

The Dennis Bacon - Max Cutmore Collection of Watch Movements

Part One

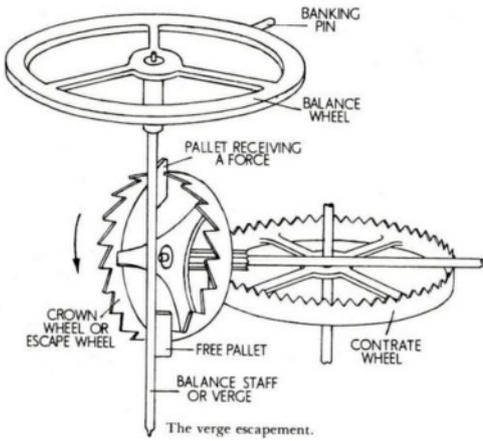
English Verge, Lever and other escapements

English Factory Production in the Nineteenth Century

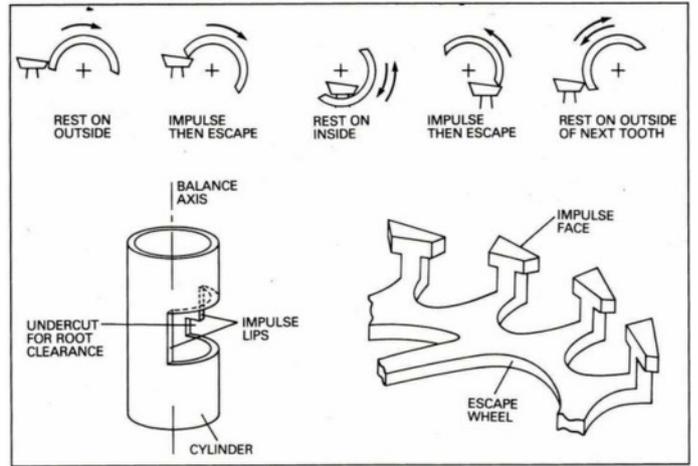


Leigh Extence - Horological Consultant & Dealer
The Grove, High Street, Honiton, Devon

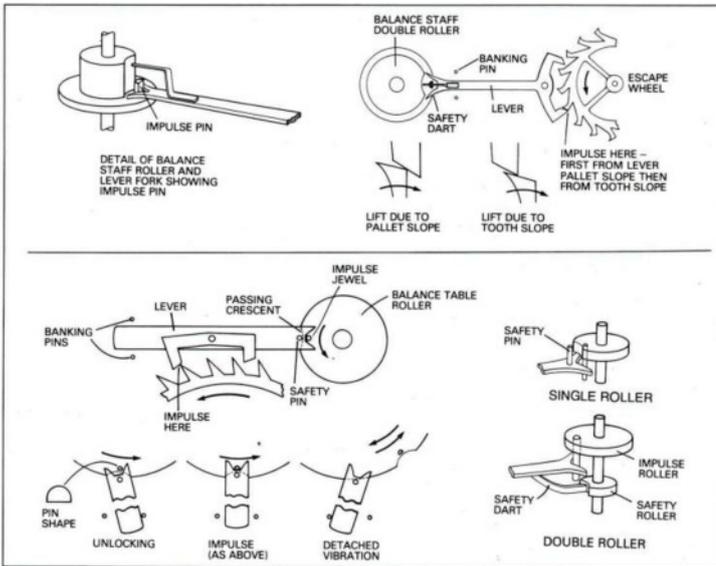
Escapements as seen on Watches & Movements in the Collection



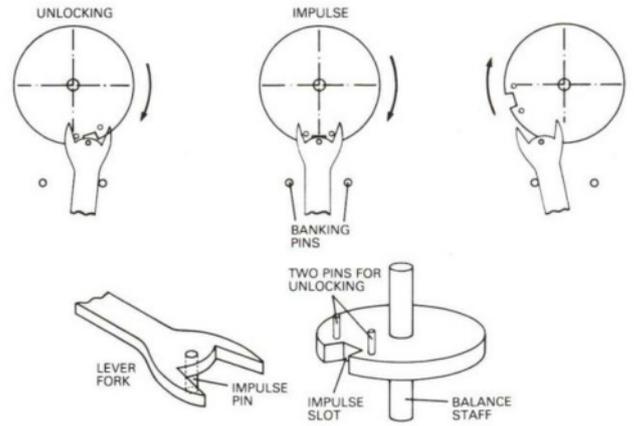
Verge Escapement



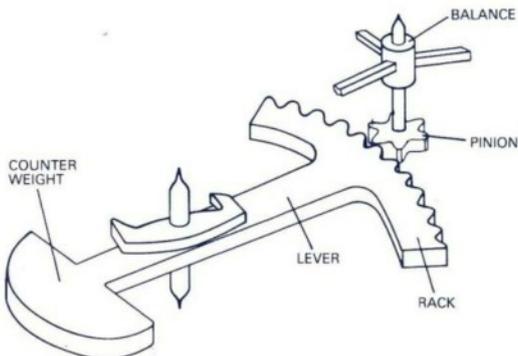
Cylinder Escapement



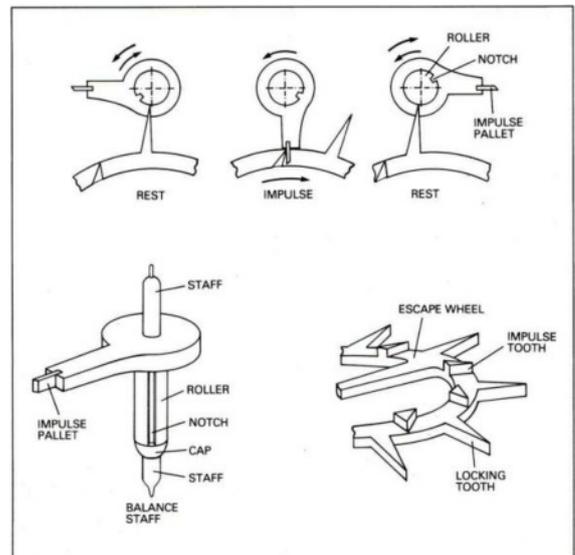
Lever Escapements: Swiss; Single Roller; Double Roller



Savage Two-pin Escapement



Rack-lever Escapement



Duplex Escapement

The Dennis Bacon – Max Cutmore Collection

This exhibition has come about following contact made by Dennis Bacon's family who were looking for advice on what to do with the collection of watches and movements formed over a number of decades and which culminated in the writing of six books, see back cover, along with a number of articles in the Antiquarian Horological Society magazine; Antiquarian Horology.

Not only were the watches and movements available, but all his research material, publishing contracts, letters, images and other items.

After discussion it was felt it would be a shame to split the collection through sales and so it was decided that I would purchase it in its entirety with a view to keeping it together for further research and to make it available to a wider audience. This was to be quite a challenge, for although I have an interest in watches through being intimately involved in the horological trade for many years, my main interest is in antique clocks. I therefore needed to research quickly and learn sharply about this new subject, but luckily my interest soon turned into obsession and so many early-morning and late-nights later this first representation of the collection is now available. Obviously there are many areas that are still fairly cloudy so any further additions to the research, corrections to that already done, or advice that others may see fit to impart will be most gratefully received especially where there are obvious, and not so obvious, mistakes to be rectified.

There is still a fair way to go in searching through the files to find what Dennis Bacon may have found in regards to a number of gaps in the obvious manuscripts. For instance he only fleetingly discusses the attempt by the Swiss watchmaker Pierre Frederic Ingold to establish a foot-hold in the English watch manufacturing business utilising machinery to manufacture interchangeable watch parts, even setting-up the British Watch & Clock Company in 1842 to produce these cheaper watches, only to come up against the might of the traditionalists in the watch making community who forced Ingold to abandon the idea through a debate in the Houses of parliament. Maybe because there are no movements to be had Bacon decided there was nothing for him to delve into, or quite possibly somewhere amongst all the paperwork still to be sorted there will be this research. He seems to have also skirted over the Clerkenwell watch manufacturing trade to a degree, apart from the firm of J.W. Benson and one or two others. Again, there may well be further research hidden away in the depths of the mountains of folders stacked in boxes.

There are some four thousand movements, ranging from the early 18th century until the 1960's, so this first exhibition is concentrating on one specific area, and even then only a small proportion of the watches available in this category have been included. Therefore this catalogue can be taken as a 'first step' in correlating all the items and information together into a more comprehensive publication with updates posted on the website as they happen.

Due to space restrictions, biographies of well-known makers are kept to a minimum as these details are readily available elsewhere.

For news on the collection please email or phone with your details and I shall make contact as this catalogue is updated and when *Part Two: American, Swiss and Continental Movements* becomes available.

Further images of exhibits not shown in this catalogue are available on the website: www.extence.co.uk

Leigh Extence

Email: leigh@extence.co.uk

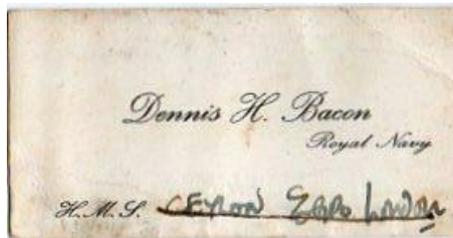
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Dennis Bacon - Max Cutmore



Dennis Bacon had a conventional schooling and went on to Queen Mary College (London) where he studied mechanical engineering. Having served a graduate apprenticeship he went on to serve in the Royal Navy, serving in the Mediterranean, the West Indies, the Persian Gulf and the Far East. A secondment to the Royal Australian Navy was followed by a return to England where upon he took up a post as a lecturer at the Royal Naval Engineering College in Plymouth. At the age of forty Dennis returned to civilian life, but continued lecturing and teaching, this time at Plymouth Polytechnic (now a university). With an engineering background Dennis Bacon had utilised his quest for knowledge and findings in writing a number of influential papers and books on the subject, mostly to do with the mathematics of his subject, publications that to the man in the street would appear quite daunting, but which were an invaluable resource for those engaged in that profession. There are many engineers grateful that Dennis Bacon undertook all the hard work for them. It was only a matter of time before he put pen to paper again and brought out his first book on watches *The Watch Collectors Handbook*, published by David & Charles in 1976 under his pseudonym Max Cutmore. He retired at sixty, but this didn't mean a change of pace and he not only continued teaching in a part-time role but took up almost full-time

researching and writing on horological matters, mainly on watches and the machinery used to make them, culminating in a number of articles in the *Antiquarian Horology* as well as further books on the subject. It was this love of research, attention to detail and slightly obsessive nature that came to the fore when Dennis was overcome with the watch collecting bug. Allied with his need to get his research written down and published to share with the others meant his six books are still well-received some years after their writing. Even when his last book, *Pin Lever Watches*, was rejected by the publishers as too niche to make it commercially viable he went ahead and published it himself, it itself is now a classic.

