

London Artisans and its old artisans – millwrights 1775-1825¹

Dr. J.G. Moher - January 2016

Part 1

Abstract

Set in the late eighteenth/early nineteenth century metropolis and its environs, this is a study of a small but pivotal group of handicraftsmen, the London master and journeymen millwrights. These mechanical handicraftsmen, harnessed the power sources of those times, mill-wheels and engines driven by water, wind, animal and 'fire'. The nature of the craft is examined in its specific setting of the London region's services, manufactures and industries of the 1770s onwards, using new original sources derived from research into the changing technology of the trade.

Although a tiny group, these handicraftsmen attracted one of the first attempts by Parliament to suppress a trade 'combination' by law in 1799, signifying a deeper importance than has previously been appreciated. This study reveals the enormous impact of the millwrights' trade club activities on the London region's early brewing, distilling and other manufacturing industries. **Part 1** examines the technology of the late eighteenth century millwrighting craft. It then traces the course of the industrial and political struggle between the masters and journeymen which culminated in the masters' and their 'employers' campaign for a Bill to suppress the Journeymen's Society in 1799.

Part 2 takes the story on to the early decades of the nineteenth century, disclosing the continuing industrial battles and Parliamentary struggles for supremacy in the emerging London engineering industry, culminating in the repeal of the journeymen's key apprenticeship guild laws. The outcome, was the replacement of the medieval master and journeymen system, with its shared control of key features of the trade, by modern employer/employee relationships based an *engineers' economy* of individualized terms and conditions. The millwrights case illuminates a similar transition in many other trades of that time in such corporate towns and cities as the London of those times.

Part 1

Introduction

The millwrights were a pivotal group, regarded as 'to a great extent the sole representative of mechanical art'² in the eighteenth century, harnessing the power available to industry before the steam age took over. Learning more about this group sheds new light on the industrial and social life of that time including changes in the technology of millwrighting which had a wide commercial significance. Frederick Lee's *The Miller's Boat*³, captures the usual picturesque image of the rural sites where the early millwrights worked. **(illustration 1)**. William Fairbairn (1789-1874), **(illustration 7)** romanticized somewhat about the 'country millwright', which he described as having 'the character of an ingenious, roving, rollicking blade, able to turn his hand to anything':

He could handle the axe, the hammer, and the plane with equal

skill and precision; he could turn, bore, or forge with the ease and dispatch of one brought up to these trades, and he could set out and cut in the furrows of a millstone with an accuracy equal or superior to that of the miller himself.⁴

There is no doubt, however, that they were the most ingenious and superior-skilled mechanical handicraftsmen of their era. Small clusters of them began to appear around the metropolis from the early 1700s, employed in the breweries, distilleries and waterworks then developing in the metropolis. 'Mill Wrighting' was described in a book describing the main occupations in the City in 1747, as 'a branch of Carpentry (with some assistance from the Smith)', requiring 'a good Turn of Mind for Mechanics, at least to have some knowledge in Arithmetic'. They specialized in the

great variety in Mills, as well in the structure and Workmanship of them, some being worked by Horses, some by Wind, and others by Water shooting over and others by its running under. And why not in Time by Fire too as well as Engines? ⁵

At Old London Bridge, a Waterworks Company employed millwrights to install and maintain its waterwheels in the arches, harnessing the power of the Thames for pumping water to City residents and industries from at least 1701 until their removal in 1822. Other large establishments of the time, especially the multitude of breweries and distilleries, had their manufacturing processes powered by horse-driven wheels and trains of millwork (smaller cogged wheels and shafts). They all required the services of millwrights to design, make, install and maintain these heavy, mainly wooden, mechanisms. Most mill wheels and millwork were far smaller than the London Bridge ones. Our 1731 engraving (**illustration 4**), gives a clear picture of all those large wooden structures. However, it is not to be expected that all the journeymen and apprentices assisting the master millwrights had all the skills of the

'country millwright' which Fairbairn described. Judging by the *Pricebooks* of the masters and the *Rulebooks* of the journeymen, the London millwrights were more makers and installers/maintainers of the heavy wooden machinery of those days, as we will see, though some of the more able ones would also be sent around and beyond the metropolitan area to repair and erect all kinds of mills – wind, water or horse-driven. Sir John Rennie, the engineer who completed the new London Bridge in 1831, trained at his father's Blackfriar's millwright's works with his men and though critical of their combining activities and practices, saw their ability 'to direct others and superintend mechanical works', as what made them stand out from other handicraftsmen.⁶

It was a trade undergoing major technological change to meet the vastly greater power needs of the early industrial revolution. Iron was being used increasingly and larger, more efficient wheels and millwork were being introduced with more scientific engineering methods used to 'calculate the velocities, strength and power of machines'.⁷ They were the first to erect and harness the early eighteenth century 'atmospheric' engines with their massive wooden frames (**illustration 2**) and these engines, though still crude by later standards, were already posing new challenges which was making engine-wrighting a more specialized craft.⁸

The traditional small master with a couple of journeymen and a few apprentices whose handicraft skills were based on long apprenticeship training and 'rule of thumb' methods, was facing competition from a new breed of technically advanced masters, deploying their workforces on more

specialized aspects of the craft – machine-making, making wheel-patterns, chipping and filing cast-iron wheels and millwork components, making and dressing millstones – though they still had to pay all their journeymen the same rates. We will trace this evolving tension between these different types of millwrights/engineers and their employers and how it affected the wider metropolitan industry and society of that time.

‘the age of the millwright’

It used to be thought that as soon as James Watt (1736 -1819), invented his steam engines in the late 1760s, the new power simply swept away the old world of horse/wind/water-power and wooden machinery. It is now accepted that the early Watt engines and those of his many rivals, required decades of improvement technically, operationally (there were many breakdowns) and especially cost-wise, before they proved a real alternative to the older forms. Water-power especially was much cheaper (after the initial outlay) and lasted decades. Water-wheels were usually more reliable and delivered a smoother rotary motion and had much lower maintenance costs. Steam-engines required much higher capital outlay, including the costly coal and needed regular mechanical attention. The early engines were mainly used for pumping water (out of mines), as their reciprocating motion was not suitable for most manufacturing processes.⁹ So, most manufacturers simply changed their water-mills from corn-grinding to other uses such as tobacco & snuff-making, mustard-making, dyeing and paper-making. Every mile of London’s rivers, especially the Brent, Colne, Lea, Ravensbourne, Wey and Wandle, (also the Thames above Hampton bridge), were covered with such mills.¹⁰

John Smeaton, (1724-1792), a scientific instrument-maker of Grays Inn and Leeds, turned water-power Engineer, was the leading British mill designer and constructor from the 1750s until his death. He concentrated on improving water mill-wheel technology because he doubted whether steam-engines could ever deliver the necessary smooth rotary motion required by most manufacturing processes.¹¹ He improved the productivity of water-wheels immensely through improved designs, such as, directing the water to 'overshot' and 'breast' points of the wheel, instead of to the traditional 'undershot' point. He engaged the most technically-advanced master millwrights to build and install these improved wheels and millwork all over the country, including Thomas Yeoman (1708?-1781) of Westminster, Joseph Nickalls (1725?-1793) of Southwark, James Cooper (d.1801) of Poplar and John Rennie of Blackfriars.¹² He left an extensive portfolio of designs, drawings and reports on all these structures which were published in 1792 and became a manual for advanced millwrights.¹³ John Rennie and other ingenious millwright/engineers, took matters further from the 1780s, especially with re-shaped and reconfigured iron millwork gear wheels with teeth of hardwood.¹⁴ **(illustration 8)**

It is also now generally accepted that the early industrial revolution in Britain was mainly powered by water, so much so that some authorities have called it 'the age of water power'.¹⁵ If so, it was also 'the age of the millwright'. Fairbairn thought that it was the steam-engine which 'proved a heavy blow to the distinctive position of the millwright', but as we will see, this was a later development.¹⁶ In a general way, it did so by hastening the switch from wood

to iron and the development of the tools and power to fabricate that material more precisely and in more quantity than laborious hand-work could ever do. But until the first decade of the nineteenth century, groups like the London millwrights were not affected by this. They still had plenty of water-powered mills and other works where they controlled the supply (and price) of handicraft labour.

The metropolis - London, Westminster and Southwark

The millwrights' metropolis, was captured best by Samuel Smiles:

[It's] northern threshold was at Hick's Hall in Clerkenwell. Somers Town, Camden Town, and Tyburnia were as yet green fields; and Kensington, Chelsea, Marylebone, and Bermondsey were outlying villages. Fields and hedgerows led to the hills of Highgate and Hampstead. The West End of London was a thinly-inhabited suburb. A wide tract of marshy ground extended opposite Lambeth. The westernmost building in Westminster was Millbank... Oxford Street from Princes Street eastward as far as High Street, St. Giles's, had only a few houses on the north side. ... Paddington was 'in the country', and the communication with it was kept up by means of a daily stage - which was heavily dragged into the city in the morning, down Gray's Inn Lane, with a rest at the Blue Posts, Holborn Bars, to give passengers an opportunity of doing their shopping. **(map illustration 5)**¹⁷

However, they ranged much further afield. The Millwrights Combination Bill of 1799 sought to establish a jurisdiction of wage-fixing in the trade to 'within the metropolis and twenty-five miles around' (see below). From Charing Cross, this would have reached Guildford, Watford, Maidstone, Dartford and beyond. This area included a number of considerable milling and manufacturing centres whose horse, water and wind-mills were serviced by London millwrights.

A list of the eighteen names of the Master Millwrights Association members and addresses in 1794, shows the spread of their workshops across the

metropolis as far as Dartford and this gives an indication of where the journeymen might also have resided.¹⁸ This is by no means an exhaustive list as many smaller firms would not have been members. Ten years on (1805), we will meet a slightly different list of masters remaining around these areas, though with some moving south of the river to Bermondsey, Greenwich and Battersea, where the new mechanical engineering firms were beginning to set up.

William Fairbairn's account of his journey across London, seeking work after arriving from Newcastle in 1811, also gives us a vivid contemporary picture of the eastern part of the capital. He arrived at Shadwell by ship in November. So crowded was the Thames estuary then, that their ship had to wait a day before it could move up to the Pool of London. While waiting, he walked all over the east end, and eventually got to Rennie's workshop near Blackfriars bridge. Though a fully-trained millwright from Scotland, then working as an engine-wright at Percy Main colliery, Newcastle, and taken on by 'mighty Rennie' himself (see below), the 'indentures' he presented were discovered not to be 'in order' by the Journeymen Millwright's Committee (he afterwards admitted that he had crudely forged them). So, he was turned away and had to tramp off around London to get a job. He and his fellow millwright, set off north, *walking* 'as far as Hertford, through rain and sleet, and over roads nearly impassable' (eight hours), where they sought work from a master millwright, who had no vacancies. They traipsed off to Cheshunt 'about ten miles off, where a person from Chelmsford was building a windmill, and in need of hands'. They got a fortnight's work there. Fortunately, they bumped

into a Durham millwright they knew who was secretary of an 'Independent Millwright's Society', who weren't so strict about apprenticeship requirements. They joined the Society and got work immediately in Shadwell at a Patent Ropery at 7/- a day. Fairbairn later worked at the engineering works of Penn's of Greenwich until the spring of 1813, when he left 'the great metropolis' for non-corporate Manchester, where he made his fortune as a millwright/engineering employer.¹⁹

The Thames was then the great waterway of a rapidly expanding industrial nation, a carriage-way for its heavy and bulky raw materials (coal and iron), and a huge contributor to the wealth generated. This was also the era of the great chartered companies whose vessels, 'presenting a double forest of masts', (Smiles), crammed the Port of London from London Bridge to the Tower. The sails of East and West India and other merchantmen off-loaded sugar, tobacco, spices and a myriad of other materials from the colonies (where millwrights' pay was at a premium for those prepared to go and build/maintain the mills there). Britain then had a ban on exporting machinery to the continent but there was a brisk illegal trade to France, Belgium and those parts where industrial development was following the British model. Many individual millwrights and engineers went with the machines to erect and maintain them on premium rates of pay.

At this time, the enclosure of the massive docks area was beginning to transform the area from London Bridge to Tower Bridge and further east. Rennie had a team of millwrights working on the heavy timber dock gates for

the East India and London Docks contracts in 1805, where he was the civil engineer in charge. It was also the age of canal mania with the Grand Junction opening up the north west of London for goods in transit to the Midlands and the Kennet and Avon canal (Rennie did the still spectacular series of its locks), linking to Bristol and the west country.

Millwrighting services and manufactures

1. Water

The capital's burgeoning population - from 674,000 in 1700 to 1,274,000 in 1820 - caused the massively expanded requirement for food, fuel and shelter. Their first requirement was water. A number of private waterworks companies delivered water to residents and industrial users - London Bridge, York Buildings (the Strand) and Chelsea (Victoria station) companies, Shadwell and the 'New River' Company (Clerkenwell). The London Bridge Waterworks and the Eastcheap area seems to have been main centre of the journeymen millwrights.

A massive bridge mill had been pumping water from the Thames to the City and Southwark for centuries (its two wheels burnt down in the Great Fire of 1666), and by the end of the eighteenth century it dominated the bridge's arches and navigation. The wheels on the southern end (near Tooley Street), had also been used to grind corn until the late 18th century, but at this stage solely for pumping water to Southwark. A contemporary print shows the old bridge with waterworks wheels protruding at the north end, in 1795 (**Illustration 3**).The private London Bridge Waterworks Company operated

them for the Corporation of London, who controlled the river navigation and bridge. A senior City councillor sat on the Board. They employed a permanent staff of three millwrights, and about a dozen extra ones when replacing the six huge wheels and millwork between 1784 and 1796. They were managed by the Company's Chief Millwright and Engineer, John Torr Foulds (1742-1815)–

2. Flour and bread supply

Millwrights had a crucial role in harnessing the power-supply for grinding the grain. Continued harvest failure or severe dearth throughout the 1790s had driven up prices enormously (and wage demands). Prices of grain jumped from a range of 48 to 53 shillings a quarter in 1790 to 81 shillings in 1795 and averaged nearly 114 shillings a quarter from 1800.²⁰ It was the key economic background to the militancy of the capital's journeymen's trade clubs, including the millwrights, as they struggled to maintain their standard of life and social prestige and it was a major source of public discontent and concern for the City authorities. The corn was provided by a vast number of millers and middlemen, chiefly from Essex, Berkshire and Hertfordshire and was ground in mainly small and medium-sized flour-mills along the Thames and its tributaries. Traditional water mill technology and wooden millwork is likely to have remained the rule in the vast majority of these mills, well into the nineteenth century, providing regular work for local millwrights.

An attempt by a consortium of businessmen to capture much of this trade by building a huge six-storey flour mill on the south side of Blackfriars Bridge, **(illustration 9)**, caused great controversy in the late 1780s. The promoters

planned to install three of the most powerful new *rotary* steam engines then being developed and to harness the power with the most advanced *iron* millwork to drive up to twenty-four millstones for grinding the corn.²¹ Boulton & Watt brought in John Rennie (1761-1821) (**illustration 8**) as foreman millwright to supervise the installation of their engines and introduce the most systematic use of iron millwork for the time. Then aged 23, he had learned his craft in the workshop of one of the most inventive Scottish millwrights on agricultural machinery, Andrew Meikle, on the Rennie family farm in Phantassie, East Lothian, (about twenty-six miles from Edinburgh). While erecting mills and millwork in his vacations round the Lothians, from 1780, Rennie received a university training in scientific and engineering principles 'at the feet of' two eminent scientists in Edinburgh, Professors Joseph Black and John Robison. It was Robison, who recommended him to his friend James Watt for the key Albion Mill job.²²

Rennie's move to London in November 1784 was to be a most significant development for the technological standards of the trade. Watt and Rennie were always critical of the standard of the 'all-round' London millwright scene (masters *and* journeymen). Although Rennie is better known as a civil engineer,²³ no rigid demarcation existed then and he developed a strong millwrighting firm at Blackfriars. He therefore applied those most advanced principles to the much larger and more complex power transmission challenges then being posed by the advance of industry.

The Albion Mill engines and millwork weren't operational until 1786 and

Rennie left in 1788 after rows with the main proprietor, to set up on his own nearby. In 1791, the mill burned to the ground in a huge conflagration (with some suspicion of arson), to the great joy of the millers and 'mealmen' all over the Home Counties. The industry still remained reliant on the hundreds of small to medium-sized water-mills for decades. Nonetheless, the venture established Watt's rotary engines and Rennie's pioneering use of iron millwork as the future of mill technology. Rennie always regarded it as his masterpiece and often sought to have a Flour Mill revived there.²⁴

(illustrations 10 and 11)

3. Beer

This was a far safer brew, one which most people drank regularly at home as well as in taverns and workplaces ('watering time' was a traditional afternoon half-hour break of all journeymen). Accordingly, the myriad of breweries (and distilleries) of the metropolis were probably the largest employers of millwrights in London, usually as contractors, though some of the larger ones may have had permanent millwrights.

For many decades, **John Cooper** (c1742-92) of **Portpool Lane, Holborn**, seems to have had the millwork contracts for most of the larger breweries - **Whitbreads**, (Chiswell Street); **Trumans**, (Brick Lane, Spitalfields); **Calverts**, (Shoreditch); **Gyffords**, (Long Acre); **Meux Reid** (Clerkenwell) and **Combrunes**, (Barbican). Other large brewers such as **Barclay, Perkins & Co's** Anchor Brewery at Southwark and **Henry Goodwyn, Skinner & Thornton's** Red Lion Brewhouse, in Smithfield, were prominent employers of

millwrights and many other craftsmen (coppersmiths, blacksmiths, masons and carpenters). The Master Millwright *Pricebooks*, which have survived, show all the prices of millwork components' made by millwrights in 1794.²⁵

From the mid 1780s onwards, the major London brewers began to replace their horse-wheels with steam-engines and it was the task of millwrights to harness the new improved Watt's engines to the existing wooden machinery with millwork. Henry Goodwyn led the way in 1784, with a small 4 horse-power engine harnessed to the existing wooden millwork. Goodwyn wanted his own millwright, **James Cooper of Poplar** (John's brother), to do the conversion, as he knew the brewer's business intimately. It worked well and soon Whitbread's and all the other brewers went over to steam as the prime mover, while retaining their traditional mainly wooden millwork (and their four horses) for some time. Of the twenty-seven engines installed by the Cooper brothers between 1784 and 1799, sixteen were for brewers and three for distillers (other manufacturers - lead-makers took three).²⁶

John seems to have been the leading master millwright in London during the 1770s and '80s. He was invited to become a member of the elite Smeatonian Society of Civil Engineers (though, in the artisan section). He was also a prominent City figure, being Master of the Turner's Company and a member of the Corporation's Livery. An indication of his substance can be seen from his will. He left his premises in Holborn and £1,000 in legacies for his wife, Lucy, and children. She carried on the business for a time after his death.²⁷

The younger brother **James of Poplar**, (17?? – 1801), who had served his time to their father, a millwright, was also invited to join the artisan section of the Smeatonians in 1780, seen by the historian of the Society, Professor A.W. Skempton, as ‘evidence of the status of this important but neglected group of engineers’.²⁸ He had a substantial ‘manufactory’ near the West India dock gates making millstones, cogs and other millwork components for sale as well as in his own practice. He installed seven of their Boulton & Watt’s brewery engine conversions. His correspondence with Watt, shows a close collaboration on the technical problems arising with each installation, problems of layout and design to integrate the powerful engines with the existing machinery. It includes drawings showing considerable draughting skills and a sound technical knowledge. This is confirmed by his 1788 patent for an invention of a novel kind of waterwheel for tide mills (there was a number of them in the Thames estuary). He also devised new machinery for many of their clients, for example, a mashing machine for Gyfford’s brewhouse in Long Acre in 1796. The best indication of his standing is that Rennie was willing to go into partnership with him in the 1790s, though that didn’t materialize.²⁹ He was an active member of the Master Millwrights’ association, particularly in their lobby for the Millwrights anti-combination Bill of 1799. In his will of 1801 he left dowries of over £4,000 (= c£492,000).³⁰ His son John inherited the business at Poplar, but it was put up for auction in 1805, comprising a nine-bedroom premises, ‘an extensive Millwrights’ Manufactory’ and other buildings. He probably employed forty to sixty journeymen and apprentices.³¹

Another, Cooper, **Thomas of Old Street**, is mentioned in the Boulton & Watt papers in 1793, as one of those 'who have been most concerned where our engines have been and know the work'. He seems to have been John's nephew, though the precise relationship is uncertain, save that he served his apprenticeship with him from 1773-'81, which would date his birth around 1759.³² He probably took over John's connections from 1792. He also became 'free' of the Turner's Company and is described sometimes as 'Citizen and Turner' but also 'the Master is a millwright and lives in Old Street'. He appears in the London trade directories as 'Millwright and Washing-Machine Manufacturer' from 1799 continuously until the 1830s. He was also active in the Master Millwrights Society, being Treasurer during the 1805 dispute.³³

These family connections undoubtedly show that it was, to an extent, an hereditary trade, though in the London area, the variety of masters names in the 1794 and 1805 lists (**illustration 5**), and of journeymen of 1799, belie un-researched generalisations. The Webbs were very hostile towards the early journeymen's clubs, described the millwrights as 'an almost hereditary caste' with a 'virtual monopoly' of the craft for themselves and their elder sons.³⁴ The Rules of the Journeymen's Society did exempt the senior son of a millwright from the requirement of formal apprenticeship indentures, but matters were far more complex in London.

