THE CONTRIBUTION OF SOUTH-WEST LANCASHIRE TO HOROLOGY

PART 1: WATCH AND CHRONOMETER MOVEMENT MAKING AND FINISHING


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BY combining known accounts of the manufacture of watches and chronometers (some of which have only recently come to light) with genealogical information and information from ephemera and from extant watches and chronometers, which can be read as documents, it is hoped to explain clearly the English system of watch and chronometer manufacture, and in particular the contribution of south-west Lancashire.¹

The first part published here sets the scene by explaining the way in which watchmaking in England came to be divided between movement makers and finishers. Subsequent parts to be published in Antiquarian Horology will look in more detail at the watch and chronometer movement makers, and the important contribution of the Lancashire movement makers such as the Hewitt family, John Wycherley and Joseph Preston, and finally at the importance of the Lancashire finishers, especially the Hornby family.

WATCH MOVEMENT MAKING AND FINISHING IN ENGLAND

By the mid-eighteenth century English watchmaking had clearly established the form in which it was to persist for more than 100 years. The industry’s success produced a strong belief that Continental or colonial manufacturers could never successfully challenge English pre-eminence in the manufacture of high quality watches and chronometers. It also engendered a conservative attitude, shared by workers at all levels within the trade, which prevented the UK from fully appreciating the challenge from the American watch factories and the French and Swiss manufacturers, and reacting in a manner that might have ensured the future of English watchmaking.

It is important to place in context the widely held and deeply rooted belief in the superiority of English methods of production. It is particularly important to remember that more watches and chronometers were manufactured in England in the second half of the nineteenth century, and more people were engaged in their manufacture, than ever before. Decline was not always obvious and inaction did not always rule the day. In particular towards the end of the eighteenth century the Coventry watch manufacturers did respond to the Swiss challenge at the bottom end of the market. Also many manufacturers continued to produce significant numbers of higher quality watches and chronometers for longer than is generally appreciated – even though the total English production was soon dwarfed by that of the American and Swiss manufacturers. The UK watchmakers may have been slow to follow the textile manufacturers in establishing factories and automating watch production, but we should not underestimate the effectiveness and success of the traditional craft methods of production, with the division of labour pushed to the ultimate limits, and increasingly supported by use of machines.

By the 1740s watch manufacture in the main centres of London and Liverpool was clearly divided into two branches: movement making and finishing, and the division of labour within each branch was already well advanced. This is

¹ This account of the contribution of south-west Lancashire to horology extends the material presented at invited lectures to the 2006 Ward Francillon Time Symposium at Cleveland Ohio on ‘The Importance of English Exports for American Watch Making’, and the AGM of the Antiquarian Horological Society in March 2008.
made clear by two accounts of which many readers may not be aware. The first is *A short Account of the Life and Travels of James Upjohn of Red Lion Street Clerkenwell, Clock & Watchmaker and Goldsmith*, a bound handwritten copy of Upjohn’s own journal made by a descendant in 1784, which is now in the Clockmakers’ Company archive at the London Guildhall.

The second account, in 1813, is based on the memoirs of Henry Ellis, an Exeter watchmaker, documented by C. N. Ponsford.

From the Upjohn manuscript (see Fig. 1) we learn that James and his brothers were trained in all branches of watchmaking by their father Edward Upjohn, a stonemason from Shaftesbury in Dorset, England, where James was born in 1722. The family emigrated to America soon after James’ birth, but returned to Devon in 1726 and soon settled in Exeter where Edward died in 1764 aged over eighty (note 2). Edward was one of the many ingenious mechanics who emerged in England from the late seventeenth century. Apparently self-taught, without any conventional training, he became competent in virtually all branches of clock and watch making and was able to put his mechanical abilities to work making money. James records that his father cast all his own clock-work, forged his iron work, cast his bells and even engraved his own clock dials. Also, in James’ own words:

In the watch way he made his own Movements and Motions and finished the Watches Completely; he likewise made watch-cases and Springs, and undertook all sorts of out of the way Jobs.

James further reports that:

I can remember five of us all at work at one time … in making Clocks and Watches complete, all within ourselves.