How he chanced upon collecting watches, or more importantly to him, watch movements, is best summed up by the man himself writing in 1999 in his book 'Collecting & Repairing Watches' describing a detour, due to torrential rain, on a trip back to Devon from Morecambe:

"As an adult, I had no interest in collecting anything until a wet day in 1968 I happened to walk into Lancaster Museum and was confronted with a display of verge watch movements. On my way home I stopped in Tewkesbury and found a jeweller's shop which had a verge watch for sale (signed Jas. Powell, Worcester, Watchmaker to the Prince Regent, 1137). Since then I have been hooked.

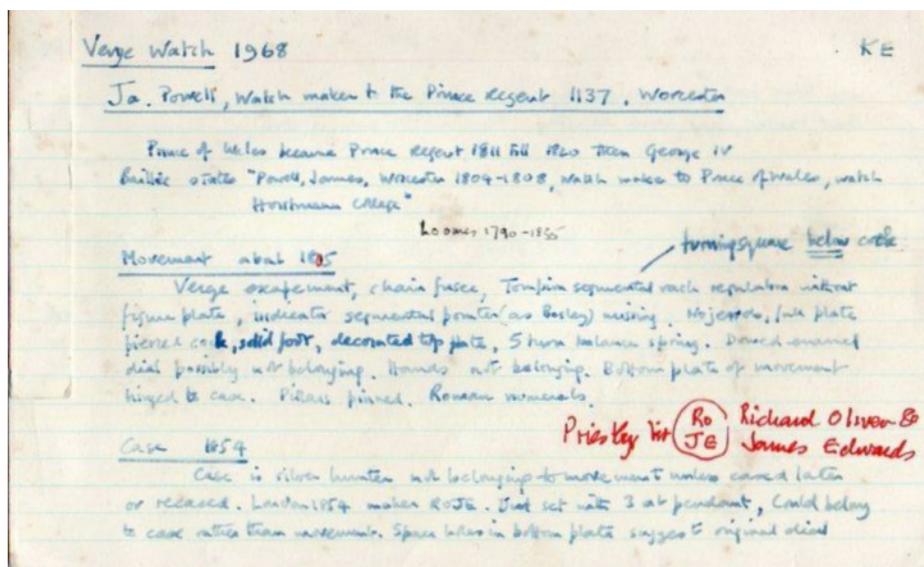
This has led to thirty years of horological fun, not always so much concerned with collecting but with research into the



The Powell watch & its wrapping from the Tewkesbury jewellers Butwell

Dennis kept copious research notes, with each watch dissected on its purchase and an index card filled out with details of the dial, case and most importantly, the movement. He was also most interested in the wherewithal of watch making, especially the period from the early Victorian period, and researched the watch-making concerns in Prescot, Coventry, Liverpool, Birmingham and London, finding interesting relationships between the various makers, finishers, diallers etc which not only concerned their working statuses but also their personal and political relationships. It was this research that was to culminate in the book 'Watches, 1850-1980' the majority of which is based around the mid-1800's. His other favourite topic was wristwatch manufacture in the period either side of the Second World War as drawers full of movements and dials (upwards of a thousand or more at the last count) will attest to. A veritable dream for those for whom the word 'calibre' brings on a cold sweat.

It is fortunate that most of the research notes, index cards and first manuscripts are still extant, as a fair proportion of Dennis Bacon's work was unused or edited out before publication.



The index card for the Powell watch

His watch movement collection is fairly eclectic containing as it does early examples from the late 1600's up to cheap pin-pallet pieces from the post-war period, but the majority are centred around that time he felt was the most important in English watchmaking as a commercial concern, the 19th century. Indeed, when first sifting through the numerous boxes, movements by such makers as Grant, Litherland, John Arnold and Earnshaw were sitting quite happily with examples produced by Ingersoll, Smiths and Roskopf.



Dennis Bacon loved to investigate, and knowing that his movements weren't of necessarily great value on an individual basis, he would often strip them down to the bare bones so as to make comparisons between various different pieces. That many were then only partially returned to normality is both a curse and a blessing, in that it is now possible to observe, using the notes he has left us, the relationships between differing styles and makers without having to strip down the watches, this being their state at present.

Of great interest are the boxes of *grey* movements, those made by the cottage workers to be sent to the watchmaker for finishing. That these are stamped with various marks and initials are of importance when placed beside the notes Dennis made on each of these makers and from there the relationship with various finishers in the country. The acquiring of these a number of which were stamped for the Llangollen maker Robert Hughes and his colleagues, fuelled a quest within Dennis for further knowledge which ended in the book, written under his own name, on Robert Hughes. There are also numerous dust caps & rims for the movements which are also signed and which formed the basis of another, seemingly unpublished, article.



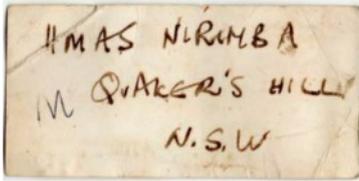
A *grey* verge movement as described in the Robert Hughes section

Dennis has also left many of his letters and communiqués with those in the horological world. He was an excellent communicator, somewhat of the old school at times with much of his initial correspondence to like-minded souls brusque and to the point, but once he gained a friendship the letters are full of warmth and a comradeship. That he was respected is obvious by the reciprocation of warmth received from many of his 'pen-pals' including, as editors of the AHS magazine 'Antiquarian Horology', Dr Denys Vaughan & David Penny along with Beresford Hutchinson, Alan Treherne and others. That this correspondence, and he always kept copies of letters sent, is still with us gives a fascinating insight into how 'horological scholars' of a certain period thought and worked. That so many were prepared to spend time and effort imparting freely of their knowledge is particularly inspiring.

The Dennis Bacon collection isn't in itself necessarily of great value. Its true value lies in the marrying up of the numerous watches and movements with his notes, photographs and research and the fact that these are all kept together as one unit. For that I am grateful to Dennis's son Julian who allowed me to acquire all of his father's work with both of us believing that this small, but interesting, collection needs to be kept intact and used for further research in the future.

Dennis Bacon – Personal Exhibits

1 Address card from his time in the Navy, showing his posting to HMS Ceylon and then the Australian Navy training base, HMAS Nirimba, Quaker's Hill, New South Wales. (Being the rear of that illustrated in the previous section)



2 Typewriter and writing utensils as used when writing the final drafts for his books and manuscripts, including a few pages from Clocks 1850-1980.

3 Letters and documents to and from the publishers David & Charles relating to the various publications written by Bacon.

4 Correspondence from the AHS, mainly Dr Denis Vaughan and David Penny, editors, relating to articles published. Proofs relating to said articles and various copies of the AHS.

5 Correspondence with various horologists regarding his interest in watches and their movements, including the author and Massey escapement expert, Alan Treherne; David Penny and Beresford Hutchinson amongst others. Including Bacon's personal copy of Treherne's book.

6 The Powell Watch: Bought from *H. Butwell & Sons, 141, High Street, Tewkesbury, Gloucestershire* in 1968. Complete with the original Butwell bag in which it was wrapped. (Illustrated in previous section)

Jas Powell, Watchmaker to the Prince Regent, 1137, Worcester: a silver cased fusee watch which has a verge escapement with Tompion segmented rack regulation without figure plate (turning square below cock) and a pierced cock with a solid foot and decorated top plate. The silver hunter case is of later manufacture being hallmarked for London 1854, with the makers initials *RO* above *JE*, for the case makers Richard Oliver and James Edwards.

Note: The Prince of Wales became Prince Regent in 1811 until being crowned George IV in 1820. Powell is recorded working from at least 1790 until 1838 at 4, Cross Street and also, from 1816, at 20, Cross Street. He was previously titled *Watchmaker to the Prince of Wales*, with a watch signed by him known in the Horstmann College collection.

3829

An Agreement made the 1 day of August 1986

BETWEEN D. H. BACON (alias CUTMORE)

of Black Lion Cottage
The Glade
Crapstone
Yelverton, Devon

(who and whose executors, administrators and assigns are here the context admits hereinafter, included in the term 'the Publishers').

Description

IT IS AGREED that subject to their approval and acceptance of the typescript the Publishers shall publish at their own risk and expense a book by the Author entitled provisionally

THE MODERN WATCH : ITS HISTORY AND DESIGN SINCE 1850

and consisting of approximately64,000..... words of text, and approximately words of captions to the following illustrations: 160 black and white photographs, 20 line illustrations to make 240 pages in 240 x 187 mm format; all illustrations to be supplied and paid for by the author.

to as 'the Work' upon the following terms and

of the payments hereinafter mentioned the Author

ers the sole and exclusive right to publish the Work

DAVID & CHARLES
publishers

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VW/EDA 21 August 1986

Mr D H Bacon
Black Lion Cottage
The Glade
Crapstone
Yelverton
Devon

Dear Mr Bacon

THE MODERN WATCH: ITS HISTORY AND DESIGN SINCE 1850

Please find enclosed our contract for the above title. Please sign and return it to us - we will then send you our counter-signed copy.

Yours sincerely

Rheta Aisotherpe

Rheta Aisotherpe

D. H. BACON (M. CUTMORE)

TITLE: WATCHES AND WATCHMAKING SINCE 1850

Life 1	Watches and watchmaking before 1850	Approximate Length
	Background history of development of watches, technology and the European industry	3000
Life 2	The changing scene	5000
	Early ideas of rational watchmaking (Folty, Royal, Lesclapart, W. de la Harpe, US firms) into design and production, manufacturing techniques. Concept of factory	

PRESCOT MUSEUM

24 Church Street, Prescott, L35 5JA 051-430 7787
Curator: R. J. Griffiths FRHS

Your ref: LP/86/7/0334
Date: 5th February 1987

Dear Mr. Bacon,

I have been in contact with the owner of Dr. Kemp's collection which has to some extent been dispersed. He has agreed to assist where possible and has Dr. Kemp's records.

Yours sincerely,

R. J. Griffiths
R. J. Griffiths
Curator

Mr. D.H. Bacon,
Plymouth Polytechnic,
Department of Mechanical Engineering,
Drake Circus,
Plymouth,
Devon,
PL4 8AA

Jointly administered by Knowlsey Metropolitan Borough Council
The Trustees of the National Museum and Galleries on Merseyside

29th December 1987

THE ANTIQUARIAN HOROLOGICAL SOCIETY

Editor
David Penny

New House, High Street
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East Sussex TN3 7AL
Tel: Ticehurst 300155 (STD Code 0580)

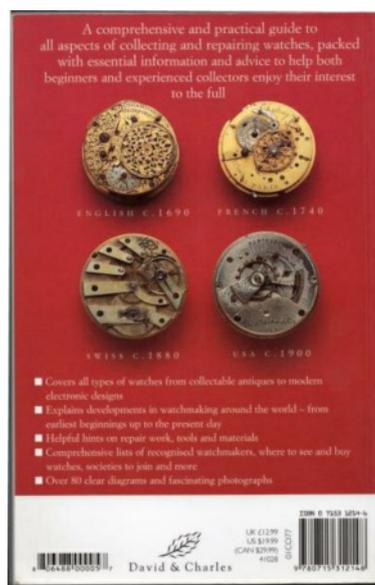
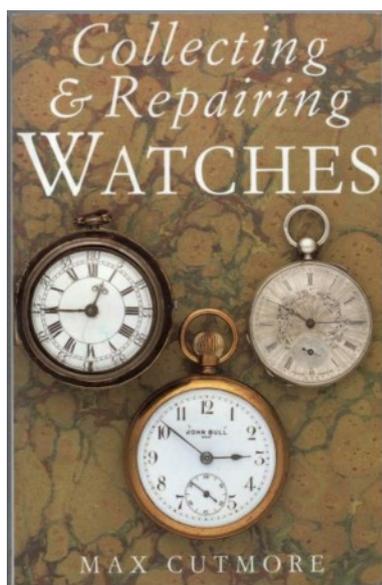
My best wishes for the New Year.

