Chartered called a meeting of all the metropolitan companies at the Equitable the following day. They agreed that sooner than plunge London into darkness they would, as the Chartered and Equitable had done, temporarily agree to the men's

1. Equitable DM, 31 May 1859.

 See above p. 245.
 Imperial CW, 13 Jul. 1859.
 Lloyd's Weekly London Newspaper, 31 Jul. 1859 p.7; Cabinet Newspaper, 6 Aug. 1859 pp.7, 8; GLCC DM, 22 Jul. 1859; Equitable DM, 26 Jul. 1859. 5. Equitable DM, 26 Jul. 1859.

demands. In the meantime, they would collect enough new hands to enable them to sack the unionists or force them to agree to work at the old wages and hours. They got men from their main laying contractors and from the Great Northern and the Eastern Counties railway companies - concerns, of course, keenly interested in keeping up their gas supply. The Great Central gathered workers from a local sugar bakers and from the docks; it also sent its engineer down the South Western Railway and he sent twelve men up from Trowbridge.<sup>2</sup> The London Company obtained fifty men from the Butterley Iron Company, the suppliers of mains and other ironwork to the London gas companies. <sup>3</sup> Telegraphs were sent to Yorkshire, Liverpool, Manchester and Birmingham and drafts of men arrived in London in secret. <sup>4</sup> The Chartered took the by now familiar step of informing the Commissioner of Police and local magistrates of the likely requirements for police and judicial assistance.<sup>5</sup>

On Wednesday, 27 July, the men of the Pancras works of the Imperial handed in their full demands in the form of a memorial but, probably unbeknown to the men, the company was well prepared and the directors refused their demands.<sup>6</sup> The night gang, who had been waiting for an answer, immediately struck, but the day gang finished the shift for fear of being taken to court. They were told that if they struck they would never be allowed to return and as they turned out they were paid their wages. The company had assembled 300 men in a nearby garden and when the shift finished at 6 o'clock the new men were escorted into the works by police and there was no break in production. The Fulham and Shoreditch men also struck. The blacklegs were fed and kept on the

Imperial DM, 27 Jul. 1859.
 Great Central DM, 29 Jul. 1859.
 London DM, 3 Aug. 1859.
 St. Pancras Reporter and North London Advertiser, 6 Aug. 1859.
 GLCC DM, 22 Jul. 1859.
 Imperial DM, 27 Jul. 1859.

works overnight but by the following day the police were able to see that they entered and left the works unmolested. A day after the Imperial men the Great Central workers put in their demands. They were told by the superintendent that the directors would have to be consulted but they demanded an answer by 5 o'clock. At that time Alderman Gabriel appeared and again urged the men to wait for the directors to consider the matter. The men, however, handed him the union's rule book, said they were under pressure from the society and both night and day shift (sixty-two men) walked out. Again the company were able to fill their places, the new men being given beer and beef to prevent the need for them to leave the works? By Sunday they had restored production tc normal although thirty-eight men were needed to do the work of thirty-one of the old hands. On leaving the works the strikers had burned an effigy, the then manager - the same one to whom they had presented an engraved clock the Christmas before  $\frac{3}{2}$  - and they then marched over to Stepney to get the The Stepney men had threatened to strike <sup>5</sup> but in Commercial's men out. 4 the event chose not to.

On the Friday, two days after the Imperial men and a day later than the strike at Bow Common, the men at the Vauxhall works of the London Company turned out after their demands had been refused.<sup>6</sup> The 100 or so strikers then marched across the river to get the City Company's men at Blackfriars to join them. There two policemen apparently quietly dispersed the crowd which proceeded on to the Bankside Works of the Phoenix, but there too the men stayed put. The London Company had brought up new men from all over the country and given them board and lodging and were also able to keep up supply.

- <u>Cabinet Newspaper</u>, 6 Aug. 1859 pp.7-8.
   Great Central DM, 5 Aug. 1859.
- 3. See above p.250.
- 4. Co-Partnership Herald (of the Commercial Gas Light and Coke Company) (1931),
- Vol. 1 p.223. 5. Commercial DM, 5 Aug. 1859.
- 6. Lloyd's Weekly London Newspaper, 31 Jul. 1859 p.7.

They needed, however, twice the number of new men as old and the whole operation cost them £3,000.

With the success of the other companies now obvious, the Chartered and the Equitable were able to take back the concessions that had previously been given. At the same time the companies presented the 'document' to their workers to sign. At the Chartered this read, 'I am not now and will not while in the service of the Company be a member of, or in any way belong to, any trade union or association having for its objects the reduction of the hours of labour or the restriction or limitation of work'.<sup>2</sup> The men also bound themselves to give a month's notice. At the Equitable all but five of the workers signed, but only half of the men agreed at the Westminster works of the Chartered and the rest struck or were sacked and replaced. The men, therefore, had been hopelessly beaten and the union disappeared. At the Imperial the company raised a flag of victory on top of one of their gasholders at Pancras and dispensed the usual gratuities to its loyal men - £2 for for ordinary stokers and foremen, £1 for leading stokers, 10s The Chartered refused to take back the strikers who for vardmen.<sup>5</sup> **5**s petitioned to be reinstated although at the Great Central the engineer asked to be allowed to take their old men back since they were better workers than the new men and because other companies were doing so.<sup>7</sup> The Great Central also took five of the strike leaders to court for breach of contract under the Master and Servant Act. The men, they claimed, were employed weekly, as stated in the rules displayed in the stokers' lobby, but had not given a week's notice before they struck. The men pleaded not guilty and their solicitor maintained

- London SHM, 1 Apr. 1860.
   JGL, 16 Aug. 1859 p.446.
   Equitable DM, 5 Aug. 1859.
- 4. St. Pancras and Holborn Times, 5 Aug. 1859 p2. 5. Imperial CW, 13 Aug. and 17 Aug. 1859. 6. GLCC DM, 16 Aug. 1859.
- 7. Great Central DM, 26 Aug. 1859.

they were not 'labourers' as named in the Act and were daily not weekly employed. The Magistrate found against the men but although the maximum penalty was three months imprisonment he was impressed that the workmen 'had not exhibited any ill-feeling or violence towards their employers' and ordered a week's abatement of wages and urged that they make peace with their employers and return to work.

The middle years of the 1860s was a period of good trade during which the London gasworkers won a significant increase in wages and in 1867 they renewed their demands for a reduction in hours, this time from twelve to eight. Again, however, their movement was fragmentary. At the end of July the men of the Equitable, seemingly on their own, petitioned their directors for the eight hour day. A meeting of engineers of all the companies was convened immediately 2 and it was agreed to resist the men's demands. The movement seems to have gathered momentum, and attracted the attention of George Potter, the well-known labour leader and editor of Bee-Hive. Probably organised and certainly chaired by Potter, a meeting was held on 21 August at Cambridge Hall which was attended, according to Bee-Hive by 1,000 men out of the 4,000 stokers in London. The meeting was addressed by Thomas Holden, another outsider, who, in support of the eight hour day, claimed that the previous week so many men had fainted from the heat at a London works that there had not been enough men to carry on the work. He urged the men to ask the companies' shareholders for help. Many of them were Ladies and Clergymen whom he felt sure would not mind

1. Cabinet Newspaper, 6 Aug. 1859 pp.7-8.

 Equitable DM, 30 Jul. 1867 and 6 Aug. 1867.
 J. Bellamy and J. Saville, <u>Dictionary of Labour Biography</u>, Vol. VI pp.223-230. 4. Bee-Hive, 24 Aug. 1867 p.5.

foregoing some of their 10 per cent dividend to improve the comfort of the men. James Connolly, described as an Irish stonemason and possibly at one time the president of the Operative Stonemasons' Union <sup>1</sup>, also felt confident that the clergymen who used the very gaslight to preach the evils of Sunday work by would take a cut in dividend. He urged that if any men were victimised by the companies they should be backed by all the men. As a result of the meeting it seems a union was formed with Holden as secretary and a committee of twelve representing all the companies north of the river. Connolly was the Equitable delegate.

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After this meeting the battle for public opinion was vigorously fought. The Journal of Gas Lighting made the not unreasonable assertion that the gasworkers had fallen prey to outside agitators like Potter, Connolly and Mr. Brook - an ex-Common Councilman and 'a poulterer who has not yet made a fortune plucking genuine geese'. The interference of 'these disinterested friends of the stokers would surely lead the gas companies to introduce machinery for charging and discharging the retorts which promises to save 90 per cent on stokers' labour' There were many letters to the daily press including one from Phillips, the Chartered's secretary, protesting to the Times that the men only worked four of the twelve hours, doing eight draws of half an hour each. In addition, the men had every facility for bathing and eating.<sup>3</sup> These claims were lampooned by Potter in the Bee-Hive under the headline 'The Happy Gas Stokers!', and a further meeting was held at Cambridge Hall a fortnight after the first. In view of the press criticism the chair was taken this time by a stoker from the Imperial and more gasworkers spoke, several of whom

1. S. and B. Webb, History of Trade Unionism (1926) p.273.

- 2. JGL, 3 Sep. 1867 p.738.
- 3. Times, 27 Aug. 1867 p.7.
- 4. Bee-Hive, 31 Aug. 1867. 5. JGL, 17 Sep. 1867 pp.799-800.

claimed to have been sacked as a result of the movement. They attacked Phillips' claims and maintained that they were at work charging or doing other odd jobs for six to eight hours, while the facilities were derisory.<sup>1</sup> There had been victimisation but the men did not want a strike. Holden, conscious of criticism of himself as an outsider, admitted that he had never been a stoker but he had lived near a gasworks in Salford and knew what conditions were like. He had given up the chance of a f150 a year job as a traveller for a brewery to come to London to see what good he could do for the gasworkers there. He now earned only f50 a year as the secretary of the Stokers' Association and he felt confident that if the men paid their ld a week, or 2d while the extra expenses were on, he would succeed in getting the men the eight hour day. Connolly gave the 250 men assembled the full benefit of his oratory. The workers of England were often worse off than the American negro slaves, he said, and

The wisdom of the Almighty ordained that there should be one day's rest in seven but the avarice of the gas companies insisted that in the case of the stokers there should be only one day's rest in twenty-eight.

The time might come for the defence of the shores of England from invasion and it would be found that the men labouring in front of a furnace for twelve long hours a day were not the men to handle a rifle and repel the invader.

Earlier, Holden had made the point that, 'A stoker was often a week or a fortnight without seeing his children, except as they lay asleep though it might be supposed that he had as great an affection for his family as a nobleman had for his'.

See above p.224.
 JGL, 17 Sep. 1867 p.800.
But such sentiments made very little impression on the gas companies.

The problem was that the men's demands lacked conviction since by 1867 the state of trade was moving against them. This was well expressed by the Governor of the Imperial to its shareholders.

The proposition therefore is that for eight hours attendance at the works they shall receive the same pay as they have hitherto received for twelve. Well, now, have we any difficulty to get men because that's a fair test whether the wages are what they ought to be. Not the slightest; men offer themselves in abundance. You are bound to pay the fair market price for the labour you employ, and if you do that you are perfectly right in taking the full amount of dividend allowed you by law. We must look to what is the fair market price of labour as regulated by the law of supply and demand. If we did not do so, that very instant the public would rise up and say 'You are so prosperous that you are actually paying your men more than the market value of their labour'.

Moreover, probably sensing their weakness, the men for their part repeatedly stated that they were not prepared to strike, and the companies in their turn, when memorialised by the men's organisation, felt encouraged to refuse them. The final meeting on the issue was held on 25 September at Cambridge Hall, but it was not reported in the <u>Bee-Hive</u> nor, it seems, attended by Potter. George Brook, the poulterer, took the chair and most of the speeches came again not from gasworkers but from outsiders: a journeyman joiner, a sympathetic consumer and Holden, who reported that the companies had rejected their memorial.<sup>2</sup> This was a little premature in the case of the Chartered, however, since the directors there did not receive the men's deputations until 1 October. Then, on hearing the company's rejection, the men offered to give up the eight hour movement if the company would grant a half day on Saturday and time and a half

1. Ibid. 15 Oct 1867 p.877. 2. Ibid. 1 Oct. 1867 p.840. for Sunday work. The directors said they would consider any plan that did not involve additional cost to the company.<sup>1</sup> All they finally agreed to do, however, was to continue the arrangement whereby as little work as possible was to be done on Sundays.<sup>2</sup>

To what extent a formal union had been set up in 1867 is not clear, but it quickly disappeared if there had been one. The men, however, did not have to wait many years before the chance to renew the struggle recurred. By 1870 the state of trade was again moving in their favour, and at least one of the leaders of the 1867 movement also played a leading role in the campaign of the early 1870s. In the spring of 1870 the Journal of Gas Lighting reported that a movement had started to end Sunday working. A year later the superintendent at Beckton reported to the Court that he was having difficulty controlling the stokers and successfully urged the adoption of monthly contracts. In September 1871, Livesey wrote to the Journal advocating the ending of Sunday working along the lines adopted at his and several other London companies. <sup>5</sup> In November the Journal reported an agitation for the eight hour day in the north of England , and in the same month the Chartered granted a pay increase to its stokers to 35s 6d. However, it attempted at the same time to abolish the monthly

GLCC DM, 1 Oct. 1867.
 Ibid., 25 Oct. 1867.
 JGL, 29 Mar. 1870 p.232.
 GLCC CW, 21 Apr. 1871 and DM, 5 May 1871.
 JGL, 26 Sep. 1871 p.721.
 Ibid., 21 Nov. 1871 p.860.
 GLCC DM, 17 Nov. 1871.

Sunday holiday and the annual holiday and to make the Christmas gift conditional on good attendance. The stokers memorialised the Court against this and on the advice of the clearly nervous superintendents the holidays were hurriedly restored.<sup>1</sup> The men now evidently felt themselves in a strong bargaining position and during such times, as happened at the Great Central in 1859, and particularly at Christmas, the companies encountered problems of personal indiscipline by the men. At the Chartered, after reports from the superintendents of 'disorder prevailing among the workmen in the present week', the Court again decided to make the Christmas gift payable after Christmas and consequent on good attendance.<sup>2</sup>

Towards the end of 1871 and the beginning of 1872, all the London companies awarded substantial wage increases after petitions and memorials from the men.<sup>3</sup> These were won, moreover, before the men had formed their union. The next demand of the stokers was for the complete abolition of Sunday work with no reduction in pay or double time if the Sunday was worked. This demand the Chartered stokers put to the Court on 2 August 1872 <sup>4</sup> and it is probably in pursuit of this claim that a formal union was started. The Chartered's reaction, as in the past, was to call a meeting of all the London companies to plan joint action. A committee of the companies' chairmen was set up and agreed to commute the monthly Sunday holiday into a wage increase and to avoid all Sunday work between to 36s 2d All companies agreed not to go further than this. 6 am and 6 pm.

In the meantime, the men had formed a union with the title of London and Metropolitan Gas Stokers, Fitters, Smiths and Yardmen's Amalgamated Society. There was clearly an attempt to recruit not just retorthousemen as in the past

- 1. GLCC DM, 24 Nov. 1871 and 8 Dec. 1871.
- Imperial DM, 3 Nov. 1871; GLCC DM, 17 Nov. 1871; Phoenix DM, 1 Nov. 1871; JGL, Feb. 1872 p.177.
  GLCC DM, 2 Aug. 1872.
- 5. Ibid., 6 Sep. 1872.
- 6. JGL, 17 Dec. 1872 p.1032.

but also the yardmen, including craftsmen, but in this the union never lived up to its name. The entrance fee was 6d and the weekly contribution 3d -, while men cast off in the summer could pay **1**s a quarter. After the fourth weekly contribution a member was entitled to benefits, although it is not clear what these were. The union was to be run by a district committee made up of delegates from lodges based on the various gasworks. Discipline among themselves was clearly a problem. Any committee member being absent for no good reason was fined 1's and a 3d : fine was imposed for being more than half an hour late. 'If any member be called to order by the president and refuse to obey the call he shall for the first offence be fined 3d for the second 6d and for the third expelled from the room. No swearing at all allowed; for such an offence he shall be fined 3d or be expelled from the room'. The gasmen seem to have had help in drawing up the rules and organising the union, since most stokers were still illiterate. Henry Broadhurst, the stonemason and rising labour politician, said later that he had been offered the job of union secretary  $^2$ ; he had declined but had offered advice, and certainly the stated aims of the union fitted well with the viewpoint of the future Liberal Government minister:

the establishment of unity amongst us promises the greatest possible advantages to masters as well as to men, being formed on principles which embrace the interest of both classes - masters and men - and the happiest effects will result from an extension of such principles. Our intentions are not to harass our employers by making any unjust or unreasonable demands on them, but by fair and constitutional means to gain an adequate remuneration for our labour. <sup>3</sup>

In the event, John Webster, said to have been a stoker, became the union's secretary and John Peach, a stoker from Bow Common, became president.

1. Ibid. p.1032.

 Mr. H. Broadhurst M.P. and the Gas Stokers' Fund. A report on the speeches on this subject at the TUC Manchester Thursday 21 September 1882; Bellamy and Saville, op.cit. Vol. 2 pp.62-8.
 JGL, 17 Dec. 1872 p.1032.

In mid-September 1872 the men, at the Chartered and the Imperial at least, renewed the demand for Sundays off with pay, or double time. The Chartered refused, but acting in concert the engineers of the London companies recommended a further increase in wages to 37s 4d. This the Chartered agreed to, but at the Imperial, where the men had also demanded that no non-unionists be employed, the company had ignored the men's petition.<sup>2</sup> By the beginning of October the patience of the men was exhausted. On Wednesday evening, 2 October, Henry Broadhurst addressed a meeting of the men at Stepney and a resolution was passed in favour of the abolition of Sunday work. On the following Saturday the men approached the engineer at Shoreditch who, according to the men, treated them with 'disrespect' and told them that no decision had been reached. At this the 150 men of the night shift refused to go on.<sup>3</sup> Subsequently they pursuaded the Fulham men to turn out, although the Pancras men stayed put and were rewarded with 2s 6d each by the company. The company, using men from their contractors and their own yardmen, made some attempt to keep up the gas pressure but were hard pressed. The strike had been without the consent of the union, which had an involved procedure for dealing with disputes which had in the end to go before a sub-committee of the delegates. On the Sunday of the strike, therefore, the union leaders hastily convened a meeting on Hackney Fields in order to persuade the men to return to work on the understanding, which had been agreed with the company, that the men be reinstated and early consideration be given to their petition. This the men agreed to and the Sunday night shift went into work. The following Friday a deputation of two men from each station and Webster, the secretary of the union, met the company's Committee of Works. The men reduced their demands

GLCC DM, 20 Sep. 1872.
 JGL, 22 Oct. 1872 p.891.
 Imperial CW, 9 Oct. 1872.
 JGL, 22 Oct. 1872 pp.875 and 891.

to Sundays off with pay but only time and a half if it was worked. If abolition of Sundays could not be managed immediately they would wait until the following March. The company could not guarantee Sundays off but agreed to pay time and a half if worked, which increased the wage for seven days to 38s 9d. This was more than the Chartered men

had won, and was agreed to.

But the men did not give up their claim for Sundays off with pay and once more enlisted the support of Potter and the Bee-Hiveand the established labour movement. A meeting was arranged on 31 October in support of abolishing Sunday work in the familiar surroundings of five years before -Cambridge Hall.<sup>2</sup> The meeting was chaired by the old Owenite Lloyd Jones, and the speeches too were echoes of 1867. Lloyd Jones again appealed to the Ladies and Clergymen among the gas shareholders. Broadhurst urged that when the men had won the Sunday they should press for the eight hour day. Webster declared that the men 'required the rest on Sunday, not only for the refreshment of their exhausted nature, but for the cultivation of domestic affection and the enjoyment of home comforts. In forming themselves into a union they had no desire or intention to injure their employers but simply to protect their undoubted rights.' Another speaker appealed to the Christian conscience with regard to the men working on the Sabbath. The men never saw their children except 'when the little one woke up during the night and asked for a drop of water.' With Sunday off the men would take more interest in their home and public affairs and spend less time in the pub. A stoker from the Independent alluded to the familiar claim made by the Journal of Gas Lighting that as a result of the men's agitation the companies would introduce the 'Iron Man' -

Imperial CW, 11 Oct. 1872.
 JGL, 5 Nov. 1872 p.924.

the machine stoker. They would have to build one first, said the stoker, and 'when that was done the stokers would put to him this question in dumb motion "Are you going to join our society?" If you don't we are not going to work with you.' He 'believed there was some misapprehension among their masters that there was going to be another strike. He wished it to be distinctly understood that no such thing was contemplated.'

After the turn out at the Imperial, however, it is clear the companies had other ideas. Some companies had given their workers further wage increases after this event and most made active preparations for another strike. The customary preparations for finding blacklegs were undertaken while, for the first time, the companies agreed to connect their mains so that any company struck could be supplied with gas by unaffected neighbours. The Imperial, London, Phoenix and Surrey Consumers were connected up by the end of October and in early November the Chartered suggested all companies join mains, but this was not taken up.

The companies, or at least the Chartered and the Imperial, then began to single out the union leaders and sack them. Under the advice of Broadhurst and the labour establishment the response of the union to this was to accept the dismissals and to support the men until they could find other employment. When Ray, one of the leaders at Beckton, was sacked, another leading unionist, Tom Dilley, stepped in to calm the men down, but soon it was Dilley's turn. Dilley, who was twenty-three, had come from the Shoreditch works of the Imperial to Beckton as a pipe jumper and on 22 November he and Edward Jones, another elected delegate, presented a memorial to the manager at Beckton for

1. Ibid. p.925.

- 2. Ibid., 3 Dec. 1872 p.997; S. Metro: DM, 28 Oct. 1872.

- Phoenix DM, 16 Oct. 1872, 6 Nov. 1872.
  Imperial DM, 6 Nov. 1872.
  <u>The London Gas Stokers A report by the Committee of their trial for</u> conspiracy, of their defence and of the proceedings for their liberation (1873) p.4.

an extra sixpence a day for coke wheelers. The same afternoon the foreman ordered Dilley away from his regular job to go scoop driving with a gang of non-unionists who had just been taken on. This Dilley refused to do and was Still the union refused to be drawn. At the given a week's notice. delegate meeting at the union's headquarters at the Bell and Bull, Finsbury, the following Thursday, it was decided that although Dilley had been justified in what he did he should none the less / accept his dismissal.

Events quickly moved out of the hands of the committee, however, when another leading unionist, a coke wheeler at the Fulham works of the Imperial, refused an order by a foreman and was sacked and replaced by a non-unionist.<sup>3</sup> The on-coming shift refused to work unless the man was reinstated and this Kirkham, after looking into the matter, refused to do. Webster tried to obtain an interview with the company, but this was refused. The company claimed that the coke wheeler had 'refused in an insulting manner to obey a reasonable and necessary order within the scope of his duty' and that Kirkham had convinced two delegates of the men of this but the men had refused to work. The men claimed that when the night shift had come for work they found the doors locked against them.<sup>5</sup> Either way a full scale stoppage was now under way. On Saturday, the night shift at Pancras came out in sympathy, although the day shift remained in.  $^{6}$  On Sunday the whole of Shoreditch turned out. That day, 1 December, a mass meeting of the men was held at Clerkenwell Green where it was decided to seek a meeting with the Imperial to get the men reinstated and, if this was not done, to call out the whole of London's gasworks the following day, and this is in fact what happened.

1. JGL, 17 Dec. 1872 p.1039. 2. Bee-Hive, 7 Dec. 1872 p.2.

- 3. Imperial CW, 30 Nov. 1872. 4. JGL, 3 Dec. 1872 p.997. 5. The London Gas Stokers...op.cit. p.4. 6. Imperial CW, 4 Dec. 1872.
- 7. Bee-Hive, 7 Dec. 1872 p.2.

At Beckton on the Monday morning the night and day shifts, some 500 men, held a meeting in a retorthouse to which Trewby the manager, was called.<sup>1</sup> He informed the men of the illegality of their action and urged them in gratitude to their employers, who had recently acted most liberally towards them, to fulfil their duty. The men said they wanted the reinstatement of Dilley. Trewby replied that he would go away for ten minutes to give the men time to consider what he had After the ten minutes the men were still adamant and Trewby agreed to said\_ reinstate Dilley 'under protest'. At this Samuel Webb, another delegate at Beckton and a leader of the 1867 movement, jumped up and said to the men that the term 'under protest' meant that the governor intended to punish them and called on Trewby to withdraw the remark. The men also wanted the Fulham man reinstated. Trewby refused to withdraw his remark and maintained that he had no control over affairs at the Imperial. With this Trewby left and the whole 500 men walked off the works. Apparently many of the men drifted to a local pub and expected to be called back, but the word never came.<sup>2</sup>

North of the river the turn out was fairly solid. The delegates reported that 1,080 of the retorthousemen at the Chartered's six works were out, while only twenty-four had blacklegged.<sup>3</sup> The men were equally solid at the Independent and at the Commercial, where Jones the engineer had addressed the men and told them they were a prey to agitators, that the company had always been generous to them, they would do harm to their wives and children and he would never employ one of them again.<sup>4</sup> At the Imperial, the Fulham and Shoreditch men were solid, but the Pancras day shift refused to strike despite a violent meeting held at the works on the Monday evening, addressed by Webster, Peach and Dilley.<sup>5</sup> South of the river the strike was less united. Most men at the Surrey Consumers and the Greenwich works of the Phoenix were out, but most at the Vauxhall works and the Nine Elms works of the London had refused to strike and the South

JGL, 17 Dec. 1872 p.1033.
 Ibid. p.1039.
 Times, 3 Dec. 1872.
 JGL, 17 Dec. 1872 p.1037.

5. Times, 4 Dec. 1872.

Metropolitan was also untouched. There had been some intimidation by the union leaders. At Bow Common, Peach had addressed the men to the effect that 'If any man belonging to the Society did not act up to it he was to be turned out and none of the other men to work with him and if he wished to come back again he must pay his arrears and a fine of 45/- to the union and enter as a fresh member.'<sup>2</sup> At Beckton a notice had been posted up that 'All men belonging to the Society in the Beckton Station working tonight (Sunday) are bound to answer to their names at 6 am tomorrow morning. By order of the General Council. Those absenting themselves must abide by the consequences'. Six German migrant workers seem to have been physically intimidated. Dilley had ordered one of them in a lobby not to change for work on Monday morning and told him 'You --- German. Get out' and as he left Webb seems to have kicked the man and told him that if he went on working he would soon find a home in the river.<sup>3</sup>

In all, 2,400 men had struck, perhaps two-thirds of the retorthousemen in London. A delegate meeting at the Bell and Bull on Tuesday evening indicated the strength of the strike and it was decided to hold a mass rally in Trafalgar Square the following day.<sup>5</sup> The men marched through the streets from their respective meeting houses. Fifteen hundred came from Bow Common led by a band playing the 'Marseillaise'. Four thousand were at the meeting at which a Union Jack waved from one of the lions and a Tricolour from another. Peach, in the chair, told the assembly that the meeting had been called to set before the public the facts of the case - that the men were not responsible for the inconvenience caused which was due to the companies who had attempted to smash the union by sacking its leaders. Potter and Broadhurst

G. Howell, Labour Legislation, Labour Movements and Labour Leaders (1902) p.243.
 JGL, 17 Dec. 1872 p.1041.
 Ibid. p.1042 and The London Gas Stokers..., op.cit. p.21.
 Bee-Hive, 7 Dec. 1872 p.2.
 <u>Times</u>, 5 Dec. 1872; <u>Bee-Hive</u>, 7 Dec. 1872 pp.2-3.

also spoke, and it was probably from them that the idea came that the men would go back to work if the issue of the discharged men would be submitted to arbitration. Subsequently this offer was sent in a letter to the companies by Webster. The companies were not interested in arbitration however; only one, the Independent, answered the letter, while only a few even bothered to acknowledge its receipt.<sup>1</sup> By this time it was clear the companies had beaten the men.

For three days, Monday to Wednesday, the supply of gas was materially deficient. Most companies lit only alternate street lamps and in places like Ludgate Hill Station or the Victoria Embankment there was no light at all or Monday.<sup>2</sup> The companies made urgent appeals to conserve light and Scotland Yard sent out warnings to its forces to be prepared for a total failure.<sup>3</sup> The Post Office got in a ton of candles. The <u>Journal of Gas Lighting</u> thought 'the leading thoroughfares presented a most gloomy aspect, the light from the lamps serving only to make the darkness visible; still in no case was there an absolute want of gas in the public service'.<sup>4</sup> The <u>Times</u> reported that many shops had had to resort to paraffin lamps and candles.<sup>5</sup> But by Wednesday the major problem was over and by Friday things were back to normal.

Once again the companies had been able to replace the strikers with new men. Again these had come from far afield. The Chartered had obtained experienced men from Cambridge, Plymouth and elsewhere. A cynical letter in the <u>Times</u> from 'A London Gas Director' indicated the source of much of the labour:

The men ought to remember that any dock labourer, navvy or agricultural hedger or ditcher, earning from 15/- to 21/- per week can in a fortnight be made an efficient stoker, barrowman or cokeman, receiving wages varying from 28/- to 38/- per week...

JGL, 17 Dec. 1872 p.1036; Imperial DM, 6 Dec. 1872.
 Times, 4 Dec. 1872.
 Ibid. 3 Dec. 1872.

4. JGL, 17 Dec: 1872 p.1034.

5. <u>Times</u>, 7 Dec. 1872 p.9.

Here is a fine opportunity for Canon Girdlestone and Mr. Arch, who may have on their books a thousand or more able-bodied men.

To such men the gas companies would enter into engagements for one, three, six, nine or twelve months, at wages double what they are now receiving and pay their expenses to town.

Many of the men, however, came from nearer home. The Imperial was building Bromley at the time and the contractors' men were diverted into the retorthouses of the other works.<sup>2</sup> Main laying contractors did likewise. The Phoenix sent three cabs and an omnibus into Greenwich with placards advertising jobs and picked up sixty men in this way on the Monday afternoon.<sup>3</sup> The Chartered got help from a range of sources. Watermen at Woolwich were paid 6d per head for every man they brought. The City Commissioners of Sewers sent twenty-three scavengers and the Metropolitan Board of Works sent 150 of its 'flushers'. Both the MBW and the City Commissioners were bodies with whom, in other respects, the company was at loggerheads. But, despite some rumblings from one member that the Board had no right taking sides on the issue <sup>5</sup> this case the MBW laid aside its old antagonisms. Even more surprisingly perhaps, the police took an active part in recruiting blacklegs after Scotland Yard had sent out orders for the police to send down any labourers they could find. In return the Chartered gave the Metropolitan Police a 'donation' of  $f_{75}$  and the City Police  $f_{25}^{6}$ , and the Imperial gave similar sums. The police, of course, had a vested interest in keeping up the street lighting. In addition to this help the companies also were able to use their own yardmen, both skilled and otherwise, whom the union had failed to recruit and who had been trained in the art of stoking by the companies beforehand for just

- Ibid., 4 Dec. 1872 and quoted in Betty Grant, <u>Beckton's Struggles</u> (1955) p.8. Printed and published by the Beckton Gas Works Branch of the Communist Party.
  Imperial CW, 18 Dec. 1872.
  JGL, 17 Dec. 1872 p.1033.
- 4. Greenwich and Deptford Chronicle, 7 Dec. 1872 p.6.
- 5. Grant, op.cit. p.8.
- 6. GLCC DM, 13 Dec. 1872.
- 7. Imperial CW, 18 Dec. 1872.

such an eventuality. Also, via their connected mains, the London supplied the Imperial with 2.1 million cubic feet of gas and the Imperial in turn passed on 2.3 million cubic feet to the Chartered.<sup>1</sup> The South Metropolitan also supplied the Surrey Consumers on Tuesday night but by Wednesday the mains were closed again as the danger had passed.<sup>2</sup>

. Once again the strikers made no attempt to prevent the blacklegs entering the works, perhaps because they were heavily escorted by police. They seem to have merely counted the men as they entered. The companies, as in previous strikes, kept and provisioned the new men on the works for the first few days of the dispute. On the Barking Road between London and Beckton on Thursday night, outside a pub, a group of thirty or forty strikers did stop two wagonloads of hay which was to be used as bedding for the blacklegs. The hay would be burned, they said, if the wagons did not turn around. Unfortunately, the men returned to the pub and the wagons, having gone some distance, were turned back again and driven past the tavern at speed, eluding the strikers who rushed out too late.<sup>3</sup> Later the road was closely watched by police.<sup>4</sup> Action against the blacklegs, in fact, was confined to isolated acts of violence. A stoker who had stayed at work at Bow Common was badly assaulted in a pub by a striker, who later received two months hard labour.<sup>5</sup>

Within a week many of the men were asking for their jobs back. Some companies like the Chartered, the Commercial and the Surrey Consumers, resolved not to take the men back, but the Imperial did so provided the men signed a week's contract and agreed to work with any other men.  $6^{-7}$  The

Imperial DM, 17 Jan. 1873.
 South Metro. DM, 9 Dec. 1872.
 JGL, 17 Dec. 1872 p.1035.
 Times, 7 Dec. 1872 p.9.
 JGL, 14 Jan. 1873 p.16.
 Imperial CW, 18 Dec. 1872.

Independent did the same and the Phoenix, believing they would have difficulty if they did not re-employ their old men, decided to take them back one by one as they were needed. Four companies took legal proceedings against their men for breach of contract under the Master and Servant Act of 1867. The London summonsed five of their men, including the union delegate, on the Wednesday of the strike, but by the time the case came up the following Wednesday events had shown the men the wisdom of making 'a humble and penitent' application to the board for them not to punished. The company's solicitor told Wandsworth Police Court that the board did not want the men sent to prison since they had been punished enough by losing their jobs. The men, who had been told they must appear anyway, had not answered the summons and the solicitor was granted a further summons 'in order that it might be known to the men in the gas works that it was not a light affair.<sup>2</sup> No more is heard of the case, however, and before Christmas the company gave the stokers and their wives a 'thank you tea and entertainment'. This included a singer accompanied at the piano and a speech by a Member of Parliament, who congratulated the stokers on the pleasure they must have felt' at not having reduced themselves and families to distress during the winter months.'

The non-appearance of the men the London had summonsed was accounted for by the fate of the four men prosecuted by the Commercial the day before. The company had claimed the men had broken their contract, implied by their being paid weekly, but asked that they be 'let off with the smallest fine'. <sup>4</sup> The defendants had no difficulty showing that men had been dismissed by the company at a moment's notice. Incredibly, although the company had brought the action under Section 4 of the Act which carried a maximum penalty of a

- 1. Phoenix DM, 4 Dec. and 11 Dec. 1872.
- 2. JGL, 17 Dec. 1872 p.1040.
- 3. Ibid., 31 Dec. 1872 p.1071. 4. Ibid., 17 Dec. 1872 p.1042.

fine, the Magistrate sent the men to gaol for six weeks with hard labour under Section 14 of the Act. The damage the men's actions may have had for the public, said the Magistrate, meant that the case was one of aggravated misconduct. If a fine had been imposed it would only have been paid by the men's union. The men's solicitor indicated they had the right of appeal and asked what recognizances would be required of them. Two sureties of £100 each replied the Magistrate, and the men were escorted to prison. The Surrey Consumers prosecuted six of their men, again including the union leaders. The case was heard on 14 December at Greenwich Police Court. Three of the men ágain failed to appear and warrants were issued for their apprehension. Of the others, one pleaded guilty, and the other two claimed they had been ordered out by the union and did not know why. All three were sentenced to six weeks hard labour.<sup>1</sup>

Just as they were hardest hit by the strike, the Chartered took the most extensive legal action against their men. At Bow they summonsed four men, including Peach the union president, although only he and another man appeared in court.<sup>2</sup> Peach was also charged with threatening and intimidating a man to leave his work, but as no physical threat could be proved this charge was dismissed. On the breach of contract charge the company claimed that a notice in the men's lobby stated that a week's notice was required on either side. To this Peach said he could bring witnesses to say that while the notice was up men had been discharged at a moment's notice. The Magistrate asserted that if this were the case the company should have been prosecuted at the time; it had no bearing on this case. Peach was given the full penalty of the law three months with hard labour - for his 'act of tyranny against his masters'. The other man charged said he had simply followed the others in going out and was sent down for six weeks with hard labour.

1. JGL, 17 Dec. 1872 p.1042. . 2. Ibid. p.1041.

At Beckton, the Chartered took the use of the law to its logical conclusion and prosecuted the entire 500 men for breach of contract. About a dozen police were especially appointed to assist the summoning officer, who was also accompanied by a foreman or workman who knew where the men lived.<sup>1</sup> The case of the first batch of ten men was due to be heard on 11 December but this was also the day after the Commercial men had received six weeks hard labour and only one summons had been served, and that to a man who was ill<sup>2</sup> Clearly the men were getting out of the way in a hurry. However, on Friday, December, fifteen of the eighteen summonsed appeared before the court.<sup>3</sup> 13 The company's solicitor claimed that most of the defendants had signed or put their mark to the monthly contract instituted in 1871. Some had not agreed to sign it recently but were bound by a notice posted at the works that a week's notice was required. The company asked that the men be sent to prison - the only company to do so. The men claimed that they had been forced to strike by the union delegates or had been ill that day but the arguments of their solicitor showed he had little faith in their case. The strike had not been detrimental to the public, he claimed, since it had meant people would go to bed a little earlier. If all the men were sent to prison it would overburden the ratepayers. The Magistrate was not convinced and sent all the men to six weeks hard labour. The decision was followed by scenes of wives crying or fainting and clinging round the necks of their husbands as they were removed The following day, twenty-three men were due to appear to the cells. <sup>4</sup> although only five did so, and they received the same sentence amid the same hysterical scenes. The following Monday, with the adjourned cases due to be heard, the company finally relented and, accepting excuses, mainly of illness, declared it would not proceed further with the other summonses, and that the

- 1. Ibid. p.1034.
- Ibid. p.1040.
  Ibid. p.1042.
- 4. Greenwich and Deptford Chronicle, 21 Dec. 1872 p.3.

men might return to work. In all, of the 500 summonsed, nineteen were now in prison.

This was far from an end of the matter since in addition to the prosecutions under the Master and Servant law the Chartered also charged seven of the union's leaders at Beckton with conspiracy. At the committal proceedings on Tuesday, 10 December, only four of the men appeared. Webb, Dilley and Clarke, after being told the previous night that the possible penalty was two years in prison, had taken the £13 that the men had collected for their defence and run.<sup>3</sup> Dilley had later been apprehended at his home, but Webb and Clarke, despite rewards of £50 and £25 respectively, put up by the Chartered, were never heard of again. At the committal of the other four for conspiracy to intimidate Trewby to do something against his will by taking back Dilley, the defence lawyer claimed that no actual threats against the person had been made and there was no conspiracy except in private, of which there was no proof, and if there had been a conspiracy it was by Webb and the union not those present. The Magistrate, however, cited the recent case before Baron Bramwell to the effect that intimidation need not be a physical threat to the person and that the men had threatened to put a large proportion of London in darkness. He therefore sent the men for trial at the Old Bailey and granted bail of £100 Dilley was similarly which effectively consigned the men to Newgate. committed a few days later.

The sentences of the courts had by this time put the union into a panic, and with its leaders either in prison or on the run it fell apart. Webb and Clarke having taken the money for the men's defence, Webster turned again to Howell Broadhurst for help. This seems to have been Webster's last act as union

1. JGL, 31 Dec. 1872 p.1071.

and

- 2. Ibid., 17 Dec. 1872 p.1039.
- 3. Greenwich and Deptford Chronicle, 14 Dec. 1872.
- 4. JGL, 17 Dec. 1872 p.1039.

5. In a case regarding picketing in a strike of London tailors in 1867, where the union leaders were found guilty of conspiracy to molest by merely giving black looks. S. and B. Webb, op.cit. p.279.

6. London Gas Stokers..., op.cit. p.6; Howell, op.cit. p.241. See on Howell, Bellamy and Saville, op.cit. Vol.II pp.187-194.

secretary since soon after he, too, had taken himself off. By now, however, the labour establishment had become aware of the implications of the gas stokers' case for the whole trade union movement and very rapidly a Defence Committee was formed to help those charged. George Potter became chairman, Broadhurst, secretary, on a salary of 2 guineas a week, Daniel Guile, treasurer, while William Allan, George Howell, R.M. Latham, Robert Applegarth, Tom Hughes M.P., William Cobbett, Frederic Harrison, H. Crompton and Professor Beesly took part or at least lent their names. The Committee engaged defence lawyers, but since the trial came only a week after the committal proceedings little time remained for preparing the defence.

The case came before Justice Brett on Wednesday, 18 December. William Baliol Brett, who was born in 1815, the son of a clergyman, was educated at Winchester and Caius College, Cambridge and called to the bar in 1846 for what the <u>Times</u> was to call 'one of the most remarkable legal and judicial careers of our time'.<sup>2</sup> Brett was a Tory M.P. from 1865 until he was elevated to the bench in 1868 where even the <u>Times</u> found it necessary to note the inconsistency and class bias of his sentencing, comparing the twelve months sentence for a Col. Valentine Baker who had 'assaulted' a woman in a railway carriage, to the seven years penal survitude given for perjury and bigamy to Jean Luie in the Tichborne Trial. Made Lord Justice in 1876, Master of the Rolls in 1883 and ennobled as Lord Esher in 1885, he had the reputation for irritability and, as an appeal judge, for his policy of never allowing retrials. He died in 1899. The trial of the gas stokers in 1872 was one of the highlights of his career.