One of his brothers even engraved their watches. James eventually went to London in 1743, where he first lodged with:

Mr Thomas Dale who lived at the first House in Berkley Court, Berkley Street on the Left Hand near Red Lion Street Clerkenwell: Mr Dale immediately gave me a Watch to finish, which I did, and for which he paid me fourteen shillings, besides he lent me tools to do it with. … I told Mr Dale I could make a Watch from the beginning to the end; which he would not believe; but in order to convince him of its veracity, I desired him to permit me to undertake one for him,

2. See Brian Loomes, ‘The amazing life of James Upjohn’, *Clocks* Vol.6 No.5 (November 1983), 12 & 13, for background information on the Upjohn family.

3. See Fig. 2 for Berkley Street and Red Lion Street Clerkenwell, from the large scale *Plan of the Cities of London and Westminster, the Borough of Southwark and Parts adjoining showing every House* published by R. Horwood 1792-1799, reproduced by courtesy of the Guildhall Library. Note that James’ own shop was located in Red Lion Street, close to his original lodgings.

4. Note that the pound sterling was 20 shillings, the guinea 21 shillings, and the shilling was 12 old pence (12d). Thus 14 shillings (14/-) is two thirds of a guinea and less than three quarters of a pound, and one shilling is 5 new pence (5p).
which he complied with: after I had finished it he gave me what every separate Article was worth. Viz. for the movement Eighteen Shillings; for a neat Dove-tail Slide and Motion, Ten Shillings and Eighteen Shillings for the Finishing; in the whole Forty-six shillings, which I got (or earned) in less than a fortnight.

James also tells us for good measure that:

At that time he had a repeater to repair upon which he ask’d me if I knew any thing of Repeaters, to which I answered in the affirmative, and did it immediately for him; this being done, I was determined to stick entirely to Finishing for that was what I could get most money at; for I was very quick.

There were, and doubtless are, many ingenious mechanics who could make a verge escapement watch and case completely. But let us never forget, as James quickly realised, that this was not the way to make a decent living in the manufacture of ordinary or even relatively high quality watches, especially once the division of labour was firmly established in branches such as movement making. In such situations the high level efficiency already achieved could work to discourage innovation from without. It simply did not pay to try to make watches another way.

Henry Ellis, another watchmaker from Exeter, left the second account of watchmaking, written about 70 years after James Upjohn recorded his experiences. Ellis was born in Exeter in 1790 and died there in 1871, and his life has been well documented by C.N. Ponsford, using information from Ellis’ written Memoirs. Ellis went to London in 1812, and worked for William Upjohn a relative of James Upjohn who was a watch manufacturer at 11 St John’s Square

Clerkenwell (see Fig. 2), close to Berkley Street and Red Lion Street where James had lived and worked many years earlier. In 1813 Henry Ellis wrote the following account of the manufacture of the common verge watch in Clerkenwell, first published by Ponsford:

Many country watchmakers, or rather menders, form but an inadequate idea of the method of getting up Watches. The manufacturer is one who procures the different parts of the Watch from the several makers of them, sees them all rightly adjusted, and put together in a fit state for the wearer. The movement maker sends home the movement in a round tin box: it consists of the frame, barrel, fusee, great, centre, third, contrate, and balance wheels; the verge balance, pottance, &c. To furnish these several parts alone, many hands are employed by the movement maker, some in making the pinions, some one particular wheel, some another. Movement making is generally considered a good business; the masters being often men of property, and having a large number of people in their employ.

Fig. 2. Berkley Street, Red Lion Street and St. John’s Square Clerkenwell in the 1790s; by courtesy of the Guildhall Library London.


6. The wheel referred to as the ‘balance wheel’ is the verge crown escape wheel.
Movements are charged from 4/- to half-a-guinea [see note 4], and upwards for superior work. The best are manufactured in Lancashire, and command a higher price than Town-made ones.\(^7\)

Note the significant reduction in the cost of movements since Upjohn was writing in 1743, and that there is no mention of unfinished movements or parts being bought in from France or Switzerland. Ellis continues:

The frame is next sent to the enameller who makes the dial; this also goes through several hands. … Common dials are rendered about 9d each [see note 4], an extra 3d being added when the edge is gilt; seconds dials, and others requiring more work, are of course charged higher. The next operation is to send the frame and dial to the case maker. … Common [i.e. silver] pairs of cases are made at 6/-, plain hunters 8/6 and the better sort of work in proportion. Gold cases are charged much higher – for no other reason that I can learn, than that they are gold. The case-makers are generally the most wealthy of those who carry out the different branches of the watch trade; some of them employ between twenty and thirty men, and have been known to retire to an ample independence.