David Penny

Collecting a Repairing Watches

Published by David & Charles in 1999, and originally published in 1976 as the *Watch Collectors Handbook*.

Shown here are the front & back covers of the book along with the watches & movements used as illustrations.



Front Cover Watches

1 Rt Allaway, London: a pair-cased watch with a fusee movement and verge escapement with a brass balance and Tompion regulation, 'D' shaped cock, decorated square pillars, enamel dial, a leather case with pique work and stamped with the makers initials *EG*, the bottom plate stamped *G*, under the dial is scratched *Allaway &* either *1721* or *1741*.

No Robert Allaway appears recorded although there is a John apprenticed in 1681, and Free of the Clock Makers Company in 1695, and Stephen, apprenticed in 1736.

2 Jacot, Geneve: a cylinder watch with both movement and dial signed, made circa 1840.

Charles Edouard Jacot worked in Le Locle, Switzerland and was said to have devised the Chinese duplex escapement.

3 Lancashire Watch Company: the *John Ball* pin lever watch numbered 23001. The manufacture of this watch was an attempt to capture a slice of the mass market being taken over by the influx into England of watches from both Switzerland and America, the idea being to manufacture and sell upwards of 5,000 of these at 5 shillings a time. For a more in-depth discussion on this watch and its impact on the Lancashire Watch Company read the relevant chapter in *Watches*.

Back Cover Movements

4 John Witherston, Hereford: an early fusee movement with a verge escapement, fully pierced and engraved cock and backplate, Egyptian pillars and Tompion regulation.

John Witherston, working from circa 1690, is a well-recorded watch and clockmaker with two bracket clocks known, both with London quality movements, one with an unusual rack strike with double sided rack made circa 1720, as well as a lantern clock and various longcase clocks. He is recorded in the Cathedral Fabric Accounts of 1717 as receiving a payment of £1 8s 2d for clock repairs, and interestingly was paid 1s in 1731 *for mending the candlestick*. The poll lists record him still alive in 1734.

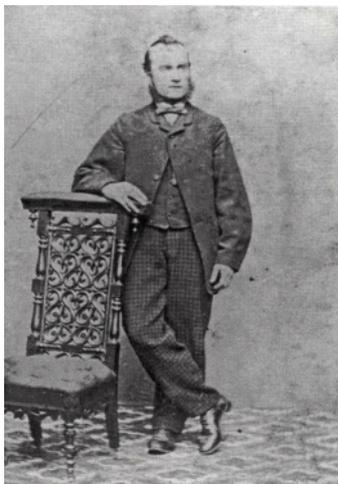
5 Autray a Paris, 2015: a French verge quarter-repeating fusee movement with a pierced and engraved cock,. Francois Autray is recorded working at Quin Pelletier from circa 1739 until at least 1754, and then at Juré in 1757 and finally Place aux Veaux in 1772.

6 Swiss bar movement: a going-barrel movement with a lever escapement and steel compensating balance.

7 Elgin Natl. Watch Company, 9197211: a fifteen-jewel full-plate movement with a split-bimetallic balance and engine-turned decoration to the backplate.

Robert Hughes and Grey Movements

In the early 1990's Dennis Bacon obtained some blank movements stamped R.H. which set him on a quest to find out who these initials belonged to. His research led him to Llangollen and the maker Robert Hughes, and he was lucky enough, after having an article on this maker published in the Antiquarian Horology, to be contacted by a member of the Hughes family who allowed him access to all the records still extant and which ended with him writing up the story in the book, *Watchmaking in Llangollen by Robert Hughes*, published by The Antiquarian Horological Society in 2000, which gives an in-depth study to the workings and life of Hughes.



Robert Hughes, 1838 - 1895.

Robert Hughes, born 1838, was an innovative watchmaker and retailer who, having been apprenticed in Oswestry, then went on to open his own workshop in Rhos-y-Medre. In 1866 he moved to Llangollen setting up at 37, Castle Street, where it is recorded one of his workers, Sidwell, lived above the shop with his family. By 1891 Hughes had moved along the street to number 31 and had set up his workshop at 15, Castle Street, being the address that Edward Scarisbrick, one of his frame suppliers from Prescot, was known to send supplies. The business of Robert Hughes progressed from being a small-time maker of watches to a major supplier of rough movements to the 'watch finishers' of Wales and the Welsh Borders.

Hughes would receive the frames from his Prescot suppliers, then work on them to one of three standards: *first part; with escapement; and finished off*, and with *polished or unpolished pivots*, whereupon they were then sold to his watchmaking clients for finishing and casing for retail.

The 1859 workbooks, as seen by Dennis Bacon, show the various costs that Robert Hughes charged to supply these differing standard of finish:

	Grey (unpolished pivots)	Glossed (polished pivots)
For first part	3s. 9d.	5s. 6d.
For escapement	3s. 9d.	5s. 6d.
For finishing off	4s. 6d.	7s. 0d.

On top of these prices were extras for such as train jewellery, over-sprung hairsprings and sizes smaller or larger than the normal.

By 1870 Hughes was using, almost exclusively, Coventry workmen to work on his watches, although there is some confusion as to whether they had moved to Llangollen or acted as outworkers still working in Coventry.

In March 1888, having lost the main supply of greys from their various suppliers in Prescot upon the formation of the Lancashire Watch Co. Ltd (see the later section on this concern) Hughes formed a partnership with a watch material supplier, Thomas F. Williams, to set up a factory and manufacture their own movements in Prescot under the name Williams & Hughes having taken on the premises formerly used by Scarisbrick, he having sold the majority of his machinery and materials to the new Coventry Watch Movement Manufacturing Company Ltd. But in December of that year they came to a rather forced agreement to sell the partnership to the Lancashire Watch Company for £380, maybe an obvious scenario to Hughes as it was being run by men he had previously worked so closely with and presumably trusted. But in 1889 a legal feud ensued as Williams believed that the Lancashire firm were using *his* workforce, tools & materials to produce now inferior goods and wanted to break the agreement on the grounds that this wasn't as set out, stating to Hughes in one letter, *I... got complaints that those (movements) supplied by the Company [L.W. Co.] are not as good as those we used to make... You seemed to have made curious arrangements with them... I am not going to stand this sort of thing – if a proper understanding is not arrived at as to when they are to quit and what they are to pay us & when they are to pay I shall certainly lock them out & take the consequences.*

Hughes, now obviously happy that supplies of greys would be forthcoming, did not wish to rock the boat, thus breaking the Williams & Hughes partnership. This story can be read in its entirety in Bacon's *Robert Hughes* book.

Hughes died in 1895 and the business was continued by his two sons, R. Ll. Hughes and T.H. Hughes. In 1905 the workshop was closed and watch manufacture ceased with R. Ll. continuing the Llangollen retail shop and T.H. opening another shop in Wrexham. The Llangollen shop finally closed in 1965, whilst the Wrexham enterprise continued until the mid-1980's.

Robert Hughes Movements

Showing the three main suppliers to Hughes

E.S Edward Scarisbrick, born 1832, was recorded as a watchmaker in 1851, living in Atherton Street, Prescot with his older brother William, a plumber and widower, his mother Mary, sister Alice and niece Mary Alice, along with his two watchmaking brothers; Thomas, born 1818, and Charles, aged 17. It was Edward Scarisbrick who sold his tools, equipment and goodwill to the newly formed Coventry Watch Movement Company in 1889, basically moving a small, outdated watchmaking concern from Prescot to Coventry, with his brother Charles taking on a role at the Coventry concern as a part of the deal.

M.M James Berry. The M*M stamp *Machine Made*. Some front plates in this collection are stamped both M*M and J.B. James Berry was born in 1835 in Wavertree, Lancashire, now a suburb of Liverpool, to parents William & Catherine Berry. In 1851, aged 16, he was still living at his parents home in Tarbock and was employed as a solicitor's clerk, although by 1861, aged 26 and by now married to Ann, born 1835, he is recorded as living at 91 Fall Lane, Prescot as a watch manufacturer, and ten years later it is known he was employing 15 men and 11 boys (apprentices). By 1881 he and his family had moved to Coventry where they rented premises at 50 Spon End, at the heart of the Coventry watch making area, but within ten years he had returned to Prescot and was living at 70 Warrington Road, moving some time later to 74 Derby Street, his wife having died in 1895. In 1911, now aged 74 and remarried to Francis, born 1867, with whom he had a son James in 1903 when aged 68, he had left the watchmaking business and was recorded as a clerk at the Electric Cables Works living along the road at 19, Derby Street. James Berry's brother John, born 1839, moved to Eccleston (Prescot) where he was known as a watch frame maker before also moving to Cranbourne, Coventry before 1881, presumably with his brother, where he was recorded as a watch movement maker.

J.W John Wycherley was an important name in the watch production and who may well have been the first maker in England to consider and use interchangeable parts for movements. See following biography of John Wycherley.

In Typical Cylindrical Hughes Style Tins

- 1 **R.H & E.S:** a blank for a lever escapement. (Not illustrated)
- 2 **R.H & M.M:** a blank, with a false fusee, for a lever escapement with gold three-arm balance in its original numbered balance box and jewelled cock, the plates drilled for the wheel work, plus a dust cover stamped W&A O (for William & Alfred Oxley, 51 Spon Street, Coventry)
- 3 **R.H & E.S:** a blank, with a cut fusee, for a lever escapement with a bimetallic balance in its original numbered balance box and jewelled cock, the plates drilled for the wheel work with two round boxes, one for the bimetallic balance and jewelled clock, plus a dust cover.

Spare with no boxes

- 4 **R.H & J.W:** a blank front plate as supplied to Hughes by Wycherley.
- 5 **E.S:** no wheelwork, but with turned pillars and drilled pivot holes. (Not illustrated)
- 6 **Two identical three-quarter plate movement blanks**, to show front plate and backplate, both stamped on the frontplate T+S, a maker used by Hughes at times. Another three-quarter plate movement. (Not illustrated)
- 7 **Two unused dials:** one with subsidiary seconds, one without seconds. One with E.P written in ink on the rear. E.P. is probably the dial maker Ebenezer Player, 6 Craven Street, Coventry. Other dials have been noted marked T.S. Batting, probably Thomas Batting, 138 Spon Street, Coventry.