Brett's conduct of the trial, which was noteworthy for his interruptions and overruling of the defence case and his one-sided summing up,<sup>3</sup>began with

- 1. Bee-Hive, 28 Dec. 1872 p.4. 2. Times, 25 May 1899 p.8.
- 3. For a full report of the trial see <u>JGL</u>, 3 Dec. 1872 p.1070 and <u>London Gas</u> Stokers..., op.cit. pp.16-36.

him refusing defence pleas that they had not had enough time to prepare the case and that it should be put back to the next session. All that Brett would allow was a postponement to the following day. Hastily, overnight, a defence was prepared.<sup>1</sup> The men had been charged on a complicated series of counts, the most substantial of which was conspiracy to coerce Trewby to do something against his will by committing an unlawful act, namely, breaking their contracts. The defence made several technical objections to the form of the indictments which the judge overruled. The main defence was that the men had not conspired but had broken their contracts on impulse. There had been no threats to the person, and the Trade Union Act of 1871 had legalised combinations in restraint of trade. It was stretching the matter to use the law of conspiracy and the public would have been satisfied if the men had been summarily dealt with for breach of contract by a magistrate. In summing up, the judge ordered the jury not to pay attention to the effects on the public of the men's action. They had no contract with them. They had to decide if the men conspired to force Trewby or the company to act against their will by improper threat or annoyance or even by a 'deterring effect on the minds of Trewby and the company'.

The jury took only twenty minutes to agree with the judge that the men were guilty, but they made a strong recommendation to mercy on account of the men's great ignorance, of their having been misled and of their previous good character.<sup>2</sup> Brett retorted that this was for him to decide. Although the result of the conspiracy should not have been taken into account when determining the verdict it was now his duty to judge the possible magnitude of the crime in throwing London into darkness. Far from the men being misled, he thought they were the leaders. As for their ignorance, the effectiveness of their actions ruled that out. In fact: 'The time had come when a serious

London Gas Stokers..., op.cit. p.6.
 JGL, 3 Dec. 1872 p.1071.

punishment and not a nominal or a light one must be inflicted, a punishment that would teach men in their position...,<sup>1</sup>

Brett's sentence, one year's imprisonment, was the harshest for a trade union offence since the Tolpuddle case and it resounded around the trade union world. According to one historian 'Nothing had stirred working men so deeply since the Sheffield Outrages'.<sup>2</sup> In fact, the decision did little more than confirm what was known already - that although the 1871 Trade Union Act had formally legalised combinations of workers, the 1867 Master and Servant Act and the 1871 Criminal Law Amendment Act allowed almost any action in furtherance of a trade dispute to be construed by the courts as illegal. It was the addition of the common law of conspiracy and the severity of the sentences which gave the labour establishment both a fright and a useful focus of attention for their existing campaign against the law as it stood. In fact one recent historian of the period believes that the 'case made it abundantly clear that the Parliamentary Committee (of the TUC) had made too slight an estimate of the task with which it was confronted<sup>3</sup> and even George Howell, the Liberal Secretary of the Parliamentary Committee, was forced to admit that 'the gas stokers' prosecution, trial, and conviction and sentence had given the death blow to any compromise in the matter of the Criminal Law Amendment Act'.<sup>4</sup> The advice to the Defence Committee from their middle class friends Harrison, Beesly and Hughes was to the effect that the gas stokers' strike had been unjustified and that the convictions had been in accordance with the law as it stood, although the sentences had been harsh.<sup>5</sup> Accordingly, an application was made to the Home Secretary, Henry Bruce, for a remission of the sentences and for him to receive a deputation regarding the case and the Liberal Government's whole intention with regard to labour legislation.<sup>6</sup> In reply, Bruce said he

1. Ibid. p.1071.

- H.W. McCready 'British Labour's Lobby 1867-75', <u>The Canadian Journal of Economics</u> and Political Science, (May 1956) p.151.
  R. Harrison, Before the Socialists (1965) p.297.
  Quoted in F.M. Leventhal, <u>Respectable Radical: George Howell and Victorian</u> Working Class Politics (1971) p.173. See also K. Burgess, <u>The Origins of British</u> Industrial Polations (1975) p.102 Industrial Relations (1975) p.102.
- 5. Bee-Hive, 28 Dec. 1872 p.4. 6. Ibid., 11 Jan. 1873 p.3.

invariably refused to receive deputations but that he would accept a memorial in writing. This was drawn up by Howell<sup>1</sup> and duly sent off, claiming the men had not received enough time to prepare their defence, that the trial had taken place in an atmosphere of public excitement likely to cause a miscarriage of justice and the sentences had been excessive. The men had been convicted for conspiring to break their contracts with the company but sentenced on the effects to the public with whom they had no contract. The men were ignorant of the law since they assumed that if the company could dismiss men at a moment's notice this also applied to their side of the contract. The men were also convicted of conspiracy to coerce although there was no such offence under the wording of the 1871 Criminal Law Amendment Act. Therefore this was judge-made law and it was now a greater offence to conspire to commit a crime than to commit the crime itself, since it was agreed no coercion had taken place other than to leave work. The Trade Union Act of 1871 had made unions legal even though in restraint of trade while Brett's decision had contradicted this and meant that the whole issue of labour legislation, thought closed, must now be considered open again. The memorial concluded with a plea for royal clemency since the men were of previous good character and leniency had been recommended by the jury.<sup>2</sup>

In the meantime, a national campaign was under way on behalf of the gas stokers and against the law as it stood. Indeed one recent commentator believes cogether with that 'Crompton Harrison, Beesly and others attempted to get the Gas Stokers Committee transformed into an organisation which would not only look after the defence of the strikers and the welfare of their families, but which would be a headquarters for the kind of mass agitation they had been pressing for since 1871 or earlier. Their efforts met with success.'<sup>3</sup> Meetings expressing outrage were quickly arranged in London's pubs. The London Trades Council, with George Odger in the chair, arranged protest meetings.<sup>4</sup> 'The whole of the trades throughout

- Leventhal, op.cit. p.173.
  <u>Bee-Hive</u>, 11 Jan. 1873 p.3.
  R. Harrison, op.cit. p.298.
- 4. Bee-Hive, 28 Dec. 1872 p.4.

the United Kingdom must rise up as one man and protest against such a sentence and such an interpretation of the law', said Odger.<sup>1</sup> The Trades Council called a large meeting in Exeter Hall on 9 January, chaired by William Allen and addressed by Odger, Shipton and Broadhurst. Resolutions attacked Brett by name and urged, as the Home Secretary had refused to receive a deputation, that the industrial towns hold public meetings and petition the House of Commons to redress the matter. Meetings were in fact held in Northampton, Stafford, Manchester and Birmingham, and at the TUC in Leeds, starting on 13 January, the conviction of the gas stokers dominated the meeting and was thought to be the cause of the high turnout of 120 delegates.<sup>2</sup> The chairman, Lishman, however, in his opening address condemned the stokers' strike as 'inopportune and badly managed and calculated to injure trade unionism rather than benefit it'. Broadhurst immediately objected that the stokers had been justified because the companies had been weeding out union men for some time. The chairman's remarks therefore did not, he said, represent the feeling of the meeting, to which there were loud 'hear hears'. The conference went on to press for the abolition of the Criminal Law Amendment Act, the altering of the law of conspiracy as it applied to trade unions and the amendment of the Master and Servant Act.<sup>3</sup>

A press campaign was also kept up. Predictably the middle class press gave what John Morley, Editor of the Radical journal <u>The Fortnightly Review</u> called an 'austere approval' to the sentences<sup>4</sup> but Morley in the <u>Fortnightly</u> railed against the 'atrocious wrong' that had been done the gas stokers and urged the working class to use the ballot box to seek their emancipation<sup>5</sup>. Indeed Morley was much exercised on the issue and in a personal letter to Frederic Harrison was even more forthright. 'I am so much cut up about the iniquity of Brett, and the

- 1. Grant, op.cit. p.12.
- 2. Bee-Hive, 25 Jan. 1873.
- 3. Ibid., 18 Jan. 1873.
- 4. Fortnightly Review, 1 Jan. 1873 p.138.
- 5. Ibid. p.141.

injustices, and the sycophantic press, and the base, bloody, and brutal middle and upper class that I cannot think of anything else, and lie awake at nights... It is the worst atrocity in my time. Our workmen are such idiots; they have it in their own hands. Any one of them who asks any other question of a candidate at the next election except the alteration of this law, or who votes for any man who won't pledge, deserves twelve months.'<sup>1</sup> Crompton wrote a long and closely argued article against the labour laws in general under the heading 'Class Legislation' in the <u>Fortnightly</u>,<sup>2</sup> and the men's other ally the <u>Bee-Hive</u> in a more down to earth manner made much of the suffering of the families of the men in prison and, after they were released from their six weeks hard labour, of the experiences of the men while in prison.

Subscription funds had been raised to help with the relief of the men and families (and, indeed, of the families of the men who had absconded) as well as for the legal expenses. In total, the Defence Committee raised £468 while the London Trades Council collected nearly £100 and the Carpenter's Society £30.<sup>3</sup> Broadhurst, as secretary of the committee, related in the <u>Bee-Hive</u> how he tramped out to the East End to dispense relief to the men's families.<sup>4</sup> Three of the wives had been refused relief by the Guardians of Plaistow Union and heen told to apply to the Defence Committee. The wife of one man, John Dixon, Broadhurst found 'very hard at slop work with which she endeavoured to keep her five children from actual want. Indeed at the time she was piled round with loose jackets and pants unmade'. Dixon had been a ship's caulker but due to slackness of trade had gone into the Commercial works as a stoker. In Cold Bath Fields House

4. Ibid., 11 Jan. 1873.

<sup>1.</sup> F.W. Hirst (Ed.), Early Life and Letters of John Morley Vol. 1 (1927) p.230. 2. Fortnightly Review, 1 Feb. 1873 pp.205-7.

<sup>3.</sup> London Gas Stokers..., op.cit. p.51; Bee-Hive, 8 Feb. 1873.

of Correction he had worked the treadmill by day and picked oakum at night and had been given three days in solitary confinement on four ounces of bread a day 'for telling another prisoner what it meant having his number called'. He had lost eighteen pounds in weight while in prison and complained of the bitter cold. He and the other five of the men had received 17s 6d each from a 'whip round' among the stokers in the neighbourhood and they were given another 10s by Broadhurst. Richard Davis, the stoker from Bow Common who had also been at Cold Bath Fields, applied for relief to the committee saying that the treadmill, the coldness of his cell and the prison diet had broken his health. When he had fallen down in a faint a warder had kicked him in the stomach and on the wrist. He had seen a doctor and was too weak to work and the committee awarded him 30s. Prison had broken the health of most of the men. Peach had spent most of his three months in the prison hospital with a throat infection. When he emerged he was a wreck, unable to speak above a whisper, and after four months he was still under hospital treatment and unable to work.

The Defence Committee, which met every Saturday afternoon at the offices of <u>Bee-Hive</u>, waited in vain for any reply, or even an acknowledgement, of their memorial sent on 7 January to the Home Secretary. Yet Bruce was unable to ignore the clamour in the trade union world over the case, particularly since, in 1867, a significant number of working men had gained the vote and a general election was only a year away. What he decided to do was to send the Defence Committee's memorial to Brett, asking for his comments. Brett replied on 25 January defending his decision. No postponement was granted because there were no difficult points of law and the clerk of the

1. London Gas Stokers. A Report..., op.cit. p.44 and <u>Bee-Hive</u>, 1 Feb. 1873 p.4. 2. PRO HO 45 9326, 18243/24.

Court had said the men themselves did not want a postponement. Conspiracy to coerce was based on Baron Bramwell and other decisions but the jury convicted on conspiracy to break contracts. The conspiracy was a bad one since, after the union meeting prior to the strike, Wilson, one of the convicted, said he had a secret he would not tell his own father, and the secrecy proved the men knew they were doing wrong. The completeness of the scheme proved they were not ignorant. Brett concluded: 'I still think my sentences were right. But if you think they should be mitigated then I will too. Yet if, because of the return of the gasmen, the shortness of the strike, the sorrow of the defendants, if expressed by them, there is at present no memorial from them themselves, you think Her Majesty should show mercy I will be happy'.

Bruce took Brett's advice and quickly contacted A.J. Mundella the Liberal politician who had associated himself more than any other with labour matters. Probably at Mundella's behest<sup>2</sup> the men's solicitors approached the five men in Maidstone Prison and drew up a petition for mercy expressing the men's penitence. On receipt of this petition, via Mundella, Bruce remitted the men's sentences from twelve to four months on 31 January 1873. The reasons behind the move were clearly stated in a Home Office memorandum. The original sentences 'had worked' since the gasmen had returned to work while remission to four months still maintained the correctness of the conspiracy conviction compared to the three months maximum penalty under the Master and Servant Act. <sup>3</sup> In fact, the remission was a political compromise, an attempt to draw some of the odium of the trade union world away from the Government. Mundella telegraphed the Defence Committee to inform them of the decision,

PRO HO 45 9326, 18243/24.
 Although possibly Thomas Hughes', Howell, op.cit. p.249.
 PRO HO 45 9326, 18243/30.

while Bruce pointedly ignored the committee by sending the letter announcing the remission to the secretary of the TUC Parliamentary Committee, George Howell. Bee -Hive, anxious that the Government get no credit for the decision, pointed out this snub and the devious method by which the petition had been obtained from the men and expressed the hope that they had not compromised themselves. Whose idea the petition had been, of course, remained a mystery. The decision, Bee-Hiveemphasised, had upheld the use of the conspiracy charge and pledged the Defence Committee to a revision of the law and the immediate release of the men.

Bruce had sought the advice of the law officers on the present state of the law. They advised that strikes , by interfering with the will of the employer, could become a common law offence despite the Criminal Law Amendment Act if other judges followed Brett. Asked if the Master and Servant Law, with three months sentences, should be kept, they replied that this was merely a matter of policy. They recommended the retention of the conspiracy law due to its value in cases of fraud and public decency but urged amendment and codification to clear up its use in trade disputes.<sup>2</sup> As is well-known. the Liberal Government did nothing. If, by the commutation of the gas stokers' sentence, the Government had hoped to assuage working class opinion it did no such thing, and the Liberals went down to electoral defeat to the Conservatives in 1874. The new Government's legislation on labour law the following year gave the trade unions most of what they desired. The Employers and Workman Act replaced the Master and Servant law and abolished imprisonment for breach of contract, while the Conspiracy and Protection of Property Act limited the

1. Bee-Hive, 8 Feb. 1873 p.9. 2. PRO HO 45 9326, 18243/31.

3. For discussion of the reasons for the defeat see H.W. McCready 'The British Election of 1874; Frederic Harrison and the Liberal Labour Dilemma', The Canadian Journal of Economics and Political Science, (May 1954)pp.166-175; Harrison, op.cit. pp.299-300. 4. See W.H. Fraser, Trade Unions and Society: The Struggle for Acceptance 1850-

1880 (1974) pp.192-6; Leventhal, op.cit. p.185.

application of the law of conspiracy to trade disputes and legalised peaceful It did, however, make it a criminal offence, punishable by up to picketing. three months imprisonment, for a worker employed in the public supply of gas or water to break his contract in circumstances which made it probable that the public would be deprived of their supply.

The five gas stokers were released from Maidstone Prison on 15 April 1873 and a welcome for the men was arranged by Maidstone Trades Council. The men, in good health marched through the streets to the Sun Inn, the headquarters of the Trades Council, where a celebratory breakfast was held, attended and addressed by Potter, Odger, Shipton and Broadhurst. Dilley, after thanking the committee for keeping the men's families out of the workhouse while they were in prison, also maintained: 'My imprisonment has not driven my union principles out of me, and I hope to work, as I have hitherto done, to improve the moral and social position of my fellow workmen'.<sup>2</sup> A11 the men found difficulty getting work after they came out and were maintained out of the Defence Fund until they did. Ray and Dilley, however, asked the committee to pay for their passage to America which, for £32, they were granted. 3

Reviewing some of the issues involved in the 1872 strike is a useful way of revising the whole history of conflict in the nineteenth century gas

H.A. Clegg, Alan Fox and A.F. Thompson, <u>A History of British Trade Unions</u> Since 1889 Vol. 1 1889-1910 (1964) p.45 n 2.
 <u>Bee-Hive, 19 Apr. 1873 pp.4</u> and 8; Fraser, op.cit. pp.139-140.
 <u>London Gas Stokers</u>..., op.cit. p.51.

industry since, in a number of ways, it was a typical dispute. The causes of most of the strikes had much in common and as with all strikes up to that date, the 1872 dispute was brief and, equally typically, the men were utterly defeated. Characteristically, too, the stoppage came about as a result of the existence of a union among the men. On the surface it seems clear that the gas companies smashed the union in 1872 by sacking the union leaders and thus provoking a turn out by the men concerned to preserve their union. The strikers were replaced, many were convicted in the courts and the union broken. The companies, however, vehemently denied in the press that they did any such thing. Phillips, secretary of the Chartered, in a letter to the <u>Times</u> stated that,

the fact of a man's being a Union or a non-Union man is one of absolute indifference. Good servants are to be found in both and under reasonable conditions, the Directors of the Chartered are ready to avail themselves of both; but they are sternly determined to uphold their right to dismiss a bad or an insubordinate servant whether he has at his back a Union or not.

In the same paper Corbett Woodall, a man who would not wish his words taken lightly, maintained that 'so far as the Phoenix Company is concerned and so far as my knowledge of other works enables me to speak of them also, no attempt has been made to get rid of Union men as such.'

The companies' contention was made clear by Chubb, secretary of the Imperial. Since the start of the union there had been

a growing spirit of insubordination among this Company's men which has been at times almost intolerable. The men openly boasted of their power to put London into darkness whenever they pleased...The open speech and behaviour of the men... betokened mischief (and) the particular circumstances which occasioned the present strike was one of gross insubordination.

1. <u>Times</u>, 6 Dec. 1872 p.10. -2. <u>Ibid.</u>, 3 Dec. 1872 p.3.

The companies' case in public, therefore, was that men were sacked not for their union membership but because they were 'insubordinate', refused to obey the foremen or shirked their work. There may have been some truth in this in the sense that it is clear that individual indiscipline among the men increased at the same time as did collective action since they were both governed by the same barometer - the length of the queue of men at the gate looking to take the place of those inside. Moreover, it is possible that the companies feared the union more as a threat to its control over the work situation than as a collective bargaining instrument. Here, the level at which the decision to sack unionists was taken is relevant. Not surprisingly, the board minutes of the companies reveal no record of a decision at that level. Just possibly therefore, the sackings were made at engineer level since they, together with the foremen, had most to lose by loss of control but little to lose from the men bargaining wage or other improvements. In any event, it would possibly be going too far to say that the companies deliberately provoked a strike; more probably they attempted to break the union by getting rid of its leaders. Yet, that the companies were determined, despite their public protestations to the contrary, to smash the union cannot be in doubt.

The companies had prepared well for a strike, refused arbitration on the issue and identified and prosecuted the union leaders with cold accuracy in the courts. Moreover, some of the companies' pleas of indifference as to union membership were clearly <u>false</u>. Some of the loudest denials came from Corbett Woodall's Phoenix Company. Two union men sacked from the London asked for jobs at the Phoenix but were refused, according to the company, because their written references said they shirked their work. Asking for written references at all was of course so unusual as to destroy the company's case and identify it as designed for middle-class consumption. At the Imperial a manager was reported to have told a union delegate that the company were determined to 'crush the union if it cost a million in money'. The directors were just as candid in their minutes, reporting 'The troublesome men have been weeded out and the strike after a fortnight is at an end and the Union has entirely collapsed. The strike cost a great deal but now the recent prolonged insubordination is at an end'. <sup>2</sup> Years later, H.E. Jones, whose father was engineer at the Commercial in 1872 while he was at the Ratcliffe, was also equally frank in evidence to the <u>Royal Commission on Labour</u> in 1892. He had 'not heard of a man being sacked because he belonged to a union in the last four or five years', he said. 'Before then masters were jealous'.

The behaviour of the men was also consistent with the above view of matters. The union had not acted precipitately, as the labour establishment claimed it had: It had financially supported the sacked men - something it was not likely to have done had the men genuinely been dismissed for the reasons the companies gave. It was the rank and file of union members who struck spontaneously, rather than it being a decision of the union central committee. The men had nothing to gain by the strike except the reinstatement of a colleague, and even men uninvolved, as at the Independent and the Commercial, were prepared to come out on the issue. Nor can the decision have been lightly taken. The men must have known they risked the loss of their jobs, destitution and the workhouse for their families, and imprisonment for themselves. An insight can be gained by the reaction of one workman

JGL, 17 Dec. 1872 p.1033 and <u>Bee-Hive</u>, 7 Dec. 1872 p.2.
 Imperial CW, 18 Dec. 1872.
 R.C. on Labour, op.cit. p.219 Q 26396.

employed at the Pimlico works of the Chartered. Fifty-three years of age, he lived with his wife and six children in one 'wretchedly furnished' room. Though not in the union he claimed he had been compelled to strike but would not go back. Destitute, he had applied for outdoor relief but had been told he would have to enter the workhouse. The man chose another alternative and one morning his little daughter found him in the yard with a razor in one hand and blood coming from his throat. At the inquest the surgeon reported that he had found three cuts on the left side of the neck and a further cut which had severed the windpipe, all the arteries and extended to the spine. The widow and children had lived in the room with the body for a day and a night. The police applied for assistance to a magistrate who granted her £2 and made an order to see what could be done for her ultimately.

Why the strike was a failure for the men is not difficult to see. The union faced the full panoply of ruling class power. The companies not affected gave every assistance to those that were. The local authorities lent strike breakers. The police helped recruit blacklegs and gave them protection into the works, while the courts sent the union leaders to prison. Moreover, the middle-class press raised a chorus of condemnation against the gasworkers, none more so than the <u>Times</u>. Most of the reporting was illfounded and some, like the following passage from the <u>Times</u>, was scurrilous in the extreme.

As a body the committee (of the union) were about the most ignorant illiterate 'cantankerous' and dictatorial gang of men it is possible to imagine could be got together. They seemed to have no notion of conducting business and to be almost incapable of either saying anything reasonable themselves or of understanding when anything was said to them...They were not like the engineering or building unions.

1. JGL, 17 Dec. 1872 p.1040.

They did not hold votes of the men but simply said "We tell you to come out"...Of the seventeen men who formed the committee nearly all were Irishmen and most of the stokers were Irish too. Their conduct at nearly all the houses where they met has been disgraceful; it was a continuous scene of drunkeness, even helpless stupidity. Many of them were disaffected and were wellknown to have belonged to the Fenian and other secret organisations.

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It is possible to recognise the atmosphere of the delegate meetings from this report. Ignorant and fond of drink the men undoubtedly were, and certainly it was a mistake to allow the press into their meetings. Probably the niceties of democracy were not complied with, yet the impression that the majority of men struck against their will was unfounded. The decision to strike was made at a number of meetings prior to the turn out. Of the seventeen man committee, only one or two had Irish names, while the Fenian allegation was probably an actual libel.

Set against this impressive array of antagonists the gasworkers had few friends. Few of their respectable working-class or middle-class helpers thought them justified in striking.<sup>2</sup> The equally transient Labour Protection League - the dockers' un'on - gave encouragement. At a crowded meeting at the Anchor and Hope, Wapping, a resolution of sympathy, and another forbidding their members to blackleg, was passed.<sup>3</sup> They also received messages of support from the gasworkers of Manchester and Birmingham. Yet essentially the London gasworkers fought alone, and in this context several other factors counted against them. Illiterate, inexperienced and habitual drinkers, the gasmen were inevitably badly organised. One of the results of this was that the action by the men was badly co-ordinated, although less so than in previous

1. Times, 11 Dec. 1872 p.8.

Howell, op.cit. p.239.
 JGL, 17 Dec. 1872 p.1034.

strikes. Significantly, as before, the stokers had failed to recruit the yardmen to their cause probably because the unskilled labourer was even more vulnerable to being replaced than the retorthousemen. This meant, however, that the yardmen were used as blacklegs. The crucial factor in the men's failure was what it always had been - the ability of the companies to find sufficient new men to blackleg the strike. Given this, the strikers' only hope was to picket to keep the new men out but in this the men were also handicapped by an ironic respect for authority. Samuel Webb gave the final word at a Delegate Meeting on 4 December. They must not allow picketing, he said, and he was not sure that they should not withdraw the parties of observation because they did not want to break the law.

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1. Times, 5 Dec. 1872 p.3.

Chapter 8: The Eight Hour Day and the South Metropolitan Strike of 1889

By the 1880s the London gasworkers already had a long history of struggle and collective action, going back to the beginning of the industry. It might be supposed that the stokers would have taken many years to recover from the crushing defeat of 1872, yet only a year after the men were released from Maidstone prison the stokers at Beckton and Bow Common were again making an application to the Court of the Chartered for an increase in wages.<sup>1</sup> The state of trade was still good but the directors felt able to reject the request. A further memorial was forthcoming after this rejection and this the Court referred to the works' superintendents<sup>2</sup> for a report. The men probably had not formed a union and the wage increase was not won but the stokers had been organised enough to concert action from two of the company's works.

Collective action continued in the eighties and there is hardly a year when there is not some evidence of union organisation somewhere in the London gasworks. Yet the unions were invariably temporary and never attracted a significant membership, being little more than the attempts by a few committed unionists to get things going. Many of these men, however, were to play leading roles in the successful union of 1889. A union was started during the revival of trade in the early 1880s. It was based on the Nine Elms gasworks of the London Company and had its headquarters in a nearby pub, the Duke of Cornwall. Apparently established in June 1881, it registered with the Registrar of Friendly Societies in March 1882 as the Gás Workers Amalgamated Society.<sup>3</sup> F. Adams was president and R. Whitmore, secretary and the aims and rules of the society were similar to those of 1872 and 1889. Its objects were 'to

1. GLCC DM, 8 May 1874.

Ibid., 15 May 1874.
 PRO F.S. 7/9/365.

improve the condition and prospects of all classes of Gas workers and promote good understanding between Employers and Employed and the settlement of disputes by arbitration and other lawful means.' All classes of gasworkers were eligible and if a member left the gasworks to work elsewhere he could stay in the union. Subscriptions were 4d a week for which members received benefit of 10s a week when out of work. Branch secretaries got 3d per member per quarter. But the union lasted no more than eighteen months. In letters to the Registrar in 1892, Adams said that he had resigned in February 1883 and Whitmore that 'The Gas Workers Amalgamated Society did not exist but for a short time. It was soon discovered that the gas workers were by no means in favour of union at that time.'

The socialist newspaper Labour Elector, writing in 1889, was possibly referring to the Nine Elms union when it said that an attempt had been made to form a union in 1882. 'The history of its failure will have taught some useful lessons to the men who saw its decay. One of these lessons is that it is most undesirable that the meetings of branches should be held in public houses. Another is that if such societies are to keep the confidence and maintain the enthusiasm of their members, the leaders must combine honesty of purpose with administrative capacity.'<sup>2</sup> This homily might, however, apply to activity at the other end of town in 1882, since the retorthousemen at Beckton put in for a wage increase in that year. They wanted 61d per day for leading stokers and 3d a day for coke wheelers. The Committee of Works told Trewby to consult engineers in other companies and the secretary to reply to the men's letter that the matter was under consideration.<sup>3</sup> A month later, on Trewby's recommendation, the men's request was turned down.4

PRO F.S., op.cit. letters dated 28 Oct. 1892 and 9 Dec. 1892.
 Labour Elector, 27 Jul. 1889 p.58.
 GLCC CW, 21 Apr. 1882.
 Ibid., 19 May 1882.

Will Thorne in his memoirs maintains that an attempt to form a union in 1884 was made by Jack Monk. For fear of victimisation, the society had to act in secret and Monk had to go by the name 'Julian', and 'so strong was the economic control of the employers over the lives of the workers that the 'Association' as it was called lasted but a few short weeks.' Both Thorne and the Labour Elector agree that a further union was formed in 1885 with George Angle as secretary, but again fear of victimisation meant that it died after a few months.<sup>2</sup> Towards the end of 1886 yet another union was formed. This had some substance. It registered with the Registrar of Friendly Societies as the Amalgamated Association of Gas Workers of the United Kingdom, the title itself stating the ambitions of the union. $^3$ Its headquarters was the Sir John Lawrence pub in Canning Town and it was clearly based on Beckton. Will Thorne was active in the union but took no major office except auditor. M. Canty was elected president, Bill Ward, vice-president and Jack Monk was general secretary. The union was formed during the period when Thorne, together with other members of the socialist organisation, the Social Democratic Federation, held regular Sunday meetings in the East End, advocating socialism and the formation of unions for the unskilled. So it is possible that the 1887 union was little more than a group of SDF enthusiasts. Certainly they received little popular support in the gasworks and were constantly trying to fill up places on the committee. But they had relatively substantial funds and in January 1887 had 1,000 handbills printed calling a meeting to enrol members. "Yet things never really got going; in May Thorne proposed 'that

- 1. Thorne, op.cit. p.61. 2. Labour Elector, 27 Jul. 1889 p.58.
- 3. Original Minute Book of National Union of General and Municipal Workers, presented by W. Thorne to Chas. Dukes on his retirement in 1934. Kept at GMWU Library.
- 4. Ibid., 22 Jan. 1887.
this society be still continued and meet fortnightly on a Friday night<sup>1</sup>, and in August he was enpowered to spend 18s on pamphlets, although at the same meeting it was proposed and carried that the Association be dissolved. Canty and Thorne were to audit the books.<sup>2</sup> The union had lasted nine months. Curiously, however, it was not mentioned by Thorne in his memoirs, although he alludes to a movement around this time to gain a week's paid holiday at the Gas Light and Coke. Thorne believed this to have been unsuccessful but in this he is wrong,<sup>3</sup>though whether the holiday came as a result of the efforts of the union is not clear and no mention is made of it in its minutes.

Much has been written of the causes of the union of 1889. Thorne himself mentions the introduction of mechanical stoking, the speed up methods of the foremen at Beckton and - what seems to have been the immediate <u>casus belli</u> a requirement to do extra charges on a Sunday morning. <sup>4</sup> The causes of the rise of the union are more fully analysed in Chapter 12, but it is clear, in View of the frequency of such attempts in the eighties, the start of the union was not in itself noteworthy. What set it apart was its success in recruiting the mass of the men and here, as was the established pattern, it was the revival in employment in 1889 which was crucial. Sunday working and the bullying methods of the foremen can be taken as constant sources of complaint; what had changed was that in 1889 the men had the bargaining power

Ibid., 13 May 1887.
 Ibid., 19 Aug. 1887.
 GLCC DM, 28 May 1886.
 Thorne, op.cit. p.66 and <u>Labour Elector</u>, 27 Jul. 1889.

to feel able to do something about them. According to Thorne, the men were prepared to strike even before the union was formed.

A further point to be made relates to the role of Thorne. The impression given by his recent biographers is that he created the union virtually singlehanded. 'Even though the working conditions deteriorated rapidly Will Thorne was almost alone in his agitation to have them changed' is how the situation is related. And 'Will Thorne chose Sunday 31 March, 1889 to hold a meeting in Canning Town...' and 'organised the meeting brilliantly'. Thorne himself only states, 'A few of us got together; I gave my views and we held This was March 31 , 1889'. <sup>2</sup> Thorne was only one among many a meeting. gasworkers who had struggled to form a union, together with a number who were not gasmen, while the only feature significant about the first meeting was the number of men who attended. In fact it was held on Sunday, 24 March not 31 March, on Barking Road, after the Beckton men had been canvassed as to their views on forming a union. Thorne took the chair and the meeting was addressed by W.H. Hobart, Ben Tillett, Dick Mansfield and other outside socialists as well as by George Angle and John Walsh, gasworkers involved in earlier attempts at a union. In this first meeting, 800 men, according to Thorne, gave their names and their 15 entrance fee and a resolution to raise a deputation to see Beale, the manager of Beckton, and ask for the eight hour day was passed.

The following Sunday a similar meeting was held, attended by 2,500 men, and another resolution for the eight hour day with a maximum of seventy-two mouthpieces - compared to the eighty-four worked at Beckton - was carried, and a delegation of three men from each shift was appointed. This delegation

E.A. and G.H. Radice, <u>Will Thorne: Constructive Militant</u> (1974) pp.29-30.
 Thorne, op.cit. p.66.
 Justice, 30 Mar. 1889.
 Ibid., 6 Apr. 1889.

met Beale on the following Tuesday and he apparently sneered at the men's demands and doubted whether they represented the real wishes of the men. But Beale would not be able to maintain this stance for long. The union continued recruiting, not just at Beckton but in the other London gasworks. London's leading socialist orators were arranged to speak at meetings, often more than one per Sunday. Each week in the spring of 1889 brakeloads of men would set off from Barking Road, and later from other branches as they were set up, invariably led by a brass band, to an inaugural meeting of yet another new branch. On 7 April, after the third meeting on successive Sundays in Canning Town, a meeting was held in the afternoon at Kings Cross, addressed by Hobart and Tillett, and fifty men of the Pancras works joined the union. The following week a meeting was held at Battersea with John Burns in the chair and 134 of the Nine Elms men joined.<sup>3</sup> Another week it was Fulham's turn, and the week after that a meeting at Deptford attracted South Metropolitan men in.<sup>5</sup> On May 14 , another mass meeting was held at Canning Town and brakes came from all over London and formed a half-mile procession led by the Stevedore's brass band (hired for 30s).<sup>6</sup> With Thorne in the chair, a resolution for the eight hour day was passed together with one for the union to support any men victimised for their part in the movement. The procession then moved off to Kensal Green where 100 men were enrolled and a branch formed. What an impressive sight these meetings and processions must have made in contrast to the furtive secrecy of the union meetings earlier in the decade.

As the union grew its organisation struggled to keep pace. When the union was first formed, based on Beckton, it seems to have been little more

- 2. Justice, 13 Apr. 1889.
- 3. Ibid., 20 Apr. 1889.
  4. Ibid., 4 May 1889.
  5. Ibid., 11 May 1889.
- 6. Original Minute Book ..., op.cit. 13 May 1889.
- 7. Justice, 78 May 1889.

<sup>1.</sup> Labour Elector, 27 Jul. 1889

than a revival of the 1887 union. It took the same name and used the same minute Will Thorne seems to have been chairman and George Angle, secretary. book. The headquarters was at 144 Barking Road, in the temperance bar of William Byford, a friend of Thorne and a man with some union experience. This was probably the first time the headquarters of a gasworkers union had not been in a pub. According to Thorne, Byford, himself and Ben Tillett formed a 'provisional committee'. Certainly Tillett played a major role in the early months and took responsibility for registering the new union and its rules.<sup>2</sup> As new branches were formed they began to send men to Delegate Meetings and at one such meeting on 20 May, Tillett reported that the Registrar had refused to accept the union as it had the same name as the 1887 organisation. There was some discussion that the funds of the 1887 union be transfered to the new one but in the end it was decided to rename the union as the National Union of Gas Workers and General Labourers of Great Britain and Ireland.<sup>3</sup> It was also decided to appoint a paid general secretary and to take nominations. Only Tillett and Thorne were nominated and Thorne beat his rival by 2,296 votes July.<sup>4</sup> to 69 and took up his full-time duties on 1

This was not, it will be noted, until after the eight hour day had been won. Nor must the strength of the union in terms of numbers, as opposed to the bargaining strength of the men, be exaggerated. Indeed the winning of the eight hour day probably did more for the union than the other way round. As impressive as the size of the open-air meetings were, the proportion of men who actually put their hands in their pockets and joined the union in the first two months was probably not great, and even at Beckton was not 100 per cent. Although Thorne claimed that at the first meeting in March 800 men had

1. Thorne, op.cit. p.70.

2. Original Minute Book:..., op.cit. 20 May 1889.

3. Ibid., 8 May 1889.

4. Ibid., 28 Jun. 1889; H.A. Clegg, General Union in a Changing Society (1964) p.12.

given their names, only 240 had paid their membership fee. As late as 20 May. the Fulham branch, the Gas Light and Coke's third largest works, had only compared to 500 by 27 sixty-one members July<sup>2</sup> - after the eight hour day had been conceded. The Shoreditch branch had only eight members by 8 June July.<sup>3</sup> Again the union failed to recruit yardmen, but compared to 200 by 27 of the 6,000 retorthousemen in the London gasworks, 4,400 were in the union by June<sup>4</sup> July the union had 6.281 members in seventeen branches. <sup>5</sup> 22 : by 27

The bargaining strength of the men, however, was clear. As one gasworker put it to the Labour Elector in the first week in June when the men were joining the union very rapidly, 'Don't you see they was bullied and couldn't say their soul was their own afore. Now the foremen and engineers are getting frightened and treat them a little bit like men.' <sup>6</sup> Yet the drive for the eight hour day when it came was little better managed than past applications had been. The Beckton men moved first and sent a deputation of six men, including Thorne and Mark Hutchins, to the Gas Light and Coke's head office in Westminster. The men wanted the eight hour day and seventy-two mouthpieces. and the Court decided to refer the matter to the Chief Engineer.<sup>7</sup> The delegates from the other works do not seem to have been too pleased at Beckton having acted without them and they decided to send a petition to the directors and to the engineers of each individual works. Thorne said that the petition should be put to the meeting that Sunday at ; this was done, and in the following week petitions were presented Deptford to all three London companies.

Original Minute Book ..., op.cit. 20 May 1889.
 Labour Elector, 27 Jul. 1889 p.58.
 Original Minute Book ..., op.cit. 8 Jun. 1889; Labour Elector, 27 Jul. 1889.
 Ibid., 22 Jun. 1889 p.12.
 Ibid., 27 Jul. 1889 p.58.
 Ibid., 8 Jun. 1889 p.9.
 GLCC DM, 17 May 1889.
 Original Minute Book ..., op.cit. 20 May 1889.
 Justice, 1 Jun. 1889.

At the Gas Light and Coke, on Beale's advice, the Court agreed to the eight hour day but that seventy-six mouthpieces constitute a charge and that the foremen be the sole judge of how the charges were to be made and the number of shovelfuls for each retort. Time and a half was granted for Sunday Although the Court also ruled that the other work from 6 am to 6 pm. stations were to come in line with Beckton, possibly as an attempt to break the union the engineers at the other stations began offering their men different terms. At Nine Elms the men were offered eight hours but eighty mouthpieces, at Pancras twelve hours but ls a day increase in wages. Yet the attempt was irrelevant since at a meeting at Fulham on 2 June, after Thorne reported the reply of the directors, the men unanimously rejected the entire offer.<sup>3</sup> They wanted seventy-two mouthpieces for all works and objected to the proviso as to the number of shovelfuls which could mean they would be doing the same amount of work in eight hours as they were doing in twelve. They did indeed see the different offers in different works as an attempt to break the union. It was probably at this stage that the union began recruiting most rapidly and the men began to refuse to do any extra work above what they May the union resolved that no man was to do more considered normal. On 26 than eighty-four mouthpieces unless another man was sick. If a man was unable to work because drunk he was to receive no assistance. Two men were to attend the next meeting to explain their doing extra work.<sup>4</sup> Some men were sacked for refusing to do extra work, such as the two firemen at Beckton. One was in the union, the other was not but both were to 'go on the funds'. Finally,

GLCC DM, 31 May 1889.
 Labour Elector, 1 Jun. 1889.
 Justice, 8 Jun, 1889.
 Driginal Minute Book ..., op.cit. 26 May 1889.
 Ibid., 20 Jun. 1889.

June, the Court of the Gas Light and Coke conceded the seventy-two on 28 mouthpieces at most works, though again there was some plant-level bargaining, particularly at Nine Elms, where the men were offered seventy-six, which they finally had to accept.

At the South Metropolitan the men did from 112 to ninety-six mouthpieces and to their petition for seventy-two on 29 May, although they were 'favourably received', they were told by one engineer that the eight hour day was probably asking too much since 'men were scarce'.<sup>2</sup> When they met Livesey on 19 June they were told he could not entertain a reduction of work equal to an increase of 25 per cent in wages. A week later a notice was posted up by the company to the effect that they agreed more work was now done than in the past but that the men had been offered the eight hour day in previous years. They were now offered eight hours and eighty mouthpieces; if less mouthpieces, a cut in wages, or if twelve hours, as at present, a 122 per cent increase in wages. There was also an attempt to introduce monthly contracts. The following week, evidently after some negotiation, the company maintained that they would make no further concessions and would take practical steps to find other men if the terms were not accepted. By 10 July the men had accepted the eight hour day and eighty mouthpieces.

At the Commercial the petition was presented by the Poplar Branch Secretary, Jack Monk, who had been sacked the previous week.<sup>7</sup> The men wanted the eight hour day and a reduction from eighty-eight mouthpieces to sixty.

- 1. GLCC DM, 28 Jun. 1889; Justice, 13 Jul. 1889 and Thorne, op.cit. p.72. 2. Original Minute Book ..., op.cit. 8 Jun. 1889 and S. Metro. DM, 29 May 1889 p.307.
- 3. S. Metro. DM, 19 Jun. 1889; JGL, 2 Jul. 1889.
- 4. Ibid., 26 Jun. 1889 p.315. 5. Ibid., 3 Jul. 1889 p.319.
- 6. Ibid., 10 Jul. 1889 p.312; Labour Elector, 13 Jul. 1889 p.29.
- 7. Original Minute Book ..., op.cit. 8 Jun. 1889.