From this brief survey of these vital service and manufacturing industries of the capital, the importance of this power-harnessing trade can be better appreciated. We turn then to the operative side of the trade.

The London journeymen millwrights

By the 1780s, quite a number of journeymen and apprentices worked in master millwrights' workshops like those of the Coopers or directly for large establishments such as the London Bridge and other waterworks companies, servicing manufactures all over the metropolis and its environs.

Although they did not have their own City Guild, these journeymen (and some small masters) were steeped in the old London craft-guild traditions and highly organized, from the 1770s. This was a highly regulated craft, where the long-serving apprentice had to be certified by legal indentures on completion of a lengthy term. As a journeyman, he travelled, often on foot, all over the Metropolis and for many miles around and had to be able to produce those indentures to show his entitlement to practice this trade. Enforcement of these *legal* apprenticeship rules, based on the '5th Elizabeth c.4' of 1563, was to control the supply *and* price of skilled labour, the key purpose of all journeymen trade clubs then. When he came to London in 1811. Fairbairn experienced this at first hand at "almighty Rennie's"

the Millwrights however were governed by a Committee chosen from amongst themselves, who always deputed a subcommittee to attend every Saturday night at the pay table or in an adjoining Room of the Master Millwright who employed them in order to examine the indentures of every new man who had been taken on at the beginning of the work and if his indentures were not strictly correct they immediately gave notice to the manager of the Establishment that unless the workman who had been engaged and had not correct indentures should be discharged at once they would all strike and would not return to work until this was done. There was no use in resisting this demand for in fact they were all-powerful and they knew it, good workmen in those days were so few that they could not be obtained elsewhere and therefore the Masters were obliged to submit however unreasonable their demands of the millwrights and as the Masters were obliged to recoup themselves by extra charges to their Employers

Millwright work was extremely dear, but even with this, it was more economical than the old system.³⁵

Fairbairn also left us a vivid description of the more positive side of their Society as he recalled that well before the *Mechanics Institutes* of the 1820s, the millwrights had their own system of training – their own ‘*Millwright Academies*’. It is worth quoting for the flavor it gives of the times:

Their meetings were generally held at a public house on Saturday evenings, and many were the times when long discussions on practical science and the principles of construction were carried on between rival disputants with a fiery eagerness which not infrequently ended in a quarrel, or effected a settlement by the less rational, but more convincing argument of blows... On more peaceful occasions however, it was curious to trace the influence of these discussions on the young around, and the interest excited by the illustrations and chalk diagrams by which each side supported their arguments, covering the tables and floors of the room in which they were assembled.³⁶

Their rulebooks show an elaborate system of democracy for governing their Society in which all journeymen were obliged to take part.³⁷ **Illustration 14** has the front and back pages. A permanent committee of eleven members were ‘chosen..by ballot’ every six months (and expected to serve on pain of a fine of five shillings) to run the affairs of the Society. They were required to attend all meetings of the members, absences attracting the hefty fine of 2/6d. All complaints were to be in writing.

As well as the traditional wooden millwork – cog-wheeled gears, shafts and framing – the London millwrights also made the largely wooden, machinery of the brewing, distilling and manufacturing processes listed in the Masters’ *Pricebooks*³⁸

Dyers Work (‘Stocks’); Tobacco & Snuff Work (‘beds and frames and cutting boxes, hand presses’); Mustard work (‘Stampers, frames, sieve-frames and lifting bins’); Colour work (‘Hoppers for blue mills, white lead mills and stones, hand crank mills for red lead’); Calendars (‘frames and rolls - cylinders for giving a smooth glossy surface etc to

cloth or paper’); Paper millwork (‘hand paper-making engines’); Oil Mill Tools (Beech stampers for extracting oil from seeds and nuts and screens, rollers and grinders’).

Little survives of these artefacts but examples of comparable heavy wooden machinery may be seen in contemporary publications such, as Ree’s *Encyclopaedia of 1819*.³⁹ (**illustration F**) John Rennie, the younger, called them ‘a Guild or Craft for making machinery’ and Fairbairn also referred to them as a guild.

Judging by the location of the ‘houses of call’ (another old craft-guild term), in the Little Eastcheap area (**illustration 6**), they lived mainly in the central parts of the city. They met regularly in those taverns - mainly at the *Swan Tavern* on old Fish Street Hill, but the scanty records which have survived also refer to: the Cornwallis Head, Curtain-road,(c1799); the *Red Lion* on Clement’s Lane, (previous to 1801) and the *Sun Tavern*, Little Eastcheap (1812 onwards). These places acted also as meeting places, labour exchanges and for socializing, so their meetings were the lifeblood of their proceedings. The Webbs referred to a ‘*London Fellowship*’, as being the chief of the millwrights’ ‘strong, exclusive and even tyrannical trade societies’ which they said met at the Bell [and Three Tuns] Inn, Old Bailey.⁴⁰ However, no corroboration of their existence survives. In 1813, Fairbairn referred to them as ‘the vagabonds of Little Eastcheap’.⁴¹

Industrial relations

Watt’s partner and financial backer, Matthew Boulton (1728 - 1809) was keenly alive to the general ‘Steam-Mill mad’ demand in London, Birmingham

and Manchester⁴² and they had little difficulty in persuading the large London brewers, distillers and other large manufacturers, who desperately wanted to replace their old and hugely expensive horse-engines. The Soho partners were then demonstrating Watt's new *rotary* steam engine at the Albion Mills, with John Rennie as their agent, and from 1784 onwards most of the major employers went over to steam. For some time they still kept the traditional *wooden* power transmission millwork, which, as we saw, remained the domain of the London millwrights, like the Coopers. As the engines proved their worth, and improved in power, the challenge to the wooden millwork would grow, leading to its replacement in time by iron shafts, wheels and gearing.

James Watt (1736-1819), a Scottish instrument-maker by trade, had a jaundiced view of all journeymen trade clubs since he was prevented from working without indentures in London in 1755.⁴³ As the inventor and improver of the early steam engines, he had very high standards of precision 'and the standards of workmanship which had served the Newcomen-type engine well-enough fell far short of the far more exacting standard the new engine demanded.'⁴⁴ He was particularly critical of the London journeymen millwrights' grip on the trade and where possible he engaged Scottish ones to erect their engines, who in his eyes were more 'tractable'. When he had some millwrights building an experimental corn-mill at their engine works in Soho, Birmingham in 1783, he complained bitterly to Boulton, 'there is no end of Millwrights once you give them leave to set about what they call machinery; here they have multiplied wheels upon wheels until it has almost as many as an orrery.'⁴⁵ He was always lecturing their London agents about not putting up

with the millwrights' practices there. Rennie also adopted his view when he first arrived:

I have some London Millwrights employed which have been recommended to me by Mr Foulds as being good workmen, but I have no great opinion of them. I must say from what I have seen I have very little opinion of the trade.⁴⁶

Ironically, Rennie seems to have changed his mind over the decades and was one of the last masters to recognize the Journeymen's Society until his death in 1821.

On 2nd July 1786, Watt wrote to Rennie at the Albion Mills,

I am very sorry to learn of the rebellion of the Journeymen at such a critical time, however it should on no account be given way to - I recommend to you as I have done before to employ carpenters for every thing they can do and when you meet with a tractable hand to engage him and to make it an article of agreement with all your men that they shall not under a heavy penalty become members of the Millwright Club nor attend the meetings of the same while they are your servants. The Masters should prosecute the journeymen and take advice of some Good Lawyer on that head."⁴⁷

Later that month, he gave the same advice to John Cooper,

I approve very much of your employing Carpenters in place of Millwrights and I hope the present disturbance which I foresaw would happen, will open your eyes and make you assert your freedom of employing carpenters and millwrights indiscriminately as suits you.⁴⁸

So, here we had the pioneer of the new power (steam), expressing his frustration with the craftsmen of the old power (water), urging the London masters and their employers to substitute 'non-regular' craftsmen for them and to use the draconian common law against the journeymen's trade club.

The Millwrights at London Bridge (illustration 3)

These tensions really came to a head publicly in the 1790s on account of a London-wide strike organized by the journeymen millwrights in July 1795. It was noticed in *The Times* as it affected the City's water supply from the

London Bridge Waterworks:

The Millwrights at London Bridge who make from 30/- to two guineas a week, struck work a few days ago, and entered into a combination, for an increase of wages. The proprietors resisted the demand and all their employers have properly determined to put a spoke in their wheel."⁴⁹

We have a fuller account of that dispute from the company's minutes:

The Secretary informed the Committee that all the extra Millwrights Employed by Mr. Foulds as well as the three who were constantly employed at the Water Works had Struck Work on the 11th July for an advance of Wages: that the whole care of the Works had therefore devolved upon Mr. Foulds and his Son: that soon after Mr Foulds had taken on Several Journeymen Carpenters to frame the Timber for the repair of the Gallery and that he had now got eight Journeymen Millwrights to come to work at an advance of sixpence a day instead of 1/6 a day which was the increase demanded by the old millwrights.⁵⁰

The company finances were then quite precarious on account of the major cost of replacing the six huge waterwheels under the arches since 1784.

(illustration 4) They were also facing strong competition from the rival New River Company waterworks at Clerkenwell (cleaner water) and their City customer base was also being eroded.⁵¹ As a result, the company officers strongly resisted the millwrights' demands and we see **John Torr Foulds** (1742 -1815) their Master Millwright, adopting Watt's advice to replace millwrights with carpenters. From Derbyshire, he had been with the Waterworks Company since 1763 and became their Chief Millwright in 1776. He was responsible for the oversight of the bridge and the waterworks' with its six huge wheels in the arches and their extensive wooden pipe system along the streets to the City and Southwark. He made many inventions to improve this system. It was to Foulds and John Cooper, that Rennie first turned to learn the 'usages of the trade' when he came to London and Foulds seems to have been a leading figure in the Master Millwrights Association, as well as a member of the Fishmongers Company.⁵² In retaliation for his efforts to break

their strike, the journeymen demanded the higher 'non-regular' master rate of their rules for Foulds, as he was no longer 'by us deemed legal'. This dispute would last more than four months and according to *The Times*, Foulds, with the assistance of City Alderman Clarke, (their Waterworks Board Member), brought in six constables to protect Foulds and his men from the strikers.⁵³

Over at Chelsea Waterworks, which mainly supplied the still thinly-developed western parts of Westminster and Middlesex, their millwrights had also struck in July and it was reported that the proprietors there 'would give them their own terms, but they will not work till every master accedes to their proposals'.⁵⁴ Their master millwright **Thomas Simpson** was a friend of Foulds, and an active member of the Master Millwrights Association. According to *The Times*, the proprietors eventually settled the dispute on the company's terms.⁵⁵ Yet according to the Masters' '*Statement of Facts*' in 1799, it resulted generally in another advance in the millwrights' pay across London from 3/6d to 4/- per day (4/6d 'when out at work'). In any case, it brought the Society of Journeymen Millwrights sharply to the attention of the City authorities. A few years later the City MPs, spearheaded the Masters' and their employers' bid to outlaw the Journeymen Millwrights' Society altogether and to regulate their pay and conditions through the City magistrates.

The Millwrights Bill of 1799

On 5th April 1799, a group of Master Millwrights led by John Rennie, James

Cooper, John Foulds and Thomas Simpson, petitioned the House of Commons for leave to bring in a Bill to outlaw their journeymen's *dangerous combination* activities 'for enforcing a general increase of their wages, preventing the employment of such journeymen as refuse to join their confederacy, and for other illegal purposes' and to impose on them wage regulation by the City and other magistrates 'within the Metropolis, and the Limits of Twenty-five Miles round the same'.⁵⁶ They had already submitted a detailed *Statement of Facts respecting the Journeymen Millwrights* to the Privy Council alleging an unlawful combination by their journeymen aimed at 'regulation not only of the Journeymen, but of the Master Millwrights, & of the trade itself', and to have 'exercised a complete controul (*sic*) over their masters'. In it they claimed that this Club had existed since 1775 and enforced its demands by regular striking to raise pay and 'for other illegal Purposes.' They said that pressure from their employers (brewers, millers and other manufacturers), had compelled them to concede the men's demands in 1775, 1786, 1795 and 1799. In their *Statement of Facts* (undated, but considered at the Committee stage of the Bill as well as by the Privy Council), the Masters argued

the inconveniences of this conduct to the Brewers and different Manufacturers the Employers of the Master Millwrights [that] it was deemed necessary (on account of the inadequacy of the existing Laws) to apply to the Legislature for an Act to prevent Combinations amongst this class of Men and to enable the Magistrates to raise wages at the Sessions whenever it may be necessary and also to hear and determine all disputes and complaints between the Masters and the Men in a summary manner **thereby transferring the powers hitherto illegally exercised by this Club from them to the Magistrates.** (e.a)⁵⁷

Through the City MPs who were sponsoring the Bill - a recent Lord Mayor (1797), Sir John William Anderson MP, (1736-1813), chaired the Commons Committee and two other City figures, William Lushington MP (1785-1802); William Curtis MP (1790-1818) participated in the Committee⁵⁸ – and the Bill went through the Commons soon after. It appears that the Journeymen's objections were heard through Counsel and 'several alterations' were conceded to them. However,

they brought forward a Clause prohibiting the Master Millwrights from employing any person unless he had served an apprenticeship, which was rejected by the Committee, not only on the ground of its being contrary to the existing Law ...but from a full consideration of its impolicy and absurdity, it being evidently an attempt to confirm an obnoxious part of their Bye Laws⁵⁹

Clearly, a major issue for them all. The journeymen did not deny their combination's existence. They pleaded that it was the masters who had combined since 1778 to reduce their wages 'and for other illegal purposes' and that they were employing non-'regular' (i.e. non-indentured) men, in place of them, the *lawful* craftsmen.⁶⁰ The Committee's report was lost with the other pre-1800 House of Commons records in the fire of 1834, but a copy of the actual Bill as it came to the House of Lords has now come to light.⁶¹

(illustration 12) Such 'combinations of journeymen (or masters)', were illegal at common law as 'in restraint of trade' and were regarded as 'conspiracies' in criminal law (imprisonment for long periods being the penalty), though their apprenticeship rules were certainly not 'contrary to Law' as the Master alleged.⁶² However, the Masters' claim that they were unable to invoke the existing law because the 'indictment' process was slow and ineffectual, was probably the case. They complained that during strikes, 'the Offenders frequently remove into different Parts of the Country', so as to enable 'the

Journeyman to carry on their Combinations with Boldness and Impunity' and that they had a large fund to sustain their trade club. There was little opposition to the Bill, apart from the two Radical MPs, Benjamin Hobhouse (1757-1831) and Sir Francis Burdett (1770-1844). Their opposition was mainly focussed on summary jurisdiction being substituted for the right to trial by jury. The Foxite Whigs (Liberals) were boycotting the Commons at that time, but attended to oppose the general Workmen's Combination Act of 1800. Of the ten MPs who spoke, eight, supporters of the Pitt Administration, were totally for it.

If passed, this Bill would have made all collectively agreed contracts for raising wages or reducing hours of work, unlawful. It stipulated minimum hours of work (February to October 6am to 6pm - half hour less in winter) and breaks allowed. This compares most unfavourably with the Journeyman's Society rules of ten hours (nine and a half in winter).⁶³ The issue here was probably about overtime rates and the different rate sought by the Society for hours 'in the shop' and 'abroad' i.e., on sites. The Bill would have set maximum day and piece-work rates. It would have penalised millwrights for 'leaving work unfinished (i.e., striking). Instead, magistrates in the City of London – The Mayor, Recorder and Aldermen - (as well as of Southwark, Westminster, Middlesex and Surrey) would have power to determine millwrights' pay and hours of work. 'Any agreement for preventing any person from employing whoever they wished or as many apprentices as they thought proper in that business', would be null and void. The Bill would have proscribed 'all bye-laws, rules and orders made...in any unlawful clubs and

societies of millwrights'. Assembling in numbers exceeding ten, 'to frame resolutions or deliver petitions', would become an offence. This was quite a draconian measure to suppress the traditional combining and self-regulation activities of a tiny group of highly-skilled workmen.

Why did the City authorities and MPs take such a prominent role in this hugely controversial move against some of their residents? It seems that they too were galvanized by the 'Employers of the Master millwrights'. Their petition to the House of Lords on 1 July called for the 'annihilation' of the millwrights' Club in most extreme terms:

That the Journeymen Millwrights employed by the Masters at the different Breweries Mills and Manufactories within the Metropolis and its Vicinity have for some time past been in the habit of striking or deserting their work in a Body, either for an Encrease of Wages, or for the redress of any supposed grievances, and of leaving their work unfinished by standing out until their Master have been ultimately compelled to comply with their demands, which practice has been attended with great Inconveniencies and Losses to your Petitioners and the various other Employers of the Master Millwrights.

That it is of great public importance that all Combinations among the Journeymen Millwrights... should be effectively prevented, their Bye-Laws or Rules passed in Clubs or Societies for the regulation of the Trade annihilated, and that proper powers should be given to the Magistrates to settle and determine all Disputes and Differences... in an expeditious and summary manner. ⁶⁴

This Petition contained eighty-eight signatures, including thirty-four brewers, ten distillers and forty-four other major metropolitan manufacturers. All the largest brewing families are represented – **Barclay Perkins of Southwark, Whitbreads of Chiswell Street, Trumans of Brick Lane, the Calverts, Meux-Reid, Gyffords, Goodwyns and Charringtons** – one of the most powerful industrial lobbies of the time. ⁶⁵ **(illustration 13)** These other

signatories were a 'Who's Who' of London manufacturing of the time – White-lead and colour manufacturers, Flour factors, Sugar manufacturers, Tobacco & Snuff-making manufacturers, Mustard & Oil mills and a myriad of others.⁶⁶

The Bill had a specific clause penalizing those leaving work unfinished, 'in constructing or repairing the machinery of any mill brewery waterworks or manufactory', without the consent of the employer.⁶⁷

Clearly, there was close liaison with the Master Millwrights Association members, for whom John Rennie was the spokesperson. In fact, we can now conclude that that it was these 'Employers of the Master Millwrights', who instigated the move and pressed the Masters to initiate the Bill, something which has not been appreciated by historians previously. It was a clear attempt to break the journeymen's grip on the skilled labour supply to their businesses and general attempts to regulate the trade.

Late in June 1799, we have the Journeymen's petition against the Bill, signed by nineteen journeymen-, who made no pretence but that they were members of the Society. These were: **Jas McDonald, John Edwards, Joseph Mart(Marl?),Richard Jonathan, John Gray, Walter Morgan, Lewis Aubray, (his mark), John Westron, Wm.Chappell, Daniel Penning, Charles Price, Richard Collins, Wm Aitken, Saml. Collins, Hugh Morris, Wm Wallis, John Marks, Richard Kensely and James Walker.**⁶⁸ (illustration 13)

They argued that there were only about three hundred of them to service the mills in such a wide area around London and that 'at some periods of the year thirty or forty...are out of employ'- such uncertainty of work being a feature of all trades then. The journeymen rejected the notion that it was they who

sought to control the trade and promised to bring documentary evidence of the masters' designs on their trade since 1778. They also maintained that their masters sought a right 'to employ... Carpenters or any other persons not brought up to the trade in the proper business of journeymen millwrights', to which they had 'served regular apprenticeships hereto and in many Instances paid large Premiums'. They maintained that they should therefore be entitled to the protection of the law for their *property* in the craft.

This is the language of an artisan group appealing to the age-old values of that era, enshrined in the Statute of Artificers 1563, in the case of apprenticeship. These were values that the Crown and aristocracy, as well as the shopkeepers and traders of London of that time could be expected to support and uphold. But these values underpinned practices, such as extremely long terms of apprenticeship (seven years), and other 'controlling' features, which in the eyes of many, especially the new breed of capitalist employers and Masters (and their Parliamentary supporters), were inefficient, irksome and unjustifiable. However, as their much-subscribed to petitions show, this system of craft training and control had widespread public support at that time.

The journeymen also struck again during July-August 1799. Rennie couldn't leave London for work in Cornwall as 'I am now endeavouring to get the better of our worthless journeymen and...be quite independent of these London journeymen'.⁶⁹ At first he thought 'the new Act of Parliament seems to have humbled them and they are now returning to work'. Two days later, he was

'doubtful the trouble with them will not be over soon'. As late as August 13th, he was still held up, having been 'constantly prevented' by 'the uncertain state in which we are with the Journeyman Millwrights'. He hoped to travel then, 'if they do not strike next Monday which I understand they are threatening to do'.⁷⁰ They also placed advertisements in *The Times* and *Publicans Advertiser*, offering their services directly to employers, from the *Swan*, Fish-street Hill and *Cornwallis Head*, Curtain Road, 'to get their masters' Business away from them'.⁷¹ At the same time, the Masters Association were lobbying 'some noble Lords' vigorously.⁷²

However, the Millwrights Combination Bill was not read a second time in the Lords as it was overtaken by a government measure to extend the anti-combination laws to all such trade clubs, to which Rennie referred. Prime Minister William Pitt came personally to the Commons on June 17th to propose this general Workmen's Combination Bill. That general Act became law soon after and so the Millwrights' Combination Bill was abandoned. A slightly amended version of the general Workmen's Combination Act was passed in 1800, which remained law repealed in 1824.