It is also known Hughes used other frame makers, one being M & W, whilst other frames had just R.H. stamped on them. It is believed that these were probably supplied to the firm by James Berry after the death of Robert.

A number of dust covers made by William & Alfred Oxley (W. & A. O) are known to be interchangeable between movements stamped for both Wycherley and Berry, backed up by the fact that both 2 & 4 above have hear-identical plates.

Further Greys by 'unknown' makers

The following three blanks showing various stages of manufacture:

- 8 **No backcock**, holed out (some countersunk), no wheelwork, no pivot holes drilled or marking out.
- 9 **No jewel**, no barrel, no wheelwork, no marking out.
- 10 **Jewelled cock**, barrel, no wheelwork, no pivot holes drilled or marking out.
- 11 **A verge movement** with a flat steel three-arm balance, stamped *I.J* on the front plate.
- 12 **A part assembled blank** stamped *H.F* on the front plate. H.F is most likely Henry Foster, a watch frame maker working in Prescot in the mid-to-late 19th century and who had a son, also Henry, born to his wife Martha in 1826, although one source suggests it to be Henry Fletcher of Prescot. Not fully marked out but this movement appears identical to exhibit 3 by Scarisbrick.
- 13 **With a duplex escape wheel**, an early style Bosley regulation is attached, the index scribed out on the plate for engraving.
- 14 **A basic blank** with no pivot holes drilled, the wheels and arbors unattached and an uncut fusee.
- 15 **A verge movement** with round balance cock, uncut fusee and no pivot holes drilled (illustrated in the Dennis Bacon section)



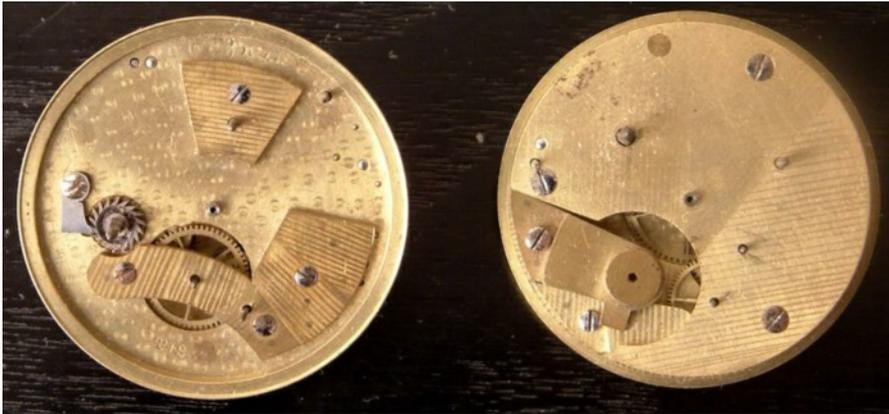
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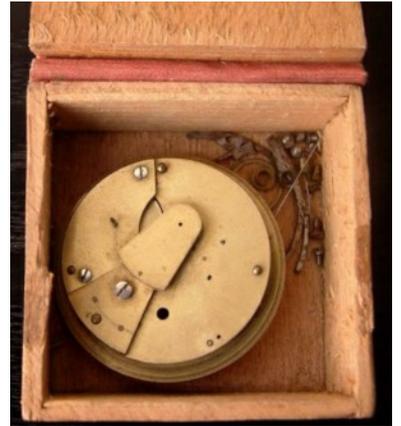
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14

John Wycherley of Prescot, Lancashire

Various movements stamped for John Wycherley are shown through-out the exhibition; from blanks supplied to Hughes, to finished movements and those housed in watches

An excerpt from *Watchmaking by Machinery* by David Glasgow

(Taken from *The New Technical Educator*, London: Cassell, circa 1890)

The late Mr. John Wycherley of Prescot, a movement-maker, finding a difficulty in supplying the demand for his movements, and being a man of more enterprise than some of his neighbours, set up a steam-engine, and invented or procured some very ingenious machines for the production of movements of uniform size and thickness or height, and in other things carrying the work of the watch a little further towards completion by drilling the hoes for dial feet, and in some cases the holes in which the pivots were to run in the frames. But the demand for watches at this period was mostly for full-plate watches with fusees, and fusees would be very difficult to make by any complication of machinery, so the wheels, pinions, and fusees were made in the old way by hand, the wheels stamped out roughly one space at a time, and crossed out by hand with files afterwards. Still the improvement was great in facilitating the manufacture of cheap watches, as it enabled manufacturers to get their dials made by the dozen, or more, instead of separately, and case makers made silver cases to blocks that fitted Wycherley's movements.

The life of John Wycherley with notes taken from contemporary literature, including his obituary in the *Horological Journal* dated October 1891

John Wycherley, the son of a labourer, is considered one of the pioneers of factory manufacturing when it came to watchmaking, although others at the time were considering various ideas, Ingor being one. At the mid-point of the 19th century the English makers were clinging to the notion that hand-made movements and watches was the correct way to manufacture their wares, many suggesting that the need for the very 'English' fusee didn't allow for any form of 'mass-production'. This despite the rise of the American market led by such as Dennison at Waltham, and the Swiss factory-made movements made easier by the invention of the Lepine calliper allowing for smaller movements to be made with interchangeable parts.

Wycherley saw things differently and it was his perseverance that saw his native town of Prescot become a centre of manufacture for interchangeable watch movements. He was apprenticed to the watch & chronometer makers Hewitts in Atherton Street and had such a good working relationship he continued working within that firm for some considerable time after his apprenticeship ended. Indeed, as we shall see his relationship with T.P. Hewitt would have a considerable bearing of the watch industry in the latter years of his life. Then in circa 1850 he took on the business of the balance maker Edmund Range, whose widow he then married. Wycherley expanded the business and started to deal in the loose materials for Coventry manufacturers.

Having become frustrated at the waste in both time and materials entailed in making a watch using conventional hand-tools, remembering that a blank was made in one place, a balance elsewhere, a fusee in another place and so on, before being taken to a finisher to be completed, Wycherley decided, in 1866, to open a factory under which roof all aspects of the process could be concentrated. And so a large building was built in Warrington Road, Prescot consisting of three floors. It was fitted out with steam power and after a time employed some 120 workers of which around thirty to forty were girls.

He decided on eight standard sizes of movement to be manufactured under his machine system ranging from size 4, 1.34 inches, to size 18, 1.83 inches with a difference between each of the eight of $\frac{7}{100}$ of an inch. The plates were made of a standard size without varying by more than $\frac{1}{1000}$ of an inch so that any cap, case and dial, when made using the standard blocks, would be interchangeable with any of the movements of its size.

One of the many problems Wycherley encountered was the obvious lack of machine tools to make his parts and so he had to design and make all the tooling and then educate the workers in the use of them. He was also up against the prejudices of the watch making industry who preferred the individuality that hand-making of movements produced with many of these doom-mongers almost willing Wycherley to fail in his venture.

That much of the machinery required to make the parts was based on a lathe, being that the majority of parts in a movement are round, he used ingenuity to devise chucks and fixings that would utilise existing machines as far as possible. Wycherley also decided that riveting the pillars to the pillar plate left too much room for intolerance and so decided on both riveting and screwing. The machines he devised for the turning of a mainspring barrel were both simple and effective, utilising some four or five turning tools, each shaped to a particular part of the barrel, on a round block of brass set within a chuck. Cutters were then set to work, each mounted on a capstan rest and stopping at the exact point needed by the use of a stop in the slide rest. As soon as this part of the process was completed a drill spindle would run through the hollow lathe mandrel to pierce the centre hole. But the most important aspect of the J.W movement was that the train wheels and pinions were so accurately pitched that uniformity was ensured and therefore considerable time saved in the finishing process.

Having established his factory as both a financial and mechanical success Wycherley entered into a partnership with T.P. Hewitt, who by now had a factory in Scotch Lane, Prescot, where watches with a keyless mechanism were manufactured. Wycherley, Hewitt & Co continued to expand on this side of the business making it even more prosperous.

John Wycherley was married three times, his first wife being Miss Hoskin of Halewood by whom he had four children. On the 15th of January 1851, now a widower, he married Margery Range, aged 31, the widow of the watchmaker Edmund Range and daughter of the watchmaker Thomas Lloyd, at St Mary the Virgin church, Prescot, before marrying for a third time a lady from Ormskirk. In circa 1883 Wycherley moved to Southport where he died in September 1891. He was buried in Prescot churchyard with his funeral taking place on Thursday the 10th of September.

J.W. Benson

The firm was originally established in the mid-eighteenth century.

By 1840 watchmakers S.S. & J.W. Benson are recorded at Cornhill, London, before becoming J.W. Benson alone at various numbers on Ludgate Hill; firstly 33, later 58 and then 60.

In 1879 Royal patronage had been obtained and the company moved to larger premises at 62 and 64 Ludgate Hill, before, in 1889 becoming part of the prestigious jewellers Hunt & Roskell, the business increasing in 1892 with the opening of the steam powered factory at Belle Sauvage Yard, Ludgate Hill.

Retail premises were now in operation at both Royal Exchange and New Bond Street.

During a night of German bombing in 1941, the factory, along with all records and horological products, was destroyed.

Records suggest that Benson's not only made complete movements themselves but were also supplied by others including Nicole Nielson and P. & A. Guye who had a 'fair sized factory in Farringdon Road to supply firms like Benson' and who may well have supplied them with the 'Benson Railway Guards watch'.

It is also interesting to note that Rotherham's manager, Mr Gooding, who was so influential within that company, previously worked with Benson and so may've used his influence to supply Benson's with Rotherham movements with the latter company having such a large manufacturing capability.



Benson Movements

All movements are three-quarter plate with a club-tooth lever escapement

Photo proof from the *Watches*, fig 61, page 111 being the four examples shown here.

- 1 **26464**: *The Ludgate, To HM The Queen*, keywound with block script to the dial signature.
- 2 **N7018**: *The Bank, Best London Make*.
- 3 **99374**: *The Ludgate*, keywound, the frontplate, with an unsigned dial
- 4 **4803**: *The Bank*, the frontplate



- 5 823315: Railway Guards watch (missing parts)
- 6 D1754: Best London Make, To HM The Queen
- 7 2370: Best London Make, To HM The LATE Queen
- 8 F4913: The Bank (missing parts)
- 9 7755: The Field (missing parts)
- 10 97824: The Ludgate, To The Queen , (Pat. 4658), Keywound.