They were received 'as though they were a lot of babies in long clothes'. The Commercial board sat on the petition for a month, but after it had become clear that the other two companies had conceded Monk wrote, on 5 July. requesting an interview. The board replied that the matter was under consideration and that there was no need for an interview. 0n 9 July. H.E. Jones offered the men the eight hours and seventy-two to seventy-five mouthpieces, but this the men unanimously voted to reject. The most they would agree to was sixty-four mouthpieces and there were further detailed improvements they wanted to their working conditions. The company replied to this on 22 July, saying they would only concede the best terms granted by the other companies - namely seventy-two mouthpieces, time and a half for Sunday work and back pay due to the delay in adopting the system. This offer was to be final and indeed was accepted by the men.<sup>5</sup>

And so the eight hour day was won. To celebrate, the union organised a mass rally in Hyde Park on 28 July. All seventeen of the union's branches, headed by their bands, converged on the Embankment at 11 am and then headed off to Hyde Park. Other unions, as well as the Temperance Blue and Red Orders, were invited and some 12,000 assembled to hear speeches from three platforms. On the first spoke John Burns, H.H. Champion, editor of the Labour Elector, the paper which became the official organ of the union, Rev. W. Morris and Tom Mann; on the second were Tillett, Thorne, Hutchins and Mark Beaufov, the Radical M.P. for Kennington and supporter of the Eight Hour Movement, while on the third platform.came Hobart, Burrows, Wood,

- Original Minute Book ..., op.cit. 8 Jun. 1889 and Commercial DM, 7 Jun. 1889.
  Commercial DM, 5 Jul. 1889.
  Labour Elector, 13 Jul. 1889 p.22.
  Commercial DM, 19 Jul. 1889. See also above p.225.
- 5. Ibid., 26 Jul. 1889.

Annie Besant and Watkinson. At one o'clock all speeches were halted and a simultaneous resolution was passed to the effect that the gasworkers pledged themselves to assist other workers to obtain the eight hour day and called on local councils and Parliament to help.<sup>1</sup> The national press totally ignored the demonstration.

At this point it is perhaps necessary to correct the impression that the gasworkers won the eight hour day easily or that the companies did not put up a fight.<sup>2</sup> It is true that there was no strike; the union proceeded with extreme caution and, unlike in 1872, the men were not intimidated into strike action by the victimisation of their leaders. Yet the companies managed to sack Hutchins, Monk, Bill Ward and Franks (one of the early leaders) at one time or another. Again much of the friction came at foreman and engineer level. particularly over exactly how much work was to be done. Some of the sacked men, with union backing, took the companies to court and because of this it is possible to gain an insight into what went on. In May, during the early hours of a Saturday night shift at Beckton, a foreman found some lumps of coal on the floor and told a stoker, Manley, to shovel them in. Manley said he had already put the usual amount in and the retort was full and refused. 'You can consider yourself washed up', replied the foreman. Manley was sacked for 'insubordination' and another stoker, Fleet, was also dismissed for supporting him. The night shift held a meeting and told the foreman that they refused to do more than two scoops and seven shovelfuls. This was accepted but Beale also threatened the men with six months imprisonment on being charged with conspiracy if they refused to work. The men returned to work, but Manley and Fleet were not reinstated.

 Labour Elector, 3 Aug. 1889 p.76.
 e.g. 'by the early summer of 1889 they (the gas workers) felt themselves strong enough to make their demand for the eight hours, which much to their surprise was conceded throughout London without a struggle', H. Pelling, The Origins of the Labour Party 1880-1900 (1954) p.84.

In court emerged what also lay behind the dismissals. The carbonising foreman stated that Manley 'had been running about among the men' and had 'been cautioned from time to time for leaving the retorthouse and going round among the other men'. Manley claimed that he had been sacked once before 'for agitating among the men', but had been reinstated. Another factor in the dismissal may have been that the men had refused to pay the foreman's salt and pepper money, whereby each man in the house paid the foreman 1d a week, ostensibly for the flavourings but, since these hardly cost the 8s a week the foreman collected, really as a perk. The judge was impressed with none of this and found that Manley had been 'properly' dismissed for disobeying a lawful order. Nor was another stoker, who sued the company for a week's wages, having been sacked without receiving a week's notice, any more successful. The company's lawyer said that 'this was an important case to the defendant company to teach their servants that it was a foolish thing to put themselves in the hands of agitators'. The judge dismissed the case as no written agreement had been signed.<sup>2</sup> At the South Metropolitan, too, sackings occurred. A foreman asked a stoker, Frank Cameron, to do more work. When Cameron refused the foreman said, 'You will have to do it. I will dust the jackets of you union men before long.<sup>3</sup> The next week Cameron found himself out of a job. Apparently, if the story can be believed, when applied to, Livesey at first reinstated the man but changed his mind after Carpenter, then engineer at Vauxhall, had threatened to resign on the issue.

Not all the sackings were cases of victimisation, and the union did not agree in all cases to support the men with the 10s a week. One

 GLCC DM, 10 May 1889 and 28 Jun. 1889; JGL, 14 May 1889 p.915; Justice 11 May 1889 p.2 and Betty Grant, <u>Beckton's Struggles</u> (1955) p.24.
 <u>Labour Elector</u>, 20 Jul. 1889 p.43.
 Ibid., 27 Jul. 1889 p.61.

Beckton man, Gandy, claimed the only reason he had been sacked was for taking two pots of beer onto the stage but a meeting at East Ham had voted that he get no money from the funds, although this was later overruled. Many of the sackings must have arisen as a result of the men's attempts to keep down the amount of work done and the foremen's attempts to the contrary (and to preserve their traditional authority), as much as an attempt to smash the union as in 1872, since the companies were ill-equipped for a strike. Some attempts do seem to have been made, as in the past, to recruit fresh men but these must have quickly seemed hopeless.<sup>2</sup> Yet, given this, the companies bargained hard and conceded only what was necessary. The Gas Light and Coke tried to play one station off against the other, and attempted, as did the South Metropolitan, to impose weekly or monthly contracts and to get the maximum amount of work out of their men within the eight hours.

Conflict on the issue of work done continued after the formal agreements had been made. In mid-July, four men were sacked from Beckton for refusing to put in three scoops per charge. The men called in Thorne, now full-time secretary, to see Beale. Thorne, however, was stopped at the gates by police. 'The men were inclined to take him in with them police or no police but cooler councils prevailed.' Beale told the men he would not meet Thorne but if they went back to work he would see the directors on the matter. The following week he again refused to reinstate the four men unless the men agreed to the three scoops. The men refused, and Beale threatened to sack all the union men and find non-unionists. This was not done, of course, but the issue was still being contested a month later when the union sent a deputation to see Beale

Original Minute Book ..., op.cit. 20 May 1889.
 <u>Labour Elector</u>, 6 Jul. 1889 p.12.
 <u>Ibid.</u>, 27 Jul. 1889 p.60.

on the matter.' In September at Bow Common the stokers got as far as handing in their notices when a foreman tried to get them to go scraping and luting retort doors. The men won the day and extra men were employed. <sup>2</sup> The sacking of individuals continued, but the companies also tried a different tack. At the end of August the engineer at Fulham called in six of the union officials, congratulated them on the way they had conducted the eight hour agitation and made three of them foremen, <sup>3</sup> and in December three of the most prominent union men at Nine Elms were made stage foremen.<sup>4</sup>

By the end of July 1889 the union had virtually 100 per cent membership in the retorthouses of the London gasworks, and clearly the men hoped to press for further gains. The first of these was to impose the closed shop and a letter was sent to the companies early in September, saying that in future the union's Rule 16 would be implemented and the men would not work with non-unionists. At this the companies' engineers met and urged their directors to set up a joint committee to co-ordinate their policies.<sup>6</sup> The lack of this had been a significant feature of the eight hour campaign and may have owed something to the enmity between the chairmen of the two major companies. The Gas Light and Coke rejected the idea and decided to take no action on the union's letter - part of its developing policy of nonconfrontation with the union. The South Metropolitan, however, had possibly already resolved on the opposite course. Early in September, after yet another minor dispute, Livesey apparently told union delegates, 'Well if your union s going to act in this way it will not last twelve months' , which the men

Original Minute Book ..., op.cit. 19 Aug. 1889.
 Labour Elector, 21 Sep. 1889 p.190.
 Ibid., T Sep. 1889 p.179.
 Ibid., 7 Dec, 1889 p.358.
 S. Metro. DM, 11 Sep. 1889 p.338.
 Commercial DM, 6 Sep. 1889.
 GLCC DM, 6 Sep. 1889.
 Livesey in evidence to <u>R.C. on Labour</u>, op.cit. p.238 Q 26790.

took as a threat. When the closed shop notice was posted up at the South Metropolitan the company posted one alongside to the effect that the company did not recognise the union or its rules and it would not be allowed to interfere in the company's business. Non-union men were to be preferred to 1 unionists and were to be protected against intimidation.

At the same time, the company took measures to forestall the union's attempts to recruit yardmen. In anticipation of a request for a reduction of hours these were reduced to nine-and-a-half from ten  $\frac{2}{2}$ , and at Vauxhall Carpenter called a meeting of the yardmen pointing out the advantages of not joining the union and asking them if they would be prepared to go stoking in tne event of a strike. Next the company began sacking union men found trying to recruit new members, like the man dismissed at Vauxhall 'for bringing unfair pressure to bear on a man to join the union'. Mass meetings were held at the works, which Livesey attended, and agreed that delegates of the men meet the companys directors on 20 September. 5 In the meantime, the company seems to have attempted to find blacklegs. An old shed at Vauxhall was fitted up for their reception and foremen were sent into the country to find new men. These were told that they were needed to build 'New Victoria Gas Works'. Thirty-one arrived but only five stayed after pickets explained the situation. Two union men who came from West Drayton had been told they were short of men at Wauxhall and they also left. Just to back up their case, at 11 o'clock on the day of their meeting with the directors, scheduled for 12 o'clock, the entire workforce of the South Metropolitan.had handed in their notice. Having failed to find new men, Livesey was faced with the need to make humiliating

S. Metro. DM, 11 Sep. 1889 p.338.
 Ibid., 4 Sep. 1889.
 Labour Elector, 14 Sep. 1889 p.174.
 Ibid., 28 Sep. 1889 p.204 and 19 Oct. 1889.
 S. Metro. SHM, 17 Feb. 1890; Livesey to <u>R.C. on Labour</u>, op.cit. p.239.
 Labour Elector, 28 Sep. 1889.

concessions. He agreed to take back all the sacked men, to withdraw the court case the company had taken out against Frank Cameron and to apologise for the remarks he had made at a dinner to the effect that if the company got rid of the firebrands it would be an easy matter to crush the union. The company agreed to recognise the union and not to intimidate union men, while in return the men agreed to give a man seven days to join the union and if he refused that he be removed to another part of the works.

The effect on a proud man like Livesey of one humiliation after another can be imagined, and after September 20 , as he said later , preparations were actively but quietly made to meet the contingency of a strike'. Yet the initiative still lay with the men and Livesey's discomfiture was not September, the union decided that Thorne was to send a note yet over. On 16 to Beale, saying that the men at Beckton were going to a mass meeting on 3 Peckham Rye that Sunday and that no work would be done between 6 am and 10 pm. September, the Beckton branches decided to petition the company for 0n 24 the abolition of Sunday working or double time for work from 6 am to 10 pm and after a meeting of 6,000 men at the old meeting place outside the Ann Boleyn Tavern in the Barking Road on 13 October, the union's executive sent this demand 'By Order' to all the London companies. On the instigation of Henry Jones of the Commercial, he, Trewby from the Gas Light and Coke, Frank Livesey from the South Metropolitan and representatives from the suburban companies met Thorne and the union's executive council at Cannon Street Hotel November. Jones, in the chair, opened by saying that the companies had made on 4 an agreement a few months ago that time and a half was to be paid for Sunday work and to have this disturbed so quickly was 'discouraging'. To leave the

- 1. Ibid., 19 Oct. 1889.
- R.C. on Labour, op.cit. p.240 Q 26819.
  Original Minute Book:..., op.cit. 16 Sep. 1889.
- 4. Ibid., 24 Sep. 1889.
- 5. Justice, 19 Oct. 1889.
- 6. Reports and Balance Sheets of the National Union of Gas Workers and General Labourers (hereafter - Reports) Half Year ending 30 Sep. 1889 pp.18-21.

retorts for sixteen hours would damage them and any further expense would leave the companies open to competition from electricity. By the end of the three and a half hour meeting, however, the companies had offered double time from 6 am to 6 pm. Thorne said they could only agree to double time from 6 am to 10 pm but that the offer would be put to the men.

Mass meetings at Canning Town and Deptford unanimously rejected the companies' offer, although at the suburban works they voted to accept. At a further meeting at the Cannon Street Hotel on 11 November this decision was reported to the companies who attempted to bargain further.<sup>1</sup> Thorne was placatory, but to a further suggestion that the companies'offer go to arbitration, he gives a good insight into the real situation: 'It was with difficulty', he said 'they (the men) could be got to listen to their own union officials and it was doubtful if an arbitrator would have weight with them'. But he would put the question to the men and let the companies know. The answer was that the men wanted their full demands and these the companies finally had to accept <sup>2</sup>, with the exception of the South Metropolitan. Frank Livesey had not spoken at the first meeting with the union and had not attended the second, since by now his company's alternative plans had already been launched.

It is tempting to see the events of the next three months as entirely masterminded by the chairman of the South Metropolitan Company. It seems clear that, one way or another, by the autumn of 1889 George Livesey had determined to rid his company from the power of the union. Yet he must have realised that to do this by provoking a strike was going to be dangerous and costly. He therefore attempted to attain his ends by more subtle means,

Ibid. p.21.
 GLCC DM, 15 Nov. 1889.

while at the same time preparing for a strike and not flinching from one if it came. The means which came to hand was that of a bonus scheme, later dignified as profit sharing and, even later, as co-partnership. The idea was not a new one since, in a paper given to the Gas Institute in 1882 entitled 'Industrial Co-Partnership', Thomas Travers showed how he thought labour and capital could end their warfare by the workers being given a stake in the companies' prosperity. He cited the examples of the schemes of M. Leclaire, the Paris printer, and the scheme of 1865 by the mining firm of Briggs and Whitwood in Britain. Livesey, who was present at the meeting, thought this a good idea. He had, he said, suggested such a scheme himself at the time the sliding scale was adopted in 1875. Indeed, in 1886, an annual bonus scheme, dependent on profits, was introduced for the company's officers and foremen.

Therefore, when Livesey received the men's demands on Sunday work at the end of October he drafted a bonus scheme, 'in a hurry' for the general workmen. As Livesey later told it, he showed the scheme to non-union yardmen who thought it was the 'finest they had ever heard of' but union stokers did not like it and 'we then thought it must drop'. But the yardmen approached him to continue with it despite the union. <sup>4</sup> He publicly launched the scheme November. The men were to get one per cent of their year's wages for on 6 every 1d the price of gas fell below 2s 8d, that is , in 1889, 5 per cent on their wages. To give the scheme a good start it would be backdated to 1887, giving a nest-egg of 8 per cent, or some £7 per man. This, however, could not be drawn out for five years. Moreover,

1. For the history of the scheme see Chapter 9.

JGL, 20 Jun. 1882 p.1146.
 J. Metro. DM, 30 Mar. 1887, 22 Jun. 1887, 25 Apr. 1888.
 Livesey in evidence to R.C. on Labour, op.cit. p.243 Q 26841.
 <u>GW</u>, 16 Nov. 1889 p.548; <u>Labour Elector</u>, 16 Nov. 1889 p.309.

this money and any bonus would be forfeited in the event of a strike or wilful injury to the company. In addition, the men were to agree to work anywhere in the company and to obey the foremen, to sign a yearly contract and not leave except after such notice as the engineer thought necessary. The national press gave the scheme an enthusiastic reception and a leader in the <u>Times</u> called it 'One of the most important contributions towards the settlement of the labour question...'.

Indeed, the company's yardmen, not in the union, began to sign the scheme in large numbers, but the stokers could see the scheme for what it was. Moreover, they still wanted a settlement of the Sunday issue, so together with Thorne the union men met Livesey on 13 November. The men wanted the withdrawal of the bonus scheme. They objected to the strike clause and having to wait five years for their money. They did not see why the bonus could not be paid in their weekly pay packets. The scheme would bear alteration, replied Livesey. On the Sunday issue he offered time and a half from 6 am to 10 pm, but Thorne repeated that the men wanted double time and were prepared to strike on the issue. Again Livesey backed down: \_ 'very well I do not want a strike,' he said, 'but rather than risk a strike it will be given but remember I do it under protest and I promise you this that I will take it back again as soon as I can.! The men always came back for more but now they had 'squeezed the orange till it was dry.' Thorne, anxious to conciliate, suggested that they would wait till the company's accounts were issued in February. At this a unionist from Vauxhall said 'speak for yourself we do not say we shall wait till February'.

1. Times, 14 Nov. 1839 p.9.

2. S. Metro SHM, 17 Feb. 1890 and evidence of Livesey and Thomas Blackburn to R.C. on Labour, op.cit. p.241 Q 26824 and p.105 Q 23740.

At the union's executive meeting on 23 November, and at a mass meeting of the South Metropolitan men at Deptford the following day, the bonus scheme was condemned as an attempt to break up the union. Livesey still attempted to make the scheme acceptable, although at the same time he went back on his commitment on Sunday working. The company now proposed a ballot of the men and if they persisted in demanding double time it would be seen as a breach of the June agreement and an act of hostility towards the company. As to the bonus scheme, the strike clause was dropped, the men were quite free to stay in the union, and the nest egg was increased to 9 per cent and needed only to be kept in three years. The new scheme was posted up in the works on 27 November. The men could have been forgiven for being fooled by the revised scheme since even the Labour Elector withdrew its objections to it. But the men saw more clearly the problems. They were still left at the mercy of the foremen and they still had to accept yearly contracts which, by their nature, ran out at different dates, making collective action impossible.

It seems clear that from foremen up to chairman the company now began 4pressurising the retorthousemen to sign the agreement, as all the yardmen had by now done. Within days the inevitable occurred and three stokers at Vauxhall, men claimed to be in arrears anyway with their union dues, tore up their union cards and signed the bonus scheme. A similar thing occurred at Rotherhithe. Immediately the Vauxhall men held a meeting and determined to hand in their notice unless the three men were removed from the retorthouse. This message was duly conveyed to the board by Thorne. Livesey replied that he refused

GW, 30 Nov. 1889 p.603 and 14 Dec. 1889 p.659.
 Ibid., 7 Dec. 1889 p.634.
 Labour Elector, 7 Dec. 1889.
 Ibid., 16 Nov. 1889.
 S. Metro. DM, 4 Dec. 1889.

to remove the men and an executive meeting of the union on Wednesday 4 December, held while Thorne was in Manchester dealing with the strike up there, sent an ultimatum which the company had no intention of meeting. As Livesey said later, 'We had been watching our opportunity and we saw it on receipt of this letter.' The company's engineers seemed jubilant that at last the strike was imminent. 'Now can we set to work?' said one. Yes, replied Livesey, now they could openly prepare for the strike. As another director was to put it to the shareholders after the strike, 'he was not betraying anything when he said that when the men sent in their ultimatum their officers and loyal men at the different stations rejoiced at the prospect of being delivered from the state of thraldom under which they were suffering'.

On Thursday, 5 December, virtually the entire workforce of the South Metropolitan retorthouses together with some yardmen - some 2,000 men in all handed in their week's notice. This meant that the last shift to turn out would do so at 6 o'clock the following Friday morning. This gave Livesey a vital week in which to bring into operation plans which had been worked out in the months previously. These plans, thrashed out in weekly meetings with the engineers, were of course no different to those made in every strike in the industry's history. They were, however, on a grander scale. Coal stocks had been increased, and additional corrugated iron buildings had been erected and six steamers had been chartered to house blacklegs. Beds were ordered and food and drink supplies arranged. Livesey visited Monro, the Chief Commissioner of Police, on several occasions to ensure the safety of the new men.<sup>5</sup> Monro had assured Livesey he would give the company all the protection he could within the law. The provision of blacklegs was the vital issue.

R.C. on Labour, op.cit. p.246 Q 26877.

2. <u>GW, 1 Mar. 189</u>0 p.241.

3. Ibid., 14 Dec. 1889 p.660.
 4. S. Metro. SHM, 17 Feb. 1890 p.2; Livesey to <u>R.C. on Labour</u>, op.cit. p.222.
 5. S. Metro. DM, 7 Dec. 1889.

Advertisements asking for men had been previously prepared for insertion in provincial newspapers when a telegram giving instructions to do so was received. The bait was an attractive one. The blacklegs were to be paid, in addition to the normal rates of pay, £2 extra for the first week of the strike and £1 a week for as long as the strike lasted. Previously printed posters offering these terms were put up all over London while the company's officers, inspectors, clerks and foremen, together with hired labour agents, were sent all over the country to recruit men. There were reports of an agent in Cambridge 'throwing money around on drink' to help matters along.<sup>2</sup> Men came predominantly from rural areas: Cornwall, Devon, Sussex, Lincolnshire and of their own accord, in gangs from the villages of Kent. Interestingly, they also came from seaside resorts which, like the agricultural areas, were in the middle of their winter slack period. Contingents came from Sittingbourne, Yarmouth, Eastbourne, Ramsgate, Brighton and the Isle of Wight. As in the past the railways gave every help, laying on special trains, like the one that brought down 300 men from Birmingham at 3 o'clock in the morning. Barclay Perkins, the brewers, lent men and once the strike had begun men from the strike at Manchester gasworks came to London as blacklegs. The workhouses of London were also scoured. One newspaper told the story of a destitute gas worker from the Midlands who had come to London a few weeks prior to the strike after losing his job in the slack period. He was at that time in a south London workhouse with a wife and two children and was jubilant at the prospect of a good job and the bonus. He intended, he said, to return home after six months with the money saved and set up as a coal and coke merchant. And

Labour Elector, 14 Dec. 1889.
 GW , 4 Jan. 1890 p.20.
 Labour Elector, 21 Dec. 1889 p.390.
 Evening News, 23 Dec. 1889 p.4.
 Ibid., 12 Dec. 1889 p.3.

the men were to be well provided for. Immediately prior to the turnout the <u>Times</u> reporter inspected the works. 'There are great piles of bread, heaps of tinned meats, sacks of tapioca and so on. Special boilers, heated by steam, have been procured for the preparation of soup...there is even a slaughterhouse on the premises. The probability is that the imported men will be more comfortably housed and better fed than during any former period of their lives'.

The union men, too, made their preparations. Mass meetings were held on the Sunday before the strike on Peckham Rye and Deptford Broadway. Chaired by Mark Hutchins the meetings were addressed by Angle, Walsh and Watkinson and they passed resolutions that the men were justified in handing in their notices and calling for other unions to help. At Deptford the men wore portraits of John Burns in their hats but he sent a postcard to say he was, like Thorne, still in Manchester. This did not prevent Michael Henry, the leader of the Coal Porters' Union, from attacking Burns who, he said, like many others, only turned up when there was glory around. This in itself was an indication of the mood of the men, which was further emphasised when, during Henry's speech, an old lamplighter offered the suggestion that coal porters did not get bad wages. According to the Times the old man was beaten up by the crowd and was about to be dumped in a pond before he was rescued by three policemen and sent home on an omnibus.

A strike committee was set up with Hutchins as chairman. He seems to have got a job with the South Metropolitan after being sacked from Beckton but was now the union's president and emerged as the strike leader. Thorne seems to have had no faith in the strike from the start and, to say the least,

- 1. Times, 13 Dec. 1889 p.6. 2. Labour Elector, 14 Dec. 1889.
- Times, 9 Dec. 1889 p.7.

kept out of the way. George Davis was secretary and A. Moran was treasurer of the strike committee. In addition, each works had a sub-committee. The main committee took offices outside the company's largest works in Vauxhall and pickets, six men on the main gates and four on side gates, were organised. Railway stations and canal banks were also watched and delegates were sent all over the country to try to dissuade men from coming up to London as blacklegs. They were armed with leaflets saying that only trade unionists could work in London and as to gaswork 'only the most powerful men can bear the heat which makes a man of thirty years of age almost an old man. These powerful men are on strike against an attempt by the South Metropolitan gas company to break their trade union, and any labourers attempting to take their places run grave risks....'. There seems to have been some reluctance to take the South Metropolitan jobs in the workhouses of London. In West Ham enough men refused to take these !black' jobs that the Guardians decided to close the labour yard for a fortnight and send all the men to the gasworks; if any came back, they would be prosecuted. When a deputation arrived at the board meeting from the labour yard, asking that it should be opened more days in the week, the chairmen cross-examined the men's spokesman.

Would you be willing to work if you could get it apart from this gaswork?

Yes, said the man, if I can get legitimate work to do.

What do you call legitimate work?

Why work without doing harm to any other man.

And the pickets had success in turning long-distance arrivals away. Twelve 5 men were sent back to Sittingbourne on the Thursday. This, however, was

1. Star, 12 Dec. 1889 p.5. 2. Thorne in evidence to <u>R.C. on Labour</u>, op.cit. p.171 Q 25416. 3. <u>GW</u>, 14 Dec. 1889 p.661. 4. Grant, op.cit. p.30.

5: Labour Elector, 14 Dec. 1889 p.373.

in the context of the 900 applications that Livesey was receiving for jobs every day, and the attitude of these men may be epitomised in the reply of one farm labourer when asked not to go into the gasworks. 'I've just left a place in Berkshire of half-a-crown a day', he said 'If you like to go for it, it's open yet.'

The men soon realised they were in for a desperate fight, totally different to the situation when they had last handed in their notices in September. Nor did the men serve out their notices like gentlemen. On the day after these were handed in, when the company was bringing barge-loads of food up to Old Kent Road, the men thought blacklegs were arriving and came from all over the works carrying their tools in a threatening way.<sup>2</sup> 0n Saturday night the men at Greenwich broke into a store and threw 130 blankets intended for the blacklegs into Deptford Creek. On Monday three new men were taken on at Rotherhithe but the men there and at Old Kent Road downed tools until they were withdrawn. Later in the day, twelve new men at Vauxhall caused all six works to stop. Livesey threatened the men with prosecution and three months imprisonment under the Conspiracy and Protection of Property Act, but the men replied, 'Can't help that master the Union says we are not to work and we must obey the Union." Again the company was forced to give way but it had forms for summonsing the men made out in the event of a further stoppage. Moreover, on that day Livesey had another interview with Monro and as a result the police marched into the works in force: fifty men, six sergeants and an inspector at the three largest works, Vauxhall, Old Kent Road and Rotherhithe,

Grant, op.cit. p.30.
 Livesey to R.C. on Labour, op.cit. p.247 Q 26877.
 S. Metro. SHM, 17 Feb. 1890 p.3.

4. Ibid.

and proportionately less in the three smaller works, Bankside, East and West Greenwich - a total, in shifts, of 700 police. Yet this and Livesey's threats did not entirely deter the men. On the following day, Tuesday, the East Greenwich men got word that nine blacklegs were on the works and they downed tools and saw them off without violence. The men did as much damage to the retorts and furnaces as they could get away with and blocked up the ascension pipes. They also made as little gas as possible. The day before they handed their notices in the men made 27½ million cubic feet of gas; their last day at work produced just over twenty-three million.<sup>3</sup> As a parting gesture the men threw their tools in the river and, at Old Kent Road and Greenwich, attempted to set fire to their lobbies.

The week leading up to the strike saw a number of attempts by third parties at mediation. The fact that the company went along with these moves is some indication that they were not as confident as in hindsight they liked to suggest. On the Monday they posted up a further amendment to the scheme in that the length of notice required was reduced from a year to three months, and any man could take back their strike notice up to the following day. A leading unionist was made up to foreman on the understanding he would try to persuade the men not to strike. On the Tuesday Livesey met two local MPs, Causton and Beaufoy, who were attempting to reconcile the two sides and as a result the South Metropolitan board met a union deputation the following day. However, according to the men, the directors were not prepared to make any while to Livesey 'the men thought we could not alteration to the scheme, do without them and wanted the complete withdrawal of the scheme.' A

1. Greenwich and Deptford Observer, 13 Dec. 1889 p.5. 2. S. Metro. SHM, 17 Feb. 1890 p.4.

- 3. <u>GW</u>, 21 Dec. 1889 p.683.
- 4. Tbid., 14 Dec. 1889 p.660.
- 5. S. Metro. DM, 11 Dec. 1889 p.375.
- 6. GW, 14 Dec. 1889 p.661.
- 7. Livesey to R.C. on Labour, op.cit. p.248 Q 26882.

further attempt at a peaceful solution was made by the clergy. According to Livesey, one afternoon Dr. Clifford, Rev. Andrew Mearns (author of <u>The Bitter</u> <u>Cry of Outcast London</u>) and Rev. Hugh Price Hughes paid him a visit. The latter gentleman apparently talked for one and a half hours and suggested to Livesey that he was depriving the men 'of the sacred right to strike'. The scene can be imagined as Livesey lost his invariably limited patience and told the men of the cloth 'It will be a great deal better if you will mind your own business and leave us to manage ours without interference'.<sup>1</sup> Mearns at least seems to have continued attempts at peace and on Wednesday wrote a letter to Livesey saying that the men had withdrawn their objection to the profit sharing scheme. Whether this was true or not, Livesey replied on the Friday that it was not what the men had told him and in any case they were now too late as the new men had already been engaged.<sup>2</sup>

A final attempt at conciliation came as a result of the coal porters' involvement in the dispute. The Coal Porters Union was formed in September with Henry Brill as president and Michael Henry as secretary. Henry was a very interesting character. He is described as an Irish American by the <u>Journal of Gas Lighting</u><sup>3</sup>, as a journalist, novel writer and smart platform orator by Thorne <sup>4</sup>, and conspiratorially by the <u>Times</u> as 'a man of some education...well dressed, he is a fluent open air speaker, his syntax is good and uses language that smacks of culture.' <sup>5</sup> Clearly, even more of an opportunist than most labour leaders of the time, Henry was to play an ignominious role in the forthcoming strike. Perhaps to, focus support for the strike at

1. Ibid.

- 2. <u>GW</u>, 21 Dec. 1889 pp.682-3.
- 3. JGL, 7 Jan. 1890.
- 4. Thorne, op.cit. p.96.
- 5. <u>Times</u>, 16 Dec. 1889 p.7.

the South Metropolitan into which his coal porters were bound to be drawn, Henry put in a claim to all London employers for an increase in piece rates 3d from to 4d per ton. This threatened the movement of coal throughout the Thames and in this light the Lord Mayor called a conference of the employers, including the gas companies, together with Sir John Lubbock and Cardinal Manning, the mediators in the Great Dock Strike the previous Price Hughes and Mearns were also present and Henry and Jim Connor summer. represented the Coal Porters. After some negotiation the general employers and the gas companies, except the South Metropolitan, accepted the increased rates. Henry seems to have added the reinstatement of the stokers to the demands on Livesey's company, maintaining that the stokers had withdrawn their objections to the bonus scheme provided only that the length of notice be reduced to one This Livesey refused and Henry approached him with a request to stay month. behind after the meeting. He asked Livesey how much it would cost to pay off the new men. Ten thousand pounds, replied Livesey. When Henry asked what that was compared to the full cost of the strike, Livesey further stated that the company was 'bound as a matter of honour' to keep on the new men. Perhaps not knowing Livesey that well, Henry suggested that they dismiss honour', at which point the South Metropolitan chairman got up to leave. Henry then began to threaten Livesey that not an ounce of coal would reach the company's works the following day and that their shares would not be worth 5d in a month. The company was now determined to fight the matter to the bitter end, replied Livesey, and so ended the last attempt to avert the strike.

On the Thursday, December 12 , the first shifts began turning out and they were met by cheering colleagues and gasworkers from across the river. The

- 1. Ibid. 7 Dec. 1889.
- 2. Clegg, Fox and Thompson, op.cit. p.63.
- 3. Livesey to R.C. on Labour, op.cit. p.249 Q 26886; GW, 21 Dec. 1889 p.682-685 and J Mar. 1890 p.241; JGL, 4 Mar. 1890 p.394; S. Metro SHM, 17 Feb. 1890.

2 o'clock shift at Vauxhall was played out by the S D F brass band and, with men from Fulham and Nine Elms, a procession of 1,000 men was made, but it was soon turned back by a force of 500 police. The crucial period, of course. was the final shift on Friday morning. The strikers, again reinforced from north of the river, must have had some intention of trying to stop the blacklegs entering the various works, but there was a massive show of force by the police of which there were 3,000 on duty including, it was said, plain clothes men mingling with the blacklegs... From the railway stations the new men were escorted by mounted police at front and rear and a column of police two abreast either side. Although there was an 'ugly rush' at Old Kent Road and some mud throwing by strikers' wives at Rotherhithe, the blacklegs entered the works with little difficulty. For Livesey, looking back on 'that long to be remembered Friday morning', the battle was won by 10 o'clock, by which time he had assembled 5,000 new hands in the various works' yards. This was 2,000 more than was needed, so this number were given a meal and paid off, illustrating the extent to which Livesey was 'bound as a matter of honour' to the new men.

On the first day the police remained on duty in force inside the works which must have given the appearance of fortresses under siege. Vauxhall, for example, had 600 police, eighty of them mounted, in the yard. Without them, according to Livesey, there could have been a 'disaster'. The role of the police is of interest since under the facade of neutrality the reality is not difficult to see. Thorne complained of excessive violence by the police

- 1. Justice, 21 Dec. 1889 p.4 and Labour Elector, 21 Dec. 1889 p.389.
- 2. Sun, 15 Dec. 1889 p.4.
- 3. S. Metro. SHM, 17 Feb. 1890 p.4.
- 4. Livesey to R.C. on Labour, op.cit. p.250 Q 26888.
- 5. Thorne to R.C. on Labour, op.cit. p.155 Q 25026.

and that he was punched and kicked down a flight of stairs. There were common claims that the police would not let pickets even talk to blacklegs, and one story that as one set of blacklegs were marched into a works one man attempted to enter the headquarters of the strike committee but was restrained. There were also rumours that the police were keeping some blacklegs in the works against their will. Bill Ward claimed that the police shoved strikers to provoke them to retort , and the situation outside the works was described by the Evening News as follows:

Outside the gates some hundreds of determined looking men were serving as pickets. 'You'll soon see a scatter', said a member of the constabulary to our man, as he raised himself for a moment on his toes and glanced admiringly at the knots of able bodied policemen sprinkled here and there, and sure enough there was a scatter but its effects were only temporary. In five minutes the crowd was aslarge as ever.'

Inside the works, the loyal hands and the foremen set about teaching the motley assembly how to stoke. And the battle can only have seemed won on the first day by Livesey in retrospect. The raw recruits took many weeks to learn the work. From a normal day's output of 27 million cubic feet, only 131 million was produced on the Friday, 14% million on Saturday and 16% million on Sunday, and supply was not back to normal for over a month. On top of this, for much of the period of the strike a heavy fog descended over London. The public lamps were lit an hour later and extinguished an hour earlier and consumers were exhorted to use less gas and took again to using oil lamps. Moreover, on the works, if it had been one problem getting sufficient new men in the first place it was another matter keeping them. The men had to

1. Ward to R.C. on Labour, op.cit. p.124 Q 24134. 2. Evening News, 12 Dec. 1889 p.3.

3. GW, 21 Dec. 1889 p.683.

be entirely provided for on the works since it was too dangerous for them to venture out. There were very limited washing facilities and, despite the free food and beer, conditions, even for a farm labourer, must have seemed appalling. One blackleg returning to Brighton described how the men had to work up to sixteen hours a day and he could not sleep because of the noise of the men getting drunk. Many of the men became seriously ill. Many were not suited for the work in the first place. Some became homesick, while others, who were earning more money than ever before in their lives, could not wait to spend it. The contingent sent down by the Birmingham agent were merely layabouts and petty criminals and were soon appearing in the courts of London on drink and other charges. So one way or another several hundreds of blacklegs left each Saturday, which gave Livesey the continuing problem of finding and training new men and the strikers hope that victory might still be theirs.

The first line of attack by the strikers therefore, was to seduce blacklegs away from the works and prevent new ones entering. Some attempts were quite audacious. On Saturday night two strikers re-entered the East Greenwich works wearing their union rosettes under their coats. They told a police inspector that they were looking for work and gained entry to a lobby. They approached one blackleg and said, 'Why don't you act as a man, put on your clothes and come out and join the Union? It's through you that our wives and children are starving'. The attention of a foreman was soon drawn to the men and they were taken to court for being on enclosed premises for an unlawful purpose. The magistrate, however, discharged the men because no violence had On the Thursday night a large party of men came up from Portsbeen used.

Justice, 25 Jan. 1890 p.3.
 Labour Elector, 21 Dec. 1889 p.390.

Greenwich and Deptford Observer, 20 Dec. 1889 p.5.

mouth but they were spoken to by pickets at Clapham Junction and a number agreed to return home and were given the union's warning leaflets to distribute when they got back. As the men got more desperate, however, the incidence of violence increased, and before the strike was over forty men had been convicted, making it the most violent strike in the history of disputes in the London gas industry. As police marched fresh batches of blacklegs in, bricks and mud were thrown by strikers and their wives and rushes were made. Sentences ranged from a 10s fine and 3s 6d doctor's fees for kicking a policeman to three months hard labour for men involved in a near riot outside the East Greenwich works on Saturday, 21 December. In one case a policeman was hit on the helmet with a brick. In another, Jack Monk, who like Hutchins had crossed the river to get a job after being sacked from the Commercial, gave evidence and claimed the police had been punching people. There were also many attacks on individual blacklegs whenever they were found. One was pushed into a ditch and hit with a stone attached to a rope. One was found in Surrey Canal with his shoes tied together and his throat cut. A postcard was sent to the doctor involved saying 'All blacklegs should take warning from this'.<sup>8</sup> But it transpired that the man had taken his own life. Not surprisingly, some blacklegs armed themselves and one was summonsed for poking a revolver into the ear of one of the strikers in a pub. 9 The union men claimed, though Livesey denied it, that the company had armed its foremen. Bill Ward related how he met an East Greenwich foreman who said, 'Bill, this is the way we do it,' and fired two shots from his revolver into the air.

Labour Elector, 13 Dec. 1889.
 Livesey to R.C. on Labour, op.cit. p.236 Q 26891.
 Greenwich and Deptford Observer, 13 Dec. 1889.
 Ibid., 3 Jan. 1890.
 Ibid., 20 Dec. 1889.
 Ibid., 20 Dec. 1889.
 Ibid., 3 Jan. 1890.
 Labour Elector, 4 Jan. 1890.
 Greenwich and Deptford Observer, 24 Jan. 1890 p.3.
 Ward to R.C. on Labour, op.cit. p.123 Q 24119.

As has been mentioned, about 200 men came down from the strike of gasworkers in Manchester - many of them union men. A watch was kept by the London strikers on the railway stations and the arrival of the Manchester men caused some of the bitterest scenes of the strike when they were punched and pelted with bricks. According to Higgins, a stoker from the Salford gasworks who seems to have acted as Livesey's agent, the Manchester men knew they were blacklegging but they were dissatisfied with the union and the London men had blacklegged their strike. The union had had agents in Manchester offering 5s ' if they would not go to London the men there and many, after they arrived in London, were pulled away at the stations and had their fare paid to return home. Those that did start work were not thought good material by Livesey and were sacked or seduced away by the strikers.

Yet, despite their successes, it quickly dawned on the men that they had failed to stop the company obtaining and keeping sufficient men to keep up an acceptable level of production. At the first of what were to be regular Sunday meetings of the strikers on Peckham Rye, the Times reported that the men were 'certainly not in high spirits at the outset'<sup>3</sup>. Also ominously, unlike at the dockers' meetings, the 3,000 men there were all genuine gasworkers. The strike was gaining no support from the public nor from other trade unions despite the protestations to the contrary by Henry, who asked 'whether the trade unions of England would allow them to be defeated?' - to which the men chorused 'No!' The truth was probably better known to Will Thorne, who said only a few brief sentences.

1. Higgins in evidence to the <u>R.C. on Labour</u>, op.cit. p.131 Q 24356. 2. <u>GW</u>, 4 Jan. 1890 pp.18-21.

- Times , 15 Dec. 1889.
- Labour Elector, 21 Dec. 1889 p.390.

The second line of attack for the strikers was to attempt to stop the movement of coal into the South Metropolitan works. In the event, 175 of the companies' coal porters had come out with the stokers, but, despite the fact that on Livesey's own admission it took four or five days for blacklegs to do what the union men had done in ten hours, the coal was unloaded. The only hope, therefore, was to stop the coal reaching the wharves and to this end Henry went north on Tuesday, 17 December to enlist the support of the Seamen's Union. This, to a large degree, as in the dockers' strike, the seamen gave. A document drawn up by the Seaman's National Executive was to be presented to ships' masters on the Tyne in which they agreed not to transport coal to the South Metropolitan. If captains would not sign the document, seamen were to refuse However, led by J. Joicey M.P., coal and shipowner and the to man the ship. South Metropolitan's main supplier, the shipowners refused to sign and the seamen were unable to make the document stick. The final line of defence was to picket the Thames and for this purpose the Seaman's Union sent a steam launch south. In the course of the strike many ships were wholly or partially unmanned but they were speedily recrewed, being merely a nuisance for the company which could bring coal south by train and had secured supplies on the continent.