Henry Ellis closes the document with the note:

Continue this at my leisure. Notice the main-spring makers, chain makers, hand makers, joint finishers &c. &c. &c.

Unfortunately Ellis never seems to have had enough leisure to finish the account! But in the printed report of the Minutes of Evidence presented to the Parliamentary Committee on the Petition of Watchmakers of Coventry &c 4 years later in 1817\(^8\) (see Fig. 3), the Coventry watch manufacturer James Keene lists the various branches of the watch trade, claiming that there are a total of 102 separate trades involved in all. His list (page 77 of the published evidence) gives some idea of the extent of the division of labour and specialization involved:

- Movement maker is divided into frame mounter, brass flatter, pillar maker, screw maker, cock and pottance maker, wheel maker, wheel finisher, barrel maker, barrel arbor maker, pinion maker, balance maker, verge maker, ratch[et] and click maker, and other small steel work; dial maker, copper maker, enameller, painter, hand maker, glass maker, pendant maker;
- Case maker, divided into silver flatter, box maker, case maker, joint finisher;
- Motion maker, divided into bolt maker, slide maker, motion wheel maker, motion maker, spring maker; chain maker, divided into riveter, finisher, and preparer; engraver, which is divided into cock and slide engraver, name engraver; cap maker, jeweller, scapement maker, finisher, wheel and fuzee cutter, case spring maker,

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7. That is movements made in London.
spring and liner and polisher; key maker, and several other branches, to the number of 102 in all.

THE COVENTRY APPRENTICESHIP SYSTEM

The evidence that Keene and others submitted to the Parliamentary Committee describes clearly the apprenticeship system introduced by a number of Coventry manufacturers from around 1775, which enabled them to dramatically reduce the cost of finishing basic verge watches. London, Liverpool and many of the Coventry manufacturers, however, continued with the traditional apprenticeship for watch finishers. This ensured that after 7 years the apprentice had a good practical general knowledge of watch finishing, and was employable as a journeyman finisher who, if and when he could raise the capital, could set up as a manufacturer, employing finishers to work for him. What became known as the Coventry or factory apprenticeship system however, used the apprentices skilled (and not always well skilled or well trained) in just one branch of watch finishing, to replace the journeyman finishers. Watches could then be finished at a lower cost – by paying apprentice instead of journeyman rates. Even if basic inexpensive verge and (later on) lever watches of acceptable quality could be manufactured in this way, the social cost was dramatic. Even competent apprentices at the end of their term were replaced by new apprentices, but did not have the general practical knowledge and skills to ensure employment as journeyman finishers.

As a result of the Coventry system, from the last quarter of the eighteenth century much of the production of basic verge watches became concentrated in Coventry. Meanwhile, the Liverpool manufacturers took up production of the new rack lever and later on detached lever watches, while many of the London manufacturers happily abandoned the common verge watch in favour of higher quality (and higher priced) cylinder, duplex and chronometer escapement watches.

James Keene states (page 75 of the evidence to the 1817 Parliamentary Committee) that: ‘One factory, of long standing, has had an establishment of from thirty to forty apprentices for the last 40 years’.

I believe this manufacturer was Vale & Company, which eventually became the important and highly respected firm of Rotherham & Son, which from the early days also manufactured watches of the highest quality, using traditional methods. It is interesting to note that Edward Massey of Newcastle-under-Lyme chose in 1813 to go to Coventry to exploit his recently patented detached lever escapement rather than to Liverpool or London, and many of the earliest Massey escapement watches were finished to a very high standard in Coventry (in most cases using high quality movements bought in from Lancashire as described later).9 If such watches were sold in silver cases they were normally assayed in nearby Birmingham, as were the lower grade verge watches finished under the Coventry factory system. Gold cases however were normally assayed in Chester or London, many made by Liverpool or London case makers. Until the year 1824 the Birmingham assay office (which was opened in 1773) was not authorized to assay watch cases and other items manufactured in gold.10 Charles Dickens gives a detailed account of a visit to the Rotherham factory in the early 1850s, in the weekly magazine Household Words.11 He reports regarding the sale of Coventry watches:

... there seems to be no doubt that the demand would be larger, but for the prejudice against Coventry watches, which is akin to that against Birmingham jewellery. The dispute lately pending between a great Coventry house and the Assay Office at Birmingham is a curious illustration of the way this prejudice works. There is an Act of Parliament, about 30 years old, which obliges manufacturers to send their gold productions to the Assay Office at Birmingham, if they reside within thirty miles of it. Messrs Rotherham send

the greater part of their watch-cases to the Birmingham office; but they feel it hard, while labouring under the disadvantage of the old prejudice, to be prevented from getting their gold assayed at any office they prefer. Their alternative is between having their watches despised on account of the local mark, and buying their cases in London. They are obliged to buy so many cases in London, that it makes the difference of thirty pounds a-week in the wages of labour that they pay in Coventry.

Philip Priestley (see note 10) implies that the restriction applied to silver as well as gold cases, within an area of 20, rather than 30, miles of the Birmingham office, and was not removed until 1854. In practice most of the Coventry watches destined for silver cases were cased in the Coventry area and assayed at the Birmingham office, and few, if any, silver cased watches manufactured outside the area were assayed at Birmingham. Original cases assayed at Birmingham (see Figs 4 & 5) are therefore very strong evidence that the watches were manufactured in the Coventry area, whatever the name and location on the movement or dial.

WHO MADE THE WATCH?

Watchmakers with a significant wholesale or retail trade doubtless always bought in finished movements or complete cased watches, if available in the right quality and at the right price. Clearly by the third quarter of the eighteenth century most of the watches sold in the UK were manufactured in one of the main finishing centres, although many were signed with the vendor’s name and location. The same was true of watches exported from the UK. Broadly speaking, the manufacturers were quite willing to add the vendor’s or importer’s name and location to the movement or dial, or to add fictitious names, such as Bullingford, Champion, Edmonds, Fairplay, Fondling, Goldsmith, Hicks etc., which became very familiar in America. Coventry manufacturers normally added ‘London’ or ‘Liverpool’ as the location, as both these centres had a high reputation for producing good watches throughout much of the world. Figure 6 shows that Coventry manufacturers like Thomas Mercer and Sons 12

12. Manchester Central Library, Stubs Papers L24/1 Box 6153. Folder 16.
were happy to use fictitious names for their watches, and not to reveal that the movements were made in Coventry. His advertisement\(^\text{13}\) in Fig. 7 suggests he also desired to make it clear

that he had no connection with the now more famous chronometer maker Thomas Mercer.

Sometimes manufacturers supplied watches with the barrel bar or top plate gilded but plain, so that a purchaser could have any name and location added locally. This is often indicated by the engraving on the barrel bar having been executed after the plain barrel bar had been gilded, or before the engraved bar was gilded or regilded in a manner which did not match the gilding of the movement initially supplied. Figure 8 illustrates a watch with rack lever escapement, Fig. 9 a watch with a Massey Type II detached lever escapement, and Fig. 10 a ¾-plate watch with a Massey Type I escapement, each with a plain gilded barrel bar or plate. Although the laws of England were apparently intended to compel the watchmaker who made the watch, or caused it to be made, to engrave his name and place of abode, the naive assumption that a name or location on a watch is always, or even usually, a reliable guide to where and by whom the watch was made is likely to generate nothing but confusion!

George Clerke, a London manufacturer who supplied watches to provincial watchmakers and jewelers and also exported many watches to America says in his evidence to the 1817 Parliamentary Committee (page 25):

I think the total abolition of that system [of putting fictitious names or vendors names on clocks and watches] would be very serviceable to the trade; the real watchmaker at present is kept from the public view, and the fruits of his ingenuity
and industry are enjoyed by the mere vendors of the watch or clock; as regards the foreign trade the only use of fictitious names is to denote the various prices of the watches; this I conceive might be effected by numericals or one or two letters; the watchmaker should be compelled to have his own name on the clock or watch, or if required, that of a clock or watch maker so ordering it, who should have been regularly brought up to the business.

Nevertheless he apparently had to continue using fictitious names such as Fairplay, Fondling and Hicks (see Fig. 11) on watches he exported.