- 11 117911: The Ludgate, To The Queen; (Pat. 4658). Keyless, unusual as the only one in the collection with the New Bond Street address on the backplate as opposed to the normal Ludgate Hill.
- 12 129202: The Ludgate, To The Late HM Queen Victoria, (Pat. 4658). Keyless, unusual as the only one in this collection that mentions Queen Victoria by name.
- 13 A small jewelled backplate from a watch which is well engraved *J.W. Benson, 62 & 64, Ludgate Hill, London, By Special Warrants, To H.M. The Queen and H.R.H The Prince of Wales, No. 80313.*
- 14 Three dials signed in script for *J.W. Benson* showing slight changes in the black Roman numerals between each.
- 15 Benson keyless movement parts, as in AHS article Winter 1996.
- 16 **W. Finch, Woking, 57052:** a movement obviously from the same workshop as 5 above, the Railway Guards watch, with the identical plates and layout, both of which are likely to have come from a different source to the other Benson watches. Dennis Bacon suggests possibly the P & A Guye factory.



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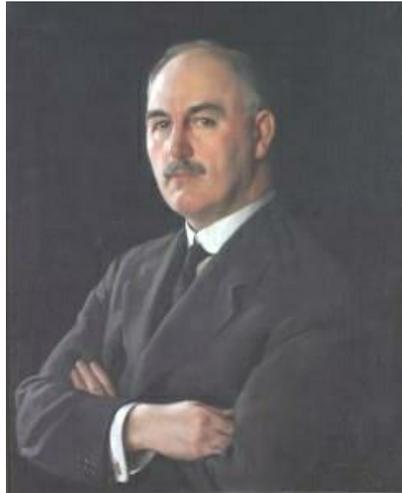


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J.G. Graves



John George Graves (1866–1945), known as George, was a successful English watchmaker, entrepreneur and public benefactor. He became Sheffield's Lord Mayor and an Alderman in 1926 and he was given Freedom of the City in 1929. He was born in Lincolnshire in 1866 and died in 1945, after having settled in Sheffield.

Graves moved to Sheffield, aged 14, to become an apprentice watchmaker going alone when reaching the age of twenty. He set up one of Britain's first mail order businesses, selling first watches, having seen a gap in the market for cheaper watches that could be sold on credit and sensing a market in the working man who he targeted with a large adverts placed in newspapers, most notably the back page of the London Saturday dailies. He expanded his business to encompass a wide range of goods and the company employed, at its peak, 3,000 people in Sheffield and had an annual turnover of £1m. The company was absorbed by Great Universal Stores after Graves' death.

Mr. Graves became involved in the municipal affairs of his adopted city and performed the roles of City Councillor, Lord Mayor and Alderman. His life was always influenced by his Methodist upbringing and affection for his adopted city. He was greatly enthused by the public ownership of open spaces. Whatever his motivation, there can be little doubt that he was one of the Sheffield's great benefactors.

He made his first gift in 1903 and made many others subsequently in a personal capacity before the formation, on 7 August 1930, of the Charitable Trust bearing his name which endures today. The Trust was chaired and dominated by Mr Graves until his death in 1945. The work has been carried on by the Trustees since his death under the guidance of succeeding Chairmen.

A keen art collector, Graves donated nearly £60,000 towards the development of art galleries in Sheffield, including Sheffield Central Library, the Graves Art Gallery and the Mappin Art Gallery. He also contributed hundreds of pictures from his private collection. Graves donated over £1 million to Sheffield, including the establishment of Sheffield University's Student Union. Part of the Union building is known as the "Graves Building". He also made gifts of land to the city, including Graves Park, Ecclesall Woods, Tinsley playing fields, Concord Park and Blacka Moor. The J. G. Graves Trust, a charitable trust set up in his name, exists to the



*The Music Hall, Surrey Street, 1902
Now the Wharehouse for J.G. Graves*

All H. Williamson made examples with 'false' fusee, compensating balance, reverse pinion and normal index. The dials are signed in ink on the back 'HW' to show the dial maker that they were destined for Williamson.

All dials signed 'The Express English Lever, J.G. Graves, Sheffield' with the Graves name in block, and the model type in red and signature in black.

- 1 **15813** Signed in block on the backplate, below the plain backcock, 'J.G. Graves, Sheffield', the front plate also numbered and stamped with the patent '18766. Pat. 22674'.
- 2 **22424** Signed in script on the backplate, above the plain backcock, 'J.G. Graves, Sheffield', the front plate also numbered and stamped with the patent '18766. Pat. 22674'.
- 3 **100709** Signed in block on the backplate, below the plain backcock, 'J.G. Graves, Sheffield', the front plate also numbered.
- 4 **133396** Signed in block on the backplate, below the plain backcock, 'J.G. Graves, Sheffield', the front plate also numbered. With a dustcover stamped 'CHE' for Charles Errington.
- 5 **150791** Unsigned on the backplate, but with the serial number, the front plate also numbered.

All Lancashire Watch Company made examples with 'false' fusee, compensating balance and reverse pinion. The Lancashire movements then differ from those from Williamson by having an engraved backcock and a Bosley regulation with raised silvered index.

All dials signed 'The Express English Lever, J.G. Graves, Sheffield', with the Graves name in block, and the model type in red. The last movement shown, 774373, has the Graves name in script which, having studied other Graves watches in the collection, would appear to have become the norm after the serial number circa 720,000 with a gradual changeover between these numbers.

- 6 **430748** Signed in script on the backplate, below the backcock, 'J.G. Graves, Sheffield'. To show the unusual bolder dial numerals.
- 7 **433332** Unsigned backplate with serial number.
- 8 **494312** Unsigned backplate with serial number.
- 9 **569789** Signed in script on the backplate, below the backcock, 'J.G. Graves, Sheffield'. No dial. Showing the normal Graves Lancashire front plate.
- 10 **710357** Signed in script on the backplate, below the backcock, 'J.G. Graves, Sheffield'.
- 11 **774373** Signed in script on the backplate, below the backcock, 'J.G. Graves, Sheffield'. The dial name in script.
- 12 **702291** To show the dial with script signature.

Other Lancashire Watch Company models

Interestingly both these models have the model name in black and the signature in red, the opposite to the Express models.

13 98519 Dial signed 'The Imperial English Lever, J.G. Graves, Sheffield', the Lancashire Watch Co. movement having a different front plate layout to the Express models and a single barrel without false fusee, with a normal index on the backcock as seen on the Williamson models. The front plate stamped with the trademark 'LW Co. Ltd.' along with a repeat of the serial number which is stamped on the backplate with the legend 'Warranted English Manufacture', 'Reversing Pinion' but otherwise plain with no Graves signature.

14 139076 Dial signed 'The Defiance English Lever, J.G. Graves, Sheffield', the Lancashire Watch Co. movement a variation on that above but without the trademark or Warranty. Missing backcock and balance.

Ehrhardt model

15 290539 One of only two in the collection made by Ehrhardt, the backplate signed J.G. Graves, Sheffield, 290539, with an engraved backcock, lever escapement with a bi-metallic compensating balance and flat Bosley regulation, and single barrel, the dial signed The Express English Lever, J.G. Graves, Sheffield. The other example is in the Ehrhardt section.

Coventry Made model

16 47122 The only Graves example in the collection made by the Coventry Watch Manufactory Company, with a 'false' fusee, engraved cock, split bimetallic balance, lower Bosley regulation with the Coventry *four-arrows* at the mid-point, unusual front plate, the dial signed The Express English Lever in script as in exhibits 10 & 11 and being obviously by the same dial maker.

As the Graves mail order business grew, so did the need for watches, at which point the company started importing Swiss made examples.

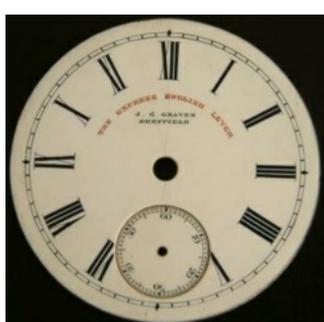
17 'The Westville Lever' with a Swiss three-quarter plate movement and engraved backcock. Named after the Graves administrative centre opened in 1903.

18 A full-plate Swiss example with lever and engraved backcock, the dial signed 'J.G. Graves, Sheffield, Swiss made' with the back of the dust cover similarly signed in script.

Dials

19 'The Washington Keyless Lever, J.G. Graves. Swiss Made'.

20 A small decorative dial signed 'J.G. Graves, Swiss Made'.



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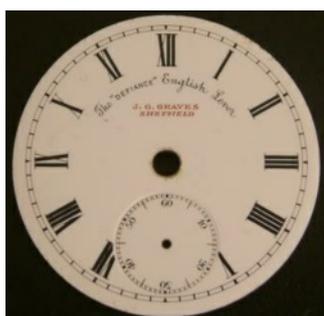
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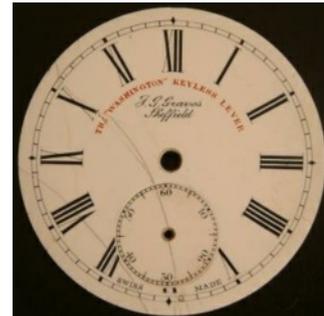
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Verge Movements

There are generally two types of regulation used with verge escapements, along with a later third used primarily for lever escapements. The early type, as devised by Thomas Tompion, has a rosette attached to the backplate which, when turned, shortens or lengthens the amount of hairspring used and therefore regulates the speed at which the balance swings and so the timekeeping. This type was used when the hairspring was set below the balance, and above the plate. In 1755 Joseph Bosley patented his type of early regulation, in which a lever was used, the end sitting on the backplate moved across an index allowing the owner to easily regulate his own watch. Although patented in the mid-1700's this style of regulation didn't come into general use until the early 1800's. With the advent of the lever escapement, and the hairspring being positioned above the balance, a further later development of the Bosely was made with the arm now coming out above the balance to the front and usually having a raised quadrant on which is engraved the index.

All movements with chain fusee, pierced and/or engraved cocks and makers name engraved straight onto the backplate.

With Tompion Regulation

1 Cornelius Clark, Kendal: with mask engraved decoration to the fully pierced cock, Tompion regulation, square baluster pillars and decorative pierced fusee stop apron. Missing balance and regulator. (card un-numbered)
Cornelius Clarke is recorded working in Kendal, Westmoreland circa 1710. One other maker of this name is known having been made free in Lancaster in 1733 before working in Kendal and died in 1759, but probably to late to be the maker of this movement.

2 Corns. Manley, Norwich: with mask engraved decoration to the fully pierced cock, Tompion regulation, Egyptian pillars and decorative pierced stop apron.
Cornelius Manley is recorded as working in Norwich, Norfolk from circa 1702 until his death in 1722.
An interesting advert from this year, as in the Norfolk Gazette, dated 10th Feb 1722 and presumably posted after his death, reads: '*A very convenient dwelling house in S Peter of Mancroft, right against the church, wherein Mr Cornelius Manley formerly lived, to be lett*'. Many fine longcase clocks are known made by Manley, as well as silver cased verge watches including one in the Liverpool museum and another in the Goldsmiths College collection.

3 M. Jenkins, London, 3052: with wolf-head engraved decoration to the fully pierced cock, Tompion regulation, square baluster pillars and decorative pierced stop apron. M. Jenkins recorded as working in London from before 1750.