We may doubt whether the general Act was regarded as an adequate remedy by the masters and employers. It lacked the specific machinery of the Millwrights' Combination Bill to regulate *and* enforce terms and conditions in the trade. The Journeymen Millwrights later that year sought to disguise their trade club as a 'Friendly Society', viz., one without trade objectives, and carried on as before. Evidence for this comes from a set of Rules of 'the

Amicable and Friendly Society of Journeymen Millwrights' in the Friendly Society Registrar's archives. Formed on 12th October 1801, they also met at 'the Swan on Fish street Hill', and the Registrar's comments in the margins confirm this. **(illustration 15)** These rules have a few significant clauses crossed out, as having 'the appearance of an improper combination'. The first of these said, '*no one shall be admitted a member who is not a journeyman millwright who has served a legal Apprenticeship to the said Trade or Business etc...*' and is all crossed out. Rule 8th, '*any person or persons who shall not have served a regular apprenticeship to a Millwright...shall be excluded this Society...*' is also struck out with the same exclusionary comment. The clincher is in Rule 6th, '*That any person or persons who is a Member or Members **of the lately dissolved Society of Journeymen Millwrights** shall be considered Members of this Society without payment of Admission Money or being elected in manner hereinafter mentioned.*' - (e.a.)⁷³ They seem to have taken the risk of prosecution by the masters with impunity.

Conclusion of Part 1

This account of a hardly noticed group of London handicraftsmen, masters and journeymen - precursors of the engineering trades of the industrial revolution - sheds fresh light on the industrial history of the metropolis and its environs in the late eighteenth century. Though a highly valued group of handicraftsmen, their control of scarce mechanical skilled-labour supply and general inclination to regulate this trade, was beginning to attract adverse

attention and calls for action against them. In 1799, their actions (or those of their Masters?), invited the wrath of one of the most powerful lobbies in the capital – the big brewers and other manufacturers intent to ‘*annihilate*’ their trade club and take away their power to control the trade. In Part 2, we will see how that confrontation developed and trace their fortunes to the 1820s and the emergence of the mechanical engineering industry in the London area.

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- ¹ This paper is an entirely revised version of an unpublished PhD thesis by the author, *The London Millwrights and Engineers 1775-1825* (University of London, 1989).
 - ² William Fairbairn, *A Treatise on Mills and Millwork*, Part 1, (1861), Preface, v.
 - ³ Frederick Lee (1798-1849), Guildhall Art Gallery, Corporation of London.
 - ⁴ Fairbairn, *Mills and Millwork*, v
 - ⁵ R.Campbell, *A General Description of all Trades*, (1747), David & Charles, Newton Abbott reprint 1969, 322-3.
 - ⁶ *The Life of John Rennie* (unpublished MSS) by his son, John, Institution of Civil Engineers, (ICEL) London, 273.
 - ⁷ Fairbairn, *Mills and Millwork*, Preface, v-vi.
 - ⁸ H.W. Dickinson, *A Short History of the Steam Engine*, (Cambridge, 1939), 54-65
 - ⁹ Terry S. Reynolds, *The Phoenix and its Demons: Waterpower in the Past Millenium*, 277-82. Transactions of the Newcomen Society, Vol 76 (2)2006.
 - ¹⁰ F.S. Thacker, *The Thames Highway – A History of the Inland Navigation*, (1914), vol I, 9-10; Moher, *London Millwrights*, 32-57 tracks many of them.
 - ¹¹ Terry S. Reynolds, *Stronger than a Hundred Men – A History of the Vertical Water Wheel*, (Baltimore & London, 1983), 325.
 - ¹² A.W. Skempton, *John Smeaton F.R.S.* (1981); P.N. Wilson, *The Waterwheels of John Smeaton*, T.N.S, 30, (1955-57); Reynolds, *Stronger Than a Hundred Men*, 223-6.
 - ¹³ P.N. Wilson, *The Waterwheels of John Smeaton*, T.N.S, 30, 195-57.
 - ¹⁴ C.T.G.Boucher, *John Rennie (1761-1821)*, Manchester UP, 1963, 83-4. William Fairbairn, himself a great innovator in iron millwork, acknowledged Rennie’s pioneering contribution in *Mills and Millwork*, Part 2, (1869),6-9.
 - ¹⁵ A.E. Musson & E. Robinson, *Science & Technology in the Industrial Revolution*, (Manchester University Press, 1969), 71.
 - ¹⁶ Fairbairn, *Mills and Millwork*, Preface, vi-vii.
 - ¹⁷ S. Smiles, *Lives of the Engineers: Smeaton and Rennie* (1863, popular edition 1904), 263-4.
 - ¹⁸ *Pricebook 1794*, Rennie Collection, National Library of Scotland MS19811.
 - ¹⁹ *The Life of Sir William Fairbairn*, 1871 (partly written by him c1871, completed by his editor, William Pole F.R.S. in 1877), 86-93.

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- 20 J.D. Chambers & G.E. Mingay, *The Agricultural Revolution*, 1966, 108-9.
- 21 A.W. Skempton, F.R.S. *The Albion Mill Foundations*, Collected Papers, Vol VII, 1971. Library of the Institution of Civil Engineers (I.C.E.L.)
- 22 Boucher, *John Rennie*, 83-4. Moher, *London Millwrights*, 153-178.
- 23 *ibid.* 'Chronological list of Rennie's Chief Works' from 1779 to 1821.
- 24 *ibid.* 83-4; Moher, *London Millwrights*, 153-78.
- 25 Rennie Collection N.L.S. *MS 19811*; *Goodrich Papers*, Science Museum; Moher, *London Millwrights*, 99-101.
- 26 P. Mathias, *The Brewing Industry in England 1700-1825*, (1959), 85. 'Table 4. Watt engines in breweries' and 80-97. Moher, *London Millwrights*, 81.
- 27 Will of John Cooper, 1792, National Archives, Prob.11/1219.
- 28 A.W. Skempton & E.C. Wright, *Early Members of the Smeatonian Society of Civil Engineers*, T.N.S. (1971-2), XLIV, 33.
- 29 J.Rennie to J.Watt, 2 Nov 1791, Boulton & Watt Collection, Birmingham Reference Library, Box 23.
- 30 Will of James Cooper 1801, National Archives Prob.11/1356/228.
- 31 Moher, *London Millwrights*, 76-9. *The Morning Chronicle* of 1 June 1805 carried the auction notice.
- 32 *Turners' Company Court Minutes, 1752-83, Ms.3295/4.*
- 33 Moher, *London Millwrights*, 80-1. Holden's *Triennial Directory*, 1799 -1830s.
- 34 S & B Webb, *The History of Trade Unionism 1666-1920*, (1894, 2nd edition, 1919), 45 and 83.
- 35 *The Life of John Rennie* (unpublished I.C.E.L.) by his son, John 273; Boucher, *John Rennie*, 94 and 138.
- 36 Fairbairn, *Mills and Millwork, I*, vii-viii.
- 37 *Rules adopted by the Journeymen Millwrights for the well-governing of their Society*, London, 1801 (Goodrich Papers); Moher, *London Millwrights* 263-70.
- 38 Rennie Collection MS19811.
- 39 A.Rees, *The Encyclopaedia*, vol IV, (London, 1819).
- 40 S & B Webb, *The History of Trade Unionism 1666-1920*, 204-5.
- 41 *Life of Sir William Fairbairn*, 92.
- 42 Boulton to Watt, 21 June 1781. Cited by Jenny Uglow, *In These Times: Living in Britain Through Napoleon's Wars 1793-1815*, (2014), 80.
- 43 L.T.C. Rolt, *Tools for the Job - A History of Machine Tools to 1950*, 45.
- 44 *Ibid.* 58-9.
- 45 S. Smiles, *Lives of the Engineers, Boulton & Watt*, (1904), 218. An orrery was a clockwork mechanism for measuring planetary motions.
- 46 J.Rennie to J.Watt 18 Jan 1785 B&W Collection, Office Letterbook.
- 47 James Watt to John Rennie, 2 July 1786. Boulton & Watt Collection, Birmingham Reference Library, *Office Letter Book no.12.*
- 48 *ibid.* James Watt to John Cooper, 16 July, 1786 *Office Letter Book no.12.*
- 49 *The Times*, 16 July 1795.
- 50 *Minutes of the London Bridge Waterworks Company, (LBWWs)* 23 September 1795, Greater London Record Office (GLRO), Acc/2558/LB/1/4.
- 51 *Minutes of the LBWWs* 14 September 1794
- 52 J.G. Moher, *John Foulds, Millwright and Engineer 1742- 1815*, T.N.S vol 58, (1986-7).
- 53 *Minutes of LBWWs* 4 September, 1795.

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- ⁵⁴ J.Lawson (their engine-wright) to Boulton & Watt, 22 July 1795, in E. Roll, *An Early Experiment in Industrial Organisation – Being a history of the Firm of Boulton & Watt 1775-1805* (London, 1930), 223.
- ⁵⁵ *The Times*, 5 November 1795.
- ⁵⁶ *Commons Journals*, 54 (1798-9), 405-6.
- ⁵⁷ *The Statement of Facts respecting the Journeymen Millwrights*, P[rivy] C[ouncil] 1 44/158 7522, National Archives; Moher, *London Millwrights* 260-1.
- ⁵⁸ The fourth, Harvey Christian Combe (1796-1817), was the current Lord Mayor. Though a Brewer, he was also a Foxite Opposition supporter and not attending. *History of Parliament, the House of Commons 1790-1820*, III, 65-7;IV, 475-6.
- ⁵⁹ *Statement of Facts*, which was also submitted to the Committee on the Bill in May 1799.
- ⁶⁰ *Commons Journals*, 54, 532 on 10 May. The Bill was noticed in *The Times*.
- ⁶¹ *The Millwrights Combination Bill 1799*, engrossed House of Lords Bill dated 11 July 1799. Moher, *London Millwrights*, 277-82.
- ⁶² John.V. Orth, *Combination and Conspiracy, A Legal History of Trade Unionism 1721-1906*, (Oxford, 1991). 1-4; Moher, *From Suppression to Containment: Roots of Trade Union Law to 1825 in British Trade Unionism 1750-1850*, (ed.J.Rule, Harlow, Essex, 1988), 74-97.
- ⁶³ Millwrights Combination Bill, clause 3, 'Hours of Work'; *Rules adopted by the Journeymen Millwrights*, Rules X and XI.
- ⁶⁴ *The Humble Petition of the several Brewers Manufacturers and others Employers of the Master Millwrights within the City of London and neighbourhood thereof* *Lord's Journals*, 1799 XLII, 298.
- ⁶⁵ P.Matthias, *The Brewing Industry in England 1700-1830*, (Cambridge UP, 1959), 551.
- ⁶⁶ *The Humble Petition of the several Brewers etc* Most have been identified in Moher, *London Millwrights* 283-304.
- ⁶⁷ *The Millwrights Combination Bill, 1799*, clause 14.
- ⁶⁸ *Petition of the several Persons whose names are hereunder subscribed being Journeymen Millwrights working within the Metropolis and Twenty-five Miles round the same agst. The Millwrights Bill*, 24 June 1799, *Lords Journals*, XLII
- ⁶⁹ *Rennie Collection*, N.L.S. MS 19863.
- ⁷⁰ J.Rennie to J.Watt Jnr, 19, 21 & 30 July and 13 August 1799. *Boulton & Watt Collection*, Box 23.
- ⁷¹ Privy Council Papers, PC1, 43 A152, National Archives. These adverts appeared from 7 June to 8 July.
- ⁷² The Masters' attorney, Edward Peale, urged Thomas Simpson of Chelsea Waterworks to lobby, which he did through a Major Rolleston (National Archives, PC1 44/158 7522).
- ⁷³ These 'Friendly Society' rules were discovered by William McLaine, for his unpublished, London University Ph D thesis, *The Engineers Union*, (1939), 86. The National Archives reference is PRO, FS1/408B PFF 9416.

London and its old artisans – the millwrights 1775-1825

Part 2

Dr J.G. Moher January 2016

Introduction

Part 1 examined the opening rounds of the struggle for control of the late eighteenth century millwrighting trade in the London area, which led to the historic Millwrights' Combination Bill of 1799. In Part 2, the struggle continues, as the new general combination law proved ineffectual for the Masters who sought to break their journeymen's grip on the trade. Their powerful trade club continued to dominate the trade, (if in the guise of a Friendly Society), until technological and economic developments in the trade itself and a new breed of engineering employers, undermined its power. This change in the balance of forces is examined closely, symbolically with the removal of the apprenticeship clauses of the medieval statute which underpinned the journeymen's control of the skilled labour supply. We examine what was an older "artisans' economy".

The 1805 strikes

Documents found with John Rennie's papers include a Petition of 4 June 1805, from thirty-one mill owners on the River Darent (from Crayford to Otford) in Kent, complaining about another London journeymen millwrights'

strike from May 30.¹ **(illustration B)** John Hall (1785-1836) of Dartford, one of the members of the Master Millwrights' association, was their millwright, which probably explains their involvement.² In their 'pro-forma' petition, they objected to the 'gross imposition' of the journeymen millwrights' demand for an advance of wages of 1/9d per day. They offered to send a deputation to any meeting of manufacturers and other employers 'residing in or near London' and to support the '*Resolutions then enter'd into*'.

An almost identically worded petition (undated) from twenty-four London manufacturers, brewers and distillers (some of whom had also signed the 1799 petition to suppress the Journeymen's Society), is also with Rennie's papers. They were also affected by this London-area wide dispute, but far fewer brewers and distillers are listed than in 1799. It said that they had met at the *City of London Tavern* on Friday, 14 June and unanimously resolved to resist the demands of the journeymen millwrights who had 'universally abandoned their work' in order to dictate 'the employment of a particular description of persons in particular sorts of work'. So, the issues were not simply about a pay demand. Significantly, they agreed only to support 'such of the Master Millwrights who resist this combination' by 'employ[ing] in their work Joiners Carpenters or other persons'. Seventeen other manufacturers had attended that meeting, as well as eight of those who had signed the later petition. It shows what a large cross-section of the industries of the capital were affected.³ Rennie, whose millwrights were building the lock gates for the new enclosed East India Docks at that time, says they had 'left their work on 30th May' and he proposed to replace them with carpenters.⁴ **(illustration A)**

Clearly alarmed by this campaign against them involving so many customers, 'the Journeymen Millwrights in London' published a printed statement to rebut the 'Four Resolutions' of the *City of London Tavern* meeting. These resolutions had appeared in the London and Country papers. **(illustration D)** They stated that (1) 'the illegal combinations of the Millwrights [was] felt by their Employers in their having universally abandoned their work'... (2) They 'agree to employ no millwrights at higher Wages than those Heretofore given nor any... Member of this Combination by dictating to his Employers the Employment of persons in particular sorts of work'. (3) They agreed to support 'only those [Masters] who resist this combination'. (4) As proof of this, all the Masters were 'to Employ in their work Joiners Carpenters or other persons'. In their published response the journeymen again strongly denied attempting to 'controll' the masters and that they were just 'resisting the arbitrary and oppressive conduct of a few of their Masters over them'. Confirming that the issue of substitution was a major issue in this dispute, they argued,

Can any Gentleman, or any Mechanic with the least degree of candour or justice assert, that the journeymen in any art, trade or calling, shall be compelled by legal means to enter into their Society any description of persons their employers may think proper, without serving perhaps one hour to that Business. If that becomes a general principle, there is an end to all trade and mechanism, and the country grossly imposed upon by impostors.⁵

They concluded by offering 'experienced workmen' at 7shillings per day by contacting them at the *Swan Tavern*, Fish-Street-Hill.

A subsequent meeting of the Society of Master Millwrights at the Museum Tavern, Blackfriars Road on Friday, 21 June, chaired by John Rennie, was

attended by nineteen other Master Millwrights from all over the London area. At the meeting of 7 October, 1805, the subscription list of the Treasurer,(now Bryan Donkin ⁶),confirms this membership, with a few more names.

(illustration C)

Comparing this list of attendees with that of 1794 (**illustration 5**), there is some continuity and many new names, which adds to our knowledge of the trade. A series of motions moved, shows the majority inclined to settle with their journeymen with an offer to increase rates to 6 shillings per day. The final one was carried 9:4, but with seven abstentions. It seems that the dispute was settled soon after. What is remarkable is that this major stoppage, affecting so many businesses, seems to have gone unnoticed in the press or in official circles. It is surprising that, at a time when the war with France was being pursued with vigour amid fears that Napoleon was preparing to invade England, had renewed with vigour that the anti-combination laws were not being invoked by the Masters or their employers with the support of the authorities. However, the 'battle-lines' drawn here do show how much the traditionally close master-journeyman relationship had changed as the customers pressed the masters to show solidarity by substituting 'joiners, carpenters and others' for their men.

The London Millwrights at Portsmouth Dockyard 1805-6

It is clear from this very widespread dispute of 1805, across the London region, that the general Workmen's Combination Acts of 1799-1800 had absolutely no effect in this trade and that the journeymen still had the upper

hand. However, an event occurred that same year which changed things dramatically, not in London, but at the Portsmouth Naval Dockyard. **(illustration E)**. On 2 November, following the instructions of the Inspector General of the Navy Board, Sir Samuel Bentham (1757-1831)⁷, the Chief Mechanist at Portsmouth, Simon Goodrich (1773-1847), peremptorily ended the contract of master millwright, John Lloyd of Brewer's Green, Westminster and his team of London journeymen, replacing them with an in-house Millwright's Workshop under Goodrich's own control on much worse terms.

This was part of Bentham and the Navy Board's wider re-organisation and mechanisation of all the naval dockyards, introducing steam engines and labour-saving machines to produce the hundreds of thousands of wooden pulley blocks needed for the ropes of the sails of the Royal Navy in the naval struggle for mastery of the seas with Napoleonic France. These shipyards were then amongst the largest industrial establishments in the country - Chatham, Deptford, and Woolwich alone employed 2,350 hand-workers, with Portsmouth and Plymouth having another 1,250, mostly shipwrights. Forty-four new block-making machines were introduced in a new Wood Mill for slitting, cutting, rebating, tonguing, grooving and finishing the blocs, replacing one hundred and ten hand-workers with about ten machinists. These machines were trialled at Portsmouth Dockyard between 1803 and 1807. The machines were designed by French royalist émigré, Sir Marc Isambard Brunel (1769-1849) and executed by the up-and –coming engineer and machine-tool inventor, Henry Maudslay (1771-1831) from his workshop near Oxford Street.⁸ **(illustration H)**

Goodrich simply gave Lloyd and his men the option of working for him at Portsmouth at much inferior rates or leaving. While Lloyd protested bitterly pleading his long service to Bentham and the Navy Board, his journeymen responded more vigorously, 'that the terms proposed to us will by no means be complied with upon any other Establishment than the privileges that we at present enjoy'...as it is contrary to all other society Millwright rules [sic]. **(illustration F).** ⁹ The significance of their displacement would not be lost on the London trade either. At one stroke, Goodrich had taken over control of the handicraftsmen millwrights' work and conditions in a new Millwrights Workshop. It was an augury for the future. When Bentham himself later fell out of favour with the Navy Board, he spelt out how he had saved the Navy the considerable expense of the master/journeyman system:

from the profits masters usually charge upon the wages of each man, as well as upon the materials they use, but even to a much greater extent, namely, **from the customs and privileges in use among Millwrights;** such as being paid double pay for night work...and such as the pertinacity with which artificers of this description are known to resist all attempt at putting workmen of any other description to assist them ... not even to allow a labourer to turn a grindstone for them.' (e.a.) ¹⁰

Here we have a large establishment management's objection to the entire traditional handicraft master and journeymen contracting system of the London millwrights. Significantly, Goodrich's papers contain a copy of the London Journeymen Society's *Rulebook* and of their Masters' *Pricebook*.¹¹ They were particularly keen for 'doing away with the prejudicial customs of Millwrights' and restrictive practices as to the pace and manner of carrying out their work.

Once they had achieved direct control in their Millwrights Shop,

none but workmen particularly skilful are paid at so high a rate of pay as millwrights receive, indiscriminately from private masters; the great number of those employed at Portsmouth receive inferior rates of pay according to their respective degrees of skill and dexterity; they not only allow common labourers to assist them, whenever they are competent, but have admitted among them, under the sanction of indentures of apprenticeship to the Master Millwright for the time being, good artificers of other analogous trades, who are some of them able to do the best millwright's work, and to keep pace with a good millwright though they receive but the pay of carpenters and joiners.¹²

In 1806, Bentham and Goodrich withstood a strike by his directly employed millwrights about the remnants of their old 'privileges', such as his disciplinary system which required them 'to appear at call in the morning'. Goodrich re-hired them *individually*, reduced their pay and did away with 'all that remains of their London rules'.¹³ By 1812, there were about seventy employed in the Millwright's Shop at Portsmouth dockyard under the new regime. What was also significant was the number of specialized engineers, rather than all-round millwrights in that number (only seventeen), the rest being short-term apprentices or specialized engine-makers, smiths and labourers.¹⁴ Goodrich would take this revolutionary new system to all the other royal dockyards, and the specialized engineers he trained, once finished, had to depart for other employments, thereby providing a supply of specialist craftsmen for the emerging mechanical engineering industry.