More serious problems arose from the practice by English as well as Continental makers of putting 'great names' on (often rather

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inferior) watches of their own manufacture – for example the fake ‘Tobias’ watches which have been well documented by Michael Edidin.15

The origins and early history of the production of watches and horological tools in Lancashire in the seventeenth and eighteenth centuries has been well covered in previous publications by R.J. Griffiths,16 Alan Smith,17 Ted Crom,18 and Carter Harris,19 and will not be examined here. With a clearer understanding of the organisation of watch manufacturing in England, however, we can now consider the contribution of the watch and chronometer movement makers and finishers of south-west Lancashire to the horological pre-eminence of England in the eighteenth and much of the nineteenth centuries.

THE WATCH AND CHRONOMETER MAKERS OF SOUTH-WEST LANCASHIRE.

The importance of the availability of suitable materials for making clocks and watches, as well as the tools needed to shape and finish the parts, has not always been appreciated. In particular the solution to the problem of manufacturing high carbon steels suitable for making cutting tools, gauges, files, screw plates, draw plates, pinions, escapement parts, etc. was one of the most important reasons for the English domination of the manufacture and supply of precision hand tools and materials for clock and watch makers throughout the world for so long. The breakthrough was made by the Yorkshire clockmaker Benjamin Huntsman, around the middle of the eighteenth century. As a result, Sheffield and Rotherham in Yorkshire soon became the world centre for the manufacture of the new product, variously known as ‘cast’ or ‘crucible’ steel, and for well over 100 years dominated world production.20

The problem of developing the skills to work with such a revolutionary new material is not trivial, but it is perhaps surprising that it was not the metal workers in the Sheffield area who first learned how to use the high carbon cast steel manufactured there for the production of horological tools and materials. Even the cutlery manufacturers only began to use cast steel after the French cutlers had shown it could be done. As K.C. Barraclough21 has written:

… those abroad seem to have been more acutely aware of the importance of Huntsman's activities than those around him. Foreign visitors undertook long journeys to visit him; the French used his steel, appreciating its special qualities, and produced superior cutlery which not only found a ready market in France but also soon appeared in England. The Sheffield cutlers, who had erstwhile virtually ignored the new material, finding it too difficult to forge compared with normal shear steel, became aware of the competition … thereafter its local use spread.

However the long established metal working areas of south-west Lancashire, on the other side of the Pennines, the small but significant mountain range running between Lancashire

18. T.R. Crom, Horological Shop Tools 1700 to 1900 (Melrose, Florida, 1980); Horological and Other Shop Tools 1700 to 1900 (Melrose, Florida, 1987); Early Lancashire Horological Shop Tools and Their Makers (Melrose, Florida, 1994).
19. J. Carter Harris, The Clock and Watch Makers American Advertiser (Ticehurst: The Antiquarian Horological Society, 2003). This compilation of advertisements in American newspapers includes many details of watches and horological tools and materials imported from the UK in the second half of the eighteenth century.
and Yorkshire, did appreciate the importance of the new Huntsman steel. They soon learned to forge, harden, temper, shape and polish the new material, and by the 1760s John Wyke was manufacturing high quality cast steel precision files and cutting tools. After moving from Prescot to Liverpool around 1760 Wyke published the first Catalogue or Pattern Book illustrating the huge range of tools for clock and watch makers and similar trades, which Lancashire exported throughout the world. The map in Fig. 12 shows how the manufacture and distribution of horological tools and materials was organized. In fact south-west Lancashire was relatively well situated. The high quality high carbon cast steel made from the best quality Swedish iron imported through Hull, was sent to Lancashire by the Sheffield steel makers. Communications with the centres of watch and chronometer finishing – London, Liverpool itself and Coventry – were good. And it was well placed for the very lucrative export trade from Liverpool to north America in the eighteenth and nineteenth centuries.

It is worth noting that, like watchmaking itself, the division of skills (rather than labour) within the steelworking trades became highly specialized, based on efficiencies of production. Until after the mid-nineteenth century the Sheffield steel makers, steel suppliers and file makers apparently bought in the drawn cast steel round wire and pinion wire required by toolmakers and the precision metal trades, such as clock and watch making, and also the smaller cast steel files (required also for sharpening saws), from Lancashire, having previously supplied the high quality raw material used in their manufacture, all of which had to be carted over the Pennines before there were suitable canals between the Sheffield area and Manchester or Macclesfield.

The Sheffield steel makers soon learnt that they were only successful with the very pure Swedish irons, smelted with charcoal rather than coal or coke, and so more or less free from the sulphur and phosphorus present in most other iron. It is surprising that England dominated the production of such high quality steels for so long. Many other manufacturers, like Krupps in Germany did produce tons of cast steel in the nineteenth century, for example for guns and tank armour, but as far as I can determine such manufacturers never produced the highest quality homogeneous high carbon steels required for precision files and cutting tools, and for the best quality clock, watch and chronometer pinions and other steel-work.