4 Wm. Evill, Bath, 5164: with the pierced & engraved apron having a finger pointing to the Tompion style regulator, square baluster pillars, decorative pierced stop apron. With a white porcelain dial.
Missing balance and cock. James Evill worked in partnership with his brother William, who ran a general jewellery concern, until his death in 1793. James became 'Goldsmith, Watchmaker and Cutler to The Duke of York' after he made a gold box to be presented to the Duke on his freedom of the City of Bath. By 1809 his business was known as 'Evill & Sons, Jewellers' when he was working with his son William who was born in 1791. William continued the business at the top of Old Bond Street and finally retired in 1829.

5 Wm. Evill, Bath, 7893: with Tompion regulation, square baluster pillars, decorative pierced stop apron. The frontplate stamped /S. Missing balance, cock and regulator. Evill, see previous entry.

6 Wm. Foster, London, 3818: with mask-head engraving to the pierced cock and engraved, non-pierced, tail, Tompion regulation, turned round pillars. William Foster is recorded working in London having been apprenticed in 1672 and free of the Clockmakers Company in 1681, he was probably a Quaker.

7 H. Lyon, York, 14920: with female-head engraved cameo to the finely pierced cock, with un-pierced tail and plate, Tompion regulation, round turned pillars, white enamel dial with black Roman numerals and subsidiary seconds dial. With stop lever.
H. Lyon, York appears to be unrecorded although there are a few makers named Lyon working in the area including Charles in 1787.

8 Jeffreys, Chatham, 40014: fully engraved backplate, with Tompion regulator and turned round pillars, missing both the cock and balance, numbered on the bridge. Edward Jeffreys, married in 1787, was the son of George who was apprenticed in Maidstone in 1748 to Robert Cutbush and then recorded in Chatham from 1755 until 1783. He was the son of a carpenter, William. A number of fine clocks are known made by him including one particular rare wall clock with a fusee movement and a ten-inch round silvered dial.

With Bosley regulation

9 Willm. Edwards, Derby, 3993: with fierce mask-head engraving to the pierced cock and engraved, non-pierced, tail, jewelled to the balance pivot, flat three-arm steel balance, traditional Bosley style regulation, turned round pillars, the number repeated to the underside of the cock along with the initials of the blank maker, *W/N*.

William Edwards was apprenticed to James Wright of Derby on the 7th of July 1783 for a period of seven years. He married in 1797 having opened his premises in Rotten Row in 1790. The business was sold to D. Holme in circa 1850.

10 Robt. Henderson, London, 1602: with a shaped, engraved un-pierced cock, flat three-arm steel balance, Bosley style regulation, turned round pillars, with wheatear border engraving to the backplate.

Robert Henderson is recorded working in St Martins Court from circa 1768 until after 1805.

11 Osborn, Grt. Russell Strt, London, 480: with engraved mask-head decoration to the engraved un-pierced cock, flat three-arm steel balance, Bosley style regulation, turned round pillars, with the addition of lever-controlled stop, the frontplate stamped 'S'.

12 S. Simms, Chipping Norton, 24733: with floral c-scroll engraved decoration to the un-pierced cock, flat three-arm steel balance, Bosley style regulation and turned round pillars.

Samuel Simms is recorded working in Chipping Norton, Oxon, from circa 1790 until 1869 and was the son of the clockmaker John and grandson of the maker also John.

13 J. Long, London, 1376: a sedan clock movement with a flat steel three-bar balance to the verge escapement, engraved balance cock and Bosley regulation.

Probably John Long who was known to be working in London circa 1828 and before.

14 Anon, 4574: fusee with a flat steel three-bar balance with a finely engraved cock with *Fierce mask-head* and engraved bridge, early Bosley regulation.

15 Anon, 2697: fusee with a flat steel three-bar balance with a finely engraved cock and front apron, with a Bosley regulation.

Watches with verge escapements

16 Bacon, Worthing, 54578: with a shaped cock, five-arm balance, jewelled cock, the dust cap stamped *IXR*, the silver open-faced case hallmarked London 1814, stamped with the case makers initials *SB*, for Samuel Brookes, 2 Ashby Street, Clerkenwell, the inner case engraved *J. Price to Charles Price*, with the outer case engraved *J.P.*

17 Jas. McCabe Royal Exchange, London, No. 10163: a tripod 'clock', the fusee movement signed on the backplate, with the verge escapement having a finely pierced and engraved cock with diamond endstone and with traditional Bosley regulation, stamped *IMC* or *SW* under the cock and top plate, the dial numbered 10163, the dust cover stamped *R.E* within a cameo, in a gilt tripod case.





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Lever Escapement

Watches

- 1 Natal Government Railways, John Walker, 77 Cornhill, London, 9249:** a heavy silver open-faced railway watch with a full-plate fusee movement, signed as above on both the dial and movement, the case possibly German and numbered 93 on the rear and stamped inside within an oval, JW, for John Walker.
John Walker is recorded as working circa 1840 until after 1895, becoming John Walker Ltd in Regent Street circa 1850.
For a full description and interesting analysis of this watch and its use see *The Pocket Watch Handbook*, pages 173-175.
- 2 Jas McCabe, Royal Exchange, London, 07879:** a small silver full-hunter pocket watch, the full-plate movement with a gold three-bar balance and over-coil hairspring, unsigned dial with gold fleur-de-lys hands, the case hallmarked for London 1848 and stamped with the case makers initials, AT for Alfred Thickbroom, 10 Galway Street, Bath Street, London.
- 3 Anon. 868:** a silver open-faced silver pocket watch with a table roller lever, the fusee movement with a steel three-bar balance, plain balance cock, and Liverpool jewellery, the dust cover stamped J.S, the case hallmarked for London, 1833 and stamped with the maker's initials GH for George John Hammon, 4 Skinner Street, Clerkenwell.
- 4 John Donegan, 32 Dame Street, Dublin, 13954:** a silver open-faced fusee pocket watch with work typical of this maker to the backplate, the case hallmarked for Dublin, 1869 and stamped with the case makers initials JD, presumably for John Donegan, with shamrocks engraved around the winding hole, the dial also signed for the maker.
John Donegan was one of the top Irish watchmakers of the period and had a reputation for selling superb quality goods. He had two shops situated in Dublin and is known to have been working before 1839 until at least 1855.
- 5 Anon. 27001:** a silver open-faced pocket watch, the full-plate going-barrel movement has a steel three-bar balance, traditional Bosley regulation with Coventry *four-arrows* mid-point mark to the index, with the dust cover stamped WF, the case hallmarked for London, 1880 and stamped with the case makers initials SJ.
- 6 H. White & Co. Ltd, 63 Cheapside, London, EC, 3170254, 'Warranted English':** a three-quarter plate movement stamped on the plate *Williamson '1908'*, in a metal case.
H. White is recorded as being a chronometer maker as well as a watch maker, working in the mid-to-late 19th century
- 7 M. Nixon, London, No.357:** a silver open-faced fusee pocket watch with a table roller lever, with an early form of bimetallic compensating balance for this style of movement and odd 'comma' shaped cock, the modified Bosley regulation engraved with a *fleur-de-lys* mid-point mark to the index, the case hallmarked for London, 1831 with the case maker's initials JW in script for John West, 99 White Cross Street, St Lukes, London. M. Nixon is believed to be the Godson (or Godfather) of a well-known maker.
- 8 J.A. Page, Plymouth, No.7648:** a silver hunter case with a table roller lever escapement which has a single banking pin, the frame stamped IG, the case hallmarked for London, 1835 with the maker's initials WF for William Fielder, 29 Gloucester Street, John Street, London.
- 9 Anon. 7953:** a silver open-faced fusee pocket watch, un-jewelled with a plain backplate and steel three-arm balance, the case hallmarked for London, 1834 with makers initials I.A.T. for Joseph Abram Tyas, 36 Seward Street, Goswell Street, London.
- 10 Anon. 2916:** a silver open-faced fusee pocket watch with a large diameter roller and a steel three-arm balance with traditional Bosley regulation, with three jewels to the backplate, the case hallmarked for London, 1834 and stamped with the case makers initials GH (see exhibit 3), the case back obviously replaced as hallmarked for 1853 and stamped with the case makers initials JB for Josiah Barnett, 15 Lower Charles Street, Northampton Square, London.
- 11 J.A. Page, Plymouth, 8757:** a silver open-faced fusee pocket watch with a fully developed lever, but older style of balance cock finely engraved with a mask-head and floral decoration, with a steel three-arm balance, revised Bosley regulation with a raised silvered quadrant, the silver case hallmarked London, 1836 with indistinct case makers initials, possibly GH or JH in script.
- 12 Thomas Langstaff, Middlesborough, 24449:** a silver open-faced fusee pocket watch with a fully developed lever which has a fairly large balance with a slow tick and an interestingly shaped balance cock, the case hallmarked London, 1837 with the makers initials GH, see exhibit 3.
Thomas Langstaff is recorded working in North Street, Middlesborough circa 1840.
- 13 Russell & Son, London, 412974:** a silver open-faced going-barrel, reversing pinion, pocket watch, the split-bimetallic balance with a modified Bosley regulation, signed on both the dial and the Lancashire Watch Company movement, stamped on the frame *TPH*, for T.P. Hewitt, the case hallmarked Chester, 1899.
- 14 Thos Farnworth, Blackburn, 8154:** a silver open-faced fusee pocket watch with a gold three-arm balance, engraved balance cock and traditional Bosley regulation with Lancashire *crows-feet* index markings, possibly re-cased later with the case hallmarked for Chester 1898 and stamped with the case makers initials CH, the dust cover stamped *TW*.
Thomas Farnworth is recorded at 55, King William Street, Blackburn in 1858.
- 15 Peter Howlett, Liverpool:** a silver open-faced fusee pocket watch, the three-quarter plate movement signed *Patent Detached lever by Peter Howlett, Liverpool, 1837* with a steel balance, the silver case hallmarked for London 1835 and stamped with the case makers initials W W (cameo) for William Webb, 6 Skinner Street, Clerkenwell.
- 16 J. Jones, Pwllhelli, 38462:** a silver pair-cased fusee pocket watch with a straight sided lever table roller, the steel three-bar balance with traditional Bosley regulation and Coventry *four-arrows* mid-point mark to the index, with an engraved balance cock, the dial signed *Patent Lever* on the second hand dial, the case hallmarked for London 1869 with the case makers initials HB (cameo) for Henry Bamford, 18 Myddelton Street, Clerkenwell,
John Jones is recorded working in the High Street from circa 1856 until 1878.

17 Anon. 2350: a silver open-faced fusee pocket watch, with a finely engraved balance cock, steel three-arm balance with traditional Bosley regulation, with gold spade hands, the case hallmarked for London 1831, with case makers initials JP, probably for Joseph Potter, 47 Ironmonger Road, London.