A further avenue of attack considered by the union was to try to bring out the gasworkers north of the river. This was openly spoken of at meetings but, although this continued as a possibility in the public mind throughout the strike, it was never a realistic proposition. Probably the men north of the river were not prepared to risk their jobs, particularly in view of the apparent ease with which the places had been filled up in the south. To the

S. Metro. SHM, 17 Feb. 1890 p.5.
 GW, 21 Dec. 1889 p.684.
 Tbid., 28 Dec. 1889 p.716.
 Ibid., 1 Mar. 1890 p.240.
 Ibid., 11 Jan. 1890 p.44.
 Ibid., 28 Dec. 1889 p.716.

Union leadership the issue was probably even clearer, since it was only the northern men paying their 1s a week levy that was supporting the strike in the south - indeed, keeping the whole union solvent. A defeat at the Gas Light and Coke and the Commercial might have smashed the union entirely. Nor was it certain that if they had succeeded in plunging north London into darkness, this would have had any bearing south of the Thames. Moreover, in the context of the northern works there was treachery afoot. On 30 December, the leaders of the Coal Porters, Henry, Brill and Shelley, met Makins and Phillips of the Gas Light and Coke. Hutchins was told that the meeting was in order to reassure the company on his behalf that there was no intention of calling the Beckton men out. What the Coal Porters' leaders were actually doing was making the Gas Light and Coke Company the offer that if the company persuaded their coal porters to leave the Gasworkers Union and join their union they would get the men to sign monthly contracts and not to strike in the event 2 of the northern men being called out in support of the strike in the south. The company, following its policy of neutrality on union matters, refused to have anything to do with this suggestion. Indeed, it informed Wheeler, the leader of the Beckton 'coalies', of what had happened and gave, some weeks later, a verbatim report of the meeting to the local press. By the time the full disclosure was made, however, Henry had run off and was replaced as secretary of the Coal Porters by Jim O'Connor. $^{3}$ 

The supporters of the strikers attempted to mobilise the consumers to complain to the company about the bad light. Harry Quelch of the South Side Labour Protection League seems to have taken the lead here. He held a protest

- 1. Reynolds News, 5 Jan. 1890 p.5. 2. Essex Times, 18 Jan. 1890 p.3.
- 3. Clegg, Fox and Thompson, op.cit. p.78.

meeting in Southwark Park on 15 December and led a deputation to Bermondsey Vestry which agreed to write to the company warning them that they were liable to penalties for breach of contract and to bring the quality of the light to the attention of the LCC. Similarly, the Committee of Works of the Battersea Vestry wrote to the company, drawing attention to the scanty gas supply and intimating that it would not pay the full rates for the public lamps. This activity was at most peripheral and Livesey could claim later that, despite some complaints, 'The Vestries, on the matter being fairly represented to them, and the nature of the fight explained, paid their accounts in full, although the company had offered to submit to a reduction and in one Vestry a hostile motion was met by one according us a vote of thanks and carried.' <sup>3</sup> Livesey had even more friends at the LCC where a move by Webb, Burns and the Progressives to take proceedings against the South Metropolitan for deficient gas was stopped in its tracks by a certificate given Livesey by the Chief Gas Examiner, vouching that the poor gas was 'due to an unavoidable accident.' Burns' claim that the problem had been avoidable was not listened to.<sup>5</sup> The company was also proceeded against by the Factory Inspector for breach of the Factory Acts in employing an under-age boy and not notifying a fatal accident. The company was fined 5s and 7s costs on each count.

GW, 21 Dec. 1889 p.684.
 Ibid., 4 Jan. 1890 p.7.
 Ibid., 1 Mar. 1890 p.240.
 Labour Elector, 5 Apr. 1890 p.208.
 JGL, 25 Mar. 1890 p.536.
 Greenwich and Deptford Observer, 21 Feb. 1890 p.5.

It was soon clear that little help was to come from outside. Not for the first time the gasworkers were on their own. They had completely lost the battle for public sympathy, in contrast to the dockers in the summer. This battle had been won from the very beginning of the dispute by George Livesey. The men's problems started with their original ultimatum to the company. A clerical error was made in the original letter to the company so that the demand that the bonus scheme be abolished or the men who had signed be removed in fact read and the men be removed. The union attempted to correct the error but it was reinforced by a letter to the Times by Livesey on 5 December together with the notion that, although the actual demands of the men were that the handful of stokers who had signed the scheme be removed from the retorthouses, the men wanted the entire 1,000 or so yardmen, who had signed, to be On top of this, not by accident, the men had great difficulty in dismissed. getting across their objections to the bonus scheme which, on the surface, offered the men many advantages and required merely that the men sign threemonthly contracts. Livesey also gave daily press conferences which further ensured that the middle class press, which needed little encouragement, backed the company. The experiences of the gasworkers in 1872 and 1889 and of the Great Dock Strike of 1889 confirmed that to gain sympathy at all a strike had to be fought on straight issues of wages and hours. Issues of union recognition had little chance.

Still the men struggled to put the real nature of the dispute before the public at open-air meetings, which also served to keep up the morale of the men. In this the weather was against the men since it was a cold and wet winter. On the Tuesday after the strike began a large procession marched around the neighbourhoods of the various works and a meeting was held in Southwark Park. A number of meetings were held in south London the following Saturday, including one by 'clubmen, trade unionists and teetotallers' followed

S. Metro. DM, 4 Dec. 1889; SHM, 17 Feb. 1890 p.3.
 <u>GW</u>, 7 Dec. 1889 p.633.
by a march in the heavy rain. The following day a mass meeting, designed to emulate those of the dockers, was held in Hyde Park. Again it rained and the turnout was poor - 3,000 to the Times, 5,000 to the Labour Elector - and mainly composed of gasworkers and few of the general public. Edward Aveling and Eleanor Marx spoke as, at great length, did Ben Tillett. He forgave the strike committee for refusing his and John Burns' assistance. Then, short of speakers, Tom McCarthy of the Dockers' Union, who was in the chair, called on an unknown quantity by the name of Henry Wier from the Compositors Union to follow Tillett. Perhaps short of material, Wier launched into his speech which included the remarks that George Livesey 'ought not to live twenty four hours...he ought to be got rid of. I say a man like Livesey has no moral right to live in this country and the man would be a hero who went tonight and murdered him.'<sup>2</sup> These sentiments were loudly applauded, but they were also noted down by a policeman and Wier found himself on trial for incitement to murder. He was merely bound over to appear at a later date and nothing more is heard but at the time it did nothing to advance the cause of the of the case gasworkers in the public mind.

Negotiations of one sort or another continued throughout the strike. 0n the Tuesday after the strike began the two local MPs, Causton and Beaufoy, together with the vicar of St. Luke's Camberwell, again interviewed Livesey who agreed to meet the strike committee the following day. The meeting lasted two hours in a cordial spirit but was deadlocked since the men wanted the withdrawal of the new hands and the reinstatement of the old en bloc. Livesey repeated his moral obligation to the new men but agreed to take the old men

1. Labour Elector, 28 Dec. 1889 p.414. 2. Times, 23 Dec. 1889 p.7.

Commonweal, 24 Jan. 1890 p.30.

back as required. On Friday, 21 December, the strike committee sent Livesey a conciliatory letter in the most humble terms. They were 'not blind to the benefits accruing from a combination of capital and labour' but they saw the scheme as an attempt to smash the union. Instead of the yearly contract, they offered a month's notification of dispute followed by a week's notice. They also wanted all the men taken back and concluded: 'We cannot forget the attachment which we feel to our old employers independently of this dispute and nothing would give us greater satisfaction than a return to our previous good relations.<sup>2</sup> After this there was a flurry of correspondence, mainly for public consumption. Livesey replied that he had never intended to smash the union, while the strike committee made a long attack on the bonus scheme foolishly on the grounds of the strike clause and the holding of the 'nest-egg' for five years, both clauses already withdrawn. This allowed Livesey to make nonsense of the men's case in a further published reply.

Yet Livesey's problems were not over. The gas supply was still deficient at the end of December and the heavy fog made matters worse.<sup>4</sup> Christmas, however, must have been a bleak time for the strikers struggling on the strike pay of 10s a week. A few drifted off to other jobs but none, as far as is known, returned to the South Metropolitan. The men were required to report every morning to the headquarters of the strike committees and most days meetings and marches with brass bands were held to keep up the spirits of the men. Hutchins, who chaired most of the meetings, was indefatigable in the cause, and cheered the men up with talk of the number of blacklegs for whom the union had paid fares home. The police, he said, were keeping blacklegs on

<u>GW</u>, 21 Dec. 1889 p.685 and S. Metro. DM, 18 Dec. 1889 p.378.
 <u>GW</u>, 28 Dec. 1889 p.715.
 IDid., 4 Jan. 1890 p.19.
 <u>Times</u>, 31 Dec. 1889 p.4.

the works. Crews were being taken off colliers. In fact, as he told a typical meeting in Southwark Park on 5 January 'if he had ever been confident of victory since the beginning of the present struggle he was confident of it now'.

These words, however, have a hollow ring since the men's cause was becoming increasingly hopeless and by the first week of the new year this was increasingly clear. The strike committee were making desperate attempts to interest the wider trade union world in the plight of the gasmen. A mass meeting on New Year's Day outside the Rose and Crown in Lambeth, chaired by T. Bailey of the Southern Counties Labour League, was an attempt at this. The men were prepared to arbitrate, said the chairman. The men in fact were anxious to grasp at any attempt at a settlement. One such was made by the Labour Association, a society formed in 1884 by Henry Vivian, E.O. Greening and Thomas Blandford to promote co-partnership in industry. The Labour Association had taken an early interest in the scheme at the South Metropolitan, wanting it to be a success but not to give co-partnership a bad name with its antiunion element. Before the strike started they had made an offer to both sides to help draw up a mutually acceptable scheme.<sup>4</sup> A deputation led by Greening interviewed Livesey in late December at which he reaffirmed that he had not attempted to smash the union and was prepared to modify the scheme. The Association then had a series of meetings with the strike committee who went further than they had before in accepting the bonus scheme but with guarantees to limit the power of the foremen. They also agreed to threemonthly contracts, provided they expired on the same day. Workers leaving

- 1. GW, 11 Jan. 1890 p.46.
- 2. Tbid., 4 Jan. 1890 p.20.
- 3. See Bellamy and Saville, op.cit. Vol. 1 p.334.
- 4. Labour Association Minutes 5 Dec. 1889.
- 5. GW, 28 Dec. 1889 p.716.

the company were to receive their bonus and a joint committee of equal numbers of company nominees and workers was to be set up to administer the scheme. Rather surprisingly, the South Metropolitan Board seem to have agreed to these terms on 3 January in a meeting with the Labour Association but the agreement broke down on the issue of the taking back of the old hands, which the Association wanted to be <u>en bloc</u>. Livesey, in fact, later disowned the negotiations.<sup>1</sup>

In the first week of January the level of gas production began to approach normality for the first time and Livesey declared, all too convincingly from the men's point of view, that the strike was indeed over. The company issued a notice to the blacklegs to this effect.<sup>2</sup> The additional bonus was to cease and be paid to the old hands either in a lump sum at the end of the following week or added to the 'nest-egg' in the bonus scheme. The new men, who had previously been given three-month contracts, could take half the bonus when they found lodgings and the rest two weeks later. There were still problems for the company, however, since the new hands, released from their corrugated iron hell, found it difficult to find accommodation. The natural shortage in London was the major problem, but notices issued by the strike committee to local landladies asking them not to accept the South Metropolitan men because they were lousy and had previously lived on works which swarmed with vermin and disease,' cannot have helped. The company countered with a doctor's certificate as to the men's good health.<sup>4</sup> Nor did the blacklegs accept the ending of the bonus quietly. The conditions that had given the union its bargaining strength still obtained for the new men, who, at Rotherhithe and East Greenwich at least, held meetings and carried on a vigorous agitation against what amounted to a reduction in their wages. <sup>5</sup>

1. GW, 11 Jan. 1890 p.45 and Lab. Ass. Min. 2 and 16 Jan. 1890.

- 2. GW, 11 Jan. 1890 p.44.
- 3. Tbid. p.45.
- 4. Ibid. p.46.

5. Commonweal, 8 Feb. 1890 p.46.

Mention of the strike also disappears from the company minutes. The last entry, on 1 January, relates to the issuing of a circular to the company's consumers implying that the strike was at an end. It repeated the fiction that the dispute had been caused by the men's demands that 1,000 men be sacked. It regretted any inconvenience caused and thanked consumers for their assistance in economising on gas. The notice was replied to in a manifesto from the Gas, Coal Porters' and Sailors' Unions, again attempting to set straight the real causes of the strike and railing against 'the blindness of the public and press', and against the support the Government had given Livesey. If a general strike were to stop all coaling and lighting in London, it said, they would only have themselves to blame.

This talk of concerted union action, however, remained hollow. Only two unions gave the strikers active support - the Seamen and the South Side Labour Protection League of Harry Quelch. Hugh Brown, treasurer of the League and also president of the Naval and Military Temperance Association, issued a statement supporting the strike and trying to set out the men's case as simply as possible. The company, always aware of the importance of public opinion, countered this with a letter to the press of debatable spontaneity from the blacklegs of East Greenwich. It defended Livesey as a man of his word. 'During the time we have worked for the company we have received most generous treatment and have often found him willing to exceed his promise but never to withdraw from his word; so much so that we not only feel for him the respect due to an employer but the affection due to a friend.' Presumably this was written before Livesey had taken away their bonus.

S. Metro. DM, 1 Jan. 1890.
 <u>GW</u>, 11 Jan. 1890 p.45.
 See J. Lovell, <u>Stevedores and Dockers</u> (1969) p.113.
 <u>GW</u>, 11 Jan. 1890 p.44.

The eventual involvement of the wider trade union movement did not come until the men were all but beaten. On Saturday, 11 January, a meeting of sixty delegates from various trade unions in London, including the Amalgamated Society of Engineers, met at the Great Assembly Hall in Mile End Road. The meeting affirmed that the men were justified in continuing the strike and called on unions to give financial support. It condemned the Government for helping the company and urged MPs to bring before Parliament the activities of the police and the infringement of the rights and liberties of trade unions. Early in the dispute there had been talk in the morning papers that the Government was prepared to have 1,000 troops trained as stokers in an a day extra pay. There were also reports that, 3s emergency on as in 1872, the police were actively recruiting blacklegs, while a further incident early in January gave additional evidence of the role of the police. Apparently the landlord of the premises of the strike committee, opposite the Old Kent Road works, wanted them evicted because they had taken the rooms from a tenant who had no right to sub-let. Thirty policemen used a battering ram on the door and smashed windows before the committee came out peacefully. New premises were speedily found.  $^{3}$  It has been suggested that the vigour of the Government and police in the company's cause during the strike was due to criticism of their passivity during the Great Dock Strike but in truth it differed little from the treatment the gasworkers had received in previous strikes. As in the past, Livesey felt obliged to give the police money. Six hundred pounds was paid, apparently to a police charity.

1. GW, 18 Jan. 1890 p.76; Labour Elector, 18 Jan. 1890. 2. GW, 21 Dec. 1889 p.682. 3. <u>Reynolds News</u>, 12 Jan. 1890 p.6. 4. Clegg, Fox and Thompson, op.cit. p.68.

- 5. JGL, 26 Aug. 1890 p.455.

On Tuesday, 14 January, Hutchins spoke to the press to counter reports that the strike was crumbling. The men did not wish to return, he said. Only thirty-seven less men drew strike pay than a week previously and these had got other jobs. Neither had the men refused to continue the processions. Those held that day showed the contrary. More revealingly, he said that Thorne had asked the men at Vauxhall whether, considering the length of the struggle and the drain on the union's funds, they would be prepared to go back to work, but the men were unanimously against this. <sup>1</sup> Hutchins did indicate the hope that a settlement could be reached, and later that week a deputation of ex-South Metropolitan workers met Livesey and Bush, the company secretary. Livesey had insisted that he meet only old employees so no union officials were present. In fact no negotiations as such took place. Livesey, now certain of victory, was prepared to concede even less than he had to the Labour Association and, denying there was a strike going on at all, agreed merely to take back the old men as vacancies arose. Hutchins reported the results of the meeting to the strike committee which resolved to fight to the 'bitter end'.<sup>2</sup> The message was also relayed to a mass meeting in Hyde Park on Sunday 19 Hutchins again hoped that pressure from other unions might be brought January. to bear on Livesey. The reality was put by Hugh Brown to a meeting the following Sunday at Deptford Broadway. He bemoaned the lack of support from the dockers. The gasmen had helped the dockers in their own fight but the dockers had not given a penny except what the SSLPL had wrenched from them. Quelch attacked the craft unions: 'The aristocracy of labour would no more make common cause with them (the unskilled) than with the Red Indians'.

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2. Ibid., 25 Jan. 1890 p.76.
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3. Justice, 25 Jan. 1890 p.3.
4. Greenwich and Deptford Observer, 31 Jan. 1890 p.5.
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<sup>1. &</sup>lt;u>GW</u>, 18 Jan. 1890 p.76.

Yet Hutchins said that the London Trades Council (LTC) had pledged its support and that he was going to meet them the following Thursday, 30 January.

The terms on which the strikers approached the LTC are not clear. By now men were asking Livesey for their jobs back in large numbers and the Labour Elector said that the three unions went to the LTC in order to ask them to intercede and obtain honourable terms for a settlement. It is possible, however, that Hutchins at least approached them for their support to defeat the company, but was talked into a settlement. At the usual Sunday meeting on 2 February there was no talk of defeat. Hutchins was still talking of the number of blacklegs leaving and maintaining that the men would not go back except on the eight hour day. The next day, however, a resolution was signed by Hutchins, Thorne, the Coal Porters and George Shipton, secretary of the LTC, requesting that the LTC negotiate with the South Metropolitan for a settlement of the dispute on the terms that the eight hour day was returned to and that the company take back its old men in preference to strangers. As Livesey said, 'As there was nothing to which objection could be taken' he added his signature to the agreement. He added, however, that at three of the company's works the men had voted to remain on the twelve hour shift with a proportionate increase in pay. As to taking back the men, he already had a list of old hands who wanted to return and there were few vacancies. Only after this abject settlement had been reached were the terms put to the men at a meeting at the Hatcham Liberal and Radical Club on 5 February. There was no alternative for the men but to agree.

The terms for ending the strike, if they can be dignified with the word, were hopelessly vague. Could the men remain in the union? Did they have to

3. GW, 8 Feb. 1880 p.159.

<sup>1.</sup> Labour Elector, 8 Feb. 1890.

<sup>2.</sup> Ibid., 8 Feb. 1890; Greenwich and Deptford Observer, 7 Feb. 1890.

sign the bonus scheme or any contract? In fact, of course, the terms were what Livesey chose to make them. He had no intention of taking back unionists but felt obliged to imply that this was because of a speech made by Thorne in Plymouth where he stated that the men would not give seven days notice again before striking; he would sooner risk prosecution.' According to Livesey, a shareholder sent him the report of this speech and as a result of the risk to consumers he decided not to re-employ unionists. Livesey's story on this issue depended on his audience. He denied Thorne's allegation that he had already broken the agreement by employing strangers in a letter to the Times. They would not take back unionists, he said, but this did not stop the old men returning because all were willing to give up the union. In order to find work for some of the old men extensions to the works had been started. This was necessary as many hundreds of the men, with their families, were on the verge of starvation. To the Royal Commission on Labour, Livesey maintained that they had re-employed unionists but whether they remained unionists he did not know. To his shareholders he was a little more frank and maintained clearly that no unionists had been taken back and made the ridiculous assertion that if they had made an order for the old stokers to be taken back as unionists 'the foremen after what they had endured would have refused to obey it'.

On 22 February, the <u>Labour Elector</u> announced that a relief fund had been started for the 1,500 men still without a job and whose families were in great distress. Not for the first time, however, the defeated gas stokers did not catch the public - even working class - sympathy , and the fund

<sup>1.</sup> Western Morning News, 7 Feb. 1890 p.5.

<sup>2.</sup> Times, 12 May 1890 p.7.

<sup>3.</sup> R.C. on Labour, op.cit. p.252 Q 26910.

<sup>4.</sup> GW, 1 Mar. 1890 p.240.

raised a pittance. The sordid story is also told of the strikers being used in their turn as blacklegs to break a strike of the Liverpool dockers, although it was said Tom Mann persuaded five-sixths of the 200 men to return. The list of men who had asked for their jobs back Livesey offered to other employers in case of the need to break strikes. It was in fact used in several disputes and became the basis of Livesey's involvement in the Free Labour Movement.

Financially the strike had been extremely burdensome on the union. It had entered the strike with only some £2,000 in hand yet it paid almost 3 \$9,000 in strike pay out of a total half yearly expenditure of \$10,191. It had been able to achieve this feat, firstly, because the union was growing rapidly in this period and most new branches' contributions went into the strike fund. Secondly, some 40 per cent of the cost of the strike,paid out of central funds, came via a levy of ... ls a week on members. With few exceptions, it was only the gasworkers' branches in London which were prepared to pay the levy, but here support was almost 100 per cent solid with few gasmen missing even one week's payment. Nor was there any sign that willingness to pay was flagging by the end of the strike. In addition to the central funds, the strike committee dispensed £1,799 in strike pay, £137 on compensation and return fares for blacklegs and 👘 £405 working expenses. This had been raised from collections at meetings and at factories amounting to  $\pounds1,137$ , and £1,185 contributed by other unions. In addition £8 18s 5d.

1. Labour Elector, 22 Feb. 1890.

2. See p.96.

- 4. Original Minute Book ..., op.cit. 2 Feb. -890. 5. <u>GW</u>, 17 May 1890.

<sup>3. &</sup>lt;u>Reports Year ending 31 Mar. 1890 pp.46-7.</u>

had been raised from the sale of tea made from a chest of Indian Tea donated by a sympathetic City merchant. After the strike this business venture was extended and a store was opened up in Barking Road. Later a bakery became a permanent part of the union's activities and the profits subsidised their political efforts.

The South Metropolitan strike was similar to most previous strikes in the London gas industry, above all, in its failure. The one aspect in which it differed significantly was its length. In previous strikes, once the companies had found new men, perhaps within a week, the strike collapsed and the old hands asked penitently for their jobs back. On this occasion the strike lasted, according to the union, over seven weeks, and to the company, three or four weeks. The reasons for this longevity are probably twofold. Firstly, despite its comprehensive efforts, the company had greater difficulty than in any previous dispute in obtaining and keeping suitable replacement labour. Whereas before gas supplies had been back to normal in a matter of days, now it took weeks. This gave the strikers encouragement to fight on. Secondly, and more importantly, the size of the union and the help from gasworkers in north London gave the strikers the resources to survive and fight on, which they had never had before. These two factors were the crucial ones too in determining the length of the strike. The strikers were beaten really as soon as gas supplies had returned to normal - by the first week in January. The length of time they could further prolong the struggle was a matter of finance. Firstly, despite the strike pay being increased to 12s 6d a week by early January, most strike families were nearing destitution. By the third week of January many were asking the company to be taken back. Secondly, even at this level of strike pay, the union, despite

- Thorne, op.cit. p.110.
   <u>Labour Elector</u>, 25 Jan. 1890.

the unflagging support north of the river, was being bled dry. The strike was costing £1,250 a week in strike pay, less than was coming in in contributions and levys, so that the union which started the strike with £2,000 in hand had only £227. Calling off the strike was a financial necessity. by March 31 On the surface, the strike had been a triumph for the company and their chairman. The shareholders' meeting after the strike was the scene of unprecedented, almost hysterical, rejoicing. As the Journal of Gas Lighting described it, 'At the mere sight of Mr. G. Livesey and his colleagues the large assembly rose to a pitch of enthusiasm which never flagged through the two hours and more during which the proceedings lasted'. One shareholder thought Livesey should be knighted, another that a monument should be erected to him while yet another, doubtless suggesting only a minor shuffling in the order of priority, thought shareholders should record their thanks to Almighty Clearly this thanksgiving was not God for giving them their victory. simply related to the fortunes of the South Metropolitan, and of course the strike had a wider significance as the first major setback for the New Unionism since the Great Dock Strike. To show their gratitude a committee was set up and a public subscription fund for Livesey was organised. Contributions were guineas per head and 1,450 subscribers raised £2,221. This limited to 2 paid for a portrait of the great man and a cheque for f1,753 which, typically, Livesey wanted 'appropriated in the manner that will result in the greatest permanent good to the poor of South London'. It was used to build a recreation ground in the neighbourhood of the Old Kent Road works.

1. Reports Half Year ending 31 Mar. 1890.

2. JGL, 4 Mar. 1890 p.377.

3. GW, 1 Mar. 1890 p.241.

4. 5. Metro. SHM, 8 Aug. 1890.

Although the shareholders were not counting the cost, the strike had been an extremely expensive exercise for the company. At the outset the company had set aside £40,000 as the likely cost but even this was a gross underestimate since the final figure was in excess of £100,000. This broke down as £62,000 in direct costs, like the £4,000 or so in bonuses paid out each week, half financed by reducing the dividend from 13½ per cent to 12 per cent and the rest out of the insurance fund, and another £40,000 in indirect costs, such as the increased cost of coal which were met out of the Reserve Fund. This £100,000 for a strike of 2,000 men compares with the £15,000 the strike of 1,000 men had cost the Gas Light and Coke in 1872.

Was the expenditure on the strike justified? Livesey clearly thought so and took every opportunity to compare his own success in driving the union out of his works with what he and others saw as the weak-willed policy of neutrality by the Gas Light and Coke with regard to union membership among their men. In fact, with the benefit of hindsight it is difficult to see that the South Metropolitan gained anything from the strike, let alone recouped its £100,000 outlay. Firstly, in the long term the Gas Light and Coke policy of non-confrontation was equally successful in ridding the company of unionism. As will be seen in Chapter 10, in any effective way the union had disappeared from the northern company by 1895. Any advantages gained to the South Metropolitan by provoking a strike, therefore, must come before that date. Moreover, the only financial gain that could have accrued would have been in the reduction in labour costs. Table 19 estimates the increase in labour costs for the South Metropolitan had they been at the level of the Gas Light and Coke for the period when the union was active in that company. This shows that a total

1. Livesey to R.C. on Labour, op.cit. p.239 Q 26913.

## TABLE 19

<u>Comparison in wage costs between the South Metropolitan and the Gas Light and</u> <u>Coke Company 1891-1895.</u>

Year	Savings in wage costs in pence per 1,000 cubic feet of gas produced between S. Metro and GLCC	Output of S. Metro in billion cubic feet	Total savings in wage costs per year in £
1891	0.55	6.9	15,812
1892	0.37	7.0	10,791
1893	0.59	7.0	17,208
1894	0.95	7.5	29,687
1895	1.18	8.3	40,808
		TOTAL	: 114,296

Source: Field's Analysis

saving of f114,296 was made in labour costs by the South Metropolitan in the five year period 1891- 5, making the strike marginally viable. This, however, is the extreme case and makes the unjustified assumption that the entire advantage of the southern company over its northern rival was due to its attitude to the union. This is clearly not the case, since the main saving came as a result of mechanisation and, although the introduction of machinery caused some friction at Beckton in 1890, there is no suggestion that the union ever presented an obstacle to its further introduction. Chapter 5 showed the major reasons why the Gas Light and Coke lagged in this respect. The inescapable conclusion is therefore reached that the South Metropolitan Gas Strike of 1889-90, planned for if not actively sought by George Livesey, was in financial terms a bad misjudgement.

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## Chapter 9: Profit Sharing and Co-Partnership

Profit sharing, or co-partnership as it later became known, had a long history prior to 1889<sup>1</sup>, but the South Metropolitan scheme was its most significant step forward to that date and in George Livesey it found its most powerful advocate. In the succeeding twenty or thirty years the idea, in fact, received far more attention and popularity among industrialists, politicians and social commentators as an alternative to trade unionism and socialism than history has generally given it credit for. But the vogue passed, and although the concept lives on today, for example in the schemes of ICI or the John Lewis Partnership or certain policies of the Liberal Party, it has never achieved the importance that its early protagonists hoped for or expected of it.

The South Metropolitan scheme, as it emerged after the strike, was firstly a contract of employment binding the worker to the company for a fixed term. This had been the men's main objection to the scheme and the basic cause of the strike of 1889, and indeed dropped from use in most schemes. Secondly, it was a bonus scheme based, like the company's dividend, on a sliding scale with the price of gas. A worker got 1 per cent on his wages for every 1d the price of gas fell below 2s 8d per 1,000 cubic feet. In 1890 the price of South Metropolitan gas was 2s 3d per 1,000 so the bonus was 5 per cent. This could either be left with the company at 4 per cent interest or withdrawn in cash. A 'nestegg' of 8 per cent on wages (the total bonus that would have been paid in the previous three years) was given at the start of the scheme but it could not be taken out except on death, retirement or on leaving the company. Also as

 See Report to the Board of Trade on Profit Sharing, PP(1890-91) LXXVIII p.15-57; Report by D.F. Schloss on Profit Sharing PP(1894)LXXX p.575; Report on Profit Sharing and Labour Co-Partnership in the UK PP(1912-13) XLIII p.853; Report on Profit Sharing and Labour Co-Partnership in the UK PP(1920)XXIII p.157; Edward Bristow 'Profit-Sharing, Socialism and Labour Unrest' in Kenneth D. Brown (Ed.) Essays in Anti Labour History (1974); R. Church 'Profit-Sharing and Labour Relations in the 19th Century' in International Review of Social History 16 (1971); S. Pollard and R. Turner 'Profit-Sharing and Autocracy: The Case of J.T. and J. Taylor of Batley, Woollen Manufacturers 1892-1966. Business History, Jan. 1976; D.W. Dodwell 'Progress in Profit-Sharing' Contemporary Review, May 1955.
 GW, 7 Dec. 1889 p.634. part of the scheme a committee of eighteen men elected by the employees and seventeen nominated by the company, together with the chairman, was set up. It was to meet twice a year. How representative of the men this committee was, however, is not clear. They voted 'unanimously' at the first meeting, for example, to keep their 'nest-egg' with the company for the full five years, which would not appear to be the natural inclinations of the typical gasworker. Yet the committee did seem on occasion to be a real bridge between management and men. The men met prior to the full meeting and on one occasion decided to ask for gas at cost price for the employees and this they duly received.

Another aspect of the scheme was the annual festival, the nature of which can be appreciated from this report.

In order to express their appreciation of the profit sharing scheme the employees from all the stations invited the Directors and officers to meet the workmen and their wives to the number of about 2,000 on the cricket field at the Old Kent Road station where a resolution was unanimously passed with great enthusiasm thanking the Chairman and Directors for the very liberal and satisfactory way in which they had conce ded the scheme and for the courteous manner in which they had received the men on all occasions and the hope expressed that the friendship then existing might long continue adding to the prosperity both of the company and its employees.<sup>2</sup>

These affairs of tea and cakes and brass bands, with prize givings, for example, for the best suggestions for improvements, were also the occasions for speech-making of the utmost paternalism on the part of the directors and the most abject ingratiation on the part of the men. All was designed to attach more closely men and company; the festivities were, moreover, presented as 'the entirely free and spontaneous acts of the workmen themselves', an

JGL, 3 Mar. 1891 p.402.
 Ibid. p.403.

idea that need not be taken seriously since they cost £700-800 to stage and the company footed the bill. This was, indeed, a good example of Livesey's method, whereby he made necessary innovations seem as though they came from the men themselves. Later, as well as the annual festivals, suppers and smoking concerts were also arranged for similar reasons and in similar vein.

From the first, Livesey claimed the scheme to be a great success but this was constantly given the lie by the changes he was forced to make. The original cash bonus, with no provision for share ownership or inducement to save, did not last long, and in a typical piece of paternalism Livesey explained why. 'What they wanted to do' he said, 'was to make men of their people and to make men of them they wanted to be a little in front of the world. If the profit sharing bonus was distributed in cash it would be dissipated very soon and would do no permanent good'. <sup>1</sup> No permanent good came to the company, it is clear, from a cash bonus, so the men had to be induced to bind themselves closer to the company by saving the bonus and investing in their shares.

Livesey told two stories as to how this came about, not, of course, that it was a new idea. Firstly,

At a conference between the Directors and the representatives of the workmen(in 1890) a man named Austin made a very eloquent speech in which he said that if, under the profit sharing scheme the money could be accumulated he hoped ultimately to become possessed of some shares in the company...there is nothing would bind men more to a concern than giving them a money interest in it...that would brighten  $\frac{2}{2}$ 

But some years later Livesey said that

1. GW, 11 Feb. 1890 p.215. 2. JGL, 4 Mar. 1890 p.394.

'The idea of making the workmen shareholders became a fixed purpose on reading of the Taff Vale engine driver who, at the time of the strike on that railway about the year 1890, refused to come out remarking that he 'could not strike against himself' he holding, if my memory is correct, £5 of the company's stock.

So, soon after the South Metropolitan scheme was launched, an encouragement to share ownership was added.

Yet how were the men to be induced to save and invest? In the first two years of the scheme, 58 per cent of the men had withdrawn their entire bonus in cash, and in 1893 56 per cent of the bonus was withdrawn. By that year, although £34,774 had been paid in bonus, only £4,281 had been invested in the company. Clearly the scheme was not reaching the stokers and the other labourers for whom it was originally introduced. But Livesey at first maintained that to compel the men to save was against the spirit of the scheme and so in 1894 he decided to increase the bonus by half, provided the men agreed to leave one half of the bonus to be invested with the company. This also got round the problem of the fall in the bonus due to the increased price of gas in that year. The bonus therefore went from per cent in 3 per cent in 1894 to 6 per cent in 1895. As a result of the 1893 and 4 change, investment in company stock rose to £12,867 (by 331 men) in 1894 and £26,000 by 1895. Yet 44 per cent of the withdrawable bonus was taken in cash in 1895, and this had risen to 69 per cent in 1897 : the men were becoming less thrifty rather than more.

In the meantime, with characteristic determination, Livesey extended the concept of profit sharing by the revolutionary step of putting workmen onto the company's board. He did this despite opposition from the board

GW, 9 Jan. 1897 p.60.
 JGL, 3 Mar. 1891 p.403.
 GW, 8 May 1897 p.775.
 Ibid., 9 Jan. 1897 p.59; S. Metro. SHM, 4 Aug. 1894.
 GW, 14 Sep. 1895 p.331.
 Ibid., 7 Aug. 1897 p.218.

itself, led by his own brother. Frank Livesey summed up the feelings of the rest of the board when he said that he felt some workmen 'might be a little bit deficient...though there might be many men, who had been workmen all their lives who would be of use in the board-room. There were a great many who would be a nuisance.' Thwarted once, Livesey finally got his way by his familiar expedient of threatening to resign. It also took several attempts to get the measure through Parliament, and when it finally passed it was hedged about with many safeguards. Two workmen were to be elected provided they held over £100 each of company stock and the workers in total held over £40,000. Voting for the directors was confined to workers who held over £10 of stock and was in proportion to stock held. The limited nature of the scheme is clear and its relevance to the average worker can be gauged from an interview in the Echo. They were very pleased with it, the men said, but they had 'grievances not against the Directors but against certain persons who are put in authority over them.

Clearly, only the elite of the workforce were involved. In 1899, out of a peak workforce of 3,903 men, only 1,340 were eligible to vote and only forty-eight were eligible to be elected. Moreover, Livesey had a very definite idea of the sort of workmen he wanted on the board and their role.

If the new director or directors can and will rise to the position, regarding it as their duty, like that of the other directors to make the general welfare of the company their chief object, to endeavour to do equal justice to all who do business with the company, to the consumers, to shareholders and employees, good must result from the movement. On the other hand, if they take a narrow or class view, and persist in it, on them must rest the blame of failure and of putting back and crushing a genuine and sincere effort

- Ibid., 11 Feb. 1899 p.215.
   Pamphlet in S. Metro. SHM, 10 Aug. 1898.
- 3. GW, 13 Aug. 1895. 4. Ibid., 11 Feb. 1899 p.215; JGL, 1 Nov. 1898 pp.964-5.

to unite capital and labour that would have lifted their class to a higher level in the industrial and social scale and by its educating effect have better fitted them to exercise their great and responsible duties of citizenship.

Another fear was whether the men 'would be inclined to select the best and most sensible men (as directors) or whether they would be misled by the glib talker'.

In the event, there need have been no fears; Livesey could not have chosen the men better himself. Of the first two men elected in 1899, H. Austin, who retired as a foreman carpenter in 1911, was the worker who had suggested share ownership in 1890.<sup>3</sup> Livesey was fond of taking him to meetings and showing him off as an example of the success of his idea. Indeed, Austin himself gave papers on the benefits of co-partnership. The other, J.A. Butcher, was also a superior worker who audited the co-partnership accounts for many years, became a local councillor and also retired on a foreman's pension in 1907. His replacement was one H.T. Manley, an engine driver and loyal man from 1889. And even at his election in 1908 only 160 workers were eligible for the post.

Despite the success of the workmen-directors the basic scheme was still not working. 'All had not yet risen to it;' Livesey admitted, 'they had not all yet been brought to understand that their interests were identical with those of the company. But they must have patience; they did not want to be hard upon the men. He was very much struck with the poem by Mr. Rudyard Kipling "Take up the white man's burden, In Patience to abide" and while that poem applied to a much higher and greater subject he thought it might also be said to apply to this question'. But patience was not one of Livesey's

- 3: JGL, 4 Mar. 1890 p.394. 4. Co-Partnership Journal, Nov. 1907; S. Metro. DM, 20 Nov. 1907.
  - 5. Co-Partnership Journal, Feb. 1908.
- 6. GW, 11 Feb. 1899 p.215.

<sup>1. &</sup>lt;u>GW</u>, 8 May 1897 p.776.

<sup>2.</sup> Co-Partnership Journal(of the S. Metro. Gas Company,)Jan. 1911.

stronger characteristics and although he still maintained that he 'would kick very much against a compulsory thing', in 1899, after 47 per cent of the withdrawable half of the bonus had been taken out in cash, he took another step in that direction. He issued a circular to all those not complying with 'the spirit of the scheme'. The bonus taken in cash, he said, 'has been badly spent. For 10 years this has been going on and the time has now come for the use of stronger measures than mere arguments and persuasion'. All workers who had regularly withdrawn their cash had to deposit with the company a sum equal to one week's wages or they would get no bonus, except the half in shares, the following year.<sup>3</sup> Of course, if the men withdrew the money to put in a building society or the Post Office this was acceptable. The following year, 1900, those who withdrew their cash had to deposit sixpence a week with the company in order to get the next year's bonus.<sup>4</sup> Yet, despite these measures, 32 per cent of the cash bonus was withdrawn.

Other improvements were made to the scheme. In 1901, probably under pressure from the Labour Association, Livesey took the ban on trade union membership out of the scheme. The name of the scheme was changed to Co-Partnership in 1903 and in 1904 the company launched their Co-Partnership which as a house magazine was well ahead of its time.<sup>6</sup> Its first Journal editor, Charles T. Drumgold, was also the staff director on the board (added in 1901) and no ordinary employee. In 1907 he took a world cruise for the sake He later retired as a director on his appointment as chief of his health. storekeeper. The Journal gave information on the progress of the company and the scheme and published articles on gardening and the sporting activities of the men, but primarily it provided Livesey with another lectern from which to lecture the men. Typical of the great man at his most headmasterly is the

- 1. GW, 8 May 1897 p.779
- 2. JGL, 26 Sep. 1899 p.772.
- 3. Report on Profit-Sharing PP (1912-13) XLIII p.911.

- Ibid. p.912. Report on Profit-Sharing PP (1920) XXII p.211. one of the first according to Garton, op.cit. <u>GW</u>, 9 Aug. 1952 p.355. Co-Partnership Journal, May 1911.

following extract.

I feel I can say for all of us who are true Co-Partners that we will not allow these men, probably not more than 5% of the whole, to continue to work against us. If they do their agreements will be stopped and a man who is not worthy of an agreement is not worth keeping. This is strong language but I feel we have been extremely patient with these men all these years, and even now if they will try to help themselves they may yet attain a good position.

One cause of these threats were the men who, as restrictions on withdrawing cash increased, became more resourceful. Some took to leaving the company, drawing out their shares, selling them and then rejoining. Others pawned their certificates (130 in 1906),<sup>2</sup>like the stoker on a drinks charge who admitted getting his landlady to pawn his shares to buy drink. Such behaviour reported in the press was not likely to please Livesey, but in 1906 he was still resisting absolute compulsion. Some of the men, he said, wanted the company to get rid of 'that small band of thriftless men' but that was 'not quite the true co-partnership or Christian spirit'. 4 Many good co-partners would still today be thriftless had they not been shown patience and a helping hand.<sup>5</sup> A year later however, patience exhausted, Livesey decreed that any man withdrawing his bonus, selling or pawning his shares would not have his agreement renewed. In 1910, the scheme was further tightened so that the bonus could only be taken in cash 'under special circumstances', which finally ended payment of the bonus in anything but company shares. The company continued to maintain that the men had full freedom to buy or sell these , but this was matched by an equal freedom on the part of the company shares to sack or not employ those who did.