A well-informed entry on steel in *The Rural Cyclopaedia* edited by Rev. John M. Wilson, published in Edinburgh in 1849, suggests one reason for the lack of serious competition in the nineteenth century:

> Every kind of iron is not suited to the manufacture of steel. English iron does not answer at all. The iron which answers best is made at Danemora, in Sweden, from the magnetic iron ore. The whole of the yearly produce of the Danemora mines, amounting to 8,000 tons, is imported into Britain and converted into steel.

By the beginning of the nineteenth century, when Peter Stubs of Warrington published his first Pattern Book, Lancashire had already built up a formidable reputation for precision files, especially saw sharpening files, and the

22. Discovered by the author in the Library of Winterthur Museum, Delaware, USA.
tools and materials required by clock and watch makers. The remarkable worldwide reputation of Lancashire small files, hand tools and materials, (especially cast steel round wire and pinion wire), from the second half of the eighteenth century, has been well documented (see also notes 16, 17, 18 & 19). Throughout the nineteenth century Peter Stubs & Co of Warrington dominated this Lancashire trade. Dionysius Lardner in The Cabinet Cyclopaedia (1833), states that tools manufactured by Stubs could not be surpassed anywhere in the world. However, by 1852 when Charles Dickens reported on the Rotherham factory in Coventry (see note 11), it is clear that at least some watchmakers preferred Swiss tools, but that even these were made using ‘iron’ imported from England. Dickens writes:

The tools – various and most delicate – used by watch-makers, are chiefly from Warrington in Lancashire; but the best of them are fashioned in Switzerland. Iron is sent over from England, and returned by the Swiss in the shape of tools so exquisite that we cannot rival them.

The Stubs records at Manchester Central Library include regular orders for cast steel from Switzerland and France before 1850. It is therefore more likely that in 1852 the Swiss were still importing cast steel rather than iron, as Dickens suggests. Investigation of the post-1850 Stubs records should clarify the situation.

In the eighteenth and early nineteenth centuries however, the near monopoly position of the Lancashire suppliers of the best tools and materials required by watch manufacturers ensured that the Lancashire watch movement industry, centred on the town of Prescot (see Fig. 13), continued to dominate UK watch movement making throughout the nineteenth century. Most movement makers were apparently willing and able to supply whatever their customers wanted – just the basic frames and unfinished parts for watches.


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jewelled trains, escapements fitted, finished dials and hands, and engraved and gilded, if that was what the customer required. Figures 14-18 show movements from James Berry of Prescot, who traded under the name Isaac Hunt & Co., in various stages of finish, one actually signed by Berry. His later nineteenth century movements were stamped on the pillar plate ‘MM’ for ‘Machine Made’, denoting that some machinery was used in their manufacture.

Figures 19-24 illustrate another finished watch signed and sold by the movement maker, Joseph Hewitt of Prescot, whose mark ‘JH’ is stamped on the pillar plate. The ¾-plate fusee movement, with maintaining power and
a standard English single table roller lever escapement, is key wound and key set from the back. The top plate is engraved ‘Joseph Hewitt Prescott No. 9165’ (Fig. 19), and this number is also stamped on the pillar plate (Fig. 20) and the open faced silver case (see Figs 23 & 24). The figures ‘65’ are also visible on the reverse side of the enamel dial (Fig. 22), to the left of the inserted seconds dial, above the dial foot, and other marks on the counter-enamel of the actual dial could be the remains of the name ‘J. Hewitt’ doubtless added by the dial maker to identify which dial belonged to which watch. The initials ‘J.R’ are likely to have been added by the dial painter rather than the dial maker, but have not yet been identified. In particular, it is not obvious whether the dial was made in Lancashire, the Coventry area or London. The hour hand (Fig. 21) is probably the original Prescot hand, but the minute hand is a later replacement. The case was hallmarked in London in 1862, and the case maker’s mark is
for William Caleb Scott, entered on 29th April 1856 when he worked at 22 Wynatt Street, and again on 6th June 1859 when he moved to 70 Rahere Street (see Philip T. Priestley, ‘Watch Case Makers in England 1720-1920’ NAWCC Bulletin Supplement No.20 Spring 1994). The obvious assumption is that the case was made in Clerkenwell by Scott, but if the same punches were used for the marks on both the movement and the case (as seems possible from a comparison of the marks), this raises the possibility that the case was made elsewhere and stamped using Hewitt’s punches, before being sent to London to be submitted to the assay office by Scott, after adding his own mark.