Millwrighting and mechanical engineering

*Virtually all engineering was once the province of millwrights...*¹⁵

We are at the historical turning point when this ancient craft is differentiating rapidly into distinct branches, especially in the vast and industrially booming capital of Britain's growing empire. In the London Directories, masters were increasingly describing themselves as *Millwright* and *Engineer* (or increasingly, just as *Engineers*), and a whole range of hybrid types and new specialisms were developing.

The capital had for long been the centre of miniature precision engineering - clock and watch-making, gun and lock-smithing and marine and other instrument-making, but the tools and machines they used could not be easily transferred to the large-scale iron moulds now becoming available as the quality of castings improved. But war demand was driving the type of development we saw in the Naval dockyards (London also had a substantial private ship-making industry) and in the Ordnance works (for example, at the Woolwich Arsenal). The fabrication of those heavier iron and other metal components still relied on *handicraft* skills and hand-tools (files, chisels, drills, hammers and crude and laborious treadle lathes - **see illustration I**), which only a small number of craftsmen (including millwrights) could do. But it was very slow and very arduous work - a man could spend a day just chipping and filing one component - and the precision standards needed were difficult to achieve. So, the millwrights' control of labour training and supply, with their seven-year terms of apprenticeship and other practices, was failing to meet the burgeoning demand for specialist metal-fabricating skills. Their use of their scarcity value, with regular strikes to resist change, was now provoking the strong reaction from employers of master millwrights and some of the more

technically advanced masters, that we saw in the 1805 dispute. The immediate answer which engineering employers adopted was to confine more of their workers to specialized tasks, as Boulton & Watt had done in making their steam-engine parts at Soho since the 1790s.¹⁶ By the turn of the century, Bentham and Goodrich at the royal naval dockyards were systematizing this new division of labour and their *Engineers Economy* system would soon spread to the private sector.

Another answer was the development of machine-tools which could fabricate large iron parts with precision and speed, tended only by a machine-minder. After 1807, Henry Maudslay returned to Cavendish Square, off Oxford Circus, with a substantial capital sum of £12,000, from his block-making machinery work at Portsmouth. This enabled him to finance his pioneering machine-tool laboratory where he developed his famous *slide-rest*. **(illustration J)**. In 1810, he moved to a larger premises on Westminster Road, Lambeth and went into partnership with another ingenious engineer, Joshua Field. This tool would transform the lathe into a virtually new machine for cutting screws and other metal parts more speedily and accurately. He also created a metal planer and a micrometer for precision measurement. This would set off decades of refinement of such machine-tools.¹⁷ They also facilitated the application of steam-power, which made the accurate machine-working of metal so much faster and easier. It still took decades before engineering ceased to be a hand industry, perhaps as late as the 1830s, but things were moving that way relentlessly, undermining the all-round but far less precise skills of the millwright on metal.¹⁸ According to Joshua Field this is what was happening:

the rapid introduction of cast iron together with the invention of new machines and new processes called for more workmen than the millwright class could supply... **a new class of workmen was found** and manufacturing establishments arose to which were attached iron and brass foundries with tools and machines for constructing machinery of every description.¹⁹ (e.a.)

Maudslay was not alone in moving from the centre to south of the river, where land was much cheaper (reclaimed marsh land in the Lambeth area), with a plentiful supply of cheaper un-organised skilled and semi-skilled labour. From the start, these engineering firms (hundreds by the 1820s²⁰) resisted employing millwrights at London journeymen rates. By 1831, Maudslay, Sons & Field were one of the largest employers in the country with around eighty engineering craftsmen and labourers. From Lambeth across to Bermondsey, Greenwich and Woolwich, a new mechanical engineering industry sprang up, leaving behind the old millwright locations in the centre.

So, the trend was clear. The all-round journeymen millwrights were being challenged in every way – for their high rates of pay and other terms, their insistence on long-served apprenticeship training, their unwillingness to work with less skilled workmen on tasks which didn't require as much skill, and so on. They reacted militantly. But every time they struck (for higher pay and against substitution), it encouraged the new millwrighting/engineering employers to replace them. Take the cases of John Hall and Bryan Donkin, who were both active members of the Master Millwrights' Association and engineering employers' caucuses. **John Hall** (1755-1836) had one of the earliest London engineering and iron works at Dartford, as well as an extensive millwrighting business for the paper-making mills of the Darent

valley, from about 1785. It became a very large 'conglomerate' firm (covering over eight acres). He sent men all over the country, as far as Scotland, to service paper-mills. No doubt the Darent millers' support for the master millwrights' petition of 1805 sprang from his and Donkin's connection. Hall also owned a gunpowder mill at Faversham, a paper mill at Horton Kirby and a flour mill at Chislehurst, near Bromley. Many leading millwrights of the region trained at his Dartford works and he was clearly one of Smeaton's millwrights, as he used Hall's iron foundry. Hall's was a substantial capitalist millwrighting/engineering undertaking which had no compunction about employing non-millwright labour (as well as high-class millwrights for certain jobs), when it could. It continued to thrive until 1935.²¹ The old master-journeyman relationship seemed at an end.

Bryan Donkin, (1768-1855) from Northumberland, came to Hall's at Dartford in 1792 as an apprentice millwright, on John Smeaton's recommendation. This introduced him to the paper-makers' connection. With Hall's encouragement, he developed a French-patented machine for making paper in continuous rolls for a firm of London stationers, *Fourdrinier, Bloxham and Fourdrinier*.²² Without completing a formal apprenticeship, he set up on his own at Bermondsey from 1801, with a £250 capital loan from Hall, to make moulds for the hand-made paper trade. The Fourdrinier brothers then backed him by producing these continuous paper-making machines for the trade. We can imagine that Hall's (family) and Fourdrinier's (commercial) help was the kind of connection which provided the capital for many of these new millwright/engineering entrepreneurs at that time. These machines removed

control over production from the handicraft paper-makers (whose masters had also got an anti-combination Act against them in 1796, equally without effect). So, the hand-workers' resistance was a major incentive for the employers to fund Donkin's continuous paper-rolls machinery. When the first machines were installed at their '*Two Waters Mill*' at Frogmore in Hertfordshire, 'riots ensued, attempts being made to destroy the mill', but by 1810 he had introduced eighteen of them in their mills all over the Home Counties.²³ Donkin was very active in the Master Millwrights Association, becoming Treasurer in 1805 and his diaries are a valuable account of their activities.²⁴

As we saw, most of these new engineering firms adopted the Portsmouth model which became known as *the engineers' economy*, namely, an individualized rate of pay according to the employer's assessment of their workers' 'skill and dexterity'; a requirement to work with other 'analogous tradesmen' who were paid much less and willingness to be assisted by apprentices without time-served indentures or by 'common labourers'. There were still a number of traditional master millwrights' works where the Journeymen's Society was still recognized, such as at Rennie's Blackfriars works, at least until Rennie's death in 1821.²⁵ Considering his prominence in the campaigns to break their combination, this is surprising, but it may have been that as his civil engineering consultancy grew – canals, bridges and harbours which took him all over the UK for long periods - he did not want the trouble of confronting his own journeymen, who were first-class tradesmen.

(illustration 9)

The Society rules and customary practices

As we saw in Part 1, the Society of Journeymen Millwrights in London was a highly organized network of working journeymen (and some small traditionally-minded masters who valued the old system). What was the purpose of this artisan's trade club? Primarily to influence/control the terms and conditions of the millwrights' trade through a corporative form which made rules governing such matters as wages, apprenticeship and how the Society would be run. Their rulebook printed in 1801, shows that the Journeymen Millwrights were initially prepared to defy the new anti-combination law by drawing up new rules which sought to govern how their members would operate. This may be because of the practices they saw occurring which posed existential threats to their whole operation (they may have thought better of it later in submitting the application to the Registrar of Friendly Societies which retained their crucial apprenticeship clauses).

In these trade rules, they laid it down that its members would only work 'for such master millwrights, engineers or any other description of men' as are by us deemed legal at this time...except they receive six shillings and three-pence a day.' (Rule IV) This was a shilling a day more than 'regular' master millwrights, engineers etc would have to pay and it applied 'to all masters within twenty-five miles of London'. (Rule V) So, not a total ban on working for 'non-regular' masters, but an incentive to all masters to remain 'regular'. We saw that this was an issue with John Foulds during the 1795 dispute at London Bridge waterworks. Any man going to work for less would be fined 'nine-pence per day'. (Rule VI) This was one of the highest-paid group of

skilled workers in the Metropolis at that time, reflecting a high social prestige and status, and it was this their combining activities and exclusiveness aimed to maintain.

Their admission fees were high – ‘two pounds two shillings as entrance money and three-pence half-penny per week’, but so were their pensions of four shillings per week ‘for the support of superannuated and infirm millwrights during their natural lives’. (Rule VII) This was clearly a central purpose of the Society. Another key provision was how they dealt with ‘strangers’ i.e. new applicants. Rule VIII stipulated that they would have to pay the entrance fee ‘during the time he is allowed to prove his right to the trade’, which would be refunded if he failed to do so. Fairbairn’s case springs to mind. The articles went on to lay down hours of work, ‘in the shop’ and ‘out from the shop’ in considerable detail (Rules X and XI) and these were much more favourable to the journeymen than what the Masters were trying to impose through the Millwrights Combination Bill of 1799. The rest of the rules are mainly concerned with their internal democracy, noticed already. Unusually for such craftsmen, they also catered for ‘work done by the piece’ and set a rate also for ‘chipping and filing’ cast-iron wheels, evidence of their adaptation from their traditional wooden millwork.

A surprising feature is their new apprenticeship articles. They reveal that they had previously accepted *five* year terms, (a transitional period to 1804 was allowed) but that in 1797 they had changed it to the statutory minimum of seven years, which they now re-affirmed ‘to prevent imposition for the future’.

(Rule XII) This must have been the time when apprenticeship started to become a real issue. There was even a requirement for existing five year termers to pay a shilling a week 'to the completion of his term of seven years'.

(Rule XIII) However, it does show a not unreasonable approach originally. No uniform apprenticeship premium is stipulated, the amount being left to each master and the parents of the young trainee. Whether these premiums were so high as to deter ordinary recruits or were regarded as secondary to the schooling (in maths) and aptitude of the applicant, we don't know.

The rules are silent about the conduct of disputes, but we can assume that a Society seeking to regulate a trade twenty-five miles around the metropolis, used the traditional 'tramping system' of all such artisans.²⁶ When 'out from the shop', men were enabled to travel to jobs and secure lodgings, subsistence allowances and a friendly social atmosphere at every local branch, by showing their Society card. This network enabled the Society's leaders from their base at *The Swan* on old Fish Street Hill by London Bridge, to move their members from the masters they were in dispute with and to send others to 'gentlemen' prepared to pay the increased rates demanded. We saw how in the Masters' Petition to Parliament in 1799, this ability to 'frequently move into different parts of the country', also enabled the Club to evade prosecution under the indictment process of the Common Law. Judging by the Petitions of their customers, their strikes were highly effective, timed as they probably were to put maximum pressure on those businesses, e.g. coming up to the brewing season. They also had the Rulebook sanction of hefty fines of 'nine-pence a day' (15%) on any members who did not follow

their instructions.

This willingness of these handicraftsmen to combine and take industrial action, (1775, 1786, 1795, 1799 and 1805) of course brought the underlying issues in the trade to the surface. Fairbairn had been a large millwright/engineering employer, who, quite apart from his bitter experience with the London Society, had many battles with his millwrights and engineers in the Manchester area from the 1820s. So, he was hardly objective in this matter. He could see no point in 'their frequent contests with their employers, either for an advance of wages *or for some fancied privilege* which they seek to maintain or establish', arguing that these had overshadowed the old millwrights virtues, 'injurious to themselves and annoying to the public'.²⁷ Yet, firms like his were replacing millwrights with the 'new class of men – fitters, turners, machine-makers and mechanical engineers', so he could hardly be surprised by their efforts to resist. Even where some millwrights were offered employment for the more complex millwork jobs, it was at rates far below what they were used to, (as in the case of the Portsmouth millwrights).

In his *Life*, edited by William Pole in 1877, their leaders are described as a 'junta' with a 'system of dictation and exclusiveness' and it is this seemingly authoritative view, which has come down to us historically as his criticism seemed so balanced and reasonable.²⁸ The Preface to his earlier work, *Mills and Millwork* was mainly devoted to a generous defence of the character and reputation of the long-gone old millwrights, Fairbairn described them as 'a higher class of mechanical artisans to whom the public are deeply indebted

for many of our first and greatest improvements in practical science'.²⁹ These were the handicraftsmen who were relied on to solve the most complex and demanding power-harnessing issues of production in the rapidly changing technical environment of the trade of the late eighteenth and early nineteenth centuries. But that counted for little from the 1810s as they were overcome by floods of short or non-apprenticed competitors with which the brash new engineering employers like Bryan Donkin 'flooded the trade' (his term), especially after 1814.³⁰ They now faced humiliating treatment. Yes, they may have defended out-dated customs and practices for too long (e.g. their refusal to be assisted by lesser craftsmen at lower rates) and not relaxed their rules more to ensure a proper supply of different grades of skill. But, as Fairbairn rightly reminded his Victorian audience who had a poor appreciation of those earlier journeymen clubs, 'Their education and habits were those of the times in which they lived'.³¹

The *Millwrights'* law versus the *Engineers Economy*

In fact, this seems like a 'life or death' struggle between two systems of economy, one age-old and hallowed by custom, the other responding to war-time pressures for productivity and profit. There was bound to be conflict and casualties as the determined proponents of both systems 'locked horns'. The struggle over the revival of the medieval apprenticeship laws was at the heart of that conflict. In the context of the *handicraft* and *manufacturing* system of the late eighteenth century, it enabled these associated journeymen to control entry to the trades and so the supply of the key factor of production, viz., the hand skills of the craftsmen. It also gave them serious influence over the

price of millwork. These prices were agreed between the masters (hence their Association since the 1770s) and written down in a *Pricebook* and charged uniformly to all customers so as to avoid competition amongst the masters. They included an agreed Masters' 'mark up'. In the master millwrights' Petition of 1799, they bemoaned having to pass on journeymen's wage rises 'in the Price of Mill Work as most materially to affect the said Business, and the different Manufactories connected therewith'.³² As we saw in the 1805 dispute, many customers were complaining that masters were passing these increases on too readily and Bentham considered this a key economy at Portsmouth when he took the control of the work in-house.

The masters did have control of the operational side, though this too was conditioned by the 'customs of the trade'. These unwritten practices of the workshop, such as the number of apprentices which a master could take on at a time - were inherited from the craft-guild era (originally designed to limit competition and to keep the size of the masters' business small.)³³ Other traditions, such as celebrations when apprentices completed their time, 'Saint Mondays' (days off) and so on, were quite numerous and undoubtedly affected productivity, as did the lack of starting time discipline – the Portsmouth strike of 1806 was all about the insistence of Bentham and Goodrich that the journeymen millwrights 'appear at call' each morning. One of the engineering employers who gave evidence to the Hume Committee in 1824, Alexander Galloway, presented them with his Works Regulations, which formalized the new regime.³⁴ Fairbairn also claimed that the millwrights, though generally hard-working, had a reputation for hard drinking

(‘dissipation’), though he gave them credit that once they set to work they did so conscientiously. It was these customs of the eighteenth century “artisans’ economy”,³⁵ which the *Engineers Economy* was aimed at ending, even at the expense of previous close master/journeymen working and social relationships

The *guild-like* feature of these journeymen’s trade clubs has not been fully appreciated. The English guilds had petered out by the sixteenth century but the upsurge of journeymen trade clubs in the old corporate towns and cities of Britain and Ireland throughout the eighteenth century – they flourished in large numbers in London, Sheffield, Edinburgh, Liverpool, Bristol, Dublin and Cork - had revived some of their features.³⁶ These organizations had incorporated many of the guild practices into their rules, especially the apprenticeship clauses of the ‘5th of Elizabeth’. George Howell (1833-1910), an old Chartist and bricklayer’s union leader, London Trades Council member, first TUC general secretary and Lib-Lab MP, who knew the old journeymen well, rightly pointed out, ‘Modern trade unionism cannot be properly understood, or rightly appreciated, except by a careful study of their early prototypes, the English guilds.’³⁷ Rennie’s son, Sir John, (1794-1874), described his firm’s millwrights as ‘a special Guild or craft’ (**illustration 9**) and his account of Fairbairn’s discomfiture over his forged indentures being found, ‘incorrect according to the *Millwright Law*’, captures the spirit of things.³⁸ Fairbairn also referred to the London millwrights as ‘a guild’.³⁹

Repeal of the Apprenticeship laws 1814

The final blow came with the abolition of the legal basis of their apprenticeship rules in 1814. This was the Statute of Artificers 1563, known as 'the 5th of Elizabeth c.4' and it covered England and Wales only. It laid down that

no one could lawfully exercise either as a master or as a journeyman, any art, mystery, or manual occupation, except he had been brought up therein seven years, at least, as an apprentice.⁴⁰

The wage-fixing clauses of the Statute had been removed by a free-trade, Adam Smith-influenced Parliament in 1813, despite the strong opposition of the depressed weavers and other manufacturing groups. These medieval regulations were largely ignored by employers in the non-corporate new towns and cities of the booming North and Midlands, but in the old corporate cities such as London, Bristol, Liverpool, Norwich and Dublin, where the journeymen's societies were still strong, they resisted moves to repeal the apprenticeship laws and in fact, mounted a major campaign to strengthen and enforce them in view of the growing disregard of such regulations by many employers.⁴¹

The United Artisans

In 1809, the metropolitan trades of London launched a campaign of litigation to enforce the penalties of the Statute of Artificers against masters and employers using non-indentured men. Nineteen court cases were supported concerning thirteen different trades, but judicial hostility to their claims became evident, as case after case was thrown out on technicalities or with only minor penalties awarded. An authoritative ruling by the Lord Chief Justice, Lord Ellenborough, that such 'new trades' as engineering were not

covered by the 1563 Act, persuaded them to try Parliamentary means.⁴²

Their campaign met with considerable success initially, with 32,735 signatures being collected for their Petition - 13,000 journeymen *and* 800 masters, in London alone. This gained the support of sixty-two London trades and over seventy places in England and Wales.⁴³ A *United Artisans' Committee* (UAC) emerged, mainly of delegates from the London trades - bakers, caulkers, shipwrights, smiths, turners, coopers, calendars and millwrights. They met weekly at The Grotto, Southampton Buildings, Holborn. The UAC accounts shows 'two divisions of Millwrights' contributing the sizeable sum then of £30-2-0d' (equivalent to c£2,000 today). They organized lobbies of Parliament and funded a stream of literature arguing their case with the Parliamentarians. Through their influence with a sympathetic Minister, George Rose MP (1744-1818), a special Commons Committee of Inquiry was obtained to examine the whole issue of apprenticeship, under his chairmanship.⁴⁴ The Committee heard evidence for over a month from trades in London, Liverpool, Bristol and Plymouth (shipwrights especially), claiming that 'illegal Masters' were operating in twenty five trades. However, the very senior Committee of MPs, Rose, George Canning, William Huskisson, Sir Robert Peel and Sir James Graham, decided not to make any recommendations and Rose advised the artisans' leaders not to press the issue in view of the 'free-trade' mood of that Commons.