1. Co-Partnership Journal, Jan. 1905. 2. GW, 3 Nov. 1906. 3. Ibid., 14 Dec. 1901 p.948. 4. GW, 14 Jul. 1906. 5. Co-Partnership Journal, Jun. 1906. 6. <u>GW</u>, 16 Nov. 1907 p 591 7. Report on Profit-Sharing PP (1920)XXIII p.211. 8. <u>GW</u> 30 Mar 1912 - 410

GW, 30 Mar. 1912 p.419.

Livesey was tireless in his advocacy of the co-partnership ideal and went to great lengths to spread the gospel. In 1894, as chairman of the Crystal Palace (later the South Suburban) Gas Co., he introduced a scheme there, and in 1900 he got himself onto the board of the Commercial for the same purpose. He took every opportunity to extol the virtues of co-partnership at shareholders' meetings or gatherings of engineers or anyone who would listen. He defended the idea rigorously in letters to the press and wrote many articles for the <u>Labour Co-Partnership Journal</u> and other periodicals. All this effort was rewarded, although Livesey himself did not live to see it, when the Gas Light and Coke launched its scheme in 1909.

Closely modelled on the South Metropolitan scheme, the Gas Light and Coke plan gave workers 1 per cent on wages for every 1d the price of gas fell below 2s 9d with a nest egg of two years backdated bonus. Half the yearly bonus was to be in cash and half in shares. There was also an annual sports festival along the lines of the Old Kent Road event and in 1911 the company added a <u>Co-Partners Magazine</u>, a replica of the South Metropolitan journal. As well as items on 'How I spent my holidays' or 'How to cultivate an allotment to the best advantage' there were the familiar homilies from the Governor, Corbett Woodall. But with a similar scheme there were similar problems and, despite the efforts of local works committees set up to look into improvident **4** withdrawals , 46 per cent of the withdrawable bonus was taken in cash in 1913. The answer to this was to reduce the proportion withdrawable to one quarter **5** by 1920.

Co-partnership spread to other gas companies: Newport, Chester, Liverpool and others, and also to other industries. In 1891, there were fifty

- 1. Ibid., 7 Dec. 1912 p.771.
- 2. Commercial DM, 13 Dec. 1900.
- 3. <u>GW</u>, 16 Jan. 1909 p.88.
- Co-Partners Magazine. (1913) p.163.
   Report on Profit-Sharing PP (1920) XXIII p.221.

schemes in the country involving some 11,000 workers and by 1912 there were 133 schemes including 106,189 men, although this was still little more than ľ per cent of the total workforce. In terms of industries, 26 per cent of the total number of workers were in thirty-three schemes in the gas industry, 16 per cent in four schemes in engineering and shipbuilding, 16 per cent in fourteen chemical, glass and pottery firms, 6 per cent in thirteen food and tobacco firms, 5 per cent in seven textile firms and 3 per cent in eleven printing and bookbinding firms. There was a further crop of new schemes started after the First World War, but thereafter interest in copartnership never reached the level of the turn of the century. Why this was so has never been fully explained but the reasons for it can be clearly seen from the experience of the gas industry.

Many virtues were claimed for co-partnership but its aims can be broadly divided into.firstly, improving the productivity of the workforce and, secondly, providing an antidote to independent action by the men. Profit sharing and share ownership, it was argued, provided an identity of interests between the company and the men and so abolished the inherent conflict between capital and labour. The men therefore had an incentive to work harder and more willingly, which in turn meant less need for supervision. The men would have an interest in economy in the use of raw materials, fuel and plant. They would be more forthcoming with suggestions for improvements; they would be more loyal to the company and labour turnover would be reduced. On the other hand, trade union membership would be discouraged. Unions could be presented as outsiders,

Report on Profit-Sharing PP (1890-1) LXXVIII p.38.
 Report on Profit-Sharing PP (1912-13) XLIII p.869.
 Report on Profit-Sharing PP (1920) XXIII p.157.

while the schemes' own committees could handle grievances. Strikes would be discouraged since they would be damaging the worker's own share of the profits or, more explicitly, a clause in the agreement could lead to forfeiture of bonus or savings in the event of a strike. Moreover, co-partnership provided no less than a moral education in the virtues of capitalism since, by their nature, hard work, thrift, the importance of higher profits and property ownership were inherent in the schemes. Finally, the ultimate implication of co-partnership was not lost at least on George Livesey. 'Not withstanding all the talk about socialism, working men, if given the opportunity...are quite ready to become capitalists. May not this be the best and most efficient plan of combating the..."pernicious nonsense" of socialism?'<sup>2</sup> . And this was a theme to which Livesey returned many times. 'The trend of the working class seems to be strongly towards Socialism - the state is to provide and do everything for them - which means ruin all round; but make them property owners and all this is changed, they will certainly become thrifty... In fact I see no other way of combating Socialism...'. On a practical level, co-partnership workers could be mobilised to oppose collectivist measures, as they were at the South Metropolitan in opposition to the Employers Liability Bill in 1894 and the National Insurance schemes of 1909-11.

If co-partnership was to succeed it should have done so in the gas industry. Gas was a stable industry, sheltered from competition or the action of the trade cycle. There were no bankruptcies and little fluctuation in profits, so the men got a regular bonus. Despite seasonality, there was

- 1. In 1913 the S. Metro. boasted that 116 co-partners had bought their own homes and 272 were in the process of buying, <u>GW</u>, 13 Sep. 1913.
- 2. GW, 9 Jan. 1897 p.60.
- 3. G. Livesey 'Industrial Partnership and the Prevention of Distress' in C.S. Loch (Ed.), <u>Methods of Social Advance</u> (1904) p.111. 4. Garton, op.cit. <u>GW</u>, 4 Oct. 1952 p.857.

regularity of employment and as the relatively large companies expanded there were regular additions to share capital available to be taken up by the workers. Moreover, gilt edged and steady in value, the shares were acceptable to the men. These advantages were clearly not all present in many industries yet despite them the success of co-partnership even in the gas industry remained limited.

Taking first the evidence on productivity, Livesey, to shareholders and colleagues, though not of course to his workers, always maintained that the scheme could only be justified if it paid for itself in savings on labour costs. That this indeed was the case Livesey was convinced, and at one point he claimed that his officers had to restrain the men from doing more work than was good for them. Livesey frequently tried to prove his point by a selective, not to say dishonest, use of statistics, usually comparing the wage costs of the South Metropolitan with the other companies. For example, he claimed his company's wage bill was £820,000 for the years 1891-8, £260,000 less than the other two London companies paid, for the same amount of gas. If only one-fifth of this saving was due to co-partnership, he said, this would amount to £52,000 or 6½ per cent of the total bill, whereas the average bonus had been only 6 per cent or under, a gain to the company of several thousand pounds. 3 Yet Livesey's figures are wrong. The total bonus paid, 1891-8 was £96,817 since the 6 per cent average was made up of 2 per cent in 1892 but 71 per cent in 1896- 8 when the wage bill was higher. Co-partnership would have had to have accounted for almost 40 per cent of the difference between the companies to have paid for itself. Moreover, these calculations were made in 1907, which gave Livesey the opportunity to bring them up to date.

GW, 11 Feb. 1899 p.214.
 Ibid., 14 Aug. 1897 p.254.
 Ibid., 16 Nov. 1907 p.590.

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Had he done so a different picture would have been revealed. Looking at Table 20, it can be seen that in 1907 the GLCC had lower labour costs than the South Metropolitan. In the ten years up to that date the GLCC had reduced costs by 47.2 per cent without the help of co-partnership while the South Metropolitan had managed only an 18.3 per cent drop. Indeed, for three or four years after it introduced its scheme in 1909, the GLCC's productivity record worsened. Table 20 also shows that gasworks at Birmingham and Manchester that never adopted co-partnership seem none the worse for it. Clearly the primary factor in labour productivity was technical innovation; co-partnership can have made only a marginal contribution, if any.

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Interviews with men who worked under co-partnership schemes, on the management side and as workers, tend to confirm that they had no effect on the quantity or quality of the work done by the majority of the men. Co-partnership seems most commonly to have been invoked in exhorting the men to avoid wastage, sometimes in the most trivial ways. At the GLCC, staff were issued with metal attachments so that pencils could be used to the end of their lead. One old storekeeper, who claimed to be 'a true co-partner', would slit open used envelopes, carefully fold them and re-use them for scrap paper. Another gasworker remembers a foreman putting his foot into ashes drawn from a boiler furnace and, finding some unburned coke, remarking, 'Now this is not a good co-partnership attitude is it. Look you are throwing away good coke'.

Whether co-partnership influenced union membership, strike action or the spread of socialism must also remain doubtful. It is true that since 1889 the gas industry has been remarkably strike-free. Yet

Interview with Ted Ive Cassette No. 7.
 Interview with Ted Green Cassette No. 1.

TABLE 20

Wages (in pence) per 1,000 cu.ft. of gas sold in six gas concerns 1890-1914

•						
Date	GLCC	Commercial	S.Metro.	Crystal Palace	Birmingham	Manchester
1890	4 54	4.40	4.61	4.43	3.35	3.56
1050	4.56	4.68	4.01	4.29	3.41	3.57
21	A 15	4 61	3.78	4.30	3.54	3.58
03	4.15	4.61	3.66	4.28	3.62	3.41
95 Q/	4.23 A 27	4.38	3,32	4.20	3.35	3.43
95	4.27	4.48	3.06	4.17	3.09	2.98
- 96	4.26	4.42	2,99	4.13	2.92	2.78
- 90	л 10	4 25	2.78	4.59	2.92	2.81
00	4.08	3,49	2.79	4.05	2.83	2.64
- 00	3.96	3,33	2.77	3.69	2.96	2.87
1000	4 06	3 52	2.82	2.79	2.91	3.07
1900	3 00	3 57	2.90	2.79	2.80	2.85
02	3.42	3.25	2.56	2.47	2.65	2.47
02	2 22	3,13	2.43	2.29	2.62	2.34
03	3 14	3.02	2.44	2.49	2.71	2.24
04	2 07	2 93	2.36	2.33	2.73	2.13
00	2.57	2.35	2.25	2.13	2.83	2.13
00	2.00	2.01	2.27	1.93	2.78	2.10
07	2.21	2.52	2.20	1.79	2.73	2.12
08	2.00	2.52	1.89	1.39	2.60	2.04
09	1.90	2.12	1 70	1.39	2.60	1.99
1910	1.87	1.72	1.75	1.27	2.42	1.81
	1.91	1.55	1.84	1.50	2.22	1.75
12	1.9/	1.54	1.79	1.23	2.08	1.74
13	1.89	1.50	1 80	'1.26	1.88	1.84
1 1914	1.69	1.49	1.00	·····		

Source: Field's Analysis

before co-partnership was abolished, on nationalisation in 1949, there had been a strike at Beckton in 1945 and by then, too, most works in London had a virtual closed shop despite management discouragement of union membership as incompatible with true co-partnership. As for retarding the growth of Socialism, at least as Livesey would have defined it, even the great man himself, reviewing the work of the Attlee Government, especially with regard to his own industry, would have had to have admitted a certain lack of success.<sup>1</sup>

Why was co-partnership not a success? The simple answer is that it had no real substance and was little more than a palliative. Far from being a replacement for capitalism, it was the same old system covered by a very thin veil. As a partnership it was hopelessly one-sided. Initiated by capital, capital kept control of decision-making and the vast bulk of the profits. The schemes were clearly a reaction to the threat of the unions <sup>2</sup> although the hostility of the unions was not a significant reason for their failure.<sup>3</sup> The basic reason for this was that neither the cash bonus nor the share distribution were sizeable enough to alter the fundamental relationship between the company and the men.

Share ownership would only have been significant if it had given the men control of the running of the company. Co-partnership was defined at the time as 'A voluntary submission by the capitalist or employing class in any business to a process of gradual expropriation in favour of the employed class.' But this was never likely to come about. In the longest running scheme, at the South Metropolitan, in 1913 the workers, owned 3.7 per cent of the equity and even by 1942 they still owned less than 9 per cent.<sup>5</sup> The reason

- 1. This verdict on the ineffectiveness of co-partnership is born out by Pollard and Turner, op.cit. p.29.
- Although the correlation between the setting up of schemes and the years of militancy is not as clear-cut as Bristow, op.cit. p.13 has suggested, e.g. 1908-9 was quiet industrially yet saw more schemes started, including the GLCC, than 1913, <u>Report on Profit-Sharing</u> PP (1912-13) XLIII p.867.
- 3. The introduction of the scheme at Liverpool in 1912 caused a major strike, GW, 9 Mar. 1912.
- 4. Co-Partners Magazine (1914)p.60.

5. Co-Partnership Journal, 18 Mar. 1942.

for this is clear. When the companies needed large capital sums it was only to traditional sources that they could turn. At the rate the workers could accumulate stock it would have been 200-300 years, if ever, before they achieved a 'controlling' interest. This had no meaning for the majority of workers who looked on their shareholdings as 'dead money'.<sup>1</sup> Workmen directors were an equal sham and one which, incidentally, neither the Gas Light and Coke nor the Commercial chose to adopt. At the South Metropolitan, where there were three employees on a board of nine, Livesey had made it quite clear that if they had not behaved to his liking the plan would have been scrapped.

Cash bonuses did not effect the worker's behaviour for two reasons. Firstly, the size of the bonus was in no real way related to work performed by the worker unlike, for example, piecework. The South Metropolitan bonus fell dramatically in 1892 and again in 1901 due to an increase in the price of gas caused by coal price increases, a factor far removed from the efforts of the gasworker. Moreover, it was remarked at the time that the men seemed to work just as well when they expected no bonus as they did in the years they received 7½ per cent.<sup>2</sup> Nor did revising the scheme to 'fiddle' a better bonus in these years add to its credibility. Nor was the size of the bonus sufficient to change the behaviour of the men. The South Metropolitan paid the highest bonus in 1913 - 8½ per cent,<sup>3</sup> compared to 5 per cent by the Gas Light and Coke and 6 per cent by the Commercial - but a top stoker on fillo a year would only have got £9. If all this were paid in cash, which of course it was not, the men still had to rely overwhelmingly on their weekly

- 2. GW, 17 Aug. 1901 p.233.
- 3. S. Metro. SHM 1913.
- 4. Co-Partners Magazine 1913 p.163.
- 5. Commercial SHM, 26 Jun. 1913.

<sup>1.</sup> Interview with Reg Schmidt Cassette No. 11.

wage. They were, therefore, every bit as keen when bargaining with the company over wages as ever they had been when there was no co-partnership scheme. The logic of capitalism ensured that the bonus would never be great enough to upset this situation since the shareholders would not have accepted any significant erosion of their dividends. In the event, Livesey admitted implicitly the ineffectiveness of a cash bonus early in the scheme and had virtually abandoned the idea by 1907.

Finally, it may be asked why, if co-partnership was so ineffective, was it -not abandoned? The probable answer is that there was no proof one way or the other. At the time, the South Metropolitan scheme seemed to work. Productivity improved, the trade union was kept out, and there were no strikes. The fact is that equal results could probably have been achieved by a proportionate increase in weekly wages which would have increased the company's hold over the labour market. Yet some companies probably felt that the marginal propaganda effect which the trappings of co-partnership had on some of the workforce made it a better way of distributing the extra money. Ultimately, of course, what disciplined the men under any scheme was the foreman and his absolute power to pitch a man back into the pool of the unemployed.

## Chapter 10: The Continuing Struggle 1890-1914

The accepted view that the gas industry 'changed overnight from a wholly unorganised into an exceptionally unionised one' in 1889 paints too dramatic a picture. For periods in the 80s there was some organisation in London, while less than a year after the birth of the new union it had been driven out of the gasworks south of the river and although the process was less dramatic in the north, there, too, over a number of years, the union lost power and dwindled away. By 1895 the level of unionisation was little different from what it had been eight or nine years earlier. Yet despite this, collective bargaining continued without the union, just as it had before 1889. This chapter looks in some detail at the relationship between the companies and their men and the relationship of them both to the union.

From the start, the Gas Light and Coke affected a haughty neutrality toward the union. But it is difficult to believe that the company, and Makins in particular, did not privately envy Livesey his victory which contrasted with their own weak stance. At the company's shareholders meeting in February 1890 Livesey, fresh from his triumph, was greeted with tumultuous applause and Makins was forced to defend their position rather limply. He thought monthly contracts and a straight bonus were preferable to the South Metropolitan scheme since they implied no partnership and, therefore, no Following this, in April, the company tentatively offered shared control. certain classes of men the week's holiday if they would sign a monthly agreement, but they did not pursue the matter at this time.

The union was also having its problems. In the autumn of 1889 it had had 100 per cent membership in the retorthouses of the Gas Light and Coke

- 1. Hobsbawm, op.cit. (1964) p.158.
- 2. JGL, 11 Feb. 1890 p.247. 3. GLCC DM, 18 Apr. 1890.



but even by the spring of 1890 membership had begun to drift. The leaders were quick to appreciate that an agreement with the company was the best way of keeping all the men in the union. In March 1890, a letter from Thorne informed the Court of the union's intention of posting notices and holding a meeting at Beckton to get the men to pay up their arrears in subscription. The directors replied that in view of their position of strict neutrality they could allow neither the notices nor the meeting.<sup>1</sup>

Soon a real trial of strength developed. In November 1889, when the men were strong, West, experimenting with stoking machinery had had to pay the men 5s 9d a day - 5d over ordinary stokers' rate - to induce them to man Eut in May 1890, when it came to a full working of the machinery in No. 12 it. retorthouse, he offered only stokers' rate. The men refused to work and West filled their places with non-unionists. An open confrontation seemed inevitable and the company made preparations. It erected huts surrounded by a wire fence to house and protect the non-unionists on the works. This compound was known for years afterward as 'Blackleg Square'. An inspector, three sergeants and thirty constables were permanently stationed on the works to protect West's men from violence. West complained that the unionists gave his men 'The Beckton stokers' howl, which is the most unearthly noise I have ever heard'. And more violent methods of discouragement were used. Two non-unionists were thrown from the Beckton train and another was attacked coming off the Woolwich Ferry. One non-unionist was committed for attacking a stoker from Nine Elms with a long bladed knife which, he said, he had to carry since as a non-unionist he went in fear of his life. . The stoker who had brought the charge admitted approaching the defendant with a

1. Ibid., 7 Mar. 1890.

2. JGL, 20 May 1890.

3. Interview with Ted Coley Cassette No. 5, Mr. Coley's father worked at Beckton at the time.

4. <u>JGL</u>, 3 Jun. 1890 p.1031.

group of men and to having previous convictions for assault, and a crosssummons was taken out against him.<sup>1</sup> Some of the non-unionists came off Livesey's list of ex-South Metropolitan strikers,<sup>2</sup> and at least one came from Salford. When asked by a union official why he was working for West he replied 'While I am working for Mr. West I have a living in my hands...you fetched me out at Salford and did nothing for me. I had to break up my home, leave my wife and family and tramp all the way to London before I could get work; and now I have got some you are trying to make me leave it again. But you won't succeed.'<sup>3</sup>

The men did not succeed in ousting the non-unionists from No. 12 retorthouse and amidst all this the company, fearing a strike and probably sensing it was getting the upper hand, chose the time to introduce monthly contracts. A mass meeting attended by Thorne and Ward was held on Sunday 27 May and a deputation met the Beckton engineer the following Thursday.<sup>5</sup> The men suggested Beale refused and threatened some changes and demanded to see the directors. to withdraw the week's holiday if the men did not sign. The union then produced its own agreement which substituted the company's proposal of twentyeight days notice from the date the individual signed with twenty-eight days from the collective handing in of notices, thereby making joint action possible. They also wanted 5s 9d as pay for machine June, a mass meeting of the men agreed not to sign until On Sunday, 4 a deputation had seen the directors. This the company again refused, and after touring the stations, taking the opinions of selected workers, it produced a revised agreement which virtually conceded the union's alterations. The union's National Executive agreed this scheme, largely above the heads of the men, who were forced to sign despite their misgivings.

Ibid., 10 Jun. 1890 p.1077.
 Ibid., 3 June 1890.
 Ibid., 27 May 1890 p.987.
 GLCC, 18 Apr. 1890.
 JGL, 10 Jun. 1890 p.1076.
 Ibid. p.1077.
 Ibid.17 Jun. 1890 p.1130 and 24 Jun. 1890 p.1190.
<u>People's Paper</u>, the union's organ, claimed a victory for the men, but the <u>J G L</u> was nearer the truth in seeing the monthly agreements as a clear indication of the weakness of the union. <sup>1</sup> Perhaps it was a period of the balance of power. The company had conceded an extra holiday for some of the men and the right of the men to hand in notices together, while the men had to concede the monthly contract - something which would have been unthinkable six months earlier. The union had played an ignominious role in agreeing the concessions and getting the men to sign. Speaking of the issue sometime later, Thorne said, 'We have been called everything for that; but we do not mind it, as long as we did it with the best of intention.'<sup>2</sup> Time was also moving against the men.

Throughout the summer of 1890 there were frequent troubles between union and non-union men, many of which led to temporary 'down tools'.<sup>3</sup> The foremen, it seems clear, were attempting to restore their traditional domination by discriminating in favour of non-union men when it came to hiring and firing. The company continued its preparations for a strike by building accommodation for blacklegs on all its works and even training their gardeners in the art of stoking. The union, on the other hand, could feel its influence on the wane and somewhat optimistically made another attempt to get the company to agree to a closed shop. In a letter to Trewby on 12 September, Ward, with the agreement of the National Executive but without the knowledge of Thorne, suggested that the union would limit the number of stoppages if the company would agree to take only union men. A notice, it was suggested, would be posted in the works stating that foremen were to work amicably with the union men and that when new men were required these would be supplied by

Ibid., 17 Jun. 1890 p.1130.
 Ibid., 7 Oct. 1890 pp.746-747.
 Ibid., 7 Oct. 1890 p.746.

the union, as the Seamen's Union did for the shipping companies. Collecting stewards were to be under the control of their branches. Any refractory member was to be reported to the branch but there was to be no stoppage of work except in the presence of an Executive member. Certain victimised members were to be reinstated.

The Gas Light and Coke Court seemed to take this letter as an ultimatum and actively prepared for an imminent strike. While agreeing to meet the union on 3 October, it decided to erect further barracks, took the advice of its solicitor in the event of the men breaking their twenty-eight day contracts and sent Field off to seek the aid of the authorities. Ωn September there were rumours of a strike in the local press.<sup>2</sup> 27 In the week prior to the Friday meeting with the company and union, the Home Office, War Office and the Admiralty decided at a joint meeting to draft troops into Beckton to man the retorts in the event of the company being unable to find sufficient men.<sup>3</sup> In a letter dated 2 October from the War Office to the company they said that although they could not believe that the men would plunge London into darkness and that they could not interfere between employers and workers, nonetheless if the men broke the law, such as the 1875 Act, the Government would act to protect the public from danger.<sup>4</sup>

On Thursday, 2 October, the company seems to have got into a thorough panic when the morning papers published the union's letter and an account of the extent of the company's business and, by implication, the size of the problem if there was a strike.<sup>5</sup> In addition, it was reported that the

GLCC DM, 19 Sep. 1890.
 Essex Times, 27 Sep. 1890 p.5.
 Daily Telegraph, 4 Oct. 1890 p.3.
 GLCC DM, 3 Oct. 1890.
 Times, 2 Oct. 1890 p.9.

same day the company had received information that a strike was imminent, although the company would not divulge the source of the story. As a result, the company contacted the authorities and orders were sent to Chatham where three battalions were paraded with twenty rounds of ammunition per man. Several tugs stood by with steam up ready to convey the troops to Beckton, but the final order to embark never came. In the event the strike, which had it caused troops to have been used would have been unusual in the nineteenth century, did not occur. The incident, with such potential for violence and bloodshed, was quickly forgotten.

Although difficult to assess, the likelihood of a strike was probably Neither side seemed to desire one. The men could probably see they low. were out-matched, while the company probably judged correctly that time was in their favour. The situation, based on a mutual suspicion between the company and the men, was probably brought to a head by the press. Thorne, in a press conference, maintained that mischief-makers, whether officials of the company or others, had poisoned the minds of the directors in order to harm the union, and later he even hinted at an active role by Livesey, although there is no evidence for this.

Inevitably, the meeting between the union and the directors the day after the strike had failed to materialise was something of an anticlimax. Thorne, speaking from a written statement, began by enumerating the petty disputes over which he had helped the company to control the men. $^3$  He complained that, although the company was neutral with regard to the union, the foremen actively discouraged men from paying their dues and collecting stewards

Daily Telegraph, 4 Oct. 1890 p.3.
 Reports, op.cit. (1891) p.8.
 JGL, 7 Oct. 1890 p.746.

had been victimised. He repeated the arrangements set out in Ward's letter but reaffirmed that the union did not want a strike - indeed, it 'had not caused one single strike since the union started'. H.C. Ward for the directors (Makins was curiously 'out of the country') said the company did not want a lock-out, was satisfied with the work of the men and would do something about the alleged victimised men. There was, however, no possibility of the company becoming a Union Office. Ward then asked Thorne what the union would do if the company did not fall in with the union's plans, to which Thorne replied that things would go on as they had. They did not wish a strike; indeed, he himself had been ignorant of the demands made, being away at the time. Towards the end of the meeting Thorne made a rather surprising statement: 'The work was neglected by the men', he said, 'more on account of drunkenness than anything else...'. The directors 'should take steps to prevent potmen taking beer onto the works. This was not allowed at the South Metropolitan works nor in Birmingham'. In this fashion the meeting ended. <sup>1</sup>

That evening the union deputation reported to a packed meeting of the Nine Elms branch where a resolution was passed thanking the directors 'for publicly stating that their men perform the work to their perfect satisfaction' and giving 'the lie direct to the false and malicious rumours reported in many newspapers of their intention to strike, as they are, on the contrary, in thorough harmony at present with their employers'.<sup>2</sup> Another resolution, carried unanimously, expressed the fullest confidence of the men in the General Executive and pledged full support, for any action they might take in the future. At a meeting of 2,000 Beckton men held at Woolwich the following Sunday, Thorne repeated that there had been a misunderstanding and he would show anyone the union's minute book to prove they never contemplated a strike.

Ibid. p.747.
 Ibid. p.748.

The Government, however, had been wrong to consider sending in troops and the only way unionists could meet this threat was by returning labour members to Parliament.<sup>1</sup>

Despite the peaceful protestations of the company and the union, it is clear that a struggle for power had been going on in the works and if October 1890 was something of a climacteric there is no doubt that after that date the strength of the men and the numbers in the union were in decline. By the end of October Livesey could crow in a letter to the <u>J G L</u> 'What has happened to the Gasworkers Union? At one large branch subs on pay night have fallen from f2 to 2/- and another to 4d. and one manager says that union men now make no mention of non-unionists'. <sup>2</sup> Table 21 shows the decline in membership in the London branches which began with membership composed 100 per cent of 'gasworkers. Since by 1893 none of the membership in the old South Metropolitan branches came from the gasworks it is fair to assume that a high proportion of the membership of the other branches no longer came from the gasworks, and that decline in gas membership was even more precipitate than the overall figures show.

The decline, however, clearly did not occur overnight at the Gas Light and Coke and varied from works to works. In the winter of 1891, the coal whippers of both the Gas Light and Coke and the Commercial were strong enough to refuse to unload colliers of the Shipowners' Federation manned by 'free labour', and Livesey chided the Gas Light and Coke for not using the 1875 Act on the men. <sup>3</sup> The union was a force as late as 1892 at Kensal Green where in that year Browning, a National Executive member and branch secretary, was sacked when he tried to recruit water gas men into the union. The union held a

Times, 6 Oct. 1890 p.7.
 JGL, 28 Oct. 1890 p.898.
 Ibid. 10 Feb. 1891 p.258.

### TABLE 21

# Total membership of the 'gas' branches in London of the NUGGL

Company	Branch	Works	31 March 1890	31 March 3 1893	1 December 1895
GLCC	Canning Town	Beckton	4,200	2,104	860
61	Barking	ti ang	2,360	342	259
11	East Ham		1,034	523	181
11	Woolwich	It	752	320	92
61 - S. J.	Kings Cross	Pancras	848	587	82
50	Kensal Green	Kensal Green	494	451	59
n	Fulham	Fulham	820	720	375
and S.Metro.	Nine Elms	Nine Elms Vauxhall	1,517	1,191	196
GLCC	Shoreditch	Shoreditch	1,081	647	430
"	Bromley	Bromley	636	424	330
<b>.</b> n	Bow Common	Bow Common	309	243	141
S.Metro.	E.Greenwich	E.Greenwich	1,440	568	205
	W.Greenwich	W.Greenwich	207	84	16
#1	Rotherhithe	Rotherhithe	305	40	37
lt .	Old Kent Road	01d Kent Road	519	249	143
Commercial	Poplar	Poplar	400	300	223
II	Stepney	Stepney	300	267	216

Source: Reports, op.cit.

meeting in support of Browning at which Bill Ward, in characteristic style, said that any man who did not join the union but received its benefits was 'a cur, a sneak and a rascal' and should be shunned like a leper. He urged the men to support Browning with a contribution of 1d per man per week.<sup>1</sup> It is not clear whether Browning regained his job but certainly the men subsequently left the union entirely and in 1896 the branch was called Kensal Green Builders Labourers.<sup>2</sup>

The demise of unionism in the London gasworks was all but complete by 1895. Only at the South Metropolitan had this been caused by an employer's counter-attack. At the Gas Light and Coke and the Commercial, although they actively discouraged union membership, particularly at foreman level, there was no such militant counter-move. Much of the decline in membership must be ascribed to the free will of the men themselves. Apathy, an unwillingness to pay the subscription and the poor record of the official union must have contributed. But most important was the change in the labour market, which took bargaining power from the men; in such circumstances there was little point in remaining in the union. The men reasoned, probably correctly, that the union had won them all the concessions that were likely, and so they left. Moreover, the men showed themselves capable of collective action without the union. In 1892, the men of the carbonising departments of some of the Gas Light and Coke works petitioned the Court in the old style for a 6d wage increase. The Court, however, replied in the negative, telling the men that it was with great difficulty that the present rate of wages was maintained.

The union did not give up attempts to reorganise and represent the men. It held many meetings to try to get the men, including those south of the river,

Ibid., 20 Dec. 1892 p.1089.
 <u>Reports</u>, op.cit. Quarter ending 30 Sep. 1897 p.51.
 <u>GLCC</u> DM, 25 Nov. 1892.

to rejoin. But, at a meeting held on Peckham Rye in October 1890 to regain the South Metropolitan men, apparently no-one turned up. In 1894, Thorne sent letters to both the Gas Light and Coke and the Commercial requesting the eight hour day for all labourers and double pay for the summer holidays. This again was refused.<sup>2</sup> With the improvement in the employment situation in 1897 the union redoubled its efforts to reorganise the London gasworkers. Hutchins reported that 'meetings have been held in all parts of London... several men have joined again and I hope will be the means of encouraging others'.<sup>3</sup> The response does not sound overwhelming. In February 1898, however, the union took up the case of sixteen men at Bow Common who had been sacked but kept working past the date their notice expired, thereby making it void. The union took the case to court and won four weeks wages in lieu of notice for the men and, no doubt, some prestige for itself.<sup>4</sup>

The men continued to bargain without the union. Early in 1898, coke workers in three Gas Light and Coke stations, though not in the union, petitioned for an increase in wages, overtime rates and an annual holiday. When this was refused, nineteen of the men at Bromley struck. Summonses were issued against the men for breach of contract but they were given the option of returning to work before the date of proceedings. This the men did after the mechanics, yard labourers and others had filled the places of the strikers. The company did, however, concede 1s extra for men called in on a Saturday afternoon and the annual holiday.<sup>5</sup>

Also early in 1898 the men at Beckton put in for a 1s a day wage increase, but this was refused.<sup>6</sup> The men then seem to have rejoined the

- GLCC DM, 22 Jun. 1894 and Commercial DM, 14 Jun. 1894.
   Reports, op.cit. Quarter ending 30 Sep. 1897 p.5.
   Ibid. Quarter ending 31 Mar. 1898 p.61 and GW, 26 Mar. 1898 p.486.
- 5. GLCC DM, 14 Jan. 1898; GLCC CW, 11 Feb. 1898 and GW, 29 Jan. 1898 and 19 Feb. 1898 p.289.
- 6. GW, 5 Nov. 1898 p.679.

<sup>1.</sup> JGL, 4 Nov. 1890 p.947.

union to some extent. At any rate, in August a resolution was sent from one of the union branches to the National Executive asking it to make a demand on the companies for 1s a day increase. By the cumbrous union procedure this was put to its 250 branches and agreed. The following three Sundays delegates came from all the stations to give their opinions and on 15 September it was decided to petition all the London companies for a 15 per cent increase.<sup>1</sup> The petition, however, was not sent for a further five weeks, and perhaps it would never have been sent had it not been for the action of the non-union men at the South Metropolitan.

Livesey reported events to his shareholders in the following way? The company, he said, were the first to note that the law of supply and demand indicated that a rise of stokers' wages was reasonable. The statement has often been made, he said, that wages are never advanced except under pressure from trade unions and the uninformed public were apt to believe this. This was a mistake. In the winter of 1897 they had had some difficulty in getting stokers and in the spring they left earlier than usual, which was an indication that the men could earn higher wages elsewhere. Later in the summer of 1898 a number of men had approached him for an increase in wages. With not a little understatement, Livesey continued that he must confess he was 'a little bit vexed at this' as he thought the company was treating its men quite well, if not better than most other companies and perhaps in speaking to these men he was 'a little bit rough'. He regretted it afterwards; the company's men were perfectly free: they felt they had a case and they made no threats. He later heard that the union, although it had not made any definite move, was working underground and so the company was right not to allow the men to

1. GW, 5 Nov. 1898 p.679. 2. Tbid., 11 Feb. 1899 p.214.

build up an organisation but to give the increase without waiting for the demand to be formulated by a trade union.

The South Metropolitan agreed to a  $7\frac{1}{2}$  per cent increase for their men and informed the other London companies. On the instigation of Makins, a conference between the three companies was held on 14 October at which the other two companies tried to pursuade Livesey to postpone the announcement of the increase.<sup>2</sup> This Livesey refused to do, and the Gas Light and Coke and the Commercial decided that as their men had not asked for an increase they would not give one. There was little chance of that, however, after the South Metropolitan increase was made public in the JGL on 18 October.<sup>3</sup> This finally stung the union into action and the following week they issued a manifesto urging the London gasworkers to join the union and 'show the spirit you did in 1889' by demanding higher wages and less work. Still they delayed presenting the petition drawn up five weeks before - clearly because they felt they lacked support from the gasworkers themselves. It was the companies who acted first. The engineers of the Gas Light and Coke made a strong recommendation to the Court that they grant a wage increase to forestall an application by the men and, encouraged no doubt by rumours of a strike in the morning newspapers on 20 October, the Court decided to grant the increase at their meeting on 21 October. The increase was the same as granted by the South Metropolitan, but 'the men must be told their work must improve'. 5 The Commercial also gave the same increase. Only after it became clear that the companies were going to grant the wage rise and perhaps

Ibid., 11 Feb. 1899 p.214.
 GLCC DM, 14 Oct. 1898.
 JGL, 18 Oct. 1898.
 Ibid., 25 Oct. 1898 p.925.
 GLCC CW, 21 Oct. 1898.

after the announcement was made, did the union finally post their petition. The companies merely replied that a decision had already been taken.

Thorne claimed the wage increase as a victory for the union and he was less than candid about the union's role in the affair.<sup>2</sup> It was clear however that the union was following, not leading, events. But if the union had to cover up weakness so did the companies. Both Livesey and Makins maintained that the increase did not come as a result of union pressure.<sup>3</sup> Although this was strictly true, the increases were forced on the companies by the state of the market and therefore by the fear of the union building up and of concerted action by the men. To his shareholders, Makins maintained that the  $7\frac{1}{2}$  per cent increase was agreed at the meeting between the companies, which was simply untrue.<sup>4</sup>

Thorne claimed that 1,000 London gasworkers had joined the union in 1898, but this was still only a small fraction of the total workforce and as the labour market again deteriorated membership fell away once more, even from this low level. The South Metropolitan remained entirely free of the union. 'I do not know,' said Thorne in an interview, 'what the practice is now, but a few years ago it was that the man who reported a unionist in the works got half a crown and the unionist got the sack'.<sup>5</sup> In the famous series of articles in the <u>Times</u> on trade unions and 'ca'canny', it was claimed that the high productivity at the South Metropolitan compared to the other companies, was due to the absence of the union.<sup>6</sup> Wardle, the railway workers' leader, claimed in

1. Commercial DM, 3 Nov. 1898.

- 2. GW, 5 Nov. 1898 p.680.
- 3. Times, 3 Dec. 1901 p.4.
- 4. <u>GW</u>, 4 Feb. 1899
- 5. Tbid., 5 Feb. 1898 p.680. 6. Times, 3 Dec. 1901 p.4.

reply that at no London gasworks was the union a determining factor. 'Neither at Beckton, Kings Cross nor Fulham has the union got sufficient members to interfere with the policy of the management if it wanted to do so;...For any practical purposes it is non-existent in the other London gasworks.'<sup>1</sup> A few London gasworkers probably remained in the union, <sup>2</sup> and the union made repeated efforts at recruitment <sup>3</sup>, but the level of membership was probably less than 5 per cent of the workforce in the first decade of the twentieth century.

The union played even less of a part in the 1911 movement than it had in 1898. Wage increases elsewhere and rumblings among their men alerted the companies and they met informally on 17 August before the men had made any move for an increase in pay, and agreed to limit any increase to 6d a day. <sup>4</sup> Three days later the men at Beckton, largely non-unionists, held a meeting in Blackleg Square and formulated a demand for a 1s a day extra. They met the engineer who told them that as the directors were on holiday they would have to wait. On the same day the union tried to become involved by holding two meetings at Finsbury Park and East Ham. The latter meeting was attended by over 1,000 men and was addressed by Ryal1, the East Ham branch secretary and National Executive member. The meeting of the men at Beckton, he said, was evidence of the men's dissatisfaction. They had joined the union in 1889 - now they must be persuaded to do so all over again.<sup>5</sup>

On the instigation of Carpenter of the South Metropolitan, the chairmen of the London companies met in a second and formal conference at the Westminster Palace on 22 October 1911 to agree what they would offer the men.

- Ted Coley's father for example. Interview with Ted Coley Cassette No. 5.
   For example the meeting held on Peckham Rye in 1904 addressed by Thorne to
- attract the South Metro. men, GW, 5 Nov. 1904 p.837. 4. GLCC DM, 8 Sep. 1911; CommerciaT, DM, 24 Aug. 1911.
- 5. GW, 26 Aug. 1911; JGL, 22 Aug. 1911 p.497.

<sup>1.</sup> Ibid., 28 Dec. 1901 p.8.

As a result, the following Monday, 28 October, Corbett Woodall met representatives of the men - non-unionists - at Horseferry Road and offered them 6d a day extra and two weeks wages, instead of one, for their summer holiday. This the men agreed to and the South Metropolitan and Commercial made a similar increase of 6d a day.<sup>2</sup> The Commercial, however, only offered fl extra holiday pay which led to further discontent in which the union did play some part. In November 1911, the board received a letter from Thorne enclosing a petition from the men asking for the full week's holiday pay.<sup>3</sup> This was refused, as was a later request to receive a deputation of the men.<sup>4</sup> In February 1912, however, the company conceded the week's pay.<sup>5</sup> There was further correspondence with Thorne in March and later in the month the company received a deputation of men asking for an increase in pay and improved conditions. These were refused in view of concessions made the previous year, although the company agreed to look into any anomalies.

The level of union membership probably increased again in the years before the First World War, but since at Beckton, the most heavily unionised works, a gasworker who worked there in this period estimates only 25 per cent of the men were in the union 7, the level in the London works in general probably remained insignificant. The union never regained the hold over the men that it had had in 1889 until the Second World War.

- JGL, 5 Sep. 1911 p.600.
   <u>GW</u>, 23 Sep. 1911.
   <u>Commercial</u> DM, 16 Nov. 1911.

- 4. Ibid., 28 Dec. 1911.
   5. Ibid., 22 Feb. 1912.
   6. Ibid., 7 Mar. 1912, 21 Mar. 1912, 4 Apr. 1912.
   7. Interview with Ted Coley Cassette No. 5.

## Chapter 11: The National Union of Gasworkers and General Labourers 1889-1914

This history would not be complete without a brief (and by no means comprehensive) look at the history of the union which the London gasworkers had created.

Table 23 shows clearly the fortunes of the union in this period in terms of total membership. Although there are no accurate figures, membership seems to have peaked in late 1890 or early 1891 with probably never more than 50,000 in the union. Numbers then declined to reach an all-time low in 1895, reviving to peak again in 1899 at about the same total as in 1891; membership fell away again to 1905, revived slightly in 1906-7, fell again to 1909 and then launched into a very rapid increase in 1911 to reach a new all-time high in 1913, although membership began to fall again immediately prior to the First World War. There is a positive correlation between the union's membership figures and the level of employment and it is difficult to avoid the conclusion that union numbers are a simple function of the percentage level of unemployment.