The continuing pre-eminence of the Lancashire movement makers is clearly illustrated by the story of chronometer No.2001, made by Thomas Mercer (also originally from south-west Lancashire) in London in 1872, 10 years before his son Frank was born (see Fig. 25 for a portrait of Tom Mercer.) In 1961 the chronometer came in for repair to Thomas Mercer Ltd. at St Albans, the firm founded by Thomas in 1858, and still run by Frank Mercer at that time. Frank, by then a highly respected horologist who was the Senior Vice-President of the British Horological Institute, published an article in the Horological Journal from which the following account of the chronometer is extracted:

The movement was made in Prescot by J. & T. T. (James & Thomas Taylor) and would have been handled by Thomas Foster whose job was to collect the various parts of the movement, fusee, barrel and arbor, frame, wheels and pinions, all made in the little workshops in Prescot, either up the ladder in the loft or in the garden shed, heated with a coke stove and lit with candles. All this wonderful work was done without a lathe, except for a treadle one, no scroll, spring collet, or grip chuck, and things that were to be finished round usually started square. Castings in brass were universal and screws were made with a chaser - dies in those days were very little known.

Suspicion between one man and another was almost universal, but despite it all, the work they turned out was so good that today it is just running in for its remaining life.

Prescot was the centre of this part of our craft.

Movements came twelve at a time in a Hudson soap box to my father. They were stripped and each part was numbered, namely, “2001” for the movement in question. Each then started its roundabout journey. The frame first went by train either to Claxton or Woods to be jewelled, except for the 4th hole, which was fitted after the finisher had run in the fourth depth, and returned to go up again; this time with the ’scape wheel, ’scape pinion and balance to the pivoter (’scapement maker). The pinion would be turned and polished, the back slopes cut and polished and fitted to the ’scape pinion, and, with a length of steel and a piece of rod brass, the balance staff would be made - the balance either by Leonard or Lee (in this case Leonard)—and back to St. Albans.

Fig. 25. Portrait of Thomas Mercer, the chronometer maker; by courtesy of National Museums Liverpool.

24. Horological Journal (May 1961), 281-2. I am grateful to Philip Irvine for drawing my attention to this article.
The detent would be made by Henry Travers, cut from a square piece of steel, the stud brass sawn and filed out from a brass plate, and screws turned by hand in a throw wheel. The pallets would be supplied by Claxton mostly. The 'scape wheel would be cut by Dick Doke of Prescot, surely one of the most enlightened of craftsmen in the trade. In his cutter methods he was a long way ahead of his period.

Then the finishing to be done would be this procedure. The fusee would have been shaped in its channel by Travers; the barrel would have been sent off to Cotton in Percival Street to have the mainspring fitted; the brass box and dial would have been supplied by Withers in Packington Street. Here again, except for the dial, all the parts - screws, brackets, bezels, etc. - were brass castings. Again dies were not known and everything was chased. The treadle lathe and boxwood chuck were his only equipment.

The finisher would be given these parts more or less in some finished state. He would pivot and finish the train wheel, finish and polish the fusee and barrel, work up the motion work and fit the dial, run in the depth, fitting hard brass holes in each case, stone up and put together and send them back again to St. Albans.

To you and me, I expect this seems a very roundabout way to make a chronometer. However, it worked. This movement 2001 was made under these conditions and is now fit for another 100 years’ service. In this age and rush for quick results I wonder who has the better claim in the posterity which is ahead?

This account gives a clear indication of the division between movements makers and finishers, the state of the Lancashire movements bought in by chronometer makers in the nineteenth century, and the subsequent finishing processes.