18 Kendal & Dent, London, 22858: a silver open-faced fusee pocket watch signed on the twenty-four hour dial, with an engraved and numbered balance cock, split-bimetallic balance and traditional Bosley regulation with Coventry *four-arrows* mid-point mark to the index, the dust cover stamped T.W, the silver case hallmarked for London 1884, with the case makers initials RJP (cameo) for Robert John Pike, Cromwell House, Earlston, Coventry.

19 Mark Wymark, London, 3898: full-plate fusee movement with an early table roller lever escapement with large balance, the engine-turned silver dial has raised gold hands, the silver case hallmarked for London 1827 with the makers initials CL, for Charles Lupton, 6 St James Place, Clerkenwell.

Mark Wymark is recorded as having been apprenticed to Thomas Dean, a watchmaker of Radcliffe Row, London, on the 21st Jan 1806 for seven years from his 14th birthday, giving him a year of birth of circa 1792. He is known to have been working from 1816 until 1842 with his address given as 5, Percival Street with a second address at no. 49 from 1838. The business became known as Wymark & Son from 1844 until 1869 recorded at this latter address which may previously been that of his clockmaker son. As well as a clockmaker, Wymark was also known as a watch finisher.

Movements - Full Plate

20 J. Heap, Burnley, No.13931: a fusee movement with a decorative stop, steel three-arm balance with an engraved balance cock and traditional Bosley regulation with single arrow mid-point mark to the index, and round turned pillars, the dust cover stamped WG.

John Heap is recorded as working circa 1848.

21 Richd. Fairey, London. 5226: a fusee movement with a three-arm gold balance, Swiss escapement with a plain balance cock, signed on the apron *Detached*, signed on the dial by the maker, with dust cover stamped JC.

Richard Fairey is recorded as working in Tooley Street, London between 1811 and 1869.

22 Barraud & Lund, Cornhill, London: 5801: a fusee movement with a flat brass three-arm balance and traditional Bosley regulation, signed on the dial *Barraud & Lund, London, 2/5801*.

23 E. Davies, Barrow in Furness, 46535: a fusee movement with a three-arm steel balance with a finely engraved straight balance cock and modified Bosley regulation index, with dust cover.

Edward Davies is recorded working in Market Street, Dalton in Furness before 1866 before moving to The Strand, Barrow in Furness in that year. He was known to still be working there in 1869.

24 Peter Green, Clifton, 1700: a fusee movement with a three-arm steel balance with plain balance cock engraved *Patent* on the apron, the Swiss escapement has a Coventry *four arrows* mid-point mark to the index and three jewels to the top plate, with a dust cover.

Peter Green was born in Bristol in 1800 and died in 1843.

25 Josh Blanchard, Preston, No 13747: a fusee movement with a lever escapement, split-bimetallic balance and traditional Bosley regulation with Lancashire *arrow-head* index markings, the cream dial signed Josh Blanchard, Preston.

26 Bacon, Market Place, Dover, 1056: a fusee movement with a steel three-arm balance, engraved balance cock with modified Bosley regulation and Coventry *four-arrows* mid-point mark to the index.

27 W.E. Watts, Gloucester, 15246: a going-barrel with a false fusee, split-bimetallic balance, with a Coventry *two-arrows* mid-point mark to the index, with dust cover.

William Edwin Watts, is recorded at 58, Southgate Street, circa 1877-79, with his son of the same name born in 1866, married in February 1887 to Margaret Lane, daughter of the watchmaker John Lane, and who continued the business.

William Edwin Watts is recorded working from before 1877 until at least 1879. He had a son of the same name, born 1866 and married in 1887, who continued the business.

28 Grinberg & Reichmann, G. Western Rd, Brighton, 63789: missing balance and cock, with a modified Bosley regulation, the dial signed *Grinberg & Reichmann, Brighton, Railway Manufacturers*.

Grinberg & Reichmann are recorded working circa 1878 with Grinberg then working alone from 1885 until 1886.

Movements - Three-quarter Plate

29 J. Marshall, Dewsbury, 1876: a key-wound fusee movement with a split-bimetallic balance, finely engraved balance cock and lever bridge.

30 Hurt & Wray, Birmingham, 11265: a fusee movement with a three-bar gold balance and engraved cock with a normal index, the size 8 frame stamped for the maker *H.H*.

Joseph Hurt (born 1821 in Derbyshire) and William Wray are recorded working in partnership from circa 1845 until 1869.

31 Barwise, London, 12/734: also signed on dial, a fusee movement with a gold three-bar balance and Swiss escapement, with a Coventry *convict arrow* mid-point mark to the index.



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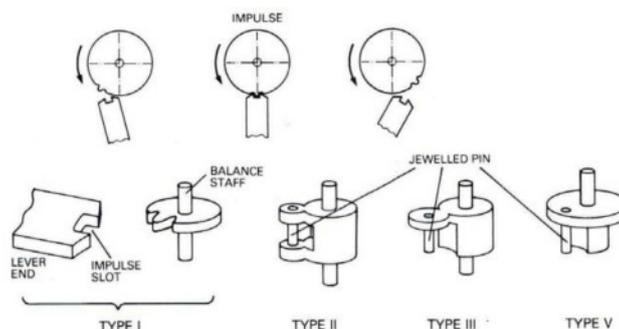


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The Massey Lever & Liverpool Jewelling



Watches

1 **T. Lamb, 1833**: a silver open-faced pocket watch, fusee with a Massey type II lever escapement and Liverpool jewelling through all five to fusee, a chiseled cock engraved Patent, steel three-arm balance and traditional Bosley regulation with Lancashire *arrowheads* index, with stop-work to the balance, cream dial with blued steel spade hands, the silver case hallmarked for Chester 1828, with case makers initials IH, probably John William Hammon, 25 York Street, Coventry, the dust cover stamped RB. There is no indication of where T. Lamb worked on the watch, with a number of makers of this name recorded in Colchester, Newcastle and Great Yarmouth. Bacon suggests the possibility that Lamb was the original owner and the number 1833 actually the date he received it.

2 **Anon**: probable conversion from a Massey V escapement, now with a fully developed lever, with a chiseled cock, and fusee plate, signed *Patent* to the cock, with a steel three-arm balance and traditional Bosley regulation with Lancashire *arrowheads* index, a Liverpool runner with the lever on the 'wrong' side, now with the balance stop lever removed, with a cream dial and blued steel spade hands, the silver case hallmarked for Chester 1832 with the case makers initials JH (cameo), for John Harris, Islington Road, Clerkenwell, the back cover obviously replaced as it is hallmarked for Chester, 1849 and stamped with the case makers initials BK, for Benjamin Kerby of Spon Street, Coventry, formerly from Clerkenwell.

3 **Anon. 7849**: a silver-gilt open-faced pocket watch 'Liverpool runner', fusee with a Massey type III lever escapement, with a reversed layout and spring ratchet on top of the plate (spring missing), with a gold three-arm balance and Liverpool jewelling to the third, with stop mechanism, plain cock with modified Bosley regulator with the silvered quadrant engraved with Lancashire *arrowheads* index, the cream dial has Brequet moon hands, the silver-gilt case hallmarked for Chester 1840 with the unrecorded case makers initials ILS.

Movements

4 **Anon**: fusee with a Massey type I lever escapement, with a plain back plate, the cock with minimal decorative engraving, fleur-de-lys halfway mark to the normal index and engraved Patent, the steel three-arm balance with a thirty-tooth escape wheel and a *sugar tong* bimetallic compensating curb,

5 **W. Mayo & Son, Manchester, 10048**: fusee with Massey type III lever escapement. steel three-bar balance, traditional Bosley regulation, with Lancashire *arrowheads* index. William Mayo was apprenticed to Samuel Smith on the 24th of July 1800. William Mayo & Son are recorded working in Market Street, Manchester between 1834 and 1858.

6 **Anon**: fusee with a Massey type II with Liverpool jewelling, steel three-arm balance, traditional Bosley regulation with Lancashire *arrowheads* index.

7 **Anon. 2155**: conversion from a Massey V escapement, now with hybrid lever, with Liverpool jewelling, the balance has *crows feet* curved spokes with the balance cock heavily chiseled with thistle & shamrock decoration and signed *Detached* on the cock, with a steel three-arm balance and traditional Bosley regulation with Lancashire *arrowheads* index.

8 **Edwd. Armstrong, Plumbland, 1843**: Bacon suggests this to be a conversion to lever from a Massey type IV due to the style of lever end, now worked on; a full-plate fusee movement with steel three-arm balance, the chiseled balance cock has a globe within the top and *Detached* engraved on the apron, with traditional Bosley regulation having Lancashire *arrowheads* index. Edward Armstrong appears unrecorded, but there are other makers named Armstrong working in Cumbria at this period.

9 **De La Cour, Chatham, 3245**: a full-plate movement without escapement or cock, showing a Massey lever, with jewelling to the fourth, the traditional Bosley regulation with Lancashire *arrowheads* index. B Delacour is recorded working in the High Street, Chatham between 1810 and 1856.

10 **20725**: the remains of a three-quarter plate fusee movement showing the Massey lever.

11 **Anon**: the remains of a full-plate movement fusee movement with unknown Massey type, missing the hairspring and roller but with Massey lever, with a steel three-arm balance, traditional Bosley regulation with Lancashire *arrowheads* index and jewelled to the third.

Liverpool Jewelling (and Runner) - Some also in Massey Section above

12 **William Roberts, Liverpool**: fusee with lever escapement, gold three-arm balance, finely engraved cock and barrel bridge a Liverpool runner with exposed clickwork and jewelled to all five to the fusee, the dial signed *William Roberts, Wavertree*, and with a dust cover stamped JC (cameo). (Note: Wavertree is a suburb of Liverpool) William Roberts appears unrecorded.

13 **Anon. 3842**: fusee with lever escapement, gold three-arm balance, engraved cock, with traditional Bosley regulation and jewelled to the fourth, with a dust cover stamped JAK.



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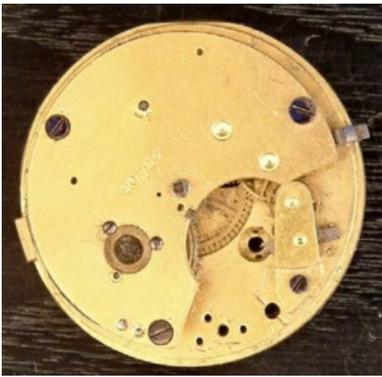
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Adolphe Nicole for E.J. Dent



By the early 19th century a number of innovators were exploring ways to allow a watch to be wound without a key, therefore taking away the need to open a case and to have to keep a key in close proximity to the watch, whilst others were adding to this to find a way to set the hands without a key as well. Thomas Prest, a former apprentice and then workman to John Arnold, was one of the first to apply for a patent, granted in 1820, for a movement with keyless winding, although his still required the case to be opened to set the hands, and this was taken up by a number of well-known makers including Arnold & Dent. But it was the invention of Adolphe Nicole of *Dean Street in the County of Middlesex, watch maker*, UK Patent 10,348 granted on the 14th of October 1844, that had the advantage of allowing both winding and hand setting from one stem operated from the top of the watch, with either fusee or going-barrel movements, and alleviated the need for the case to be opened at any time and therefore keeping the movement dust free. In 1846 Edward John Dent acquired the rights to this patent as *sole licensee* and started using it on watch movements, although it is probable that Nicole continued to make the movements on behalf of Dent. That Dent allowed others to use this system is shown by those movements signed by, amongst others, C.F. Hancock, E. White and Nicole Neilson & Co, all having *Patent* engraved on the backplate.