The situation is not as simple as that, however, since the regular swings in the size of membership conceal a tremendous amount of dynamic change in the geographical, occupational and structural composition of the union. Periods of decline contain growth in some sectors and even more rapid decline in others and conversely for periods of growth. The most important characteristic of the union in this period was its high rate of turnover in all its aspects: in terms of districts, of branches and of the membership itself. Table 22 shows the fortunes of the union's various districts. In 1891 the union had twelve separate districts; in 1914 it had ten, but of these only six had a continuous existence throughout the period. Districts disappeared entirely, new ones were formed, others split away or were amalgamated. In 1891, the Dublin district was the second or third largest in the union; by 1893 it had disappeared altogether. A Scottish district was formed in 1899, disappeared

### TABLE 22

Membership of the Districts of the National Union of Gasworkers and General Labourers 1889-1914.<sup>(1)</sup>

1											_	
Year District	189	1892	2 189:	3 1894	1895	1896	189	7 1898	3 189	9 1900	190	1 1902
Belfast	400	1350	600	315								
Birmingham	700	1044	1560	1630	2602	6024	7932	2 7245	6560	5443	4651	4042
Bristol	4333	2100	2400	2100	1743	2742	2566	5 3594	3782	3752	3053	3029
Dublin	7750	1486										
East Coast	14 - 1 1	-1 -	а 8 ст. в								j.	
Lancashire	2423	3270	2600	2400	1990	3034	4998	5322	4806	5 <b>73</b> 9	6258	5741
Leeds	8000	6828	6000	4800	4026	4580	6161	6067	5901	6244	7322	8094
London	18000	16024	14674	11930	7833	8556	1 <b>191</b> 0	14455	16832	14560	13210	10449
Mersey	1000	1200	1270	870	580	1115	1257					
Midland												
Plymouth	2000	1590	1000	730	· ·							
Scotland	n Second and			1. 			te de la		3689	2378	<b>1</b> 494	580
Sheffield <sup>(2)</sup>	753	832	1117	2100	2200	1773	1811	1771	1593	3023	2932	2480
Sittingbourne	910	)										
South Wales										2342	2454	2316
Sunderland <sup>(3)</sup>	636	673	725	600	1516	1906	3407	5020	4867	4500	4640	4255

#### Sources and Notes:

1. Membership from <u>Reports</u>, op.cit., on the books on 31 March for years 1891-1894 and 31 December for 1895-1914; estimates for years up to 1895, official figures for 1896-1914.

2. Name changed to Barnsley in 1895, and to Barnsley and Sheffield in 1905.

3. Name changed to North Eastern in 1899 and to Northern in 1907.

Table 22 continued.

A										a .		
Year District	190:	3 1904	1905	5 1906	5 1907	7 1908	3 1909	1910	1911	1912	1913	1914
Belfast								1				
Birmingham	2468	3 2187	2346	2499	3114	2085	1763	2466	3823	3368	9482	6896
Bristol	1563	1472	1152									
Dublin												
East Coast		1659	1644	2717	2913	2208	2642	2870	10372	7364	10016	6903
Lancashire	4607	4156	4665	5611	8308	7443	6904	6984	14291	16624	26235	20760
Leeds	6090	4256	4012	4735	5409	4880	4960	5296	6645	7178	16348	11512
London	8786	6852	5758	6039	7303	6271	3123	3114	14300	10838	22453	20299
Mersey	·			i.						r.		1
Midland	·						2958	2843	3017	2915	4878	4823
Plymouth												
Scotland	.539	564	170	140	46	35					9799	8071
Sheffield	2267	2262	2018	3331	4966	3400	3122	2619	4850	7783	3407	3230
Sittingbourne	2	1. S. 1	4			1 A						
South Wales	2235	2314	2234	2346	2247	2213	2162	2449	3872	3777	4351	3980
Sunderland	3228	3909	3801	5110	5499	3782	4101	43991	57192	22881	75691	3599

in 1908 for five years, but was reformed again in 1913. Some districts grew in importance over the period, like Lancashire and Sunderland, while others, like Leeds and London, declined.

There was also a high turnover of branches, as can be seen by taking three districts at random. Birmingham had thirty-seven branches in 1897 and fifty-one branches in 1913; only fourteen of these, however, had a continuous existence throughout the period. Similarly, the Lancashire district had thirty-seven branches in 1899<sup>2</sup> and eighty in 1913, but only seventeen existed throughout the period. Leeds had thirty-two branches in 1899<sup>4</sup> and sixty-six in 1913, <sup>5</sup> of which only nineteen had a continuous existence. The turnover in total membership is even more significant. In 1897, the union was growing rapidly and gained 10,312 members, but in order to achieve this it had had to recruit 21,889 new members since it had lost 11,581. Measuring turnover as the number of leavers as a percentage of total membership at the beginning of the year gives the figures 34.75 per cent in 1897 and 38.5 per cent for both 1898 and 1899. <sup>6</sup>Turnover is likely to have been even higher in periods of declining membership. The transient nature of the membership is clear; on average members stayed in the union a little less than three years and this was a considerably shorter time than subsequent turnover rates in the union.  $^7$ Although there must have been some, only a small fraction of the membership in 1913 had been in the union ten, let alone twenty, years earlier. In terms of personnel it was a different union.

For this reason, the view that the union owed its stability to achieving recognition from a relatively small number of employers, so that they maintained a solid basis on which to retreat in bad years and from which to expand

- 6. Figures are extrapolations from Reports, op.cit.

Reports Quarter ending 27 Dec. 1913 pp.41-2.
 Ibid. Quarter ending 30 Dec. 1899 pp.38-9.
 Ibid. Quarter ending 27 Dec. 1913 pp.34-6.
 Ibid. Quarter ending 30 Dec. 1899 pp.40-1.
 Ibid. Quarter ending 27 Dec. 1913 pp.38-40.

H.A. Clegg, <u>General Union</u> (1954) pp.27-8, gives turnover as 16% 1932-3, 32% 1940-1 and 21% 1948-9.

in good, is untenable. The union had no stability but was in a constant process of change. It did not, for example, retreat into the gasworks during the bad times since the gasworkers had largely abandoned the union. The union survived, in fact, by attracting groups of workers who needed it for a period of years but who then dropped out, to be replaced by another group. Most workers could benefit from the union in periods of good trade which gave them bargaining power, and hence the correlation between total membership and the employment level. Although some used the union as a defence in the bad times the union weathered the downturns largely because the cycle in certain occupational groupings ran counter to the general trend.

The London district is a good illustration of this process. As in most districts, the union was founded by the gasworkers but, also typically, they left the union after some years and by 1896 the district was dominated by the builders' labourers anxious to take advantage of the building boom.<sup>2</sup> When this collapsed, after the turn of the century, the district was left in a very weak condition in London itself, and was kept going by a gas and general labourers branch in Nottingham and branches of ironworkers in the surrounding area. An ironworkers branch at Stapleford now had more members than the once mighty Canning Town branch that had had some 10 per cent of the total union membership in 1890.<sup>3</sup> When the revival came in 1913 it was on the basis of branches of general labourers in London and cities and towns like Norwich and Southampton, Great Yarmouth or Lowestoft, previously often totally ununionised. <sup>4</sup>

This picture is repeated in the other districts. The Lancashire district was started by the Manchester gasworkers, but after they had been defeated the district rested on gas branches in Oldham, Blackburn, Higginshaw and other areas

- Hobsbawm, op.cit. p.187 and accepted by Clegg (1954) op.cit. p.5.
   <u>Reports</u> Quarter ending 30 Jun. 1897 p.4.
   <u>Ibid.</u> Half year ending 31 Mar. 1890 p.6 and Quarter ending 28 Dec. 1907 pp.24-6. 4. Ibid. Quarter ending 27 Dec. 1913 pp.28-32.

and for some years on an ironworks at Collyhurst.<sup>1</sup> These drifted away after the turn of the century when, by 1904, the largest branch centred on an engineering works in Accrington,<sup>2</sup> and the district survived the bad trade in this period by recruiting cotton piecers from Stockport and quarrymen from Buxton. The revival prior to the First World War was largely a result of the ironworkers of Blackburn, Accrington, Oldham, Horwich and Warrington and the chemical workers of Northwich.<sup>3</sup> The Sheffield district is another good example. Founded by the Sheffield gas workers,<sup>4</sup> these quickly drifted away and the district would have collapsed had it not been for the recruitment of the pit top men and glass makers centred in Barnsley,<sup>5</sup> who needed the union during the many disputes in the coalfield at this By 1895, the Sheffield branch had dissolved and the name of the district time. was changed to Barnsley.<sup>6</sup> From the turn of the century the pit top men drifted out in their turn, to be replaced by general labourers in Barnsley, Rotherham and Sheffield, and the growth after 1910 came almost entirely in the general labourers branches of Sheffield.<sup>7</sup>

The Birmingham district underwent a modest increase in the early 1890s, counter to the trend in the union as a whole, based on the brickfields and then the builders' labourers.<sup>8</sup> These were reinforced by labourers from Birmingham's diverse metal trades, which boomed from the mid-nineties.<sup>9</sup> When the building and metal trades slumped together, at the turn of the century, the district was hit badly. When the revival came in 1913, moreover, it was not in the old Birmingham branches but in new branches of metal workers at Coombs Wood, Walsall, and Darlaston and the gas

Ibid. Year ending 31 Mar. 1893 p.24.
 Ibid. Quarter ending 31 Dec. 1904 pp.28-29.
 Ibid. Quarter ending 27 Dec. 1913 pp.34-35.
 Ibid. Year ending 31 Mar. 1891 p.36.
 Ibid. Year ending 31 Mar. 1894 p.4; Quarter ending 30 Jun. 1896 p.15.
 Ibid. Year ending 31 Mar. 1894 p.36.
 Ibid. Quarter ending 28 Dec. 1912 pp.35-36.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Year ending 31 Mar. 1892 p.25; 31 Mar. 1893 pp.12-13.
 Ibid. Second to the 'Birmingham alliances', Clegg (1964), op.cit.
 Ibid. Second to the 'Birmingham alliances', Clegg and membership selling below agreed prices. In return the unions got wage and membership benefits. However, the effect of this has been exaggerated. Some branches not benefits. However, the effect of this has been exaggerated. Some branches in the 'alliances' did equally well, while the growth began before the 'alliances' were agr

workers of Leicester and Northampton.<sup>1</sup> The Sunderland district also held its 14.00 own in the early ninetieson the basis of the gas, engineering, dock and shipyard workers, but by 1907 the biggest branch was of biscuit makers in Carlisle<sup>2</sup> and this remained the case until a very rapid expansion came as a result of recruitment in the Tyne and Wear shipyards after 1910.<sup>3</sup>

Some groups of workers remained loyal for considerable periods. The Bristol gas workers, for example, seem to have remained in the union in substantial numbers throughout the period. The cotton workers, however, who had helped form the Bristol district, had deserted the union by 1897. The Leeds district also seemed relatively stable, based throughout the period on the Leeds gas workers and the woollen dyers of the area. Even so, the Leeds gas workers, after their famous victory in 1890, left the union in large numbers and went from 100 per cent unionised - some 1200 men - to perhaps 200 union members in 1894.4 Subsequently they returned to the union, but the main cause of growth before the First World War came from the finishing trades in Leeds, the Bradford gas workers, engineering workers from Hull and the York flour millers.<sup>5</sup> Clearly the union would not have survived the bad times or grown so rapidly in the good if it had relied on a stable base of the occupational groupings of which it had originally been composed.

Nor was employer recognition a significant factor in the survival of the union. The Gas Light and Coke and the Commercial both 'recognised' or negotiated with the union but this did not stop the majority of the men leaving it. Indeed, success by the men was almost an equal reason for leaving the union as was defeat. The Leeds gas workers are one example of this, and there are many others. In 1892, the union had a 100 per cent membership in the carbonising departments of the Belfast gasworks. After the men had gained

- <u>Reports</u>, op.cit. Quarter ending 27 Dec. 1913 pp.41-2.
   <u>Ibid.</u> Quarter ending 28 Dec. 1907 p.42.
   Ibid. Quarter ending 27 Dec. 1913 pp.46-9.
   Ibid. Year ending 31 Dec. 1894 p.26.

- 5. Ibid. Quarter ending 27 Dec. 1913 pp.38-40.

the eight hour day and a a day wage increase they felt they had ls gained all they could and so they left the union. By 1894 the whole Belfast district had collapsed. In 1893, builders' labourers in Birmingham joined the union prior to a fourteen-week strike. The strike was successful, but many had soon dropped out.<sup>2</sup> Defeat, of course, was no help to the union. As at the South Metropolitan, the brickmakers district in Sittingbourne was smashed by a strike of bargemen, which caused a lock-out, and there was another strike and defeat at the local cement works. Yet in as much as there was a counter-attack by employers, it played little part in the fortunes of the union.

It has also been suggested that the personalities of the union leaders played an important part in union recruitment. Clynes and Hugh Lynas have been singled out as responsible for the good performance of the Lancashire and Sunderland districts respectively.<sup>4</sup> Lancashire did do well in this period; having been only the fifth biggest district in 1891 it became the largest district when it overtook London in membership in 1907. Yet Clynes' undoubted ability as an administrator can have had only marginal, if any, influence on this process. For example, for three years after Clynes became an organiser in 1892, the Lancashire district declined in membership in comparison to increases in Birmingham or Sheffield. Of the twenty-two years up to 1914 that Clynes was an official, membership in Lancashire fell in ten of the years. One of Lancashire's successes in the period was the recruitment of the Buxton quarrymen, but Clynes played only a minor role. The quarrymen formed their own union and contacted Thorne who sent Curran and Clynes to conclude the deal, which brought them into the Gasworkers' union. Similarly, the Sunderland district rose from one of the smallest districts in 1891 to become the third

W.H. Ward in evidence to the <u>R.C. on Labour</u>, op.cit. p.100 Q 23942.
 <u>Reports</u>, op.cit. Year ending <u>31 Mar. 1893</u> p.12.
 <u>Ibid. Year ending 31 Mar. 1891</u> p.11.

<sup>4.</sup> Clegg (1964) op.cit. pp.37-42.

<sup>5.</sup> Reports, op.cit. Quarter ending 30 Jun. 1900 p.4.

largest in 1913. Yet for fourteen years after Lynas became district secretary membership stagnated. Nor can his efforts account for the rapid growth after 1910 in which all districts shared. Indeed, taking the bottom of the trough in membership in comparison with the pre-war peak, the rates of growth for both Lancashire and Sunderland are not outstanding set alongside those of London, Sheffield or the East Coast. Clearly, economic factors were the major, if not the sole, determinant of the union's fortunes.

The basic unit of organisation in the union was, of course, the branch. In 1897, the union had some 259 branches with an average of 155 members per branch. By 1913, the union had 569 branches with 236 members each.<sup>1</sup> Branches were of two types: general branches that took workers from different occupations and branches exclusive to one occupation. It has been suggested that membership rested largely on branches based on a relatively few large works.2 This was not the case, since membership came from the relatively small units in, for example, the metal trades of Birmingham, textiles in Lancashire, Leeds and Bristol, the pits of Sheffield or the scattered building sites. Moreover, the extent to which general branches were only common in London has been exaggerated.<sup>3</sup> In the earlier period, occupational branches may have been the rule in the provincial districts, but with the expansion prior to the First World War general branches began to predominate in the Midland, South Wales, Scottish, Lancashire, Sheffield and, to some extent, the Birmingham districts. Indeed, it seems to have been the case that expansion

1. Ibid. Quarter ending 27 Dec. 1913 pp.28-58.

- 2. Hobsbawm, op.cit. p.188.
- 3. Ibid. pp.185-6.

in this period was on a much broader occupational base than hitherto.

A close look at the Barking branch gives an indication of the functioning of the branches in this period. In many ways, Barking was a typical London branch. Formed by the Beckton gas workers in 1889, it had some 2360 gas workers in the branch at the start of 1890. By the end of 1895 it had only 259 members, mainly building labourers.<sup>2</sup> It revived marginally to some 350 members by 1899,<sup>3</sup> but then slumped dramatically until it was all but defunct. In 1904, it had only thirty to forty members in total, mainly the remnants of the builders' labourers and some corporation workers. The branch was continually inquorate with often only six or seven at its meetings, including the committee. By 1912, however, it was thriving again with 500-600 members, drawn mainly from two local chemical works, where it had a virtual closed shop. Meetings were regularly attended by fifty or more members.<sup>4</sup>

One of the most striking aspects of the work of the branch was its limited amount of industrial or job related business compared to work of a political nature. This seems even more the case in 1904 than in 1912. Job related business included reporting jobs not paying the union rate, cases of industrial accident, victimisation, employment of non-union labour and one or two strikes. In 1906, two men were employed at a penny an hour under the union rate by the local council<sup>5</sup> and a meeting on the matter ended in 'considerable uproar.'<sup>6</sup>

By and large, however, the branch was more a political organisation than an industrial one. The branch, often marching behind its banner, played a full part in the general election of 1906 and in the 'free school meals for children'<sup>7</sup> and the 'Right to Work' campaigns.<sup>8</sup> Debates were held after meetings on the issues

Reports, op.cit. Half year ending 31 Mar. 1890 p.6.
 Ibid. Year ending 31 Dec. 1895 p.20.
 Ibid. Quarter ending 31 Dec. 1899.

<sup>4.</sup> These figures estimated from Barking Branch Minutes.

<sup>5.</sup> Barking Branch Minutes, 12 Apr. 1906.

 <sup>6.</sup> Ibid. 3 May 1906.
 7. Ibid., 22 Sep. 1904. See also J.S. Hurt, Elementary Schooling and the Working Classes 1860-1918 (1979) Chap. 5 for the background to this campaign.
 8. Barking Branch Minutes, 14 Dec. 1905, 26 Apr. 1909, 23 Oct. 1912 and K.D. Brown, 'Conflict in Early British Welfare Policy: the case of the Unemployed Workmen's Bill of 1905', <u>Journal of Modern History</u>(1971)No.4; K.D. Brown, <u>Labour and</u> <u>Unemployment 1900-14</u> (Totowa 1971) for the background.

of the day: 'Chinese Labour in South Africa' lor'Should Socialists support Protection to hasten their Ideal?'<sup>2</sup> The branch sent warm letters of congratulations on the success of their officials in the 1906 election,  $^3$  but when they elicited Thorne's help to get the Local Government Board to establish a Labour Exchange in Barking<sup>4</sup> and the Post Master General to improve the pay of ancillary postmen, nothing effective resulted.<sup>5</sup> Prior to the First World War, the branch caught the mood of the period and passed motions couched in Marxist language: for example, against the shooting of the blacks, 'our fellow workers', in Johannesburg.<sup>6</sup> In 1913 they voted eighteen to one to withdraw from the official Labour Party. $^7$  Local politics was also a preoccupation. Several members were elected to the local council which was badgered, for example, to provide work for the unemployed,<sup>8</sup> to stop overcrowding on workmen's trains<sup>9</sup> and not to close a footpath.<sup>10</sup>

The internal workings of the union itself took up much of the branch's time and democracy seems to have been at work at local level at least. Committee posts were actively contested. Motions and delegates were sent to the London District Committee, the biennial conference, the TUC and the Labour Party conference. A report back was received from the Executive Committee. A delegate went to the local Trades Council, although in 1904 he often reported that attendance had been too low to hold a meeting.<sup>11</sup> The branch decided whether to remit the subs of sick or unemployed members or to re-admit lapsed or recalcitrant ones. A bitter row attended the decision not to re-admit a member who had blacklegged during the 1912

1. Barking Branch Minutes, 2 Jun. 1904.

2. Ibid. 1 Dec. 1904. At national level the gas workers' union supported free trade in common with most organised labour. Curran, for example, said that any workman who supported tariff reform 'displays an innocence of the ways and wiles of the manipulators', K.D. Brown 'The Trade Union Tariff Reform Association 1904-1913', Journal of British Studies (May 1970)p.143.

- 3. Barking Branch Minutes, 18 Jan. 1906. 3. Barking Branch Minutes, 18 Jan. 1906
  4. Ibid., 13 Nov. 1912 and 4 Dec. 1912.
  5. Ibid., 11 Dec. 1912.
  6. Ibid., 16 Jul. 1913.
  7. Ibid., 2 Jul. 1913.
  8. Ibid., 30 Nov. 1905.
  9. Ibid., 18 May 1905.
  10. Ibid., 29 Jun. 1905.
  11. Ibid., 13 Dec. 1903.

Dock Strike.<sup>1</sup> The branch also helped set up other branches, like the one at Dagenham.<sup>2</sup>

Lastly, the branch seemed to perform a function as a haven within a hostile world - something between a Job Centre, sick club and Citizens' Advice Bureau. Members swapped knowledge of job prospects, held concerts and collections for the sick or the widowed, and gave help and advice for all manner of members' problems. One complained of the treatment he received from his panel doctor. The widow of a recently deceased chemical worker came to the branch after a hire purchase company had repossessed her piano and the secretary got the District Committee to write to the company.<sup>3</sup> More prosaically, the union solicitor was enlisted to write to the owner of a dog which had bitten a member's son.<sup>4</sup> Yet another member complained to the branch when a cow had knocked him off his bike.<sup>5</sup> Finally, in an isolated case, the branch gave 2s 6d to a tramping member from Kings Cross,<sup>6</sup> some evidence that this was not solely a practice of craft unions.

Above the branch the structure of union government was formed and evolved in a haphazard fashion. The next stage up came the districts which, as the union grew up in the provinces, were tacked on to the London base. Usually the district had an elected council which appointed an Executive Committee but, by and large, the power rested with the full-time district secretary and perhaps one or two other full-time officials. At first, the districts had local autonomy but this was gradually eroded and power became concentrated centrally. To begin with, the National Executive took the form of a committee of elected laymen from London. Until 1908 the London district had no separate organisation. As a district it was a catch-all for branches that could stretch from Swansea to Nottingham and which were not attached to any other district, while the National Executive of the union

Ibid., 4 Dec. 1912.
 Ibid., 2 Jul. 1913.
 Ibid., 11 Sep. 1912.
 Ibid., 21 Apr. 1904.
 Ibid., 7 Apr. 1904.
 Ibid., 16 Jun. 1904.

doubled as the District Committee of London. Gradually, on the National Executive, the elected laymen lost ground to the provincial and national officials. On top of this structure, the union conference was the ultimate decision making body for union rules and policy; this too became dominated by the officials. In 1892, conferences became biennial and attendances were so low (eighty-five - 1890, twenty-eight - 1894, forty-seven - 1898, forty-one - 1900, thirty-seven - 1910, eighty-seven - 1912)<sup>1</sup> that they could be dominated by the National, district and branch officials, many of the latter also being full-time by the end of the period.

1. Conference Reports of NUGGL for each year.

From the beginning of the union there was little tradition of democracy. The first rules of the union were drawn up by a committee composed of Ben Tillett, William Byford and Thorne. The rules were never put to the membership and even a move in the delegate meeting of London gasworkers to give a copy to branch secretaries to read out to the men was defeated eight to twelve.<sup>1</sup> One delegate, Driscoll, who backed Tillett for the leadership of the union wanted to know 'why one lot of men should have control of this society any more than another lot.<sup>2</sup> and, when Tillett was overwhelmingly defeated by Thorne, Driscoll was banned for a period from attending the meetings. Tillett sent a letter to the delegates complaining of organised and underhand opposition to himself, and Thorne was sent to get an explanation.  $^3$ All of this indicates that Tillett made a serious bid to lead the new union and that relations were not as friendly as Thorne makes out in his autobiography. 0n 28 June 1889. the Delegate Meeting elected an Executive Committee of thirteen to govern the union, a process which largely meant electing themselves. All were London gasworkers since at that stage no other groups had joined the union. <sup>5</sup>

Less than a year later the union had expanded out of recognition and at the union's first conference, held at Gye Street, London, in May 1890, the rules needed revision. The conference started a tradition by being held in private with no press admitted but the picture emerged of a certain amount of chaos. People's Press reported, 'Of course a great deal of time was wasted in absolutely useless discussions of absolutely trivial matters. Everyone wanted to talk at once. The recommendations of the Rules Committee were accepted and a

- 1. Original Minute Book..., op.cit. 8 May 1889.
- Ibid., 6 Jun. 1889.
   Ibid., 12 and 13 Jun. 1889.

- Thorne, op.cit. p.37.
   Original Minute Book..., op.cit. 28 Jun. 1889.
   People's Press, 13 May 1890 p.8.

weekly Executive Committee of fifteen members from London (seven from south of the river, eight from north) was to be the governing body, elected at the conference. Membership of the Committee now came from a wider field than the gasworks. The districts were to contribute to the salaries of the national officials by paying 5 per cent of their income into a central fund.<sup>1</sup>

A year later, in 1891, at Dublin, the conference decided to add to 5 per cent fund a district strike fund into which each district was the to pay 1d or per member, as required, out of which all strike łd. pay was to be paid. This would give, as Thorne said, 'unity of action' but it also took control of strikes from the districts.<sup>2</sup> In return the districts received representation on the governing body since a quarterly Executive Council was added to the weekly committee, composed of the latter, together with a representative, usually the district secretaries, of each district<sup>3</sup> which, to begin with, gave a preponderance of full-time officials on the new body. It seems the 1891 conference was a fractious one since at one point the Leeds delegation threatened to leave the union.<sup>4</sup> The London delegates also incurred Thorne's displeasure:

> Dublin Conference Expenses (125 12s. 6d.) - had my advice been taken £50 of this might have been saved: when Delegates attend any conference they cannot represent any branch or section of this Union: they represent the whole Union and my experience goes to prove that by choosing the best and a small number you will get through the business more effectively and with greater speed.<sup>5</sup>

The train of Thorne's thought is clear, and at the Plymouth conference in 1892 the membership got even less chance to interfere when conferences

- Reports Year ending 31 Mar. 1892 p.22.
   Ibid. Year ending 31 Mar. 1892 p.12.
   Ibid. 31 Mar. 1892 p.49; Clegg (1964), op.cit. p.50 mistakenly dates this change from 1900.
- 4. Freeman's Journal, 20 May 1891 p.6.

<sup>5.</sup> Reports, op.cit. Year ending 31 Mar. 1892 p.13.

were made biennial events. It has been suggested that economy was the reason for this 1 but the total expenses for the twenty-one London delegates were £86 16s 3d at a time when there was some £3,000 in the reserves.<sup>2</sup> Another major revision of the rules came in 1894, the result of a special rules committee headed by Edward Aveling. Prior to the conference Thorne reported 'I hope the delegates will not allow the Rules to be narrowed down, but on the contrary, made even more democratic. Narrowmindedness, in my opinion, always tends to mar the progress of any Union.' <sup>3</sup> These sentiments. however, were not to be put into practice. The main changes were financial. 5 per cent fund and strike fund were scrapped and replaced by a new The Central Fund levying half the districts' income.4

Just as the increased representation of the districts, via the quarterly Council in 1891, reflected their increased financial and numerical importance so the continuing relative decline of London, particularly in relation to Lancashire, caused the next major change in the rules. The decline of London accelerated remarkably after the turn of the century. In 1899, it still had 35 per cent of total membership compared to Lancashire's 10 per cent. By 1908 London held only 19 per cent compared to the now ascendant Lancashire with 23 per cent. In this period a struggle for the government of the union developed between Lancashire, led by Clynes, championing the northern districts and union officialdom, against the hitherto dominant London district, its elected weekly Executive, championing the rank and file, and half-heartedly supported by Thorne. Unfortunately for the cause of democracy it was easy for Clynes to mobilise the anti-London feeling in the provinces and in a sense the outcome was never in doubt.

1. Clegg (1964), op.cit. p.23.

Reports, op.cit. Year ending 31 Mar. 1893 pp.6 and 9.
 Ibid. Year ending 31 Mar. 1894 p.7.
 Ibid. Year ending 31 Dec. 1895 p.24.

5. See Table 22.

At the conference of 1902 Clynes had his first major success against the London weekly Executive when he pushed through a rule change whereby for quarterly Council meetings five of the weekly Executive dropped out, giving the district officials a majority. At the 1904 Swansea conference, London, supported by Birmingham, planned a counter-attack. Their first tilt, which became a ritual at most conferences in this period, was to move that no permanent official be President of the conference (who at the time was Curran) or serve on the Standing Orders Committee. This was against the spirit of democracy said the London delegate, who wanted to see more power in the hands of the rank and file and less in those of the officials who could be partial.<sup>2</sup> As on all subsequent occasions these sentiments were heavily defeated after Clynes cleverly countered with the question of whether the motions should also apply to branch officials. London's main attack was a motion to reinstate the five weekly executive members on the guarterly Council and in this they were supported by Thorne. Much feeling against the officials was expressed, but others thought London had dominated far too long. Clynes said the weekly Executive was not popularly elected since nominations could only come from the London area and although the rest could vote they took little interest. In the ensuing row what seemed like a compromise was reached but in effect London lost out. The five were replaced, but voting was to be by numbers of total membership, meaning that London would be outvoted.<sup>5</sup>

Criticisms from the rank and file that officials were not doing their job continued and the weekly Executive, backed by the London delegate meeting that now acted as the London 'district' executive, took up the matter. They instituted an engagement book and a time book which all head office officials had to fill in. Things went well for a while but the problem was bound to be exacerbated when Thorne, and later Curran, became MPs. The confrontation when it came centred on Curran who, after he went to Parliament in 1907, clearly saw

Reports and Minutes of the Biennial Congress (1902).
 Biennial Congress, op.cit. 23-25 May 1904 pp.3-4.

- Ibid. p.5. 4. Ibid. p.17.

the mundane duties of union organiser, for which he was still being paid, beneath his new status. The weekly Executive decided to make an issue over conditions at an East End pumping station about which a petition had been sent to the local council six years previously but had not been acted upon. In May 1907, the Executive gave Curran a direct order to lobby members of the LCC on the matter. Curran refused and made matters worse by being in Belfast at the time without informing, much less getting the permission of, the Executive. Thorne was ordered to write to Curran and order him to conduct the lobby. Curran refused. 'I have passed a resolution in my own mind,' he said, 'that I will not individually lobby members of the LCC. This is definite...there are some other officials upon whom you might lodge certain responsibilities.' 2

The Executive threatened to suspend Curran, who remained defiant, and they took the matter to the quarterly Council in November 1907. S.J. Wright for the Executive made out their case: 'Members were constantly asking where the officials were', he maintained.<sup>3</sup> Curran replied by comparing his meetings of 2,000-3,000 men, which, although not totally composed of unionists, advertised the union, with the 'damned pennies of the public house meetings.' He also complained of the humiliation of having to account for his time and his expenses and of having, as an MP, to make ticket inspections. He could get double the wage he received elsewhere, he said, and tendered his resignation.<sup>4</sup> The quarterly Council, of course, supported Curran but deferred a decision to the next meeting while resolving that in the meantime no general officials be required to carry out ticket inspections.<sup>5</sup>

Curran later offered to withdraw his resignation<sup>o</sup>but the weekly Executive refused to allow this until he agreed to work under them. A special meeting

1. Minutes of General Executive Council (GEC) of NUGGL, 10 Nov. 1907 p.7.

2. Ibid. p.8.

3. Ibid. p.9. 4. Ibid. p.11.

5 Thid -12

6. Minutes of London Delegate Meeting of NUGGL, 14 Dec. 1907 pp.3-4.

of London delegates backed the Executive. 'Public house meetings may not be the "beau ideal" of a great man, but meetings of 2,000-3,000 at £20-30 a time can only be indulged in when organisation is strong enough through the "damned pennies" of the public house member and others, some of whom do not average 15/- a week much less £2 los.' But at the next meeting of the quarterly Council the withdrawal of Curran's resignation was accepted and he was to act, according to the Council, in a way 'consistent with his Parliamentary duties'.<sup>2</sup> It was decided on the instigation of the chairman, Clynes, to refer the whole matter to the biennial conference and when the weekly Executive asked if they could be represented there to state their case, the chairman ruled this out of order.<sup>3</sup>

At this, the whole weekly Executive resigned, although they agreed to stay on until replacements could be found. The London branches rallied round. Wright spoke of the need to 'warn the members of the union of the danger that must come to them if the Government of the union were to pass out of the hands of the rank and file of the members and into the hands of the paid officials.' It was decided to circulate all branches via Head Office so that 'the members should realise that the officials were governing and not the members.'<sup>5</sup> All this was to no effect since, at the June conference at Nottingham, Clynes simply got the weekly Executive abolished entirely and his victory was complete.<sup>6</sup> In Clynes' favour was the fact that reorganisation was overdue and anti-London feeling meant that the privileged position of London could not continue. What was not inevitable, however, was the official-dominated constitution that emerged. The quarterly General Executive Committee was now to be composed of the General Secretary together with the district secretaries and one lay

1. Ibid. p.2.

- 2. GEC, 9 Feb. 1908 p.5.
- 3. Ibid. p.6.
- 4. London Delegate Meeting, 22 Feb. 1908 p.6. 5. Ibid., 21 Mar. 1908 p.4.
- 6. Biennial Congress, 7-10 Jun. 1908 p.16.

member chosen by each District Council. Lay members were defined, however, to include full-time branch secretaries and as these began to predominate the presence of working union members in the government of the union was virtually abolished. The day to day business was to be carried on by a sub-committee of the GEC composed of three full-time and two lay members. London became a district like any other, with S.J. Wright as its first district secretary.<sup>2</sup>

The London district tried to retrieve the situation at the 1910 conference at Grimsby. They wanted the GEC elected by ballot and not by the District Councils, which were dominated by the officials. They also wanted conference delegates to be committed to vote as their members instructed; the right to circularise the membership on any issue, and the right to exclude the General Secretary from voting in the GEC. 'The real question was whether democracy should govern or not.' The officials 'should be the servants not the masters'. Clynes replied that London had governed the union for eighteen years; only now did they talk of democracy. The GEC had done well for two years and should be allowed to continue. And Clynes received much support from the membership. It was right that the officials had control, it was suggested, since they were 'in the know' and knew best. The motions were heavily defeated."

Not content, the officials further enhanced their power. In January 1910, the GEC decided that the two lay members of its sub-committee, called to decide on emergency action, be taken from the district concerned.<sup>5</sup> And in October 1910. after a lay member complained that he had asked to be present but had not been called, it was decided that lay members had to be called only in emergencies like a strike. For general business it was left to the discretion of the chairman and General Secretary.<sup>6</sup> By February 1911 lay attendance was completely discretionary.<sup>7</sup>

1. Ibid. p.15.

- Ibid. p.16.
   Biennial Congress, 15-18 May 1910 p.12.
- Ibid. p.13.
- GEC, 29-30 Jan. 1910 p.2.
- Ibid., 27 Oct. 1910 p.7. Ibid., 18-19 Feb. 1911 p.2.

At the 1912 conference in Sunderland a move to disbar district secretaries from voting at GEC meetings was made, this time by the East Coast district, annoyed at the officials' handling of a strike in Hull. The strikers had not been granted strike pay which they felt would have been forthcoming had there been laymen on the GEC. 'District Secretaries did not look at questions from the same point of view as the ordinary members.<sup>1</sup> Support came from the London delegate who agreed the official element on the governing body should be got rid of since there was a 'brotherly feeling of self interest among them.' Thorne said that the union was the most democratic he knew while others said that the GEC had not had a long enough trial and in any case the officials took a national view of things. Again the motion was heavily defeated.

At the GEC meeting in February 1913 the rank and file obtained their first victory for many years when the sub-committee was changed to two officials and two lay members, although the officials still had the casting vote.<sup>3</sup> Further moves were made against the officials at the Sheffield conference in 1914, but moves to remove them entirely from the GEC or to increase the lay representation to outvote them were defeated.<sup>4</sup> Clynes pressed home the advantage by getting conference to agree to changing the sub-committee into an Executive Committee despite protestations that the sub-committee was already a body over which the members had no control - 'a sort of House of Lords within the gasworkers union.' The change would give it even more power.<sup>5</sup>

Why the union was dominated by the officials is not an easy question to answer. It was so dominated from the start and the situation persists to the present day. <sup>6</sup> . Moreover, it is a characteristic of other general unions of the unskilled. <sup>7</sup> In the case of the gasworkers many factors can have contributed. The need for secrecy in some of the earlier unions created no tradition of openness. It is also interesting to speculate on the influence of Roman

- 2. Ibid. p.14. 3. GEC, 15-16 Feb. 1913 p.2.
- 4. Biennial Congress, 31 May 3 Jun. 1914 p.47. 5. Ibid. p.48.
- 6. T. Lane and K. Roberts, Strike at Pilkingtons (1971) pp.49-56.
- 7. R. Hyman, The Workers' Union (1971) p.32.

<sup>1.</sup> Biennial Congress, 26-29 May 1912 p.12.

Catholicism in providing a model of autocratic government and of patterns of behaviour for both the rank and file and the leaders with Irish backgrounds like Bill Ward, Curran and Clynes.<sup>1</sup> The unfortunate confusion of democracy with the dominance of London may also have been a factor. However, the main reason, accepting that the leadership of any organisation will attempt to maximise its power, must lie as much with the acquiescence of the membership as with the connivance of the leaders. Poorly educated, irregularly employed and lowly paid, the union's membership were singularly ill-equipped to govern their own union. Apathy toward both employers and the union was a natural result of this background. For their union work, lay members were dependent on the official union for expenses, found it difficult to get time off from employers and were highly susceptible to the free and relatively lavish entertainment laid on for them at conference time. Perhaps the most important factor was the transient nature of the membership. Members only in the union on average three years or less were not likely to take an interest in the national policies of the union. If they did they would be no match for the permanent officials, who could reasonably question why they should hand control to members who might not be in the union long.

For all these reasons, more than the letter of the constitution - much as that was in their favour - did the officials predominate. It may be argued, moreover, that this was no bad thing were it not for the fact that on the whole the union was badly served by its officials, who displayed between them a fair range of the weaknesses to which flesh is heir. At least two of the national officials drank too much and dishonesty was at an unacceptably high level. During this period at least seven district secretaries went off with union money. Dishonesty

1 Clynes created a tradition of Catholicism, being succeeded in Lancashire and in the national union by another Catholic, Charles Dukes, for whom religion seemed to play an active role in the way he ran the union. Interview with Tom Hall, Cassette No. 8,

was also high among branch secretaries. The Barking branch secretary absconded with union money in 1909.<sup>1</sup> Moreover, no effective action was taken against the problem except to cover up and keep the incidents out of the press. Also, although many officials worked hard there were many complaints of slacking.<sup>2</sup> Members complained of officials advancing their own political careers at the expense of union work. Some officials, like Curran, showed open contempt for the union membership. Officials were almost never sacked however poor their performance, and they were allowed to work far too long into old age. Thorne. for example, was seventy-seven before he retired in 1934, and his was not an unusual case. Nepotism became another tradition among the union officialdom. Hayday and Wright were both succeeded by their sons, while Clynes' successor in 1917 as District Secretary in Lancashire - Fleming Eccles - was followed in the job by his son Tom, and Tom's son Jack is in his turn a national official. 3

Since they had so much power it is necessary to look at the union's officials and their work a little more closely and to give flesh to some of Thorne, like all the union's leaders, wants for a these shortcomings. In fact, the image of Thorne in the labour movement detailed biography. needs reappraisal. To begin with he did not 'create an entirely new union'.<sup>5</sup> He neither created it single handed nor was the idea a new one. Nor was Thorne

- 2. London Delegate Meeting, 25 May 1907.
- 3. Clegg (1964), op.cit. pp.213-4 and 217. 4. See Radices, op.cit. for a brief and highly uncritical biography; Bellamy
- and Saville, op.cit. Vol. 1 pp.314-319.
- 5. Radices, op.cit. p.13.

<sup>1.</sup> GEC, 14 Nov. 1909 p.9.
'unique in his aggressiveness and perseverance.'<sup>1</sup> Indeed, his militancy has been exaggerated, as his abject negotiations with the GLCC in 1890, where he was as concerned to see the company adopt his temperance principles as anything else, will testify.<sup>2</sup> Neither can Thorne be distinguished by his 'organisational ability' - in many ways the early union was a shambles - nor by his 'single minded determination', since he was invariably prepared to compromise. On issues of union democracy or 'socialism', Thorne, in comparison to Curran or Clynes, was generally, at heart, on the left, but he lacked the ability or determination to carry things through. He allowed Clynes his own way with the union's constitution. At the 1906 election, as a member of the SDF he wanted to stand as a Socialist and Labour candidate as opposed to straight Labour. He had strong support in his constituency, West Ham, but was opposed by Clynes and the union and again he backed down.<sup>3</sup> In Parliament he spoke up for the unemployed, the eight hour day and the other issues<sup>4</sup>, but his actions rarely matched his words. To the Canning Town branch, for example, he could say that he had become more of a 'revolutionist' than ever since he had been in Parliament.<sup>5</sup> In 1908, in a speech at Trafalgar Square, he said the unemployed should rush the bakers' shops rather than starve. Summonsed for incitement, he told a London Delegate Meeting that he did not want to go to prison because of his rheumatism<sup>6</sup> and, given the option by the Attorney General, he retracted his words. Again in the famous incident in 1908 when Victor Grayson, angry at the inactivity on the unemployment issue, was escorted from the House of Commons calling the Labour members traitors to the working class,<sup>7</sup> Thorne told a London Delegate Meeting that he would have acted with Grayson only the Labour Party had

- 1. Radices, op.cit. p.13. 2. See p.388.
- P. Thompson, Socialists, Liberals and Labour. The Struggle for London 1885-1914 (1967) p.193-4; Radices, op.cit. p.59.
   See K.D. Brown, Labour and Unemployment 1900-14 (Totowa N.J. 1971) pp.73-106.
- 5. GW, 31 Mar. 1906.