The spokesman for the journeymen millwrights, **Jonathan Taylor** of Carlisle-place, Lambeth, named a number of prominent members of the Society of

Master Millwrights as 'illegal' masters - Bryan Donkin of Bermondsey, Burton & Machell of Southwark, John Penn of Deptford and Joseph Sherwin of Shoreditch. He was supported by a *master*, William Dixon of Grange Road, Bermondsey, in confirming that many other small masters still favoured the old system. Dixon named fourteen masters - carpenters, smiths, wheelwrights and a barber as 'infringing on our trade' and said that 'many hundreds more' were doing the same, naming Joseph Bramah of Pimlico, Peter Keir of St Pancras and Joseph Braithwaite of City New Road. Both Dixon and Taylor stressed that 'the business of a millwright requires considerable skill, education and long servitude', interestingly giving the example of John Rennie, 'who is now the first millwright in London'. Three other Society activists – **Samuel Elliott, Charles Rentoul and William Row** – were said to have been 'blacklisted' by one of the masters, Mr Moorman of Battersea, and by the entire Masters' association, (in printed pro-forma sheets, evidence of a concerted move).⁴⁵ Taylor made a virtue of their adaptability in using cast-iron. From Newcastle, he explained that,

what used to be made of wood is now cast-iron, substituted instead of it. You must know the resistance you have to overcome and must apply your first motion upon the calculation of the resistance against it, and likewise for your speed you must put in a different number of cogs in your wheels.⁴⁶

The campaign for Repeal

Alarmed by the strength of the artisans' cross-trade campaign, the large masters and employers' mounted an equally determined lobby to counter the artisans' one. Again, it was engineering/millwrighting employers who were in the forefront of this campaign (and significantly, Francis Place, a friend of the

artisans, though now an engineering employer). Rennie's papers disclose the active involvement of the Master Millwrights' association, with Donkin particularly active. In a pamphlet they asked:

Are the masters to be slaves of the journeymen, and besides to see their best hopes destroyed by increasing the price of their goods so as to prohibit the consumption? The least attempt at improvement or economy by which this mischief is to be avoided, is the signal of rebellion. Nay, to such a pitch has it been carried of late in some workshops, that a labourer is not suffered to turn a grind-stone. No; a 'regular', a 'legal' workman, at two guineas a week, is the only person permitted to turn a stone to sharpen a chisel; or lend a hand to load a cart.⁴⁷

By 1812, the struggle had intensified. On July 17th 1812, Mr Harris of the Journeymen Millwright's Society at the Sun Tavern, Little East Cheap, wrote to all the Master Millwrights (he said that some members had asked him to), *pleading* with them to unite against 'the many grievous infringements which are daily practiced on our Trade which we deem injurious to the interest of the Masters and Journeymen'. The tone was now most conciliatory.⁴⁸

(illustration J) They proposed a joint meeting to agree a common response to 'the crisis in the trade', but with the leading lights in the masters' association, firmly for repeal, it is unlikely that anything came of that appeal. Some masters, perhaps mindful of their colleague, John Lloyd's treatment at Portsmouth, clearly had sympathy for a joint approach. The UAC continued its campaign and in November and December 2013 was able to submit a further twenty-two petitions to Parliament with 62,825 signatures.⁴⁹

In April 1813, the UAC applied to the Commons for a Bill to amend the Statute of Artificers. This caused a flurry of activity and a reconstituted Committee of Manufacturers (including some master millwrights), met on 3rd, 6th, 11th and 17th May 1813 to counter the artisans' move. They now decided to press for

repeal of the apprenticeship clauses altogether with Sergeant Arthur Onslow MP, (Chairman of the Surrey Quarter Sessions), to move it in the Commons. On 11th May, master millwrights and engineers - Messrs **May, Donkin, Hall, Lee, Maudslay, Simpson, Keir, Collinge, Knight and Clark** - dined at the Cross Keys Tavern to 'awaken the attention of other trades and to procure co-operation' and also to call 'the attention of the Legislator to the present state of the various associations of the journeymen under the colour of benefit societies'.⁵⁰

On 27th May, they produced a *Memorial respecting Combinations and Benefits Societies*, claiming that the ancient Statute was now 'a constant and prosperous rallying point to further the measures of the Journeymen against their employers'. They said they were not against the principle of time-served apprenticeship, only 'its Injustice and impolicy as constituting the only right of Qualification to follow any Art Trade or Mystery'.⁵¹ They claimed that four-fifths of their employees had not served a seven years 'or any other period of Apprenticeship', but were no less proficient in the [specialized] tasks required of them. A return to the journeymen's insistence on their terms would not allow them 'to create 1/10th of the necessary supply of Journeymen to carry on the Ordinary Courses of their Trade'. They now attacked the 'Combinations which have engendered not only insubordination but created a refractory and oppressive spirit in the conduct of the journeymen'. They attempted to link the artisans' campaign with the 'mischievous associations, disgraceful riots and ruinous burnings in the neighbourhood of Nottingham and Manchester' (the Luddites), which must have been on the legislators' minds. They also said that the journeymen were evading the ban on combinations 'under the mask of

Benefit Societies', so they sought to amend the Friendly Societies Act of 1793 to prevent their funds being used to enforce their apprenticeship rules. (the journeymen millwrights' Friendly Society Rules of 1801). They complained that 'Concession had been followed by Concession till the Journeymen have attained nearly the power to demand with one hand and to enforce with the other.'⁵²

Up to then, the Home Office under successive governments had been reluctant to intervene with legislation on how the artisans' should administer their members' funds. Pitt had specifically rejected an attempt to amend the Combination Act in 1800 to enable Friendly Society's subscriptions to be seized if used improperly.⁵³ They were always keen to distinguish between, what they regarded as laudable efforts of the artisans to save in mutual funds for the contingencies of working life, and their proclivity to combine for trade purposes. It seems that 'the governing classes beheld them with mixed feelings, with anxiety but also with sympathy'.⁵⁴ However, after Lord Sidmouth⁵⁵ became Home Secretary in 1812 against the background of those Luddite disturbances, the policy changed and employers' concerns about combinations received a more sympathetic ear. He was actively considering further legislative restrictions.

The masters and employers were particularly anxious lest the cross-trade alliance should use their society funds to achieve an amendment to the Statute of Artificers – 'the fear of artisans' combinations echoed through the debates'. They raised the spectre that 'a convention of delegates has been sitting in the heart of the Metropolis for some months composed of two

persons from every trade and profession'. They claimed that their objects were much wider than apprenticeship law reform and that by bringing together activists from so many trades in 'protracted' discussions, they constituted a serious danger to the state'. They feared they might be promoting not only 'the power and property of their class of Journeymen', but the whole Journeymen of the Metropolis who will form an irresistible phalanx' greatly superior to the 'united energies of the Masters'. So, they received a sympathetic hearing from a Home Office Minister, who marked their Memorial - 'This appears to be worth supporting - the policy of requiring apprenticeship in these days is most questionable in any Trade. And Benefit Societies (unless better regulated) will be the ruin of the country.'⁵⁶

Onslow brought in his Bill to repeal in April 1814, and it attracted an avalanche of petitions against, with over 300,000 signatories. It included one from the 'Journeymen Millwrights of the Cities of London and Westminster and Borough of Southwark'.⁵⁷ However, the Bill passed the Commons without difficulty in June 1814. The artisans' committee continued their campaign into the Lords, where the artisans must have expected more support. To this end, they commissioned a professional pamphleteer, William Playfair, to marshal their case in a tract entitled, *A Letter to the Lords and Commons on the Advantages of Apprenticeships*. It dismissed employers' claims about the dangers from artisans' associations as 'mere phantasmagoria', going so far as to deny the existence of any such combination!⁵⁸

The Manufacturers in turn portrayed the UAC as 'champions of the old order', no longer relevant to the modern needs of manufacture as old trades were

dying and new ones required different skills. They claimed that the Statute of Artificers had been a 'dead letter' for a century, until recent attempts to revive and extend it, and that it disadvantaged good migrant craftsmen from Scotland and Ireland. They were not against long time-served apprenticeships as such (if the parties wished it), they said, merely the use of them as an exclusive method of entry to a trade which the journeymen were insisting upon! They concluded with:

Under the influence of the pretended privileges given by this act, many masters are not permitted to hire their own workmen. No, the 'Shop Committee' must be applied to... They choose too what articles shall be made, and impose large fines on whoever disobeys *their* laws. Neither will they make a new article, till 'their Committee' has decreed the price.⁵⁹

They argued that it was necessary to remove this '*appearance of exclusive right*' which derived from the Elizabethan guild era, as that legal claim had become a 'delusion' in the minds of the artisan, which made him associate 'with the discontented of his class' and to oppose progress. The supporters of the emerging capitalist order were determined to defeat this last gasp effort of the artisans of all trades, which they portrayed as an 'enormous confederacy'. The UAC had 'drawn into its vortex the workmen of almost every trade', and had to be defeated so that 'the spirit which produced it must be laid'.

It has exhibited its pretensions; and if this country is still to enjoy the commerce of the world, they must be resisted. The question must now be put to rest. It cannot remain as it is. If it be not repealed, it will be enforced.

Despite some reservations by such as Rose and Canning, Onslow's Bill passed un-amended into law in July 1814, pointedly as, '*An Act to promote Industry, Trade, Manufacture and Commerce; and to restore and secure to all persons the free use of their hands and the just profits of their labour and ingenuity*'. .

The way was now open for the engineering and other employers to take full advantage of this new freedom of capital. The 'free use of the hands of' these new skills would soon consign the old generalist handicraft journeymen millwrights to the margins. Soon, they would only find work if they agreed to work to the *engineers' economy* on specialized (such as the millwork), aspects of their trade for far less pay. For a time some of them could avoid this humiliation (and they were a very proud group), at those diminishing numbers of sites which still used the old water- and wind-mill technology. A decade later, Alexander Galloway, could tell the Hume Committee on the Combination Laws that

“after its repeal, when a man was allowed to work at any employment, whether he had served one, two or three years, or not at all, that **broke the neck of all combinations**, because the excluding party were so overwhelmed by new men, that we could do without them.”⁶⁰

In 1824, Bryan Donkin of Bermondsey told the Hume Committee on *Artisans and Machinery*, that 'there had been no combination for years' or regulations about apprentices in the London area. All the other engineering employers giving evidence – Messrs (Timothy) Bramah, Hague, (John) Penn and Taylor, confirmed that this was their experience also. Ironically, they all now favoured repeal of the Combination laws!

The [London] Society of Journeymen Millwrights, seems to have disappeared by the early 1820s (though an Amicable Friendly Society of Journeymen Millwrights continued until 1871. The minutes of the London Bridge Waterworks Committee show they had lost their power there by 1815, though we know that they continued to be recognized at Rennie's until 1821, at least. A number of other unions sprang up from the 1820s around the new engineering industries of south London, but these do not seem to have

incorporated the 'Old Millwrights' Society.⁶¹ George Barnes, General Secretary of the Amalgamated Society of Engineers, Smiths, Pattern-makers and Millwrights, which was formed nationally in 1851 from mergers of such engineering unions, captured the spirit of those old millwrights:

The remnants of these sturdy old craftsmen have not long been extinct, and the type is still fresh in the minds of many scarce past their prime of life, the long frock coat and tall hat which were the distinctive features of their everyday garb being well remembered as being quite common in the early seventies, but even in 1850, and long before then they were superseded by newer men and newer methods.⁶²

The artisans of Georgian London

How are we to categorise these long-forgotten urban artisans? Eminent labour historians have all noticed them because of their Millwrights Combination Bill of 1799.⁶³ However, this is the first detailed study and it reveals a far more significant group than has been appreciated. The Webbs's treatment, said to be *The History of Trade Unionism 1666-1920*, is most unsatisfactory. While declaring that 'the origin of trade unionism in the engineering trades is obscure',⁶⁴ they opined that 'the superior millwrights, who gave 'laws to their masters' and whose exclusive trade clubs preceded any general organization of the engineering trade had for "their everyday garb" a "long frock coat and tall hat"' - a clear sign of their aristocratic nature. In fact, that was the garb of many journeymen, even as late as the 1830s! **(illustration J)** They questioned the pedigree of these 'trade groups of the town artisans' to be regarded as 'pioneers' or in any way forerunners of the trade union movement And sharply criticized the journeymen millwrights trade club, blaming them for provoking the Combination Acts.⁶⁵ At the close of the last century the then dominant class of millwrights possessed strong,

exclusive, and even tyrannical trade societies.’⁶⁶

They regarded these ‘association[s] of superior workmen’ generally as “isolated ‘rings’ of handicraftsmen, ‘even more decisively marked off from the mass of the manual workers than from the small class of capitalist employers’.

Finally, they placed them as ‘an intermediate class between the shopkeeper and the great mass of unorganised labourers or operatives in the new machine industries not given to providing solidarity support to other trades’.

They viewed them as “an almost hereditary caste of ‘tradesmen’ because of the ‘high premiums’” exacted from parents and their enforcement of their apprenticeship rules based on the Elizabethan statute. In their eyes their societies were mainly ‘for the provision of friendly benefits, and for ‘higgling’ with their masters for better terms. ‘Their occasional disputes...resembled family differences rather than conflicts between social classes’.

Despite their rather thin researches, (relying almost entirely on William Fairbairn’s account, the Hume Committee and the AEU Souvenir programme of 1901, they pontificated, ‘We find little trace among such trade clubs of that sense of solidarity between the manual workers of different trades which afterwards became so marked a feature of the Trade Union Movement.’⁶⁷ All these ‘findings’ are at variance with subsequent historical fact, as we have seen, but it seems that the millwrights did not fit the conceptual framework of their *‘history of trade unionism’*

The Webbs’ immensely influential writings probably prevented more serious research about such artisan groups for decades. One unpublished Ph D thesis in 1939 by William McLaine (a research student of the Hammonds⁶⁸),

followed them (and particularly relied on Fairbairn) in all essentials, apart from seeing 'the true line of descent [of the engineers] is via the millwrights – the makers and repairers of cornmills.'⁶⁹ He thought their position was 'rather like that of the professional man of today', i.e. specialists ...who worked with little supervision and often made their own decisions as to how the work was to be done. They were mid-way between the trading class and the ordinary workmen'.⁷⁰

The next renowned labour historians to notice them were the Hammonds' in their classic *The Town Labourer 1760-1832* and its chapter on the general Combination Acts, *The War on Trade Unions*.⁷¹ This contains the most detailed account of the course of the Millwrights Combination Bill to date, as they believed that the Combination Act which it preceded 'is the most important legislation of the period', signifying a 'new policy' by that State 'to abdicate in favour of the employers'.⁷² This conclusion was hotly contested by other historians, especially the very important social historian of this period, M.Dorothy George, in 1936. She argued that the Combination Acts were 'in practice a very negligible instrument of oppression' and so did not dwell on the millwrights' situation at all.⁷³ That 'negligible' conclusion is certainly borne out by our study.

It was not until the 1960s before the Webbs 'History' was challenged effectively, when E.P.Thompson 'rescued the artisans from the enormous condescension of posterity' and noticed the journeymen millwrights societies in detail in his classic *The Making of the English Working Class* chapter on

Artisans and Others.⁷⁴ He viewed the defeat of the artisans' trade clubs, such as the journeymen millwrights with more sympathy, seeing them as societies 'later to make up the engineers' and his new working class.⁷⁵ *The Making* has valuable insights into the psychology of such handicraftsmen, whose wage bargainings 'were often determined less by "supply and demand" in the labour market than by notions of social prestige, or "custom".'⁷⁶ Their militancy in support of large 'wages' claims can therefore be seen as an attempt to maintain that social position and prestige at a time of severe rises in the cost of living from the 1790s onwards, as well as to prevent substitution by the more aggressive masters. However, Thompson saw the millwrights in 'class' terms, as a group declining into an emerging working class, whereas many observers at the time saw them becoming extinct and replaced by 'a new class of men', the *employee* engineers. That is the conclusion which this study leans to. Thompson also saw, 'the millwright (at least in London) was an aristocrat'⁷⁷, his Marxist pre-conception rather than a category borne out by their arduous occupation and working lives.

These artisans are hard to categorise in socio-economic terms, as the term covers a range of degrees from the (small) masters to the journeymen. They were an old 'order' derived from the small commodity production era of early capitalism (seventeenth and eighteenth centuries) in Britain and Ireland. By the end of the eighteenth and early nineteenth centuries, this whole order faced transforming change as the early industrial revolution created new relationships at work, more in the nature of modern *employees* under the control of *employers*. Their relatively high (London) wages were undoubtedly

due to their ability to control the supply of their labour and the terms of the trade generally, but also to their scarcity as superior mechanical handicraftsmen in tough, challenging work in all weathers and locations. Their need to travel extensively all over ‘the metropolis and twenty-five miles around’ may have given them a unique outlook for those parochial times. The hereditary element of those we have identified is tiny, though their rules clearly exempt ‘the senior son of a millwright’ from having formal indentures, as was the tradition since medieval times in most trades. We have to assume that their apprenticeship premiums were high also, but for training in such a highly-skilled trade, aptitude and preliminary education (Maths especially), might well have been regarded as equally important in the decision to take on a young apprentice. Knowledge that they only expected to serve five years rather than the statutory seven before 1797, (when they tightened their rules to resist abuses), does not suggest an unreasonable approach for such a superior mechanical trade. The masters’ and their employers’ attempt to *annihilate* the journeymen’s trade club with the Combination Bill, does not square with the Webbs’ description of their disputes as ‘higgling’ or ‘family squabbles’. The fact that this initiative seems to have come from the City authorities due to pressure from so many of London’s manufacturers, gives an entirely new dimension to that episode.

A deeper study of the British craft guilds and their successors, the journeymen’s trade clubs of the eighteenth century, seems a surer starting point. This was by a German social democrat and scholar, Dr Lujo Brentano, who studied the English situation for a year in 1869. Writing in 1870, he

picked out

the statutes of the Amalgamated Engineers' (1851-1920), [in which] one finds an organisation elaborated into the minutest details, which is very similar to the later Craft-Gilds. It would be interesting to show from the history of this queen of Trade Unions...how its organisation gradually developed itself in the same phases as that of the old Gilds did.

Had Brentano known of the London Society of Journeymen Millwrights and their rules, practices and organisation of that trade, Brentano would have had no difficulty in designating them as the missing link. It is surprising therefore, that the only official history of the AEU does not explore that intriguing suggestion. There is a great lack of clarity as to how the old journeymen millwrights' trade clubs departed and the newer specialized employee engineers' societies developed in that study by James B Jefferys' in 1945 - *The Story of the Engineers*. Significantly, he starts from 1800 and only devotes the most cursory attention to earlier millwright trade clubs. For this he seems to have relied on the Webbs' assertion that 'the origin of trade unionism in the engineering trades was obscure' and Fairbairn's accounts. Rather surprisingly, Jefferys also relies on the victorious engineering *employers* claims to the Hume Committee of 1824, as to the demise of the journeymen millwright's combination.⁷⁸

As regards British historians in this field, Dorothy George's detailed examination of the London trades for her 1925 work, *London Life in the Eighteenth Century*, seems a good starting point. 'It was an age of minute social distinctions. Lines were drawn between the artisan and the labourer,

the master and the journeyman... They were however drawn with difficulty.'

These distinctions were

becoming blurred by the existence of trades which employed workmen under a skilled foreman instead of journeymen who had served an apprenticeship... the brewers, the distillers, the vinegar-makers, makers of colours, of blue, of varnish, of glue, of printers' ink, the tobacconists and snuff-makers, the sugar refiners and soap-boilers.⁷⁹

These 'highly-capitalised undertakings' were the industries which the London millwrights and many other crafts (smiths especially) serviced, and tried to hang onto their traditional positions. It was a transitional period across a vast metropolis which nobody controlled but which threw up myriads of hybrid types of old and new handicraft trades. It was in this setting we must assess artisans like the associated millwrights who sought to maintain their old order, while yielding to some change, but also resisting much of it. Much more detailed research is needed into many more of those trades before a more satisfactory history can be written.

These journeymen were certainly closer socially to their traditional masters', to which rank they still could aspire, but as more masters grew and developed into larger millwright/engineering businesses, those aspirations receded and the gap widened, as with the Coopers, John Rennie, John Hall, Bryan Donkin and many others. In placing the journeymen closer to 'the small class of capitalist employers' though, the Webbs' thesis is weakest. As we have seen, the journeymen millwrights viewed the new capitalist engineering employers as their deadly enemies, as it was they who drove the changes which would substitute specialised fitters, turners, smiths and much lower-paid specialized millwrights, for them. The impact of this change to the *Engineers Economy* on

the millwright's trade, is well known to all historians from the engineering employers' testimony to the Hume Committee. However, hardly any detailed research has been conducted around those employer accounts. As we have seen from this study of earlier battles, a far deeper knowledge of this transition would repay further work.

Conclusion

We have explored in some detail the history of this long-forgotten group of London artisans as their story tells us quite a bit about the London of their time. Yet, such journeymen and small master trade clubs and friendly societies were the life-blood of the old corporate towns and cities of Britain throughout the eighteenth century and well into the nineteenth. What emerges is the early but quite definite stage of a period of irrevocable transition from a world dominated by handicraft, wood and water to one of machines, iron and steam. Nowhere else in Europe was this transition happening so rapidly or fundamentally as in Britain and London unsurprisingly was at the centre of this revolution. The millwrights, the handicraftsmen in wood harnessing water power, were at the epicentre of that transition. By examining the role of this group over many decades, by reference to technological, industrial, political

and social life of both masters and journeymen and in the context of London's industrial life, more light has been shed on the lives of Londoners in a period which has not been fully explored.