Frank Mercer's obituary for Richard Doke shows just what a remarkable and highly respected movement maker he was. He was born in St Helens in 1823, trained first by his father in Lancashire and later, from 1840-44, by the Molyneux family in London (who had also migrated from Lancashire). He then moved back to Prescot where he died in 1906, aged eighty-three. Frank Mercer records that:

While on a business trip to London, Mr Doke was so disheartened with his poor success that sitting on the church steps in Lombard Street he was compelled to cry; gaining fresh heart however, he visited Charles Frodsham, who recognising the perfection of his movements, bought his stock and told him to go back and make more. Mr McCabe preferred his movements to all others, and for over 50 years Mr Doke cut practically all the English chronometer movement wheels.

Richard Doke, the movement maker, (see Fig. 26) should not be confused with the Liverpool watch manufacturer with the same name who was born c.1796, and was described on his bill heads as a Manufacturer of Watches, Jeweller & Silversmith. He sold signed lever watches in the UK and exported many to the USA. Figures 27 & 28 show a Lepine calliper movement finished by James McCabe which was probably bought in from Prescot, and possibly from Richard Doke. As we shall see, however, there were other Prescot movement makers who supplied such movements. The only mark on the frame of this movement is the ‘JMC’ which McCabe had stamped on most of the movements he bought in, together with his serial production number. Doke did however sometimes sign his name on some of the wheels in his movements.


26. From information supplied by Dennis Moore, and the Census returns for Liverpool. The relationship between Richard Doke the wheelcutter and Richard Doke the watch manufacturer is not clear.

27. Information from invoices dated 1833 and 1842 from Winterthur Museum, Delaware, USA and David Penney. His address is given as Lord Street Liverpool.

28. David Grace reports that he has seen Doke’s signature on a maintaining wheel of a Mercer regulator.
Doke represents the best of the Lancashire craftsmen, and there were others who were always in demand, and able to produce work of the highest quality, well into the twentieth century. However, some Lancashire wheel and pinion cutters did not achieve or maintain such high standards. The Horological Journal for March 1882 has a letter from a Liverpool watchmaker complaining that Lancashire wheels are cheaper than the (Swiss) alternatives, but are too soft. This refers however to wheels supplied for watch repairers and jobbers by firms such as the Saggersons in Prescot, which would never have been used by the Prescot movement makers. Also the Census returns for Coventry in 1861 show that already by this date many movement makers as well as watch finishers had moved from Lancashire to Coventry (see Fig. 29). But Prescot movement makers continued to supply movements to chronometer makers until the end of the Second World War.29 Figures 30 & 31 show the workshop at

Fig. 29. A page from the 1861 Census for Earl Street Coventry, showing in red some of the many Lancashire workmen who had migrated to Coventry.

<table>
<thead>
<tr>
<th>No. of Household</th>
<th>Name and Surname of each Person</th>
<th>Relationship to Head of House</th>
<th>Condition of Employment</th>
<th>Age of Head</th>
<th>Sex</th>
<th>Where Born</th>
<th>Volume Note or Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>118</td>
<td>John Smith</td>
<td>Wife</td>
<td>Watchmaker</td>
<td>50</td>
<td>M</td>
<td>Coventry</td>
<td></td>
</tr>
<tr>
<td>119</td>
<td>Henry Brown</td>
<td>Son</td>
<td>Labourer</td>
<td>25</td>
<td>M</td>
<td>Lancashire</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>Mary White</td>
<td>Daughter</td>
<td>Housewife</td>
<td>20</td>
<td>F</td>
<td>Prescot</td>
<td></td>
</tr>
<tr>
<td>121</td>
<td>Charles Lee</td>
<td>Brother</td>
<td>Labourer</td>
<td>28</td>
<td>M</td>
<td>Liverpool</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>Sarah Wilson</td>
<td>Sister</td>
<td>Housewife</td>
<td>23</td>
<td>F</td>
<td>Prescot</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>Thomas Lee</td>
<td>Father</td>
<td>Watchmaker</td>
<td>55</td>
<td>M</td>
<td>Coventry</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 30. Workshop of Joseph Preston & Sons, Watch and Chronometer Movement Makers, Eccleston Street, Prescot; by courtesy of Prescot Museum.
Fig. 31. The upper floor of the interior of the Preston workshop in Fig. 30; by courtesy of Prescot Museum.

Fig. 32. Joseph Preston & Sons Trade Card; by courtesy of National Museums Liverpool.
the horological trade. The trade card for Joseph Preston & Sons shown in Fig. 32, probably dating from the early twentieth century, after Pybus had taken over, indicates the range of high quality movements and parts which he continued to supply until the firm closed down in the mid-twentieth century.

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