 London Delegate Meeting, 17 Oct. 1908 p.4.
 K.D. Brown 'The Labour Party and the Unemployment Question 1906-1910', Historical Journal (1971) p.610.

agreed to await a policy statement by the Government.<sup>1</sup> When moving the union's resolution on education in 1910 which along with the statutory eight hour day was raised year after year by the gas workers at the TUC, Thorne said he did so 'as a revolutionary, class conscious, Trade Unionist and Social Democrat'.<sup>2</sup> But this self-description was never born out in action. His language in Parliament was equally flamboyant<sup>3</sup> yet in reality he, along with the whole Labour group in this pre-war period, were circumscribed, as is well known, by a simple lack of political power. Thorne was reduced to making the odd gesture at Question Time and the introduction of Private Members' Bills - on the Minimum Wage, Nationalisation of the Railways, 4 Unemployment and the Eight Hour Day 5-all of which got nowhere. Thorne along with Curran and Clynes have been considered by a recent historian as members of the 'activists' group , on the question of unemployment at least, 6 and another writer has noted that toward the end of the pre-war period of Liberal Government Thorne increasingly spoke and voted against the tendency of labour to become a mere wing of the Liberal Party. <sup>7</sup> Yet at the same time as he was calling himself a 'revolutionary' he refused to move the customary amendment to the King's Speech in 1910 for fear of bringing down the Liberal Government on the issue of Lloyd George's Budget and the struggle with the House of Lords.<sup>8</sup>

On a personal level, there is no denying Thorne's achievement. Born in a Birmingham slum in 1857, the son of a gas worker, brickmaker and drunkard, Thorne was forced out to work at the age of six, with no education.<sup>9</sup> He drifted through many jobs until he tramped to London in 1881 to work first at the Old

- London Delegate Meeting, 17 Oct. 1908 p.5.
   Report of the Forty Third Trade Union Congress (Hereafter <u>TUC Reports</u>) 1910
- p.173.
- 3. Radices, op.cit. p.60.
- 4. Ibid. p.61. 5. K.D. Brown, Labour and Unemployment, op.cit. p.92.
- 7. J.H.S. Reid, The Origins of the British Labour Party (Minneapolis 1955) pp.181 and also 198-203.
- K.D. Brown, Labour and Unemployment op.cit, p.133.
   Thorne, op.cit.

Kent Road gasworks, and later at Beckton. Joining the SDF gave him the education in politics and agitation which together with his energy and drive made him the natural leader of the 1889 union. Thorne seemed to realise early on the limited role of the union. He urged the men in his report of 1893 to support the union 'through which they will be able to raise their wages and shorten their hours, but not gain their complete emancipation.<sup>1</sup> And from the early days Thorne gave as much time to politics as to the union, getting on the West Ham Council in 1891,<sup>2</sup> the TUC Parliamentary Committee in 1894,<sup>3</sup> and giving even more time to politics after the socialists gained a majority in West Ham in 1898.<sup>4</sup> Yet Thorne was not the orator that Curran was, nor the administrator and political manipulator that was J.R. Clynes but he was hard-working and generally popular with union members and in the wider labour movement. He was re-elected year after year high up the poll of the TUC Parliamentary Committee in contrast, of course, to his counterpart in the Dockers Union - Ben Tillett. One Beckton man remembers him as a bad public speaker, poorly educated but basically 'honest',<sup>5</sup> indeed being a temperate and honest man inevitably set him apart in the early union leadership.

The oligarchy which ran the union in its early years all came from London, usually from the gasworks, or even more specifically - Beckton. One such was Mark Hutchins. A founder member of the union, he helped form the North Woolwich branch and became union president.<sup>6</sup> Victimised from Beckton, he got a job at the South Metropolitan until, although defeated in the vote

- 1. Reports, op.cit. Year ending 31 Mar. 1893 p.4.
- 2. Radices, op.cit. p.50.
- <u>TUC Reports</u> 1894 p.61.
   Radices, op.cit. p.52; R. Moore, <u>The Emergence of the Labour Party 1880-1924</u> (1978) p.66.
- 5. Interview with Tom Hall Cassette No. 8.
- 6. Original Minute Book..., op.cit. 8 Jun. 1889.

for assistant secretary by Bill Ward in November,<sup>1</sup> he was put on the payroll as an organiser and became as prominent in public notoriety as Thorne when he led the South Metropolitan strike with great energy. As president he chaired the friends first union conference, with disastrous results. 'Mark Hutchin's  $_{A}$ - and they are legion - were bound to admit that he was as bad a chairman as they make 'em'.<sup>2</sup> Voted out as president, he regained the post a year later and in 1894, while still president, was sent to take over the job as district secretary in Barnsley after the previous incumbent had run off with union money.<sup>3</sup> There he remained until he too made off with £91 in 1900.<sup>4</sup> Incredibly he seems to have turned up as a Labour Councillor for East Ham between 1904 and 1908.<sup>5</sup>

William H. Ward, also a Beckton man, was a high-spirited Irishman with a quick tongue and an impetuous nature. He worked in Manchester for seventeen years, where he claimed to have led a strike, before coming to Beckton in the early eighties.<sup>6</sup> According to Ward, West, the Manchester engineer, told Beale, his Beckton counterpart, that as long as Ward worked there he would never have peace with his men. At any rate, Ward was vice-president of the union in 1887 and prominent from the start of the 1889 union. Not especially popular, when sacked from Beckton he only received victimisation pay on the casting vote of the Executive chairman,<sup>7</sup> and although he was elected to the assistant secretary's job, one member threatened that 700 men would leave the union if he were given the job.8

Ward loved to be in the limelight and reported all his exploits to the JGL. In the middle of the Beckton troubles of 1890 he passed himself off as a black-He was escorted by police leg and got a job with his old boss, West.

- 5. P. Thompson, op.cit. p.320. 6. JGL, 10 Jun. 1890.
- 7. Original Minute Book..., op.cit. 10 Jul. 1889.
- 8. Ibid., 12 Jan. 1890.

<sup>1.</sup> Labour Elector, 23 Nov. 1889.

People's Press, 13 May 1890 p.8.
 Reports Year ending 31 Dec. 1894 p.31.

<sup>4.</sup> Ibid. Quarter ending 30 Jun. 1900.

to 'Blackleg Square' and given tea. There he met two blacklegs from the South Metropolitan who, he reported, 'will ere long repent the action they have taken.' I It was probably on Ward's initiative that the letter that nearly caused a strike in October 1890 was sent, and this cannot have pleased Thorne. A few months later Ward reported he had received letters threatening that vitriol was waiting for him when the dark nights came on  $^2$ and not long after this his language got him into real trouble. At a public meeting he called Higgins, one of Livesey's strike breakers whom he knew from Manchester, 'a thief and a street corner boy.' Backed by Livesey, Higgins brought and won a case of slander against Ward who, not having the £200 damages, went to prison.<sup>3</sup> A defence fund was set up and concerts held, but Ward seems to have apologised and Livesey relented. Yet, bluff as ever, Ward maintained, 'I did not ask for mercy. I was prepared to go back to Holloway Castle as often as they like, to protest at the injustice of the verdict.' 47During this period Ward was reported to the union disciplinary committee for being found drunk and using foul language in two East End pubs<sup>5</sup> , and by 1894, because of his drinking, Thorne had probably had enough and Ward was paid off as assistant secretary and he left the union.

Yet another Beckton man was elected to replace Ward. George Angle had helped form the union of  $1885^{7}$  and became secretary of the union, and later of the Canning Town branch, in  $1889^{8}$  He held the assistant secretary's job for almost twenty years until he took the job of administering the Approved Society section in 1912, a post he held until the 1920s. Thorne gave other

JGL, 10 Jun. 1890 p.1075.
 Ibid., 11 Nov. 1890 p.999.
 Ibid., 19 Jan. 1892.
 Ibid., 31 Jan. 1893.
 Original Minutes Book..., op.cit. 19 Jan. 1892.
 Reports Year ending 31 Dec. 1894 pp.6 and 10.
 See page 3.14.
 Reports Half year ending 31 Mar. 1890 p.6.

9. GEC, 15-16 Feb. 1913.

Beckton men full-time union jobs. Canty, who had been chairman of the 1887 union, became an organiser in 1889 and in 1892 was sent out to take over the Dublin district until it folded up. John Gardner, another London gasworker, was sent out as district secretary to Plymouth in 1891 until it too was wound up in 1894.<sup>2</sup> Harry Picard, who represented East Greenwich at the first delegate meeting in 1889, became an organiser for the London area and General Organiser in 1900.<sup>4</sup> In the early years he seems to have worked hard, holding, for example, thirty open-air meetings in one quarter in 1894.5 In his job he helped set up branches, visited building sites, held ticket inspections, helped with disputes and led deputations. In 1895, he went with one group to local councils and Boards of Guardians to urge relief work for the unemployed.<sup>6</sup> In the same year he took over as Sunderland district secretary for a time due to the incompetence of the occupant. Yet, as he went into old age, Picard grew less and less active but did not finally retire until 1921.

Not all the early union's national officials were gasworkers but all of them had lived in London in 1889 and knew Thorne in some way. William Byford had been secretary of the Yorkshire Glass Bottle Workers Association but came to London to run a Temperance Bar, which is where he probably met Thorne. Byford's experience was invaluable; he helped draw up the first rules and became union treasurer until 1902 when he retired through ill-health and died a year later. Arthur Hayday was born in Canning Town in 1869 and left school at nine. He went through many jobs including a spell at sea as a stoker. He met Thorne either when he was working as a contractor's labourer at Beckton when the union started, or through the SDF, since he was on the West Ham Council with Thorne from 1896. He got onto the union's National Executive in

- Reports Year ending 31 Mar. 1892 p.30.
   Ibid. Year ending 31 Mar. 1894 p.22.
   Original Minute Book..., op.cit. 28 Jun. 1889.
   Reports Quarter ending 30 Sep. 1900.
- 5. Ibid. Year ending 31 Dec. 1894 p.44. 6. Ibid. Year ending 31 Dec. 1895 p.9.
- 7. Ibid. Quarter ending 24 Sep. 1921.
- 8. Thorne, op.cit. p.70.
   9. Reports Quarter ending 31 Mar. 1903.
   10. NUGMW Journal, Apr. 1956 p.110.

1897 and in 1900 took Picard's old job as London area organiser. After some rank and file criticism of his work in London he became Midland district secretary in 1908, which post he held until 1937. A delegate at the inauguration of the Labour Party in 1900, he became an MP for West Nottingham in 1918 and continued, with one short break, until 1945. He died in 1956.

Pete Curran was born in Glasgow in 1860 into a poor Irish Catholic family. He started work at the age of ten ona steam hammer in an iron and steel works. He got involved in the Irish Land League and made a name as an orator but was victimised from his job and came to London in the late eighties. He found a job at Woolwich Arsenal, joined the SDF and became 'bosom friends' with Thorne. He helped form the South Woolwich branch of the union in 1889 and was sacked from the Arsenal after a dispute there. He was elected onto the union's Executive but resigned to become an organiser. In 1890, he was sentenced to six weeks in prison for intimidation while organising a coal porters strike in Plymouth. He won his appeal, however, and the famous case, Curran versus Treleaven, established the right of a union to strike for a closed shop.<sup>3</sup>

Like Thorne, Curran gradually gave more and more time to politics and less to the union. 'I can feel the class war getting nearer every day' he said in 1893.<sup>4</sup> Curran was a militant advocate of independent labour representation in Parliament and, moreover, in the 1893 TUC supported a motion tightening up support of candidates to those prepared to pledge themselves to the public Ownership of means of production distribution and exchange.<sup>5</sup> In that year he was on the founding committee of the ILP, but his politics got him into trouble in the union both for its socialism and for the amount of the union's time it took up. In 1895, he stood as an ILP candidate at an LCC election, splitting the Progressive vote and letting a Tory in.<sup>6</sup> He spent much time afterward explaining his action

1. London Delegate Meeting, 25 May 1907 p.3.

- by Thorne in Reports Quarter ending 31 Dec. 1909 p.6. and Bellamy and 2. Obit. Saville, op.cit. Vol. IV p.65.
- 3. Clegg (1964) op.cit. p.19.
- 4. JGL, 10 Jan. 1893 p.67.
- 5. TUC Reports (1893) p.46. 6. P. Thompson, op. cit. p. 164; <u>Reports</u> Year ending 31 Dec 1895 p5.

to discontented London branches.<sup>1</sup> As a result of this, and the two weeks he spent fighting a bye-election at Barrow for the ILP, he was strongly opposed in the 1895 union election for general organiser.<sup>2</sup> He caused more dissent when he fought Barnsley in 1897, and probably as a result of this pressure had to resign from the ILP Executive in 1898.<sup>3</sup>

There is no doubting Curran's energy in this period. In 1898 he claimed to have travelled 15,500 miles and held 376 meetings,<sup>4</sup> but how much of this was strictly union business is not clear, and the union's auditors felt obliged to admonish Curran in 1895 for keeping his expenses records badly and not indicating the origin of half the money he had received.<sup>5</sup> Members also resented Curran's many and prolonged trips abroad, for example to Germany in 1902, in his capacity as president of the General Federation of Trade Unions which he became in 1900, or to the USA in 1900 and 1903 for the TUC. And when Curran finally got into Parliament, at the Jarrow bye-election in 1907,<sup>6</sup> matters became worse. He cavalierly overspent on his election expenses for which the union had to pick up the bill<sup>7</sup> and, as we have seen, he was the cause of the whole Executive of the union resigning in 1908. His record inside Parliament had also got him into trouble, by now, for not being socialist enough. Already Curran had taken up causes such as Free Trade<sup>8</sup> and at the Jarrow bye-election he had played down his socialism.<sup>9</sup> Moreover, at the 1907 Labour Party Conference Curran led the opposition to a resolution calling the Party to adopt a socialist objective.<sup>10</sup> In the same year although he made noises in support of the unemployed, along with Clynes and in opposition to Thorne, he supported the clause in the Right to Work

- <u>Reports</u>, op.cit. Year ending 31 Dec. 1895 p.5.
   <u>Ibid.Year</u> ending 31 Dec. 1895 p.6.
- 3. Moore, op.cit. pp.54-46; H. Pelling, The Origins of the Labour Party 1880-1900 pp.186 and 206.

- 4. Reports, op.cit. (1899) p.9.
  5. Ibid. Year ending 31 Mar. 1895 p.48.
  6. Moore, op.cit. p.108.
  7. London Delegate Meeting, 24 Aug. 1907 pp.5-6.
  8. TUC Reports (1903) p.63 and (1905) p.136.
  9. H. Pelling, Popular Politics and Society in Late Victorian Britain (1968) p.135.
  10. Reid, op.cit. p.120.

Bill which penalised workers who refused to work under the scheme. Curran's performance engendered criticism from the union. After troops had been used against Belfast strikers in 1907, Victor Grayson's famous speech was followed by one from Curran in which he, in the words of a special London Delegate meeting called on the issue, 'apologised to the master class.' Curran was not able to attend this meeting - he was abroad.<sup>2</sup> Yet despite all this, when being attacked in the union as conference chairman or for not doing his job, his accusers were at pains to say they intended nothing personally. He genuinely seems to have made few enemies.

Curran's Parliamentary career was a brief one. He had probably been a heavy drinker for some time and in 1909 a policeman found him lying in a London gutter, drunk. In court, conducting his own defence, he claimed to have slipped getting into a cab and was stunned. 'Do you deny being drunk?', asked the clerk, 'No Sir,' replied Curran, and was fined lOs with costs.<sup>3</sup> The case was not reported in the Times but the votes of confidence passed by the union and Labour Party were.<sup>4</sup> However, the issue probably did him sufficient damage to cause him to lose the 1910 election, when he again overspent his expenses.<sup>5</sup> By now he was a sick man, probably because of the drink, and, after one serious operation, he died soon after the election.

When the union leadership passed out of the hands of the London gas workers it did so in the person of J.R. Clynes.<sup>6</sup> Born in 1867, the son of an Irish immigrant father who had settled in Oldham in 1851 to become a corporation workman, Jack left school at twelve to become a cotton piecer. He helped form a branch of the new gas workers union, and as a passionate self-educator and a good public speaker he came to the fore, and to the notice of Thorne, who gave

- 3. Daily Mail, 22 Feb. 1909 p.5.

K.D. Brown, <u>Labour and Unemployment</u>, op.cit. p.83.
 <u>London Delegate Meeting</u>, 14 Sep. 1907 p.2.

Times, I Mar. 1909 p.19.
 GEC, 29-30 Jan. 1910.
 See E. George, From Mill-Boy to Minister - the Life of the Rt. Hon. J.R. Clynes MP (1932) and J.R. Clynes Memoirs 2 vols. (1937).

him a job as organiser for the Lancashire district in 1892. When the district secretary absconded with union funds in 1896,<sup>2</sup> Clynes took his place and began his rise in union and labour politics. From his power base in Lancashire, by the turn of the century, Clynes, and not Thorne, was the major force in the union. His education, ability, determination and ruthlessness made him altogether a more formidable politician than either Thorne or Curran, and, whereas the others took less and less interest in union matters, Clynes kept firmly in control, being the architect of the 1908 constitution and responsible more than anyone for the nature of the subsequent union. Not content to beat opponents, he also liked to humiliate them. At the GEC meeting in 1908, when the weekly Executive were defeated on the issue of Curran, a prelude to their abolition, Clynes concluded the meeting thus - 'We should have more comfortable chairs,' he said, 'it would raise the tone of debate. ' He then proposed that the weekly Executive be ordered to get better furniture, which was duly carried and recorded in the minutes.<sup>3</sup> Liking to get his own way, Clynes was no respecter of rules. At the union's 1906 conference, Lancashire put forward a plan to pay visitors to catch up on members in arrears and Clynes admitted that, contrary to rules, in Lancashire they already did this. He had no respect for rules unless they compelled you 'My dear boy you ought to be a Cabinet Minister', said to do right, he said. Thorne prophetically.<sup>4</sup>

Clynes was an early member of the ILP and like Curran also supported the 1893 TUC resolution on public ownership but his words were tinged with the irony bordering on cynicism that was characteristic. 'They were socialising and nationalising everything in the present day' he said.<sup>5</sup> Indeed Clynes was a political conservative in almost all senses and when he was elected as MP for Manchester North East in 1906 he spoke little but on most

- 1. Thorne, op.cit. p.114.
- 2. Reports Quarter ending 31 Mar. 1896 p.26.
- 3. GEC, 9 Feb. 1908.
- 4. Biennial Congress, 3-6 Jun. 1906 p.12.
- 5. TUC Reports (1893) p.48.

issues he took a stance to the right of Will Thorne although they were usually careful not to contradict each other in public. Clynes opposed Thorne's advocacy of a Citizen's Army.<sup>1</sup> He was against the secular principle in education and opposed Thorne's TUC Bill on the issue in 1906<sup>2</sup> and more significantly he, along with the TUC Parliamentary Committee, was a strong supporter of the contributory principle in Lloyd George's National Insurance Bill while Thorne was prepared to defy the Party whip on the issue.<sup>3</sup> Clynes' attitude met with criticism from his own union but motions at conference deploring Clynes' and Curran's trip to Germany in 1909, 'to be feted by the members of the parties opposed to the conscious organised Labour movement in that country'.<sup>4</sup> or condemning his accepting a place on the Industrial Improvement Committee in 1912, when Thorne had refused it,<sup>5</sup> deflected him not at all, coming as they did from the militant London branches. Clynes went on to become a Cabinet Minister and, for a brief period, leader of the Labour Party and therefore very nearly Prime Minister.<sup>6</sup> That he did not achieve this was due to his inability to win the hearts of those under him either in the union or the party. He lacked the stature and personality of the ultimately successful leader.<sup>7</sup> Two further illustrations of Clynes' character will be made. In 1920 when proposals were made to reform the TUC Parliamentary Committee into the General Council Clynes spoke for rejection on the grounds that it was not being given enough power. Ernest Bevin countered that Clynes was using any pretext to reject the measure and had the change been more radical he would have made an equally effective. speech that it had gone too far. Clynes protested but Bevin insisted, 'I know your dialectical ability. Mr. Clynes, which is a greater power than your consistency but I am not in the least moved by that debating ability.<sup>8</sup> And

1. Ibid. (1909) p.127.

- See B. Simon, Education and the Labour Movement (1965) pp.259 and 277; <u>Biennial</u>
   <u>TUC Reports (1909) p.108; Reid, op.cit. p.181</u>. <u>Congress 15-18 May 1910</u>
   London Delegate Meeting, 21 Aug. 1909.
   <u>Biennial Congress</u>, 26-29 May 1912 p.36; S.F. Rodger Charles, <u>The development of Industrial Relations in Britain 1911-39</u> (1973) p.58 nl.
- 6. Moore, op.cit. pp.187-192.
- 7. Ibid. p.187; H. Pelling, <u>A Short History of the Labour Party</u> (1961) p.49. 8. A. Bullock, <u>The Life and Times of Ernest Bevin</u> Vol.1 (1960) p.148.

this view of Clynes' character is well reflected in the memories of one old gas worker when comparing Clynes to Thorne. 'I don't think he was in the same street, not for honesty. Cleverer, he had more up here than what Thorne had. But he would say things and they wouldn't materialise. He would say anything to get rid of you. We went up to the House, "Oh! you will always have your own section secretary". Within a fortnight we'd lost him. We went up again. He didn't want to see us.'<sup>1</sup>

The constitution and union democracy were not the only issues that concerned the union in this period; perhaps they were not even the most important. Indeed, one historian of the union has accepted that the 'officials were clearly in control'<sup>2</sup> with a certain amount of indifference. However the importance of who was controlling the union becomes clearer when considering other issues and nowhere is this as crucial as when looking at strike action. Here the motivation of the union member in employment wishing to maximise his wages is clearly at variance with the official earning his living from the union, an institution which can be severely damaged by a strike but has little to gain. A look at the union's record in this period will make this clearer.

The union's early reputation for militancy is unjustified. Nor did the cautious official stance come about as a result of early defeats or worsening trade causing a change of policy.<sup>3</sup> The union discouraged strike action from its beginning. The infant union put up with much victimisation of members from Beckton without calling a strike. Thorne was in Manchester trying to prevent the strike there when the South Metropolitan men came out and he later said

- 1. Interview with Tom Hall Cassette No. 9.
- 2. Clegg (1964), op.cit. p.51.
- 3. Ibid. p.20.

that if he had had his way there would have been no strike there either. Both strikes, and the famous Leeds strike for which Engels gave Thorne a copy of 'Das Kapital', were clearly at the instigation of the members concerned. There is no reason to doubt Thorne's oft-repeated claim that the union had never caused a single strike.<sup>2</sup> The union's very first rule book registered in June 1889 when the membership was almost exclusively confined to the London gas workers gives a clear indication of the attitude of the union toward militant Rule XVIII - 'It shall be the duty of this Society to endeavour to action. form boards of conciliation and arbitration for the settlement of labour disputes between employers and workmen, and in all cases when disputes, reductions or strikes are submitted to arbitration for settlement, the decision of the board or its referee shall be final and binding; and shall any branch of labour refuse to respect it, the Council shall have power to refuse the Society's support.'<sup>3</sup> 'Investigators' were to be appointed to look into and settle disputes or report to the Council who, receiving authority from a general meeting, were to send in a 'respectfully worded request' for the required concession. Six days notice was to be given during when 'every effort must be made by the investigator assisted by the Executive to bring about an amicable adjustment of the dispute... The General Council shall at any time take the vote of the Society both for closing or calling a strike.<sup>4</sup> At the first national conference in May 1890 the rules for disputes were changed but only the procedure not the attitude was altered. Rule XXXII - 'In the event of every effort by appeal and memorial failing to effect a settlement of the dispute it shall be the duty of the Executive to offer the employers...to refer the matter to arbitration.<sup>5</sup> Where a dispute could not be resolved the Executive was to inform branches 'and wherever possible take a vote of all the members of the union...two-thirds of the votes shall decide for or against the appeal.<sup>6</sup> One of the objects of the union was 'To settle all

1. Thorne to R.C. on Labour, op.cit. Q 24622.

2. GW, 21 Oct. 1890.

3. Rules of the NUGGL (Webb Trade Union Collection) 1889 p.14.

4. Ibid. p.15.

5. Rules of the NUGGL (1890) p.24. 5. Ibid. p.25.

labour disputes by amicable agreement or arbitration."

Only the rhetoric of the early union spoke of conflict. The first Rule Book declared that men who have in the past joined a union 'have thrown in their lot in the battle of labour against capital.<sup>2</sup> The practice of the union, however, was somewhat at variance with this as exhortations against strike action became a regular feature of Thorne's yearly reports. 'Strikes through whatever causes should be avoided wherever possible. Some employers think that many of us live and thrive on Strikes. What can any Leader gain through a Strike? Look at the worry, anxiety and responsibility they have to contend with during a Strike which makes one feel sad at times' he reported in 1893.<sup>3</sup> Not keen to sanction strikes, the officials were usually anxious to call them off. The circumstances on many of these occasions can be hinted at from this report by Thorne on the calling off of the Cowley brickmakers strike of 1891: 'though the closing of the strike was not satisfactory to all the men, yet we gained many points, and it is usual at the closing of disputes for some section of the men to remain dissatisfied. The rank and file of the men do not always understand the circumstances connected with strikes but this they ought to know, that no honest leader would settle a dispute detrimental to the men, if it were possible to avoid it. 4

Much of the money paid out in disputes resulted not from any active policy of the union but from members being laid off due to disputes initiated by other unions, like the engineering labourers of Birmingham and elsewhere involved in the 1897 lock-out, or the pit-top men during the many troubles in the mines. Indeed, at one stage it was decided not to recruit pit-top men for fear of incurring such expenditure.<sup>5</sup> In 1894, Thorne had made a clear statement on the matter of strike action.

- Ibid.
- 5. GEC, 13 Aug. 1905.

<sup>1.</sup> Ibid. p.8; Clegg (1964), op.cit. p.20 is wrong to suggest a significant change in the rules in 1891.

<sup>2.</sup> Rules of NUGGL (1889) p.3.

<sup>3. &</sup>lt;u>Reports</u>, op. cit. Year ending 31 Mar. 1893 p.4. 4. Ibid. Year ending 31 Mar. 1892 p.11.

Some of the disputes have been unsuccessful and should not have been entered into especially where the surrounding circumstances were against the men. When this is the case it should be the duty of the officials to meet the men in a firm spirit and not allow them to come out on strike. It is better for the Union to lose a few members this way than have them on the funds for six months (as in some cases they have been) and then at last have to surrender. If the members would only accept the advice very often tendered them by the officials there would be less disputes arise. A firm stand should be made against men coming out on strike, unless oppressed to such an extent that their position is unbearable.

There is the very real possibility, therefore, that the presence of the union reduced the amount of strike action, although this cannot be proved. The cause of strikes in the gas industry is more fully discussed in Chapter 12 but for the union as a whole there seems from Table 23 to be a very rough correlation between the level of strike action, as measured by strike pay, and the trade cycle, although there is a much less positive correlation than for levels of union membership. The official dominated GEC, which became the deciding body in these matters, turned down many requests from members to be allowed to strike, both in times of good trade and bad, both when the union's finances were desperate and secure. In 1906, the Grassmore coke men, gas producer men at Hanley, quarrymen from Colne and many others were refused,<sup>2</sup> and a year later when the Clay Cross Branch wished to come out in support of their victimised secretary they too were forbidden to strike.<sup>3</sup> Yet in 1912, with unemployment down to 3.2 per cent and the union's finances stronger than they ever had been, when the men at the GKN steel works in Cardiff, who had been negotiating for some time, wished to cease work in support of their demands

1. Reports, op.cit. Year ending 31 Mar. 1894 p.4. 2. GEC, TT Nov. 1906 p.5.

3. Ibid., 17 Feb. 1907 p.6.

## TABLE 23

Unemployment, NUGGL membership, Balance in Hand and Dispute Pay 1889-1914

			· · · · · · · · · · · · · · · · · · ·	
Year	Unemployment $2^{(1)}$	Membership <sup>(2)</sup>	Balance in Hand (£) <sup>(3)</sup>	Dispute Pay (£)
1889	2.1		1,326 <sup>(4)</sup>	(7)
1890	2.1		600 <sup>(5)</sup>	9,255(/)
1891	3.5	46,905(9)	6,329 <sup>(6)</sup>	3,500 <sup>(8)</sup>
1892	6.3	36,108	4,643	6,580
1893	7.5	30,793	6,217	5,405
1894	6.9	27,839	6,882	3,916
1895	5.8	23,532	7,595	2,024
1896	3.3	29,730	6,198	5,421
1897	3.3	40,042	5,470	8,434
1898	2.8	43,474	8,706	5,726
1899	2.0	48,030	6,888	10,969
1900	2.5	47,978	8,555	6,417
1901	3.3	46.014	8,645	8,322
1902	4.0	40,986	6,280	10,070
1903	4.7	31,785	5,315	6,967
1904	6.0	29,631	6,608	2,239
1905	5.0	28,120	6,634	4,611
1905	3.6	33,680	418	5,634
1907	3.7	39,805	6,752	3,447
1908	7.8.	32,317	4,344	6,896
1909	7.7	31,735	3,773	2,921
1910	4 7	32,040	2,657	5,866
1011	3.0	76,889	13,130	3,951
1012	3.2	82.135	12,768	24,007
1012	21	134.538	28,073	17,074
1913	2.3	110.073		45,199
1 1 2 1 4	3.5	1,		

## Sources and Notes:

- 1. Percentage unemployed in certain trade unions from B.R. Mitchell and Phyllis Deane. Abstract of British Historical Statistics (1962), pp.64-5.
- 2. <u>Reports</u> op.cit. on 31 December each year. Financial membership varied from 7 per cent to 27 per cent below these figures.
- 3. <u>Reports</u> op.cit. on 31 December each year except 1889, 1890, 1891.
- 4. 30 September 1889.
- 5. A rough estimate for 31 March 1890.
- 6. 31 March 1891.
- From the start of the union to 31 March 1890. £8,453 of this was on the S. Metro strike alone.
- 8. A rough estimate for year ending 31 March 1891.
- 9. Rough estimate for 31 March 1891.

again they were refused authorisation to take such 'extreme action'.

Set against this, it must be said that the union granted permission to strike on many occasions. Indeed, where the men were determined, had gone through the cumbersome procedure of balloting all branches, and the chances of success were good, as with the London builders' labourers in 1897, Thorne was prepared to fight other unions for the need to strike.<sup>2</sup> Also it is by no means clear if, without the union, men would have been any more prepared to strike, particularly with no hope of strike pay. Again, if the officials discouraged strike action this may on many occasions have been sound advice. What can, however, be said is that from its beginning the union's officials did not initiate a single strike themselves and throughout this period they, for the most part, discouraged militancy. The true situation is epitomised by the Leeds Corporation workers strike of 1913. This has been used as an example of how the union caught the mood of militancy in the period.<sup>3</sup> Yet the strike only took place despite the pleading of both Thorne and Clynes, who were shouted down at a mass meeting prior to the walk-out. Interestingly, the strike was a failure and cost the union £16,000.4

The extent to which disputes absorbed the finances of the union has also been exaggerated. It is true that up to 1904 the only benefit the union gave apart from legal aid was strike pay. Also, in some years, strike pay took up more than half the union's income.<sup>5</sup> But over the period as a whole it averaged out as something less than a third. The bulk of income went on simply running the union. It is difficult to assess the financial strength of the union, but, if the balance in hand is taken as a guide (see Table 23), the union was probably only in real difficulties in 1890 and in the 1909-10 period. Although the first occasion was caused by the South Metropolitan strike this never seriously threatened the existence of the union, which is really only endangered by falling membership. The

- Reports, op.cit. Quarter ending 31 Mar. 1897 p.4.
   Radices (1974) op.cit. p.66. See also J.E. Williams 'The Leeds Corporation Strike of 1913' in A. Briggs and J. Saville (Ed.), Essays in Labour History 1886-1923
- (1974).4. Biennial Congress, 31 May - 3 Jun. 1914 p.16.
- 5. Hobsbawm (1964), op.cit. p.189.

<sup>1.</sup> Ibid., 29-30 Jun. 1912 p.5.

union can always call off a strike. Certainly falling membership was the problem in the latter period.

After a move to increase the subscription to 3d in 1898 had been defeated, an increase to 2½d in 1900 was approved by conference. The reasons for this are not clear. 1899 had been costly for disputes but finances were sound. Extra officials were taken on, however, and the political activities of the officials needed financing. In 1904 the subs were increased again to 3d, this time to abolish the 4d quarterly political levy and to finance a disablement benefit thought necessary to combat competition from other unions as membership began to slide. <sup>1</sup> Members were to receive £25 for partial disablement and £50 for total disablement while at work.<sup>2</sup> In 1909 there was also talk of starting an unemployment benefit but this was not carried through.<sup>3</sup> The union was in a familiar dilemma. Falling membership threatened the finances but to attract membership by extra benefits was costly and also threatened membership since subscriptions had to be raised to pay for them. In the end, the union chose the other alternative - economy. Here the importance of who governed the union is emphasised since to the rank and file officialism was the chief cost of the union.<sup>4</sup> and they attempted to reduce the number of officials and their Parliamentary expenditure. This was resisted by the officials, and, typically, Clynes even employed an extra assistant in this period, to do his job while he was in Parliament.<sup>5</sup> Although when Curran died his place was not filled, it was the rank and file who bore the brunt of the economies. In 1910 strike pay was cut to 12s 6d and disablement benefit from £50 and £25 to £30 and £15.<sup>6</sup>

Another issue which occupied the union, and to which control of the union's government was relevant, was its relations with other unions. Throughout the period schemes of amalgamation or federation were constantly being mooted. At the union's

- Biennial Congress, 23-25 May 1904 pp.44-47.
   GEC, 19 Jun. 1904.
   Tbid., 15 Aug. 1909 p.4.
   Glyde of Bradford Gasworkers (see Bellamy and Saville, op.cit. Vol. VI pp.117-120) Biennial Congress, 15-18 May 1910.
   Tbid., 7-10 Jun. 1908 p.22. Fleming Eccles had been engaged before Clynes had
- received the authority of Congress.
- 6. Ibid., 15-18 May 1910 pp.14-17.

first conference the Executive was instructed to draw up a scheme for federation of all unions. In 1890 there were attempts to federate with the Seaman's union: a federation of all labourers' unions was seriously discussed in 1892, as was federation with the miners in 1893. Thorne supported a general federation at the 1895 TUC, but this was lost.<sup>2</sup> A year later he urged the need for one big union of building labourers.<sup>3</sup> Nothing came of any of these schemes largely because of the conflicting sectional interests within and between the unions but also because of the fear of union officials that they might lose their jobs. The gas workers, who believed in 'one man one ticket' from the start, always seemed to be in advance of other unions in this respect however. Finally, in 1899 the General Federation of Trade Unions was formed to pool strike funds.<sup>4</sup> Yet few unions joined, and those that did constantly squabbled over entitlement to benefit, and, after contemplating the step on many occasions, the gas workers left the Federation in 1912.<sup>5</sup> In 1908 a General Labourers National Council was formed to arrange recognition of cards,<sup>6</sup> but it remained weak and the gas workers dropped out for some years. In the years before the First World War major schemes of amalgamation were being organised and were the preliminaries to the mergers that finally took place in the early 1920s.

Since, judging by the work of the branches and by the interests of the leaders, the union was as much a political organisation as an industrial one, a survey of the role of politics in the union will conclude this chapter.

What role did socialism play in the formation and policies of the union? Although in no way could the early leaders be called 'revolutionary Marxists'<sup>7</sup>

- Clegg (1964) op.cit. p.48.
   Biennial Congress, 26-29 May 1912 pp.14-15.
   Clegg, Fox and Thompson, op.cit. p.450.
- 7. Hobsbawm (1964) op.cit. p.191.

 <sup>&</sup>lt;u>Reports</u> Year ending 31 Mar. 1891 p.9.
 <u>Ibid.</u> Year ending 31 Dec. 1895 p.18.
 Ibid. Quarter ending 30 Sep. 1896 p.8.

in terms of action, certainly most were members of the SDF. Thorne relied heavily on the party for recruiting early organisers. Curran, Hutchins, Hayday, and probably more, were SDF members. Harry Hobart, a compositor, Burns and Tillett spoke at early meetings and helped organise the union.<sup>1</sup> Bill Watkinson became president in 1890.<sup>2</sup> The SDF also lent material support. The Kensal Green branch, for example, met in the SDF hall,<sup>3</sup> while the SDF band played out the South Metropolitan strikers at Vauxhall with the Marsellaise.<sup>4</sup> Justice gave much support and encouragement. Middle-class socialist help came largely from the Aveling family. Eleanor Marx helped Thorne with his reading and writing.<sup>5</sup> organised women's branches at Silvertown and Canning Town<sup>6</sup> and was an invaluable minute secretary on the National Executive until 1895 and at union conferences. Her much maligned husband also gave useful service. He audited the accounts from 1891-7, chaired the conferences after the chaos of 1890 and handled the preliminary press conferences. He also took a major hand in drafting the union's rule changes.<sup>7</sup>

It must be said, however, that not all socialist support was so satisfactory. In Leeds Tom Maguire played a major role in encouraging the gas workers to join the London union in 1889.<sup>8</sup> Another leading socialist, Tom Paylor, became a salaried organiser in the new district; J.L. Mahon became assistant secretary in 1891 and William Cockayne, one of Maguire and Paylor's 'leading converts among the gas workers'.<sup>9</sup> became district secretary. The socialists were clearly in control but the district was run badly. Extremely lax with their accounting, after a visit from Curran and a special audit by Byford, Cockayne was forced to resign in 1894, taking with him £160 of the union's money.<sup>10</sup> Paylor stayed on as organiser until he left with \$40 of

- 5. Thorne, op.cit. p.96.

- Reports Year ending 31 Mar. 1891 p.45 and 31 Mar. 1894 p.43.
   Freeman's Journal, 20 May 1891 p.6.
   Labour Elector, 24 Aug. 1889 p.122.
   E.P. Thompson 'Homage to Tom Maguire' A. Briggs and J. Saville, Essays in Labour History (1967) p.300.
- 10. Reports Quarter ending 20 Mar. 1896 p.26; Yorkshire Factory Times, 6 Apr. 1894

Justice, 30 Mar. 1889 and 20 Apr. 1889; <u>Labour Elector</u>, 30 Mar. 1889.
 <u>Reports</u> Year ending 31 Mar. 1890 p.2.
 Justice, 18 May 1889.
 Ibid., 21 Dec. 1889.

union money in 1896. What part Tom Maguire played in these events is not clear. Nor were the socialists the only ones to contribute to the union. Both of the union's sisters, the Gasworkers, Brickmakers and General Labourers Union in Birmingham and the National Amalgamated Labourers' Union in Newcastle, were started by 'Lib-Labs'. In London, MPs at least nominally Liberal, such as CunninghameGraham and Mark Beaufoy (MP for Kennington 1889-95), were prominent on the early platforms. The church, in the person of Rev. W.A. Morris, Vicar of St. Anne's Lambeth, also contributed. Morris's Working Men's Club in Gye Street, Vauxhall was the meeting place of the South Metropolitan strike committee, the venue of the first union conference, and People's Press, the union's organ, was published from there. Brother Bob, as he was known, was a trustee of the union until his death in 1904.

The influence of socialism as an ideology has also been exaggerated. The general, open nature of the union's recruitment, its low subscriptions and its militancy have all been ascribed to socialist thinking, yet the militancy was a fiction, while the other features can be explained by the logic of the economic environment in which the union found itself. The union was a general one not because of an active policy 'to unite all workers against their employers', nor was the 'theory' ever 'to recruit into one gigantic union all those who could possibly blackleg' them. <sup>5</sup> To talk of a theory or

1. Reports Quarter ending 30 Jun. 1896 p.25.

2. Clegg, Fox and Thompson, op.cit. p.91.

3. Labour Elector, 30 Jun. 1889.

 <u>Reports Quarter ending 31 Dec. 1903; Collison, op.cit. p.80; Pelling (1954) p.80.</u>
 Hobsbawm (1964) op.cit. pp.179 and 181 - Hobsbawm, like Clegg, posits a change of policy and distinguishes '3 stages in general union tactics (p.191), general unionism for everyone 1889-92, cautious 'sectional' unionism 1892-1910 and revolutionary urge for amalgamation 1911-20'. There is no evidence for any of this house and the section of the this however. In a sense throughout the period the union would have liked to have recruited everyone not in the union - except those who seemed likely to be involved in disputes!

tactics in connection with a union which 'grew like Topsy' is wrong. The aims of the union, such as they were, were much less ambitious. It started, as many had before, simply as a sectional union of gasworkers in London and it remained this way for the first four or five months of its existence. It became a general union when other groups who needed the union's strength and resources were found 'clamouring to join'. The gasworkers let them in because they needed their subscriptions and they had no reason to exclude them, being themselves general labourers who worked in the brickfields in the summer.