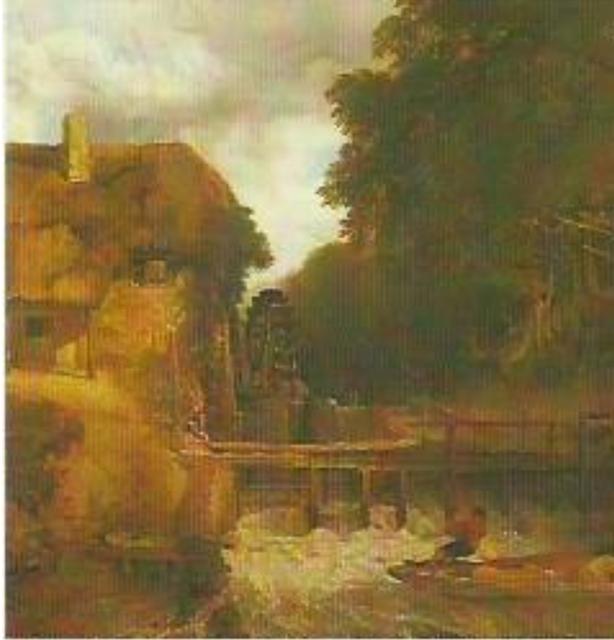
Dr. J. G. Moher January 2016

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- ¹ Rennie Collection, N.L.S. MS 19816. They are reproduced in Moher, *London Millwrights*, 305-10.
 - ² E. Hesketh, J.E. Hall 1785-1935 (1935) 1-5.
 - ³ Moher, *London Millwrights*, 306-8.
 - ⁴ Report of John Rennie 1803-1807 – entry of 30th May 1805. I.C.E.L.
 - ⁵ Moher, *London Millwrights*, 308-10.
 - ⁶ *Diaries of Bryan Donkin*, Donkin & Co., Chesterfield, where the firm still trades.
 - ⁷ Bentham was himself a mechanical engineer, who had served a seven year apprenticeship as a shipwright in Woolwich and Chatham naval dockyards. (Wikipedia).
 - ⁸ Moher, *London Millwrights*, 208-16. The machines may be seen in the naval museum at Portsmouth dockyard today.
 - ⁹ *ibid.* 323.
 - ¹⁰ S.Bentham, *Statement of Services rendered in the Civil Department of the Navy*, (1827), 145. K.R. Gilbert, *The Portsmouth Block-making Machinery*, (1965)
 - ¹¹ Goodrich Papers, No. 9, Science Museum.
 - ¹² Bentham, *Statement of Services*, 148. R.A. Morriss, *Samuel Bentham and the Management of the Royal Dockyards, 1796-1807*, Bulletin of the Institute of Historical Research, LVI, (1981), 227-8.
 - ¹³ E.A. Forward, *Simon Goodrich – his work as an Engineer*, T.N.S. Part II, 1805-1812, Vol XVIII (1937-8); Moher, *London Millwrights*, 212-4.
 - ¹⁴ A.S. Crossley, *Simon Goodrich - his work as an Engineer*, Part II, (1813-1823), appendix II, Transactions of the Newcomen Society, XXXII (1960), 90.
 - ¹⁵ T. King, *Millwrights to Mechatronics...the merits of multi-disciplined engineering*, School of Manufacturing & Mechanical Engineering, University of Birmingham and Edgbaston 1994. Abstract.
 - ¹⁶ Roll, *An Early Experiment... the Firm of Boulton & Watt 1775-1805*, 193-4.
 - ¹⁷ L.T.C. Rolt, *Tools for the Job – A History of Machine-tools to 1950*, (1986), 90-98.
 - ¹⁸ W. McLaine, *The Engineers Union* (unpublished London University PhD)

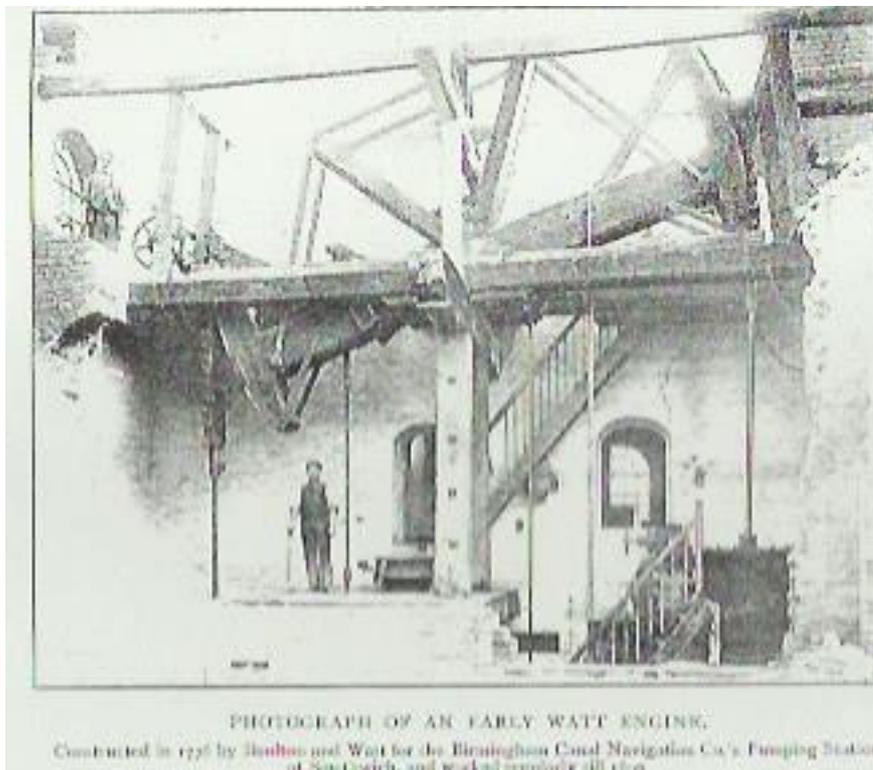
- thesis), 1939, 187 – one of the few other works on the millwrights.
- ¹⁹ P.W. Kingsford, *Engineers, Inventors and Workers*, (1964), 85-86.
- ²⁰ *Parliamentary Papers, Report from the Commons Committee on Artisans and Machinery*, ('the Hume Committee', 1824), v, 19
- ²¹ E. Hesketh, *J & E Hall 1785-1935* (1935), 1-7.
- ²² They were signatories to the anti-journeymen's Petition of 1805.
- ²³ S.Donkin, *Bryan Donkin F.R.S. M.I.C.E.* (1768-1855) T.N.S. (1949-51), 86.
- ²⁴ *Diaries of Bryan Donkin*.
- ²⁵ *Life of John Rennie* by his son,, Sir John, (Eight handwritten volumes, chronologically describing all his works) Institution of Civil Engineers Library.
- ²⁶ R.A. Leeson, *Travelling Brothers: The Six Centuries Road from Craft Fellowship to Trade Unionism*, (1979), 122-31.
- ²⁷ Fairbairn, *Mills and Millwork, I*, vii (e.a.) and ix.
- ²⁸ *Life of Sir William Fairbairn*, (1877), 90-2.
- ²⁹ *ibid.* vi.
- ³⁰ Hume Committee 1824, Bryan Donkin's evidence, v, 39.
- ³¹ Fairbairn, *Mills and Millwork, I*, viii.
- ³² *Commons Journals*, 9 April 1799, LIV 412-3.
- ³³ Lujo Brentano, *On the History and Development of Gilds and the origins of Trade Unions*, (1870), chapters cixviii, clxxiv-v, clxxxv.
- ³⁴ Alexander Galloway, *General Regulations to be observed by all the workmen employed in this manufactory*. *Mechanics Magazine*, 7 Aug 1824, I.
- ³⁵ R.A. Leeson, *Travelling Brothers: The Six Centuries Road from Craft Fellowship to Trade Unionism*, (1979), 103-4 and generally.
- ³⁶ Rule, *The Experience of Labour in the Eighteenth-Century Industry*, 189-90.
- ³⁷ G. Howell, *The Conflicts of Capital and Labour, Historically and Economically Considered* (1878, 2nd edn 1890), 68-70.
- ³⁸ *Life of John Rennie*, (I.C.E.L.), 274-5.
- ³⁹ *Life of Sir William Fairbairn*, 92
- ⁴⁰ Brentano, *On the History .. of Gilds*, clxvii, 167.
- ⁴¹ J.Rule, *The Experience of Labour in the Eighteenth Century*, (1981), 95-119.
- ⁴² T.K.Derry, *The Repeal of the Apprenticeship Clauses of the Statute of Artificers*, *Economic History Review*, 1931, vol 3, 67-87.
- ⁴³ *Parliamentary Debates*, (1813-4), 25 and 1129 Moher, *London Millwrights*, 221-242
- ⁴⁴ Rose had been quite an influential member of all governments from the 1790s. It was he who presented the pro-artisan Friendly Societies Act of 1793.
- ⁴⁵ Moher, *London Millwrights*, Appendix 10, 327.
- ⁴⁶ I. Prothero, *Artisans and Politics in Early Nineteenth-Century London: John Gast and His Times*, (1979), 52-5; Rose Committee, *Parliamentary Papers*, iv, 15.
- ⁴⁷ *The Origin, Object and Operation of the Apprenticeship Laws*, *The Pamphleteer* no. 5, March 1814, 238-0; at 224. Moher, *London Millwrights*, 224.
- ⁴⁸ Letter, 17 July 1812, Rennie Collection MS 19828; Moher, *London Millwrights*, 328-9.
- ⁴⁹ Derry, 67.
- ⁵⁰ *Diaries and Notes of Bryan Donkin*, 29 April, 4 and 11 May, 1813. Moher, *London Millwrights*, 230-1; Prothero, 59.

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- ⁵¹ Home Office Papers, HO 42/133 National Archives.
- ⁵² Moher, *London Millwrights*, 233.
- ⁵³ A.Aspinall, *The Early Trade Unions – Documents from the Home Office Papers in Public Record Office*, (1949), 234.
- ⁵⁴ Prothero, 234.
- ⁵⁵ Henry Addington, (1757-1844), Viscount Sidmouth, had been Speaker 1789-1801, Prime Minister 1801-04 and became Home Secretary in June 1812 (until 1822).
- ⁵⁶ Home Office Papers, H.O. 42/133 National Archives.
- ⁵⁷ *Parliamentary Debates*, xxvi, 81.
- ⁵⁸ Derry, 81-3.
- ⁵⁹ *The Origin Object and Operation of the Apprentice Laws in The Pamphleteer III*, (1814), no. 5, 237-40, Guildhall Library
- ⁶⁰ *Parliamentary Papers*, (1824),v, 27. Hume Committee on *Artisans and Machinery*.
- ⁶¹ David Goodway, *London Chartism 1838-1848* (Cambridge University Press, 1982), 194-5.
- ⁶² Jubilee Souvenir of the A.E.U. 1901, 12.
- ⁶³ Webbs, *The History of Trade Unionism* (1894, 2nd edn 1920) ; J.L.& B. Hammond, *The Town Labourer 1760-1832* (1919) ; E.P.Thompson *The Making of the English Working Class*, (1963).
- ⁶⁴ Webbs, *History*, 204.
- ⁶⁵ *ibid.* 45-6.
- ⁶⁶ *ibid.* 204-5.
- ⁶⁷ *ibid.* 45-6.
- ⁶⁸ McLaine (p76), said they had conducted an ‘exhaustive study’ of the sources for their *Town Labourer*.
- ⁶⁹ McLaine, 9.
- ⁷⁰ *ibid.* 61.
- ⁷¹ Hammonds, 115-8.
- ⁷² *ibid.* 113.
- ⁷³ M.D. George, *The Combination Laws*, *Economic History Review* vi (1936), 172. Her *London Life in the Eighteenth Century*, (1925) remains one of the best.
- ⁷⁴ Thompson, 13, 260, 271-3 and 291. He first noticed the Masters’, *Statement of Facts*, 271 footnote.
- ⁷⁵ *ibid.* 271.
- ⁷⁶ *ibid.* 260.
- ⁷⁷ *ibid.* 271.
- ⁷⁸ James B. Jefferys, *The Story of the Engineers 1800-1945*, (Lawrence & Wishart, 1945). Chapter 1 has The Millwrights in the title, but nothing new from the unions’ records.
- ⁷⁹ George, 160.

London and its old artisans – masters and journeymen millwrights - Illustrations: Part 1



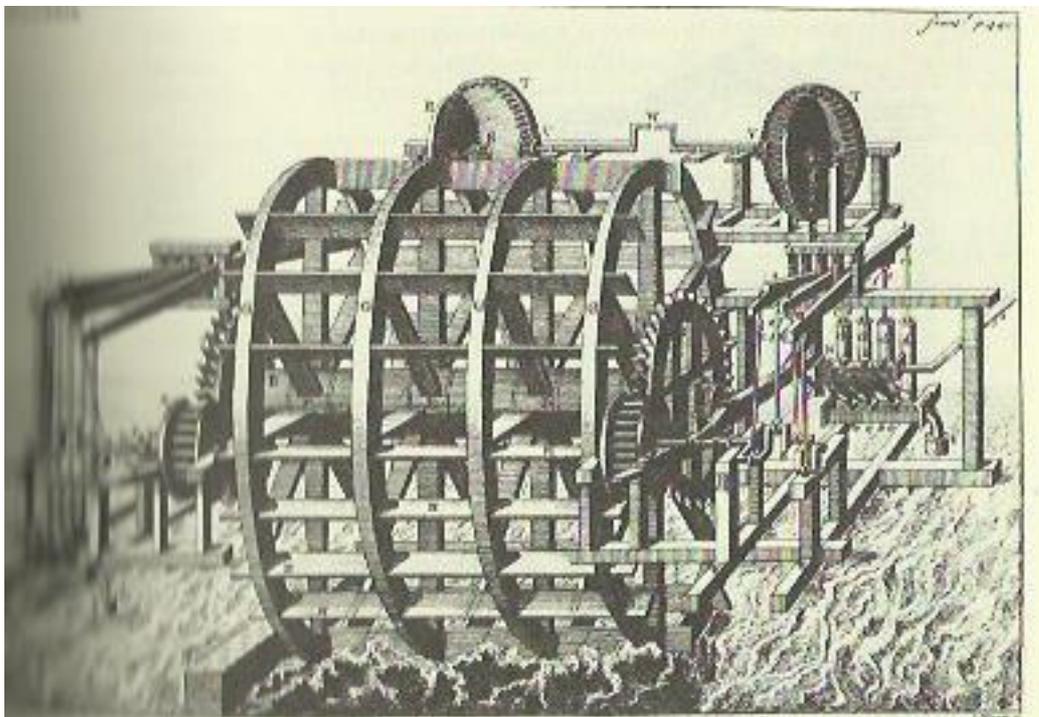
1. a rural mill scene painting by Frederick Lee ¹



2. Example of the heavy-timbered original steam-engines which mainly millwrights erected



3. Old London Bridge 1795 with wheels under the arches at both ends of the bridge.



4. The water wheels at Old London Bridge c1700 for pumping water to the City, 1731 engraving by Henry Beighton.

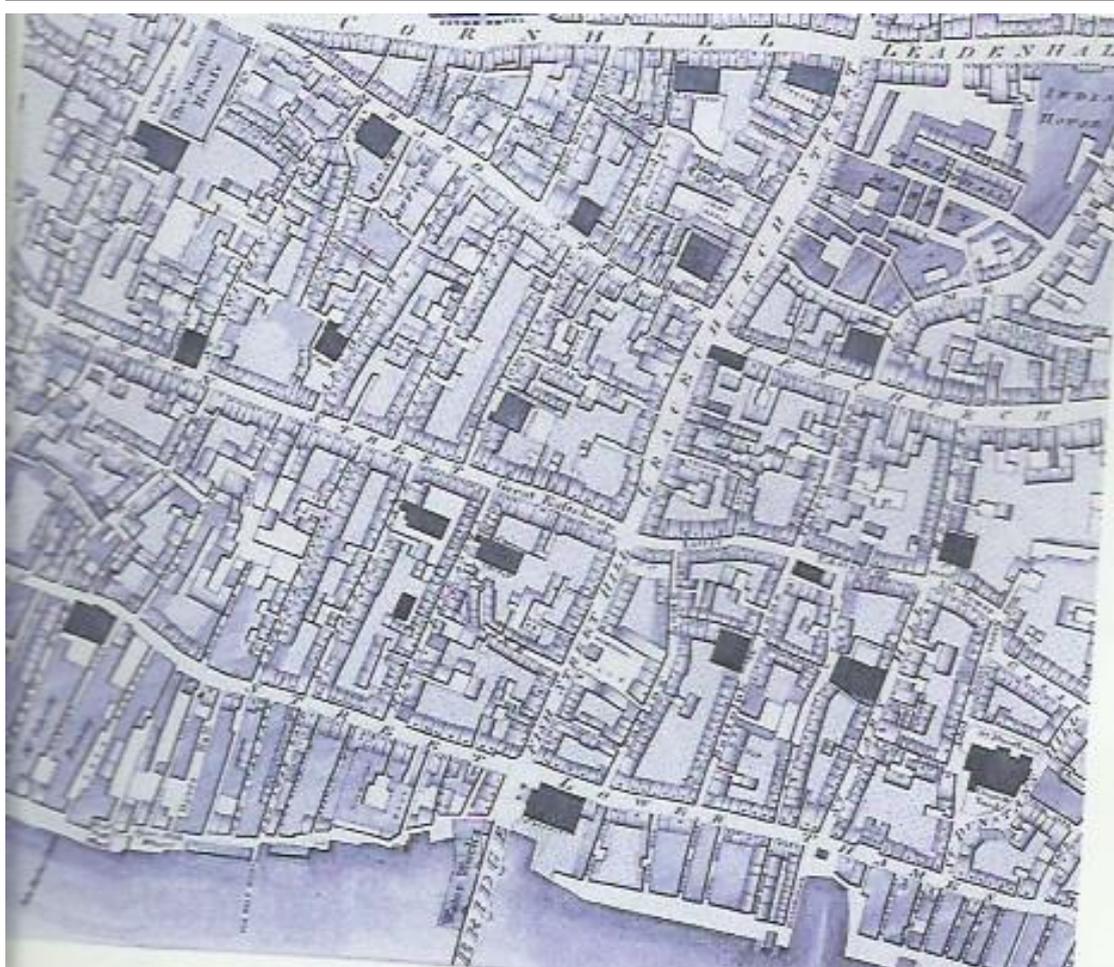


5. A New and Accurate Plan of London, Westminster and the Borough of Southwark by John Harris, 1782

List of Master Millwrights and locations 1794 and 1805

1794 Darvil - Wandsworth; Norton - 220 Tooley Street; Wetherington, Gravel Lane, Southwark; Edwards, Vere Street, Lambeth; Brown - Stratford; Cooper - Poplar; Jones - BroadWall, Christ Church, Surrey; Smith - Mile End; Hall - Dartford; Lyon and Lambert, Carshalton; Griffin - Hammersmith; Seabrook - Kings head yard, Tooley St; Lamb - Endfield Highway; Barrat - Seven oaks, Kent; Rennie - Stamford Street, Blackfriars; North - Borough Green, Kent; Jno. Jones, Kingston, Surrey; Thos. Sales - Kingston, Surrey.

(From the London Master Millwrights Pricebook of 1794)



6. Detail from Richard Horwood's map of London, Westminster & Southwark, 1799, Sheet E2, showing the area around London Bridge and Little East Cheap 1799 – main centre of the Society of Journeymen Millwrights.

Their '*Houses of Call*'

- i) Swan Tavern, Fish Street Hill**
- ii) Cornwallis Head, Curtain-road**
- iii) Red Lion, Clement's Lane**
- iv) Sun Tavern, Little Eastcheap**
- v) Bell and Three Tuns Inn, Old Bailey??**



*I am ever
affectionately
yours
W Fairbairn*

7. Sir William Fairbairn (1789-1874) former millwright, later engineering employer and author of *Mills and Millwork* (1861)



8. Painting of John Rennie, millwright and engineer (1761-1821) in 1810 by Sir Henry Raeburn Scottish National Portrait Gallery



Fig. 3. Engraving published in the *New London Magazine*, July 1790

9. The Albion Mills 1784-91, beside Blackfriars bridge, where Rennie first installed his iron millwork

His son's vivid account is worth including here:

"After Mr Rennie came to England ... the first great work which he undertook was the Albion Mills adjoining the SE side of Blackfriars Bridge and which he undertook at the recommendation of Boulton and Watt who confined themselves to the construction of the Steam whilst Mr Rennie designed and undertook the construction of the machinery which was the first example of the kind with Mr Rennie's improvements and superior workmanship. In order to carry this work into effect he established near the South Western side of Blackfriars Bridge a small machine manufactory which was chiefly for making models and patterns from which they were **made in cast iron and then chipped and fitted by the skilled labour force of the so called millwright.** These were a particular class of skilled workmen embodied into a **special Guild or Craft for making machinery** and they would not on any account admit any man to work with them unless they had been apprenticed for the same number of years to a Master Millwright as themselves – and it must certainly be admitted that they were a **very superior body of workmen in fact there were none like them for they were not only good workmen but the majority were good Engineers and were competent to direct others and superintend mechanical works.** They were highly paid having seven shillings per day besides extra time and if the Masters attempted to employ any other workmen who had not undergone the same apprenticeship as themselves, namely 7 years and under the same conditions, they immediately struck work and would not return until the obnoxious workmen had been discharged." *Life of John Rennie*, 273-4 Vol 7. (e.a.)

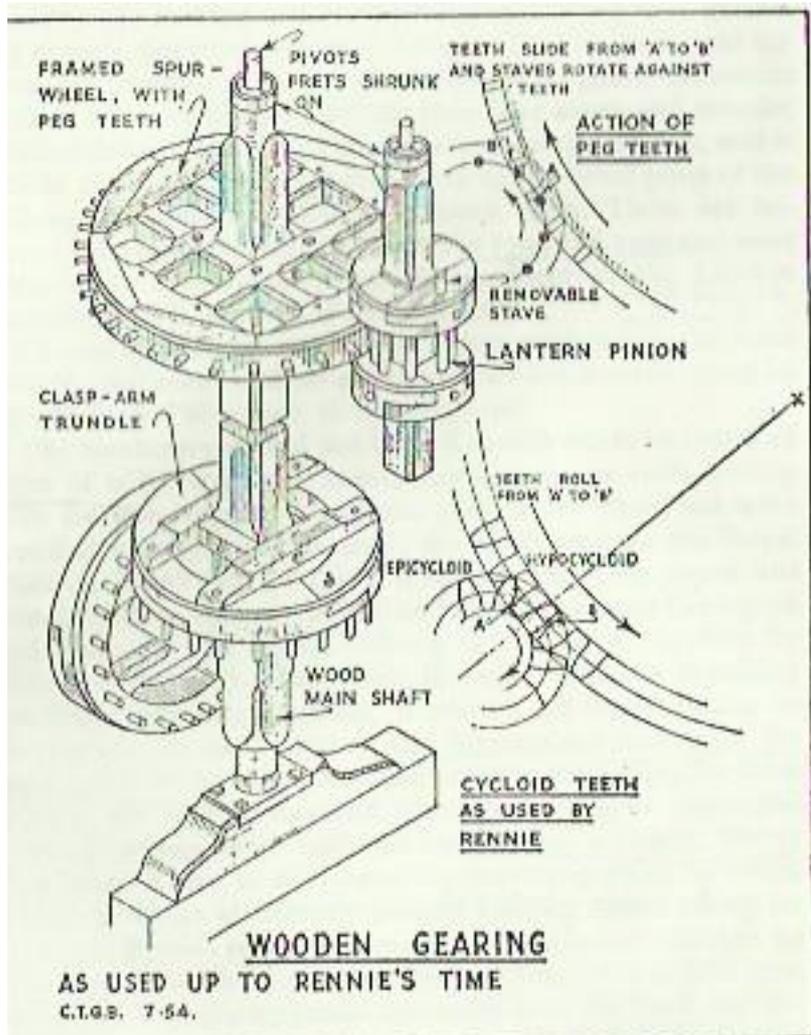
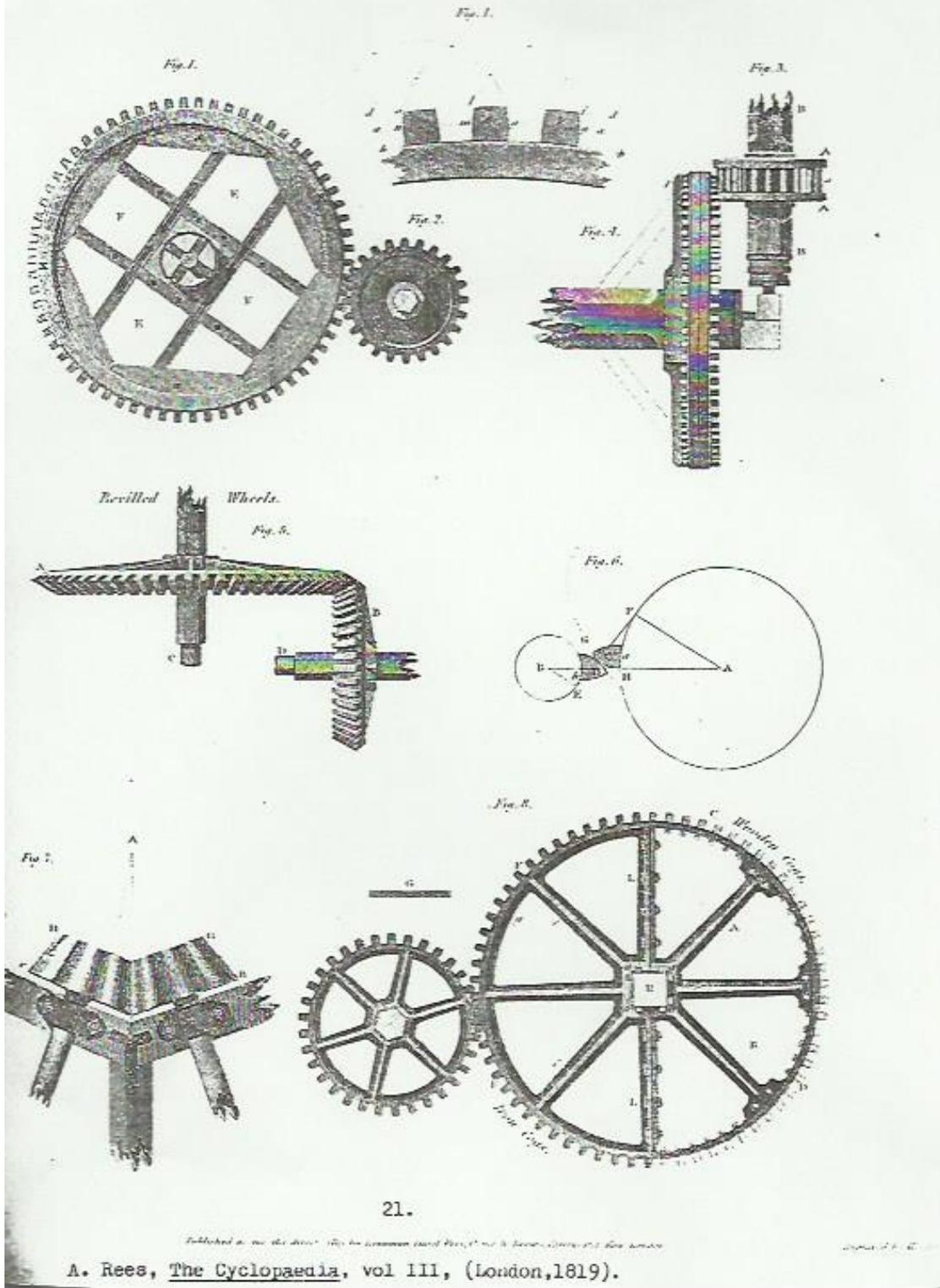


FIG. 8.—Wooden gearing as used up to Rennie's time

10. Up to Rennie's time, the shaft, wheels and gearing were generally entirely of wood and the gearing (called 'lantern' and 'trundle' spur-wheels) slid a lot, losing power through friction. From his studies, observation and practice, Rennie designed hardwood cycloid teeth on iron wheel rims instead, which intermeshed with each other in a rolling motion, so reducing the friction enormously and leading to similar changes across the engineering industry. An 1819 illustration from *Rees Enclopaedia* follows.

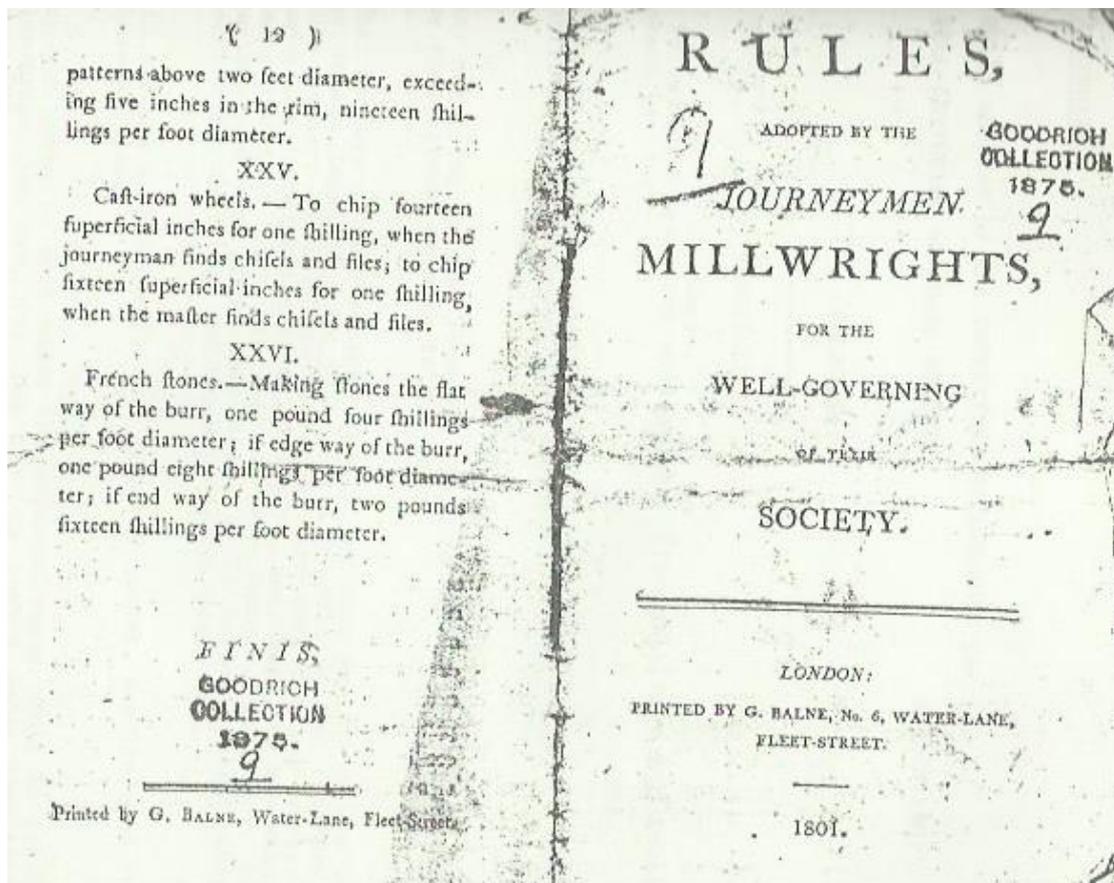
[C.T.G. Boucher, John Rennie (1761-1821), Manchester University Press, (1963),83-4]



11. Some later (1819) millwork demonstrations.

Whereas great numbers of ~~xxx~~ ^{xx} in
jurisdiction millwrights within the
metropolis and twenty five miles ~~are~~
round the same have lately ~~and~~
or been present at unlawful meet-
ings and foured or promoted rous-
bations to obtain an advance of
their wages and for other illegal
purposes And whereas the laws
in force against such unlawful rous-
dals being inadequate to the suppres-
sion or prevention thereof it is become
necessary that provision should be
made for the bringing of offenders
in the premises to more speedy ^{and}
and exemplary justice May ^{therefore} it ~~may~~
please your Majesty that it may
be enacted And be it enacted
by the King's most excellent ~~xxx~~
Majesty by and with the advice
and consent of the Lords spiritual
and temporal and Commons in

12. The Millwrights Combination 'Act' as at 21 June 1799, to be presented in the House of Lords as ***An Act to prevent unlawful Combinations of Workmen employed in the Millwright Business and to enable the Magistrates to regulate their Wages within the Limits thereon mentioned.***



14. Trade Club Rules of the Journeymen Millwrights 1801

The journeymen's Petition to the Lords in June 1799 contained nineteen signatures:

Jas McDonald, John Edwards, Joseph Mart(Marl?), Richard Jonathan, John Gray, Walter Morgan, Lewis Aubray, (his mark), John Westron, Wm. Chappell, Daniel Penning, Charles Price, Richard Collins, Wm Aitken, Saml. Collins, Hugh Morris, Wm Wallis, John Marks, Richard Kensely and James Walker

One Jonathan Taylor of Carlisle-place, Lambeth represented the Society before the Commons (Rose) Select Committee on apprenticeship in their 1813/14 lobby to strengthen the law on apprenticeship. **John Harris** at the *Sun Tavern* wrote on their behalf to the Masters in 1812 (see his letter, **illustration 1**)

Three other activists are named to the Master Millwrights Association in 1810 as having left their Employer on account of 'Implying a Carpenter to Chop Elm Tree for a pump', namely, **Samuel Elliott, Charles Rentoul and William Row** (Rennie Collection, N.L.S. MS 19828).

Articles of Agreement made concluded and agreed upon by the Amicable and Brotherly Society of Journeymen Millwrights held at the ~~Public Hall~~ ~~in the City of London~~ ~~this twelfth day of October 1801~~ in pursuance of an Act of Parliament passed in the thirty third year of the reign of His present Majesty intitled An Act for the Encouragement and Relief of Friendly Societies -

Whereas we whose Names are hereunto subscribed have formed and united ourselves into an Amicable and Brotherly Society for the mutual good and benefit of each other and considering the many Uncertainties of Life and fortune by means of which we may by lingering Illness be afflicted with any bodily disease or by the Infirmities of Age be rendered incapable of providing for ourselves and families we do hereby agree to the several Articles Rules Orders and Restrictions hereafter mentioned and also to be subject to such Orders Alterations and Amendments therein as shall or may be made at any Time or Times hereafter pursuant to the Act of Parliament made for the Relief and Encouragement of Friendly Societies

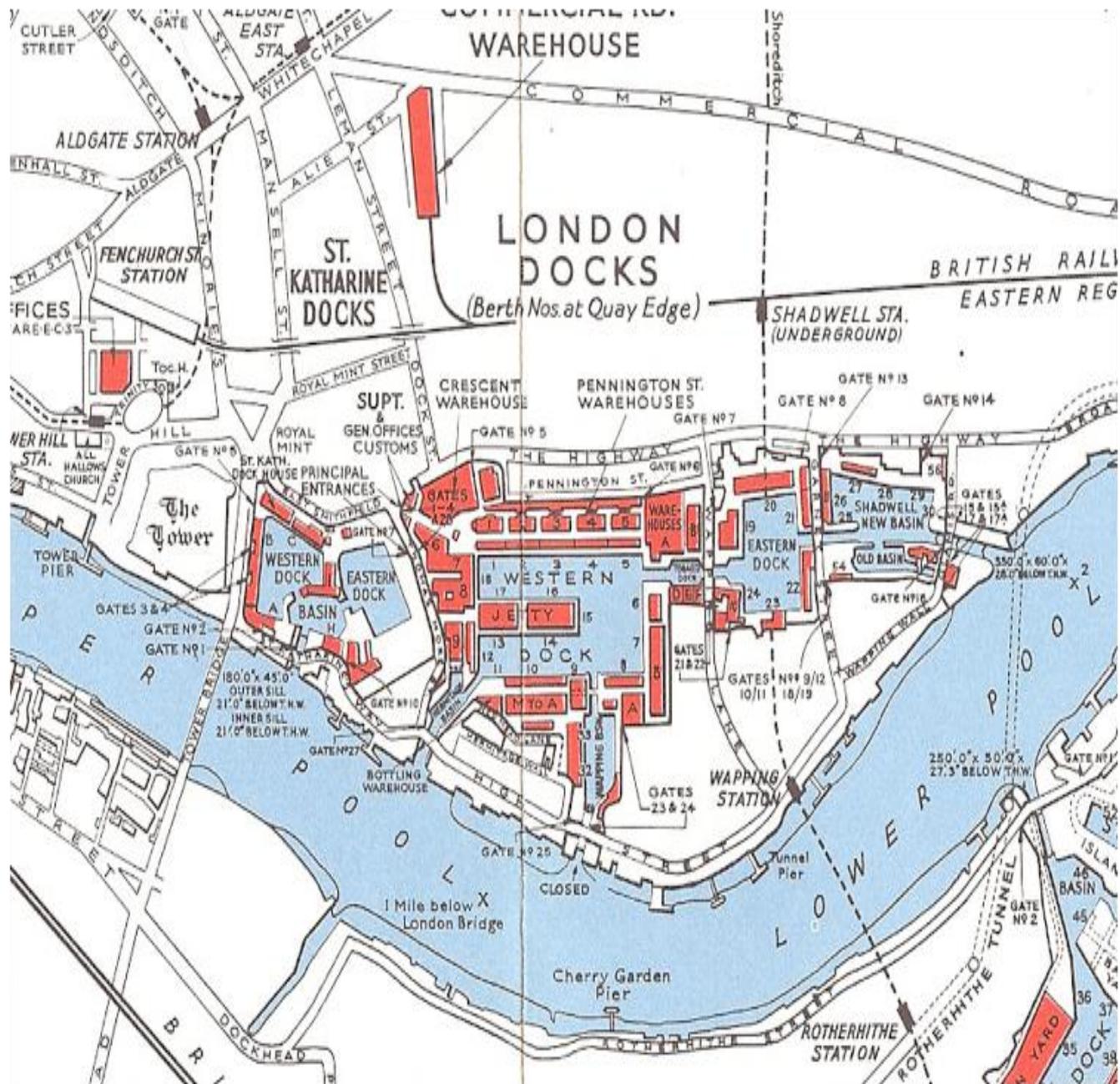
1st It is agreed that this Society shall be called the Amicable and Brotherly Society of Journeymen Millwrights that it shall not be confined to any limited Number of Members but that no one shall be admitted a Member who is not a Journeyman Millwright who has served a legal Apprenticeship to the said Trade or Business and at the time of his Admission shall work for some Master or Master who is a lawfully inhibited and sworn in workman on the said Trade or Business of a Millwright

2nd That a Treasurer of this Society shall from time to time be appointed by the Majority of the Members at large at some quarterly Meeting to be held for that purpose. That the person so appointed Treasurer shall previous to his being admitted to take upon himself the Execution of such Office become bound with two sufficient Sureties for the just and faithful Execution of his Office and for rendering a just and true Account of his Receipts and payments made on Account of the Society in such penal Sum as the Majority of the Members present at the time of the Admission of such Office shall approve and direct. That the person so appointed Treasurer from Time to Time shall be liable to removal or being displaced by the Society at large by a Majority of three parts in four of them at any quarterly Meeting One Month Notice of the Societys Intention being previously given by the Secretary to the Treasurer for the time being -

3rd That the Stock or Capital of this Society shall be vested in the Public Funds in the Name of four Members of this Society and of the Treasurer for the time being and the four Members shall be chosen by Ballot from time to time

15. The Friendly Society Rules of the Amicable Society of Journeymen Millwrights 1801 showing the Registrar strike outs of trade club rules requiring apprenticeship as 'having the appearance of an improper combination'.

Illustrations: Part 2



A. Port of London Authority map of part of the London docks in the 1950s, which were built from 1800 (showing the London Docks which Rennie's millwrights worked on in 1805).

Society of Master Millwrights		1805		L. S. D.	
Oct. 7 th to the 21 st of the Day at the Newcomen Tavern		10	12	2	
With Bryan Donkin Treasurer		1805		C. L. S. D.	
Oct. 7 th By B. Simpson & Co. 3 3 0					
" Honey - - - - -		3	3	0	
" M. Burton D. - - - - -		3	3	0	
" S. Bitcham's D. - - - - -		3	3	-	
" S. Moorman - - - - -		1	1	-	
" S. Godfrey's - - - - -		3	3	-	
" S. Norton - - - - -		3	3	-	
" S. B. Bitcham's - - - - -		3	3	-	
" S. Smith - - - - -		3	3	-	
" S. Coxon - - - - -		3	3	-	
" S. Morgan - - - - -		3	3	-	
" S. Penn - - - - -		3	3	-	
" S. Donkin - - - - -		3	3	-	
" S. Lloyd's - - - - -		3	3	-	
" S. Keir - - - - -		3	3	-	
		12	0	0	
		10	12	2	
		2	12	2	

B. Page from the accounts of the Master Millwrights Association (Bryan Donkin, Treasurer) showing members and their subscriptions 1805

Master Millwrights of the London area

1805 Thomas **Cooper** (Old Street) – the Treasurer; John **Lloyd** (Westminster); John **Hall** (Dartford); Walter **Morgan** (Old Street); **Robert Ostell & Freemantle** Shoreditch) – Ostell was Secretary; John **Penn** (Greenwich); Joseph Minn (?); Humphrey **Edwards** (?); James **Burton** (The Borough); Brian **Donkin** Bermondsey); John **Sherwin** (?); James **Moorman** (Battersea); Thomas **Simpson** (Pimlico); John **Norton** (Tooley Street); S. **Seabroke** (?); Peter **Keir** (Somers Town); George **Coxon** (Blackfriars); David **Godfrey** (Blackfriars); **Smith** (Mile End) and **Mitcham** (?). The Treasurer, Brian Donkin's subscription list adds

Three more names: David **Godfrey** (Blackfriars); **Smith** (Mile End) and **Mitcham** (?).

Moher, *London Millwrights* 72-93 traces what was known about them and those of 1794 (illustration 5 – Part 1)

To the Chairman of the Meeting of Millwrights held at
 the Museum Tavern Blackfriars Road - London

In consequence of the Information we have received, of the same
 Millwrights demanding an advance of Wages of 1/3 of a Day - we think
 it a most gross Impertinence & are extremely determined to resist the
 Demand & not to make any advance upon their present Wages
 which in our Opinion is very Liberal.