Neither was the low subscription rate part of a socialist policy to destroy the friendly society mentality of the craft unions. Low subscription rates were a necessity and a vital factor in recruitment which the Lib-Lab sister unions also adopted.<sup>2</sup> While it is true, as one commentator has suggested, a week 3 that gas stokers could have afforded 15 it is equally true they probably would not have chosen to do so. Addressing a meeting of gasworkers at Battersea in 1891, John Burns entreated the men to 'deny themselves one pint of cold fourpenny a week and pay the 2d to their Union.' This was not pure rhetoric - the choice was a real one for the men. And the importance of the low subscription was hotly debated each time an increase was proposed at the conferences of 1898, 1900 and 1904. To keep men in the union, and to recruit new, the subscription had to be kept to a minimum. The lack of friendly benefits simply followed from this.

Turning to the political activity of the union, while it has been said that the gas workers union led the way in independent labour politics especially in London where they were the first to run labour men in local elections and so 'initiated a transformation of the political scene'<sup>5</sup>, it must be remembered that to begin with, while most of the union's leadership were socialists most

- 3. Clegg (1964) op.cit. p.34.
- . <u>GW</u>, 18 Aug. 1891.
- P. Thompson, op.cit. p.47.

Clegg, Fox and Thompson, op.cit. p.92.
 Rules of the Amalgamated Society of Gas Workers, Brick Makers and General Labourers (1890) p.8 (Webb Trade Union Collection)

of the rank and file were not. Curran's battles in the 1890s give evidence of this and Thorne constantly lectured the men in his reports on the merits of socialism. In 1895, answering the question as to why more did not join the union, he said, 'Various explanations have been offered by men who have left the union...It has been contended that we are too Socialistic: that the general officials are hostile to the Liberal Party and were partisans of the ILP or SDF etc., etc.<sup>1</sup> Moreover, not all the leaders were solidly in favour of independent Labour politics. In 1891, J.L. Mahon urged the Irish to vote for Parnell and not to form an independent Labour Party  $^2$  , while Hutchins, speaking on the same platform as Keir Hardie and Thorne in 1894, at the union's fifth anniversary demonstration, urged the men to vote for Sir John Bethell, the Liberal candidate for Romford.

Between the mid-1890s and the early years of the twentieth century something of a political transformation took place among the rank and file of the union, or its more active members at least. Hostility to socialism turned to support, if not for socialism, then for an independent Labour Party. This of course was not universal. In Barking, probably a relatively left wing branch, in 1905 a leading member spoke in support of a Liberal candidate who was also a local employer, <sup>4</sup> while as late as 1913 a branch member proposed that, as there were members of all shades of political opinion, politics should be kept out of union business. 5 Despite this, it is clear that Barking, and London in general, had been converted to Labour politics by 1906 and that, as even conservative Lancashire gave enthusiastic

Reports Year ending 31 Dec. 1895 p.18.
 Freeman's Journal, 20 May 1891 p.6.
 GW, 31 Mar. 1894 p.357.

4. Barking Branch Minutes 30 Mar. 1905.

Ibid., 1 Jan. 1913.

support for Clynes of the ILP, this was true of the union as a whole. As early as 1894 the rules of the union allowed the setting aside of £200 for the election of union members pledged to the collective ownership of the means of production distribution and exchange<sup>1</sup> and the 1902 conference endorsed the candidature of Thorne and Curran and agreed to pay their election expenses. A levy of 4d per member per quarter was to go to a Parliamentary representation fund.<sup>2</sup>

From the beginning, enthusiasm for the union leaders' political careers was probably not overwhelming on the part of the rank and file. In 1905, the GEC gave Clynes permission to stand for Oldham by a vote of only nine to six, even though the union was not paying the expenses.<sup>3</sup> The parliamentary careers of Arthur Hayday and Walt Wood were held up by this attitude of the membership. At the 1906 conference there was a move to sponsor only one MP but this was blocked. <sup>4</sup> And , as finances became tighter pressure to cut political expenditure grew. Members asked what they were getting in return for the outlay, and this question was given more point as the performance of the Labour Party in Parliament became apparent. The London branches that had attacked Curran in the nineties for being a socialist now attacked him for not being socialist enough. In 1909, when Thorne asked the London district to keep on the old Barking Road office (which they were giving up as an economy) in view of the forthcoming election, they refused, and a letter from Angle asking for donations for the Parliamentary Fund was also refused, 'due to deception last time.'<sup>6</sup> All this culminated in the move at the 1912 conference to withdraw from the Labour Party and, although this was defeated. the London district passed, by a substantial majority, another motion to withdraw a year later.<sup>8</sup> At the GEC they demanded a ballot of the

- 5. London Delegate Meeting, 21 Aug. 1909 p.10. 6. Ibid. p.4.

<sup>1.</sup> Rules of NUGGL (1894) p.20.

<sup>2. &</sup>lt;u>Biennial Congress</u> (1902). 3. <u>GEC</u>, 21 May 1905.

<sup>4.</sup> Biennial Congress, 3-6 Jun. 1906 p.20.

<sup>7. &</sup>lt;u>Biennial Congress</u>, 26-29 May 1912 pp.35-36.

GEC, 16-17 Aug. 1913; Barking Branch Minutes, 2 Jul. 1913.

membership. Clynes ruled this out of order, saying the biennial conference must decide, showing once again the importance of the officials' domination of the union government.

1. GEC, 16-17 Aug. 1913.

## Chapter 12: Analysis (2)

This concluding chapter is the companion of Chapter 5 in that it attempts to apply some analysis to major aspects of the experience of the gasworkers and their relationship with their employers as described in Part 2. Three closely related issues are dealt with: firstly, wage determination, secondly the pattern of strike activity and, lastly, the causes of the rise of trade unionism.

Any attempt to analyse the reasons for the situation with regard to the wages and hours which gasworkers encountered in this period must confront the basic question of the relative influence of market forces, via the demand for and supply of labour, and of power factors related to the influence of collective bargaining, trade unions and threatened or actual strike action. Looking firstly at the influence of market forces, the point to be made initially is that the demand for labour both from the gas industry as a whole and from the individual firm had little influence on the wage rate. Indeed, the experience of the gas industry tends to bear out those economists who believe wage determination is not susceptible to marginal analysis.<sup>1</sup> Although, of course, the marginal revenue productivity of gasworkers cannot be measured, it seems clear that in no meaningful way was the wage rate related to the productivity of labour at all. For example, at the South Metropolitan between 1861 and 1914 the revenue productivity per unit of carbonising labour increased four-fold while in the same period wage rates increased by 52 per cent. The predictive value of the marginalist approach to the demand for labour therefore seems extremely weak. Indeed it is difficult to hypothesise a negatively sloped demand curve for labour either

 Richard A. Lester, 'Shortcomings of Marginal Analysis for Wage-Employment Problems' in <u>American Economic Review(March, 1946)pp.63-82</u> and A.M. Ross <u>Trade Union Wage Policy</u>, (Berkeley 1948). for the firm or the industry. Cuts in wage rates led to no increased demand for labour, nor wage increases for a reduced demand either by a contraction of output or a substitution of capital for labour. Labour substitution was perhaps hastened by the increase in wage costs in 1889 but in no sense was it caused by it. In the capital intensive gas industry, where wage costs were a relatively small proportion of total costs, the demand for labour was a function of two factors unrelated to the level of wages. These were, firstly, the level of output, dependent on the demand for gas, and, secondly, the existing state of technology which had, as was shown in Chapter 5, its own internal logic. For the purposes of this analysis, therefore, it has been assumed that the gas companies provided a perfectly inelastic demand curve for labour.

If marginal analysis is inapplicable it does not follow, as some economists have assumed, that wage determination is not subject to analytical treatment at all. It does, however, assume that the active variable in the system must be the supply side and, indeed, it seems the case that most of the aspects of the wage situation in the nineteenth century gas industry can be explained by reference to the supply of labour. This certainly is so when looking at the different wage rates in the different companies, and even in the different works of the same company, in the earlier years of the industry. It was the case that the larger works paid higher wages than the smaller. For example, in 1834 the Ratcliffe Company paid stokers 23s a week while the Chartered at Westminster paid 25s a week. The reasons for this seem to rest with imperfections in the labour market and with labour turnover. Since throughout the nineteenth century, as a general labour was superabundant, it would observation. seem correct to assume that individual firms faced the same perfectly elastic supply of labour. In fact, good, trained, sufficiently strong, reliable,



D

D2



Demand and Supply of stokers

obedient and relatively sober labour was never in inexhaustible supply.<sup>1</sup> Much of the labour was casual, the turnover of labour continuous and all companies needed to be able to call on extra labour instantly. The lower wage rate in the smaller works can therefore be explained. If it is assumed that the turnover rates in the small works and the large are the same, for every one new worker the Ratcliffe required the Westminster works would need nine. If now there was a pool of men in the market prepared to work for wages ranging from 23s to 25s, the Ratcliffe could find its worker for the lowest figure. On the other hand at Westminster, since all workers had to be paid the same wage, it may not be possible to recruit nine men without paying 25s even though it could have got eight men for a lower figure.

This situation would argue for a slight positive slope to the supply curve of labour in the early gas industry, as illustrated in Figure 13 where D is the demand for stokers at the Ratcliffe,  $D_2$  the demand at the Westminster works, and S is the supply of suitable labour at various wage rates in the London labour market. The slope of the supply curve is due to the fact that the high labour turnover and need for immediate replacement meant that companies were operating in the extreme short term. On this time scale there were imperfections in the labour market due to ignorance of job opportunities by the men and poor communications which meant that, effectively, gasworks took labour from a relatively small radius.<sup>2</sup> This would also explain why the differences in wages between companies narrowed through the period and why, by 1898, all companies paid roughly the same wage rate, since by that time the earlier imperfections in the market, especially those of travel around London, had been abolished or reduced. As a result of this it seems clear that all the London companies faced the same perfectly elastic supply curve for labour.

 Noted also for the railways. Kingsford, op.cit. p.13.
 'all that lay beyond a tiny circle of personal acquaintance or walking distance was darkness' E. Hobsbawm 'The Nineteenth-Century London Labour Market', Centre . for Urban Studies, London: Aspects of Change (1964) p.8.



Figure 14: Short run demand for and supply of labour.





Employees

Or, to further refine the analysis, it might be suggested that the companies faced kinked supply curves at the level of employment, since, as in Figure 14, at wage rate W and employment level D, the company could have as much extra labour as it wished. If it cut wages, however, it would not lose all its workforce since some would still be prepared to work for the lower wage. Some imperfections would persist in a downward direction.

It is in the supply of labour too that explanations of wage differentials, as for example between stoker and yard labourer, are to be found. Quite simply, the supply of labour ready, willing and able to operate the scoop in the conditions of the retorthouse was less than that available to take the unskilled and relatively light jobs in the yard, and the differential in wages reflected this state of affairs. Figure 15 shows this explanation of the situation at the South Metropolitan in 1838 where  $S_1$  and  $D_1$  are the supply and demand for stokers and  $S_2$  and  $D_2$  for yard labourers.

It is worth emphasising here that marginalist demand theory could not explain either wage differentials or the difference in wages between works. As well as being unquantifiable, there is no <u>a priori</u> reason to suggest that the marginal revenue productivity of a stoker was any greater than that of a purifier or valve man. Also, the evidence would suggest that the productivity of workers in small works in the early period was not less than that in the large, while there is every reason to suppose that the marginal revenue productivity of South Metropolitan workers was greater than the other companies in 1898, yet they were paid the same wage.

Can the supply of labour explain the long run increase in the level of money and real wages? The first point to be made is that only real improvements in wages are relevant. If money wages simply kept pace with other prices then the increase is simply a monetary phenomenon caused by a general increase in

the money supply. Much of the increase in wages up to 1870 was of this nature although there was a marginal improvement, perhaps in the order of 10 per cent (see Table 18), in real wages. There was a substantial increase in real wages in the seventies and eighties, approximately a third due to an increase in money wages and two-thirds due to a fall in prices. There was a massive increase in wage rates in 1889, if the eight hour day can be quantified as such; a further improvement due to wage increases in 1898, and a real or purely monetary increase in 1911, according to which price index is used. On the surface, the predictive value of the labour supply theory would appear to be good. It would suggest that wage advances would be made in periods of boom in the economy in general, when labour is in short supply, and cuts would be made in slumps, when labour is abundant. There were known wage cuts in the London gas industry in 1816, 1830 and 1855 - all years of trade depression. There were wage increases in 1825, 1853, 1865, 1871, 1889, 1898 and 1911 - all boom years. There are, however, a number of unanswered questions. Firstly, why did the gas companies abandon wage cuts in the slack periods after mid-century? Secondly, why did not all booms lead to wage increases - 1882 for example? And, thirdly, how is the secular improvement in real wages to be explained when the known evidence of labour supply as measured by the level of unemployment would indicate none of the long run fall in supply which the theory would require? Why, that is, were real wages 30-40 per cent higher and hours one-third less in 1898 than in 1872 when the known unemployment rate was 0.9 per cent in the earlier year and 2.8 per cent in the latter?

These problems suggest other factors at work and particularly the one originally mentioned - collective bargaining. Had the gasworkers been able to bargain their wages and hours above the level indicated by pure market forces? At first sight it might be difficult to see how collective bargaining had much influence on wages and hours in the nineteenth century gas industry since only

on one occasion, 1889, did a union play any real role in negotiations with management. Yet, contrary to the accepted assumptions of economic theory 1. the gas industry gives evidence that collective bargaining and union membership are not necessarily co-extensive, a fact which must upset much theorising on the movement of wages in the union and non-union sectors in the twentieth century.<sup>2</sup> Therefore, with or without a union, was it increased bargaining power that led to increased wages in the gas industry?

To analyse the relative bargaining strengths of the gasworkers and the companies in this period it will be useful to use the conventional model of economic theory which analyses the relative strengths of the two sides to a wage bargain in terms of the cost to either side of either agreeing to the terms of the other side or disagreeing.<sup>3</sup> This is usually expressed as follows:

Workers' bargaining = Cost to company of disagreeing to workers' terms power

Cost to company of agreeing to workers' terms

Company's bargaining = Cost to workers of disagreeing with company's terms power Cost to workers of agreeing to company's terms

Broadly speaking, where for either party the cost ratio is greater than one they would choose to agree with the other's terms. While this analysis is subject to many objections , it does serve to illustrate that in a number of respects bargaining power moved in favour of the workers in the nineteenth century gas industry. Firstly, the cost to the company of disagreeing with the men and

1. e.g. 'their (trade unions) existence is the essential prerequisite of collective bargaining.' L.C. Hunter and D.J. Robertson, Economics of Wages and Labour (1969) p.271.

2. e.g. Clark Kerr 'Wage Relationships - The Comparative Impact of Market and Power Forces' in John T. Dunlop (Ed.), <u>The Theory of Wage Determination</u> (1957) pp.173-193. 3. N.W. Chamberlain, <u>Collective Bargaining (New York 1951)</u>. 4. Summarised in Charles Mulvey, <u>The Economic Analysis of Trade Unions</u> (1978) pp.86-7.

risking a strike seems to have increased. In 1872, for example, the Chartered broke a strike of 1,000 of its men and it cost £15,000. In 1889-90, the South Metropolitan blacklegged a strike of 2,000 of its men and this cost it £100,000. The main reason for the difference in costs here was due to the length of the strike and the extra expense involved in procuring blacklegs in 1889 since they came from further afield, had to be offered greater inducement and were needed in larger numbers. Another expense to the company of disagreeing with the men was the possibility of men leaving individually - the cost of 'quits'. These were likely to be higher in periods of boom than in slumps. On the other hand, the cost for the company in agreeing with the men seems to have decreased. In 1872, wages were 13.8 per cent of the total expenditure of the Chartered. This had fallen to 7.7 per cent in 1888 and 3.9 per cent by 1914. A 10 per cent increase in wages would have led to a 3.4 per cent reduction in profits in 1872, 2.1 per cent in 1888 and 1.9 per cent in 1914.

Turning to the costs to the men, it is worth mentioning that, since a perfectly inelastic demand curve has been assumed, the workers faced no employment/wage trade off. Only in the extreme case might a wage increase have involved a reduction in employment, although here too things moved in favour of the men. For example, in 1830 the wages of the Imperial would have had to have increased by 2.33 times for the company's profits to have been wiped out. A stoker's wage, that is, would have had to increase from 28s to 65s 3d. By 1914, however, wages at the Gas Light and Coke would have had to increase 5.3 times, or a stoker's wage go from £2 5s 6d to £12, for profits to disappear. Only with increases beyond the bounds of likelihood, therefore, could some elasticity of demand for labour be expected. Yet wage increases had to be financed in some way. If this were done by increasing the gas price it could be that employment
might suffer from a contraction in demand for gas. The evidence of the gas industry, however, indicates that, because of its capital intensive nature, companies would absorb relatively large increases in labour costs rather than risk having capital standing idle.

The real costs to the men of disagreeing with the company and undertaking a strike were the loss of income during the strike and the possible loss of a job together with attendant destitution, the workhouse and even prison. Again, fear of this is likely to be greater during periods of bad trade than during periods of low unemployment. Set against this was the cost of agreeing to the company's terms, which was the shortfall between the wage offered and the wage demanded.

An interesting aspect of the relative importance of market as opposed to power forces is that the latter can also be used to explain features of the wage situation, like wage differentials and differing wages in differing sized works. It is easy to see that stokers, being semi-skilled, had greater bargaining power than the unskilled yard labourer, or that workers in a large works had more power than in a small one since a strike in a large works would be more difficult and costly to blackleg. What power forces cannot explain and market forces can is the disappearance of different wages in different works by the end of the period. Indeed, there is even clearer evidence that the workers had not managed to bargain wages above the market rate in the long term, at least up to 1914. The biggest single improvement in the value of labour came in 1889 with the eight hour day, yet in the long term this was not above the market value since by 1898 the companies reported that they were again short of labour. A wage increase was granted in 1898 yet by 1911 the companies were again finding labour difficult to recruit and had to give another increase to keep up with the market rate. Why, in this case, did bargained advances seem to keep in step with what was indicated by market forces, particularly the advance made in 1889? The answer is clear:

market forces determined relative bargaining strength since all the major costs to employer and workers in the above analysis - the costs to the company of quits, the cost of blacklegging a strike and the risks involved from a strike to the worker - ultimately related to the supply of competing labour in the market.

If the gas workers were not able to bargain wages above the market level then market forces must explain the unanswered questions posed earlier: why did the companies abandon wage cutting mid-century? Why did not all booms lead to wage increases and why did real wages increase in the long run when there was no apparent fall in the supply of labour as measured by the unemployment statistics? Taking the last and crucial question first, it would seem that the unemployment figures are an inaccurate measure of the supply of labour to the gas industry for a number of reasons. Firstly, the statistics generally presented are likely to be highly inaccurate. There is no series at all prior to 1855. Modern estimates from that date rely entirely on returns from a limited number of craft trade unions, and this was still the case when official statistics began in 1892.<sup>1</sup> Unemployment among skilled workers, particularly that minority organised into unions, is likely to underestimate unemployment among the unskilled, who were more prone to casual employment. The figure for 1872 looks particularly suspect, giving a level of unemployment (0.9 per cent) below any year in the 1950s, by which time the gas industry's desperate search for labour had taken it as far as the West Indies.<sup>2</sup> That the statistics are inaccurate does not, of course, prove that there was any reduction in unemployment among the unskilled through the period, but there are scattered indications that this may have been the case. Looking at dock labour, an area closely related to gaswork and one with a parallel history

Mitchell and Deane, op.cit. p.60.
Interview with Ted Ive Cassette No. 7.

## TABLE 24

<u>A comparison between agricultural employment and total employment in the UK</u> <u>1841-1921</u>

	1	2	2 as % of 1	
Date	Total adult males in employment in UK in '000s	Total adult males in agricultural employ- ment in UK in '000s		
1841	5,093	1,434	28.1	
1851	6,545	1,788	27.3	
1861	7,266	1,779	24.4	
1871	8,220	1,634	19.8	
1881	8,852	1,517	17.1	
1891	10,010	1,422	14.2	
1901	11,548	1 <b>,</b> 339	11.5	
1911	12,927	1,436	11.1	
1921		1,344	9.8	

Source: B.R. Mitchell and P. Deane, <u>Abstract of British Historical Statistics</u> (1962) p.60.

in many respects, Henry Mayhew, in an admittedly unscientific survey, estimated in the 1850s that 12,000 workers depended on the docks in London for work while there was only sufficient work for 4,000.<sup>1</sup> In 1891, Charles Booth, in a more reliable study, estimated that 21,000 regularly competed for work in the docks where there was comparatively regular work for up to 16,000.<sup>2</sup> Although unreliable, these estimates would indicate there was one job for every three dock workers in the 1850s and one job for every 1.3 workers in the 1890s.

The most convincing evidence that the supply of labour to the gas industry was falling in this period comes not from unemployment estimates, since to be potential recruits to the industry workers need not be unemployed at all. The chief source of labour for the gas industry for this period was from the ranks of agricultural labourers. Here there can be no question that this supply diminished throughout this period. One recent agricultural historian has maintained that farmers themselves 'were faced with a declining and increasingly less elastic labour supply after mid-century.<sup>3</sup> Table 24 shows that between 1851 and 1891 the agricultural sector as a potential pool of labour had almost halved in importance, being 24.4 per cent of total labour force in 1851 and only 14.2 per cent in 1891. Put another way, for every gas worker in London in 1851 there were 715 agricultural workers, by 1891 there were 95. Moreover, census returns give clear evidence that rural migration into London slackened in the second half of the nineteenth century. In 1871, 137,212 Londoners had been born, for example in Norfolk or Wiltshire. By 1901 only 94,053 came from those counties.<sup>4</sup> The significance of this decline in the supply of labour to the gas industry cannot be doubted.

It seems likely that the supply of agricultural labour was behind the lack of wage increases during some apparent boom periods. 1882, for example, the year of

1.	Henry Mayhew, London Labour and the London Poor (1861) Vol. 3 pp.300-312.
2.	Charles Booth, Life and Labour of the People in London (1903) 2nd ser. Yel3 p411.
3.	G. Hueckel in R. Floud and D. McCloskey, The Economic History of Britain Since
	1700 Vol. 1 (Cambridge 1981) pp.199-200.
ł.	E.H. Hunt, Regional Wage Variations in Britain 1850-1914 (1973) p 282



a brief boom in industry, came in the middle of a period of particularly bad depression in agriculture. The reason why gas companies abandoned wage cutting from the 1850s can also now be answered. While in the long run wages did not go above market rates, because bargaining in the nineteenth century was a discrete process it would seem likely that wage increases in the short run might take a level above market rate. After mid-century gas companies abandoned wage cutting in the down-turn of the cycle since there was never the pressure on demand and profits during the slumps which other industries experienced. The savings to be made from wage cuts were small and declined through the period with the proportion wages formed of total costs. Moreover, there was no competition between companies from the 1850s onward as an incentive to cut costs. The main reason for the change of policy, however, would seem to be that while prior to the 1850s companies could count on a pool of suitable labour, even after cutting wages, this became progressively less the case, and the gas industry's ever present need for casual labour to meet the vagaries of the weather and the seasons meant that they chose to stay a little ahead of the market even during periods of bad trade. The situation may be crudely illustrated by Figure 16 which shows a notional long-run supply curve and notional short-run demand curves for various dates in relation to the actual movement in the hourly wage rate.

Finally, the point must be made that the wage rate in the gas industry must have been closely related to the general level of wages prevailing in the economy as a whole. This, however, will not invalidate the above analysis since the macro picture can be seen in many important respects as merely a summation of the micro situation for which the gas industry can be taken as typical, at least with regard to the unskilled labour market.

Turning now to the experience of strikes in the nineteenth century gas industry, it might be asked why strikes occurred at all when collective bargaining was incapable of improving on the market rate. From a large literature many

causes of strikes have been put forward. Strikes have been categorised into (a) those over basic issues of wages and hours; (b) frictional issues such as working arrangements, rules and discipline; and (c) solidarity issues involving issues of union principle. <sup>1</sup> Many separate causes have been identified, including bad living conditions, hunger, bad working conditions, fatigue, the frustration and monotony of the job and the basic inferiority of the workers' relationship with the employer.<sup>2</sup> It has been suggested that strikes are politically motivated, are caused by political extremists or that workers might strike simply to have a holiday, while employers might provoke strikes during slack periods of trade. Some writers stress the irrationality of much strike action and point to the importance of frustration or sheer vindictiveness.<sup>3</sup> Moreover, another writer has suggested that strikes ostensibly over pay are in fact over nothing less than the control of industry and are really attacks on the capitalist system. 4 It has also been suggested that strikes occur simply to keep a union in trim so that its bargaining is taken seriously by employers.<sup>5</sup> An influential school of thought sees strikes as temporary disorders in an otherwise harmonious industrial relations system, 6: that is, strikes occur due to the ignorance by the parties of their opponent's bargaining power and could be avoided where the parties behaved rationally and had accurate knowledge. Finally, the most recent treatment of the subject has emphasized the disparity in the causes of strikes, maintaining that the history of strike action is

1. K.G.J.C. Knowles, Strikes - A Study in Industrial Conflict (1954) p.234.

- 2. Ibid. p.212.
- 3. Mulvey, op.cit. p.86.

 R. Hyman, <u>Strikes</u> (1972) Chapter 5.
J. Hicks, <u>A Theory of Wages</u> (1963).
See A. Flanders, H. Clegg, <u>The System of Industrial Relations in Great Britain</u> (1964) a treatment implicit in the histories of John Lovell, <u>British Trade</u> Unions 1875-1933 (1977) and Clegg, Fox and Thompson, op.cit.

discontinuous, having different causes at different times.<sup>1</sup>

In the face of all this theorising the experience of the nineteenth century gas industry would suggest the following approach. Any analysis of the situation must start from the basis of an ever present conflict of interest between profit maximising companies, who wanted to pay the lowest wages possible in return for the greatest amount of labour from their workforce, and workers who wanted the highest wages in return for the least amount of work. It is assumed that both sides act rationally and that strike action is not taken lightly by either side since the cost of failure for company and men would be too great. It is assumed therefore that strikes arise from the economic conflict which is the basis of the clash of interests between company and worker and that neither side would desire a strike in comparison with achieving its aims without one. The cause of strikes must therefore be seen as a result of a miscalculation on the part of one or both parties. The usual error that is made in making this assumption is to further assume that adequate knowledge of the market and better communications between sides would mean that strikes need not occur. In fact, what makes strikes endemic to the capitalist system is that perfect knowledge of the relative bargaining strengths is never available to the parties. These can only be known when tested in a strike.

Why were strikes in the gas industry so infrequent given the ever present Conflict of interest between capital and labour? The above analysis would Suggest that it was because, for most of the time, the relative bargaining strengths of the sides favoured one side or the other to such an extent as to be obvious to both. Here the cost ratios of a strike must be related to the wage rate. Since, even in the days when gas companies cut wages in periods of bad trade, as well as when they had abandoned this practice, the wage rate was kept a little ahead of the market, the bargaining advantage lay clearly with the

1. James E. Cronin, Industrial Conflict in Modern Britain (1979).

companies. Thus the experience of the gas industry contrasts with that of other industries where wages were cut to a minimum during the slumps and where strikes were just as common in bad times as they were in good. In the gas industry only at the peak of the booms did relative bargaining strength in relation to the wage rate move in favour of the men and was thus called into question. Even then a strike might not occur if the advantage of the men was obvious to the companies, who made upward adjustments to the wage rate without a strike. This happened on many occasions including 1825, 1865, 1871, 1889, 1898 and 1911.

Yet the boom years of the trade cycle were the occasions when miscalculations as to bargaining strength were most likely to be made, and strikes occurred in 1825, 1834, 1846, 1859, 1872 and 1889. One point needs to be cleared up here since the strikes of 1834, 1872 and 1889 seemed to be over issues of union membership rather than wages and hours and therefore not susceptible to the above analysis. It seems likely, however, that union membership was only a superficial cause of strikes. It would not be rational on the part of the workers to value union membership for its own sake as was shown when they deserted the union of their own accord in the 1890s. Nor, it seems likely, did the companies oppose union membership among their men as such. It is probable that both sides saw the union as representative of the bargaining power of the men in terms of further gains in wages, hours, or even a reduction in the disciplining power of the foreman. The pattern emerged in 1872 and was repeated in 1889 whereby gains in wages or hours were made without a strike and, indeed, in 1871-2 without a union. The union then played a major role in trying to extract further concessions and it was during this period, often over relatively minor demands in fact Sunday working on both occasions - that the strikes, ostensibly over union membership, occurred.

One question remains. Why did the gasworkers lose every major strike they undertook? The above analysis would argue that the men constantly misjudged their strength. From the beginning of the industry, for example the bricklayers in 1817, the men kept an acute eye on the state of the labour market, 1 but to some extent the length of the queue of casual labour at the gasworks'gate was their only and rather unreliable guide. They were often prepared to strike, not out of irrational motives but because they could see that the company was having difficulty recruiting new labour. What they could not know about was the situation in the countryside and the ability of the companies to bring in agricultural labourers in large numbers from far afield. Another understandable source of error, and one which surprised the men on a number of occasions, was the extent, not to say ferocity, with which the companies acquired assistance from the authorities: the police, the courts, local and central government and from other companies. The final point to be made is that on occasion, notably in 1889, the strike involved miscalculation on both sides. If the strike had cost the £40,000 the South Metropolitan Company had originally set aside it might have paid for itself. In the event, the company and their leader misjudged the strength of the men and the state of the labour market and the strike was a financial disaster.

Turning finally to the experience of unionism in the gas industry, attention has centred on the rise of the national union in 1889. The most

 There is no evidence in the gas industry that workers had to learn to charge 'what the traffic would bear' and that even skilled labour did not do so until the mid-nineteenth century. E.J. Hobsbawm, 'Custom Wages and Work-Load in Industry,' in A. Briggs and J. Saville (Ed) Essays in Labour History (1960) p.115.

challenging thesis to account for this 'remarkable and extreme example of the rise of trade unionism' suggests that it came about as a result of intensification of work in the London gasworks prior to 1889. There had been no union up to that date, it is suggested, because gaswork was extremely casual and because of the 'deadweight of tradition and convention!'among the stokers. Evidence of the role of speed up comes from the fact that the men's demand was for shorter hours and statistical evidence is offered in that, taking 1874 as equal to 100, coal carbonised in the London gasworks had risen to 187 by 1888 while wages at constant rates had risen to only 147. Without technical change the work, that is, had increased in a greater proportion than the number of mer..doing it. The trade boom of 1888-90 and the organising work of the socialists were contributory factors.

This theory is unsatisfactory on a number of counts. Even at first glance it hardly seems credible that the growth of the dockers' union would have occurred by chance in the same year as that of the gasworkers', which would have had to be the case if the rise of the latter union was due to a factor peculiar to the gas industry. Moreover, the role of speed up in the London gas industry is not proven. The fact that the men demanded shorter hours in 1889 is of little relevance since they did so in 1859, 1867 and 1872.<sup>2</sup> A more detailed look at the statistical evidence also causes doubt. Table 25 shows the wages per ton of coal carbonised for the three London companies from 1872-1888 and confirms the increase in productivity from 1874 to 1888. The first point to be made is that there was some technical improvement. The use of producer gas to fire furnaces reduced the number of firemen required somewhat, while there was some stoking machinery in use prior to 1889. Secondly, if the time period is reduced to one which may more realistically be said to have a bearing on

E.J. Hobsbawm, Labouring Men (1964) Chapter 9.
For an analysis of working hours see M.A. Bienefeld, Working Hours in British Industry: An Economic History (1972). Workers' use of bargaining power to increase leisure as opposed to wages is seen as a function of increased living standards and fear of unemployment due to technological change.

# TABLE 25

Wages in pence per ton of coal carbonised in various gas concerns 1872-1888.

Year	Gas Light and Coke	South Metro- politan	Commercial	Birmingham	Manchester	Newcastle
1872	37.1	49.9	40.4			
73	42.5	52.3	45.2			and the second
74	38.8	50.5	40.3			
75	36.7	44.0	41.9			
76	34.5	42.7	44.7			
s <sup>™</sup> 77	34.7	42.2	43.8			an a
78	34.4	42.2	43.1			
79	33.1	36.9	41.9			
1880	32.6	34.7	42.0			
81	32.2	33.6	41.1			
82	32.3	33.6	40.0			
83	32.9	32.2	40.0	27.0	27.0	27.7
84	32.4	31.8	35.7	25.1	27.4	26.8
85	32.3	31.6	33.7	23.3	27.8	26.3
86	32.6	31.7	35.3	22.9	27.4	27.3
87	32.0	31.8	33.0	22.3	26.8	28.3
88	32.5	31.1	33.8	22.6	26.6	28.0

# Source:

Field's Analysis

events, back say to 1880, while there is still evidence for speed up at the South Metropolitan and the Commercial there is none at the Gas Light and Coke the company where the union began. Again, if the picture is widened, while there is evidence of speed up in Birmingham in the 1880s there is none for Manchester and Newcastle, both locations of the spontaneous growth of unionism in 1889. Moreover, since the men of all the companies claimed, and some companies admitted, that more work was being done in 1889 than ten years previously this is in itself of little relevance since increased work was a common complaint of the men throughout the nineteenth century and certainly during the eight hour agitation of 1867. Figure 7 shows that on the basis of statistical evidence, the men had far more grounds for complaint in earlier years than they did in 1889. Clearly, putting extra work on the men can be assumed as a constant factor throughout the period and cannot explain the rise of a union in 1889 rather than at any other time.

How then is the rise of the national union to be explained? To begin with, as was suggested in Chapter 11, a lot of mythology surrounding the growth of the so-called New Unionism of 1889 needs to be stripped away. From the standpoint of the ordinary gasworker the union had a lot in common with previous unions in 1834, 1859 and 1872. It lasted longer than the others but eventually it too succumbed. The major factor in common was their rise at the peak of the trade cycle and this was undoubtedly the major factor in the timing of the appearance of the 1889 union. The union had two significant differences from its predecessors. Firstly, it was seemingly successful in achieving a major concession from employers. Here, however, it has previously been argued that the union did not gain more than was indicated by market forces. Secondly, although not in the London gasworks, it survived as a national institution, indeed to the present day. This was the only significant difference between

the 1889 union and those that went before and why it survived is the only question that really needs answering.

In tackling this question it is vital to see trade unions as separate institutions run by full-time officials with different motives from the workers who choose to subscribe to them in return for the services provided. Chapter 11 showed that the 1889 union survived by becoming national in scope, a further difference from its predecessors, and by attracting a continual turnover of membership. The reasons it was able to do this where no other had done so before can be analysed by looking at the supply and demand for the union's services. On the supply side three factors seem relevant to the 1889 union. Firstly, improved and cheaper communications had made a national union more viable by 1889. Secondly, the potential market for an unskilled workers union had expanded by the last decade of the nineteenth century in the sense that there were simply more gasworkers, dockers and building workers than there had been previously.<sup>1</sup> This inevitably brought down the unit cost of membership, which partially accounts for the ability to charge a lower subscription rate in 1889 than in previous unions. Thirdly, the 1889 union survived its initial stages because it won its early battle and was thus able to offer its services to succeeding groups. This relates the union's survival to the bargaining power of the men in 1889 being greater than it had been previously.

Quite rightly, the demand for union services has received the most attention. Many writers have related this closely to the fluctuations of the business cycle<sup>2</sup> either as a result of prosperity or due to the threat posed to living standards by rising prices.<sup>3</sup> Another economist has put forward the idea that 'disasters' like wars and severe depressions promoted union growth<sup>4</sup> or that the nature of union leadership had an influence.<sup>5</sup> Other writers have suggested the importance of

Clegg, Fox and Thompson, op.cit. p.88 make this point.
G.S. Bain and F. Elsheikh, Union Growth and the Trade Cycle (1976) p.5.

- 3. Ibid. p.8.
- 4. Ibid. p.18.
- 5. Ibid. p.21.

political motives. Indeed, the 1889 'New Unionism' has always been inextricably bound up with the rise of socialism, and what is known of the preoccupation of the early leadership with their political careers and the political activities at branch level might suggest that politics was a factor in recruitment. Yet it seems clear that, whatever they did when in the union, members joined it originally for industrial reasons. Recent econometric studies have discounted the political variable<sup>1</sup>, and the clear correlation between unemployment and the level of union membership noted in Chapter 5 would only make sense if industrial considerations were paramount. The analysis earlier in this chapter would suggest that the impact of unemployment on union membership is most likely to operate through its influence on the supply of labour and therefore on the bargaining power of the unskilled workforce. The hypothesis suggests that the secular decline in the supply of unskilled labour led to an increase in the bargaining power of the unskilled sufficient to enable some groups to bargain even during the downturn in the short run trade cycle. The demand for union services came, therefore, from various groups of workers even during the slump of the mid-nineties and this allowed the union to survive. The increased bargaining power probably worked in two ways: firstly, as a permissive factor, since it meant employers found it more difficult, risky and potentially costly to crush a union. Secondly, the increased bargaining power of the men inevitably led to an increase in the demand for the services of a union, which were closely associated with the bargaining process. It is important, however, to clearly delineate causality: it was increased bargaining power which led to increased union membership and not, as is usually assumed, the reverse. Nor was increased power a sufficient condition for union membership. Where gains

1. Ibid. pp.85-86.

could be made without paying for the services of a union, as they were by the London gasworkers in 1898 and 1911, this was done. The final factor relevant to the increase in the demand for union services among the unskilled at the end of the nineteenth century was the somewhat neglected one that the men were better off than they ever had been. This meant that they were better able and more prepared to pay the union subscription, a vital factor so often overlooked in analysis of union growth.

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### <u>Public</u> Records

P.R.O. H.O. 45 9326 18243/34 P.R.O. F.S. 7/9/365

### Company Records

These are remarkably complete and usually include the minutes of the Board of Directors meetings and often the minutes of any sub-committees, the annual 'shareholders reports and sometimes the balance sheets. They are housed in County Hall, London for all the metropolitan gas companies except that of the City Company which is held at Guildhall.

#### Trade Union Records

These are extensive, although there are significant gaps in the early years. They are kept at the Library of the GMWU, Thorne House, Esher, Surrey.

Half Yearly Report and Balance Sheets of the National Union of Gasworkers and General Labourers from 1889.

Reports and Minutes of the Biennial Conferences from 1904.

Original Minute Book of National Union of General and Municipal Workers containing minutes of the 1887 union and the 1889 union to 1890.

General Executive Council Minutes from 1904.

London Delegate Meeting Minutes from 1905.

Minutes of the Barking Branch of the NUGGL in the possession of the present branch and continuous from December 1903 with a break from May 1906 to September 1912.

In addition, some <u>Reports</u>, <u>Balance Sheets</u>, <u>Rules</u> and correspondence are contained in the Webb Trade Union Collection, British Library of Political and Economic Science.

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### Oral Sources

Oral history still seems to arouse some suspicion among historians. The point, however, has been well made that the taped rememb rances of the living need be treated with no more nor less circumspection than the written memoirs of the dead and that much documentary evidence, evidence of Royal Commissions, for example, is no more than printed oral testimony. (See P. Thompson, <u>The Voice of the Past:</u> <u>Oral History</u> (Oxford 1978) Chapter 2.) In this history care has been taken to back up the use of oral sources, where possible, with printed evidence or oral evidence from a different respondent. The interviews are in cassette form in the possession of the author and are available to be consulted. The interviewees were as follows:

Cassette No. 1 Ted Green - b.1922 son of an East End tailors' cutter. Left school at 14 and had various jobs as van boy and crane driver. Entered Shoreditch gasworks in 1950 and became a boiler stoker. Worked also at Poplar, Rotherhithe and East-Greenwich and was active in the union at works and district level. (Interviewed 11.3.1978.) Cassette No. 2 <u>Alfie Blundell</u> - b.1905 followed his father as a purifier at Beckton in 1919. Became a shop steward and retired from Beckton in 1969. (Interviewed 22.3.1978.)

Cassette No. 3 <u>Bob Lawrenson</u> - b.1912 grandfather was gatekeeper at Beckton, father a docker. Started at Beckton aged 14 and became a machine stoker. Served as a shop steward and rose to rank of carbonising foreman. (Interviewed 29.3.1978.)

Cassette No. 4 <u>George Hollingsworth</u> - b.1904 son of bricklayers' labourer. Started at Beckton aged 14 and became a machine stoker. Shop steward and one of the leaders of the union at Beckton. (Interviewed 29.4.1978.)

Cassette No. 5 Ted Coley - b.1894 son of gas stoker at Beckton and started there himself in 1911 working on the works' railways. (Interviewed 13.5.1978.)

Cassette No. 6 <u>Ernie Blewitt</u> - b.1893 son of a horse-keeper at Beckton. From 1911 served apprenticeship as carpenter at the works and became a shop steward of the carpenters at Beckton. (Interviewed 13.5.1978.)

Cassette No. 7 <u>Ted Ive</u> - b.1919 son of brickies' labourer. Obtained a scholarship to grammar school and started as a clerk with the GLCC in 1936. Labour Officer at Beckton in the 1950s. (Interviewed 15.5.1978.)

Cassettes Nos. 8 and 9 <u>Tom Hall</u> - b.1900 son of a policeman. Started at Beckton in 1918 and became a loco driver. Active in the union at works, district and national level. (Interviewed 17.6.1978.)

Cassettes Nos. 10 and 11 <u>Reg Schmidt</u> - b.1908 grandfather a German immigrant worker at Fulham gasworks, father worked at Fulham and started at Fulham himself in 1926 becoming a coke delivery driver. Became and still is branch secretary of Fulham Branch of GMWU. (Interviewed 24.6.1978.)

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