Should any Meeting of Manufacturers be convened, by those
 residing in or near London; we have no Objection to comply with
 the Resolutions then entered into; for which Purpose a Deputation
 shall be appointed to attend - June 4. 1845

Signed

John Fellows Croydon Mills	James Colyer Dartford
Henry John Birmingham Mills	Wm Conely Durdash Mill
Thos Willmott Shearman Mill	Eric Lear - Boston Mill
John Thorpe Shearman Mill	Wm W. Rowlandson & Co. Dover
W. Crosswell - Oxford Mills	Richard Metts - Dartford
John Metcalf Greatmill Mill	John Budge Dartford
Jos B. Broadly Broadburn Mill	William Loder Dartford
John Broadford Longford Mills	Jos Whitchea Croydon
William Hooper Chipstead Mills	Thomas Gilling Bealey
William Watson Oxford Mills	David Tupper & Co
Chas Willmott - Shearman Mill	Edward Kent of Crayford
Thos Stacey Pauls Cray Mill	Thomas Gilling Bealey
Chas Crisp Pauls Cray Mill	Mr. Bennett Crayford
Wm Lay St Mary Cray Mill	Robt Stairs
Genl Colgate Orington Mill	
Wm Willmott Pauls Cray Mill	
Wm Gilling St Mary Cray	

C. Petition of the Darent Millers protesting at the journeymen millwrights' wage demand, 4 June 1805.

To the Employers of Millwrights in General.

GENTLEMEN,

AS it is the duty of every individual to contradict error and support truth, the Journeymen Millwrights in London, actuated by that sentiment, feel it a duty incumbent on them to make an appeal to the Public concerning that illiberal attack and unjust construction put upon their late conduct in a late Advertisement under the head of Four Resolutions entered into at the London Tavern, the 14th Inst. with many respectable signatures attached to it. In reply, the Journeymen Millwrights have to state, that they detest not only a Combination, but also the name of it, and they can challenge their most inveterate enemies to prove such a charge. The Millwrights have not "universally abandoned their work." Few of them are out of employ, and those who are, it is not with an intent to controul their former Masters, but the most consistent means in their power of resisting the arbitrary and oppressive conduct of a few of their Masters over them. Several Gentlemen and Master Millwrights are far from considering the late rise of wages "exorbitant," but on the contrary just and reasonable. Can any Gentleman, or any Mechanic with the least degree of candour or justice assert, that the journeymen in any art, trade, or calling, shall be compelled by legal means to enter into their Society any description of persons their employers may think proper, without serving perhaps one hour to that Business. If that becomes a general principle, there is an end to all trade and mechanism, and the country grossly imposed upon by Impostors. The Journeymen Millwrights beg leave to return their sincere Thanks to those Gentlemen and Master Millwrights who have favoured them with their Orders, and can assure them, that they can be supplied with experienced Workmen, at 7s. per Day, by applying at the Swan Tavern, Fish-Street-Hill, between the hours of Ten in the Morning and Six in the Evening.

London, June 20, 1805.

D. The journeymen millwrights response to Employers 'Four Resolutions'

during the 1805 strike



E. Portsmouth naval dockyard - extended massively by Samuel Bentham and Simon Goodrich from the 1790s for mass production of pulley blocks by machines which displaced the London millwrights there c1805-6. The ship in dock is HMS Victory.

C. M. Linker

The following is the determination of the Journeymen Millwrights in the Majesty's Dock Yard under M^r Lloyd

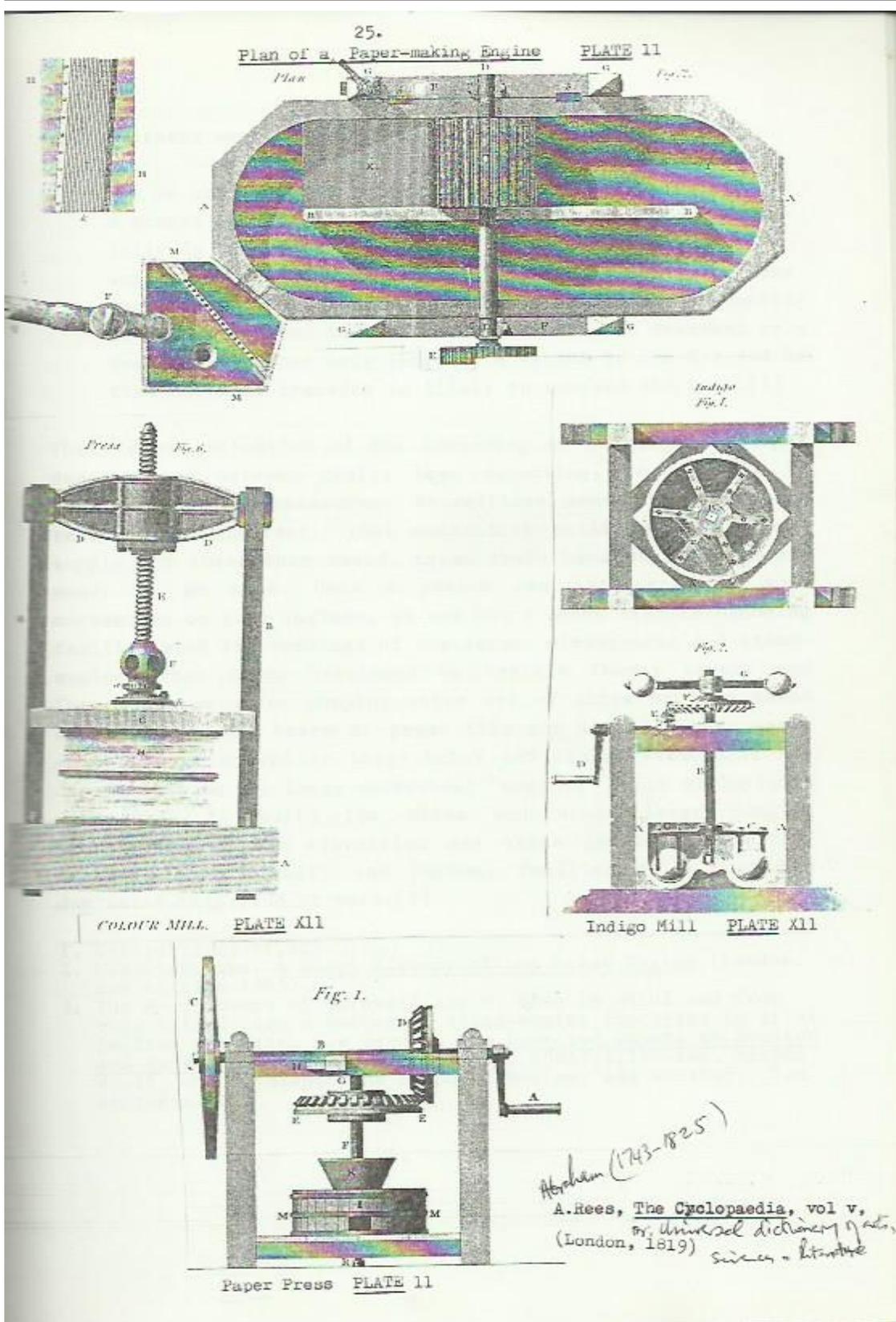
& That the terms proposed to us will by no means be compromised with upon any other Establishment than the privileges that we at present enjoy. That is that we shall be paid at the rate of £1.3 per day which shall include so working hours and all overtime to be paid as it has hitherto been in proportion to the advance wages.

With respect to going etc. will by no means be compromised with, as it is contrary to all other Millwrights rule

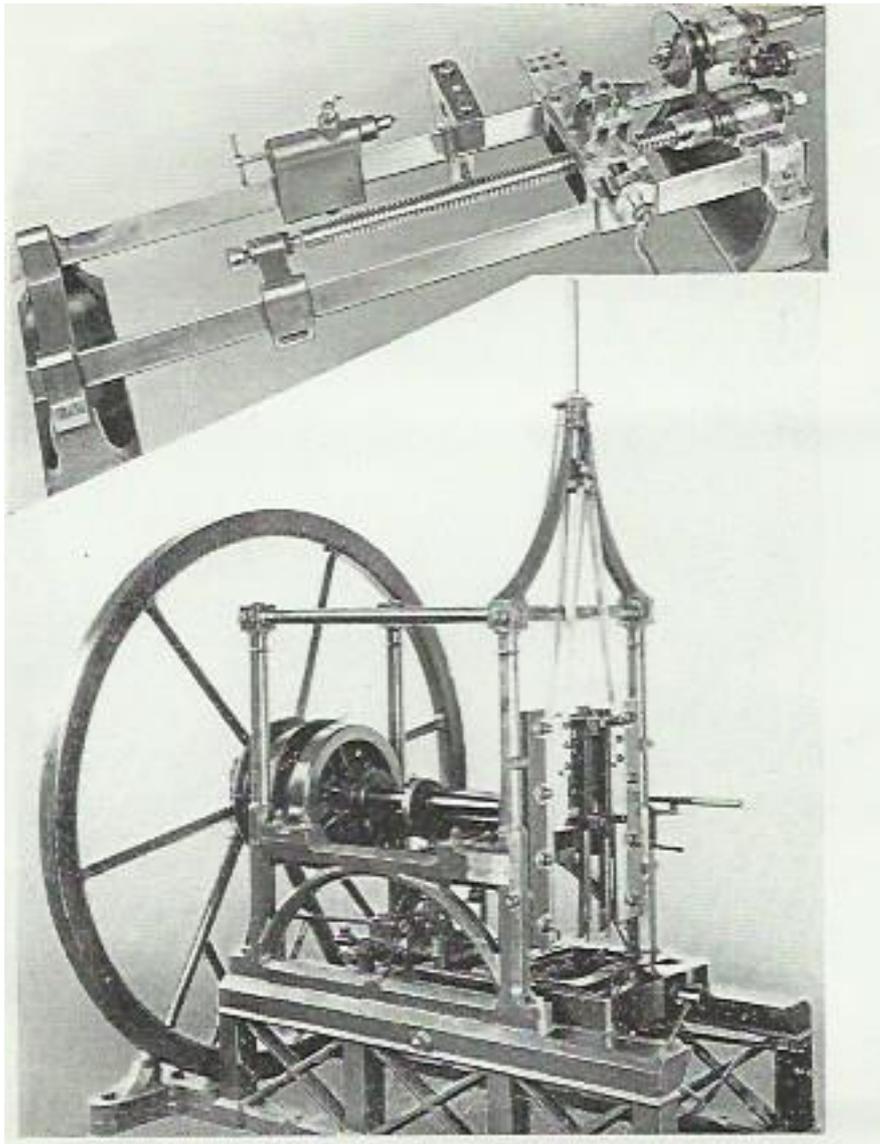
To come to the Point we shall expect the advance wages for the incoming week and the privileges of London Millwrights which if granted we have no objections to come to work but upon no other terms whatsoever

July 21
1805

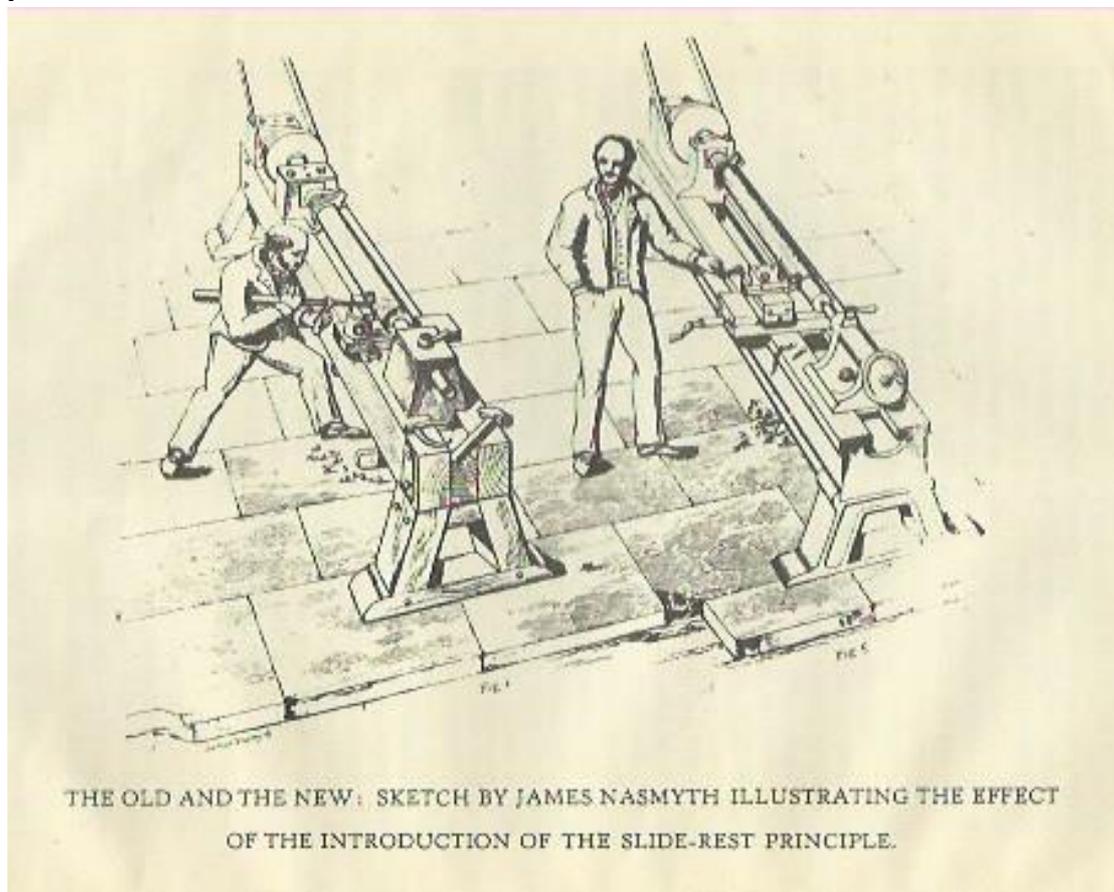
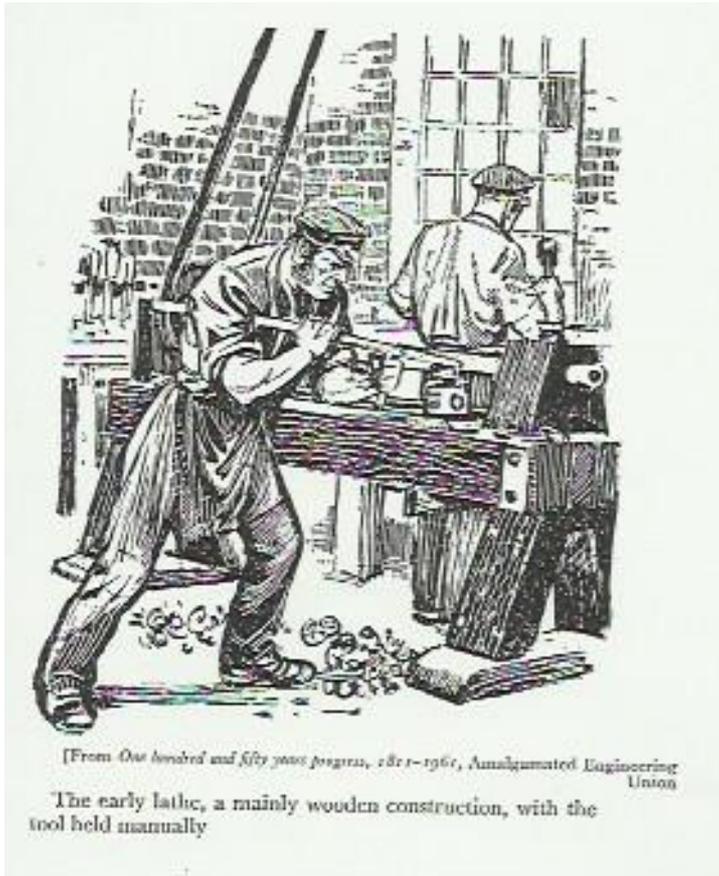
F. Handwritten response of the London journeymen millwrights at Portsmouth to Simon Goodrich's terms for continuing in employment there. 21 June 1805.



G. Wooden machinery of the type made and assembled by millwrights for a whole range of manufacturing processes. Compare with the all-iron machinery at Portsmouth (G. below).



H. Maudslay's all-iron **slide rest** and **screw-cutting machine** c1800 and one of the forty-four iron machine-tools for **mortising** ['tongue-and grooving'], the ship-blocks at Portsmouth naval dockyard 1803-7.



I. The hand-tool and tended early machine-tool compared.

July 17th 1812

Sir

With the journey men - Millwrights having maturely considered the many grievous infringements, which are daily practiced on our Trade, which we deem injurious to the interest of both Masters and Journey men. -

Therefore we beg leave once more to address you, in conjunction with other Master Millwrights soliciting you to take the subject into your serious consideration, the last time we thought it expedient to address you concerning these circumstances you treated us with silent contempt, not deeming us worthy an answer of any kind, with very little consideration, by looking out the passing events you might have seen, it was as much for your interest as for ours to grant the request specified in that letter - But it is with deep regret that we see the Masters do callous to the interest of those which destiny has placed under their control as well as their own. -

The reason of us addressing you again on this subject we are informed by individuals of your Body that had you understood the real purport of our letter our request would have been complied with

Therefore, under these considerations, here stated as a part of our
views that there is many men of different descriptions erecting
Machinery in and about London. and there is also Master
Millwrights employing illegal Men which we consider to be
injurious to the Trade in general. —

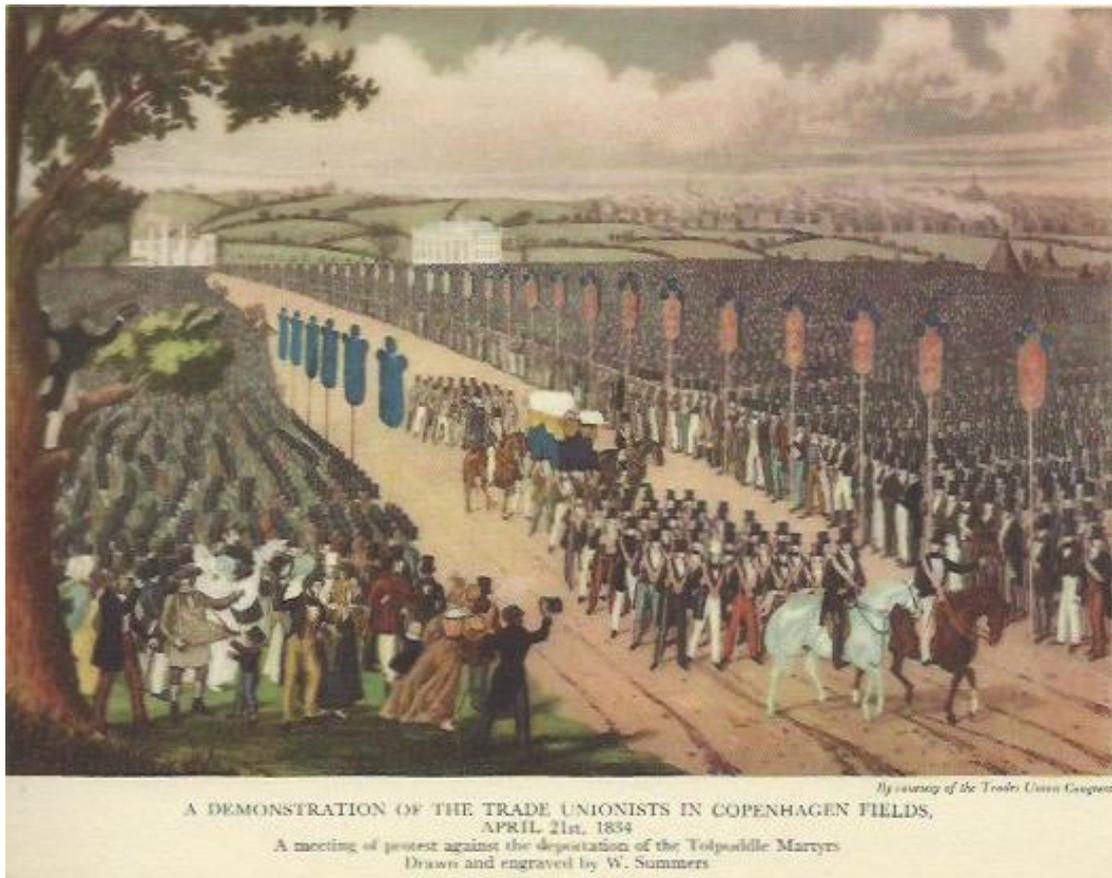
It is our Opinion that unless a thorough understanding
and Union of principle exists between the Masters and Journeymen
Nothing can be effected towards the general good of either
If it should meet your approbation to appoint a deputation as
expressed in our former Letter at any time or place you may deem
most convenient; you will inform us of the same by answering
this one or before the 29th instant —

We remain your much Obliged

Your Obedt^l Servts
The Journeymen Millwrights

Addressed to Mr. Harris Senr. Tavern, Little East Cheap

J. A letter from the Society of Journeymen Millwrights, John Harris, Little Eastcheap to the Master Millwrights Association seeking a meeting so that 'a thorough understanding and union of principle' between them could be achieved to combat the 'serious infringements which are daily practiced in our trade' July 17th 1812.



K. The typical regalia of the journeymen up to 1830s – long frock coat and hat. The potential for revolution of this ‘phallanx’ of the associated artisans was feared by many of the ruling class in 1812-4 during their campaign against repeal of the medieval apprenticeship laws, in view of the Luddite unrest in the Midlands and the North at that time.