Early forms of this system had the intermediate wheel in constant contact with the centre wheel, as seen in both examples in this exhibition, but Dent soon realized that this meant unnecessary friction on the motion work and an alteration was made to the engaging gear whereas the intermediate wheel was in constant contact with the going-barrel and only moved onto the centre wheel when winding occurred. Dent's continued to use this Nicole system until 1862.

One other addition made to these movements, when using a duplex escapement, was the use of a 'kink' in the hairspring near to its end and which would correctly be termed an *amplitude limiting device*. It was found that the duplex had, when given sudden movement, a tendency to set and so this kink would contact a vertical pin on the balance arm and alleviate the problem.

It is quite probable that Dent's exhibited watches with the Nicole patent at the 1851 Great Exhibition held in the Crystal Palace, Hyde Park, as E.B. Denison, in describing the horological exhibits displayed there notes a watch of this description being on the Dent stand; *There is a very beautiful collection of carriage clocks and watches, of various kinds, by Mr Dent; some of them exhibiting, besides the compensated balance that all first-rate watches now possess, a contrivance (different from most others for the same purpose) for winding up and setting the hands without a key, by turning the knob in the handle or pendant..*

Two examples of movements with Adolphe Nicole's Patent, both signed for E.J. Dent

1 A three-quarter plate fusee movement with a duplex escapement, amplitude limiting device to the hairspring, a finely engraved cock with a split bimetallic balance, with an early form of Nicole's keyless mechanism. The backplate is signed *E.J. Dent, Watchmaker to the Queen, London, No. 8272, Patent* with, to the side of the cock, Nicole's stamp, *A.N* within a rectangle and number *705*, the dial signed *E.J. Dent, London, 8272* with the subsidiary seconds dial off-set at IX o'clock.

2 A smaller three-quarter plate fusee movement with a lever escapement, a finely engraved cock with a split bimetallic balance, with an early form of Nicole's keyless mechanism. The backplate is signed *E.J. Dent, Watchmaker to the Queen, London, No. 14367, Patent* now without Nicole's stamp but with the Nicole number *1405*, without a dial.

The Formation of Factory Production

Up until the early 1800's watchmaking was very much a hand-built business with most makers working alongside their workmen and apprentices in small workshops, buying-in the necessary parts such as balance cocks, fusees and plates etc.

But a change was coming over the industry as the need for timekeepers increased amongst the populace along with the ability of toolmakers to set-up machinery for mass-production.

This era of change was probably Dennis Bacon's favourite topic with the vast majority of the movements in his collection coming from the various factories that were set-up in the Lancashire, Coventry and London areas. Within the collection is a selection of blanks as supplied by the movement makers such as John Wycherley & James Berry. That these blanks are stamped by such influential makers allows us to follow the time-line comparing the original blanks, to fully finished movements bearing these stamps alongside the signatures of the watchmaker or retailer on the backplate and dial.

Many top makers of the day used blanks supplied by the Lancashire trade including Dent, Arnold and Barraud, often utilising them to attach their own form of escapement.

As an engineer Dennis Bacon's first interest was in the machinery that was constructed to make mass-production a possibility, his study of lathes used in watchmaking is particularly insightful, but he soon started a study of the watches produced under these new methods and ended with a large collection of samples, of which only a small proportion are exhibited and discussed here.

It took some time for the English watchmaking industry to change its stance on mechanisation, many traditionalists feeling that these machines making hundreds of watch movements a week would put many skilled workers out of a job. Watchmaking was a fairly low-paid trade for those on the lower rungs of the ladder as the Truck System shows. It was a practice very much frowned upon and summed up best by an article in the *Birmingham Daily Post* dated 2nd January 1871. In summary a Government Commission sat on this day in Birmingham to consider the implications of this practice, having passed a Parliamentary Act in 1831, where, amongst others, the watch makers of Prescott would pay their outworkers not in money, but in goods. Often this would be a completed watch that the worker would have to put in many hours of toil to obtain and would be at a price fixed by the maker and to refuse this arrangement would often mean no contract being offered. The problem with this was that with so many watches coming on to the market, and many being 'paid' in this method, the recipient would struggle to move the watch on at a fair price so therefore losing out on his true worth. Another method used was to give coupons for the workforce to spend in a local grocers, the argument being that this was to protect the breadwinner from gambling or drinking his wages away and meant he had to provide for the family. But these grocers shops were often owned by the watchmaker and goods were sold at inflated prices. A number of Prescott makers attended the sitting, along with some of the outworkers, and the practices described are most interesting. John Wycherley was one who was praised for not allowing this practice in his firm, although other known makers, James Berry for one, were known to use it.

Another reason for the resistance to change in watch making practices was that English watches used the fusee, and had done since the inception of watchmaking in the country, and making a machine to make a fusee in this new method was proving almost impossible. It therefore required the Continental system of having just a going-barrel for the system to work and this was frowned upon by many.

The first real attempt to change was the arrival of Pierre-Frédéric Ingold from Switzerland in circa 1840. Trained by Brequet, he had the idea of using machinery, basically an adapted lathe requiring some skill by its operator, to manufacture movement plates. He had already failed to convince both the Swiss and the French of his system and so it was to prove the same in London. He set up a workshop at 75 Dean Street, complete with equipment, and set about forming the British Watch and Clockmaking Company for which there were three prospectuses in 1842 and three patents, including one in December 1843 for the plate machine and a wheel press with an important four-pillar guide system for the punch and die.

The company was to be established by an Act of Parliament, but failed on the second reading of the Bill on the 31st of March 1843. Ingold argued that the usual division of labour was wasteful and that the application of his machinery would revitalise the industry, whereas the opposition, mainly those traditionalists, argued that Ingold was somewhat of a speculator and nothing concrete had as yet been established and that the machines set-up by him didn't have the capacity to produce as he asserted and needed far more skilled use than this method should require. There are, though, a very few watch movements and watches known to have been made using his methods so the machinery must've been up and running in Dean Street and it is known that one found its way, in 1863, to the workshops of Gillet & Bland in Croydon. Ingold left England and moved to America where machine manufacturing was about to take off with the methods used by, amongst other, Aaron Dennison.

But the seed had been sown and it was to Dennison himself having moved to England, Ehrhardt and others to take forward the machine-making of watches, over-coming a number of fears, for instance the fusee was replaced by a dummy fusee which allowed the continuation of anti-clockwise winding, but may well have been too late as the country was now seeing large imports of the mass-produced watches of America and Switzerland.

Coventry Signed

- 1 Adam Burdess, Coventry, 16653:** a fusee movement with a finely engraved balance cock, a split-bimetallic balance, traditional Bosley regulation with Coventry midway mark to the index, the 16 size frame stamped *JW*, for John Wycherley. Adam Burdess is recorded at 19, Butts, Coventry in 1868, then Dover House, Holyhead Road, Coventry from 1872 on. He registered a patent, number 2286, in 1869 for keyless winding utilizing a lever attached to the winding arbor and coming through the case, along with a form of keyless hand-setting with a wheel on the edge of the dial.
- 2 Adam Burdess, Coventry, 25327:** a fusee movement with a finely engraved cock, split-bimetallic balance and a traditional Bosley regulation with Coventry midway mark to the index, the size 14 frame stamped *JW* for Wycherley, with a dust cap stamped *W&A O.* for Oxley.
- 3 Adam Burdess, 2156:** a fusee movement, missing the balance cock, with a split-bimetallic balance, jewelled to the four top pivots and with a modified Bosley regulation, the size 16 frame stamped *JW* for Wycherley.
- 4 H.J. Norris, Coventry, 40553:** a going-barrel movement with false fusee, split-bimetallic balance and traditional Bosley regulation, signed by the maker around the seconds dial. Henry John Norris is recorded at 33, Hereford Street, Coventry from circa 1878 until 1886, and then at Hertford Works, Union Street, from 1887 on.
- 5 Jonathan Stilwell, Chapel Fields, Coventry, 27601:** a fusee movement, finely engraved cock, steel three-arm balance, modified Bosley regulation with raised silvered quadrant, the size 12 frame stamped *WB*.
- 6 A.H. Drinkwater, Coventry, Manufacturer, 14617:** a fusee movement with a finely engraved cock, a split bimetallic compensating balance, traditional Bosley regulation with Coventry *four-arrows* mid-point mark to the index, the size 16 frame stamped *JW* for Wycherley. Alfred Henry Drinkwater is recorded at Jedburgh House, Butts, Coventry from circa 1887.
- 7 R. Wright & Co, Manufacturers, 16386:** a fusee movement with a steel three-arm balance and traditional Bosley regulation with Coventry *convict-arrow* mid-point mark to the index, with the dust cap stamped for Furneaux. Richard Wright is recorded as a Watch Manufacturer at 23, Mount Street, Chapel Fields, Coventry.
- 8 J. Fennell, Coventry, 81904:** a fusee movement with an engraved balance cock, the dial signed *Manufactured by J. Fennell, Coventry.* (Not illustrated)
- 9 A Coventry $\frac{3}{4}$ plate engraved *J.W. Reeley & Sons, London & Liverpool, Established 1790. 71754. Manufd. By Richardson, Coventry. Trade mark Registered.* Stamped with a lion trademark, the inside of the plate stamped *A.C.R.* James Richardson is recorded at Percy House, Percy Street, Coventry from circa 1878 and then Carlton House, Holyhead Road in 1880 before finally at 14, Norfolk Street in 1882, the year he registered his Lion trademark, and where he died in 1901.**
- 10 A Coventry $\frac{3}{4}$ plate engraved *Made by A.H. Read, Works Hill St, Coventry, 147102.* A. Read is recorded working at Hill Street, Coventry in 1871 where he had two large workshops; one for making movements and the other for stamping out gold & silver watch case blanks.**



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English Watch Company

In 1871 Aaron Dennison, freshly arrived from his tour of Europe having been a founder of the American watch company that was to become Waltham, set up the Anglo-American Watch Company. In 1874 he wound the business up and sold on to William Bragge, who renamed it the English Watch Company, this being the time that Dennison went alone with his watch case business with a contract from Waltham. William handed over control of the business to his son Robert in 1883, but by 1895 the competition from other competitors and the importing of machine-made watches from the continent saw the company go into voluntary liquidation.

It is known that in 1897 the factories machinery had been dismantled, possibly to be used by another concern, or another business took the name, maybe H Williamson, as a watch fragment of Williamson's, manufactured circa 1905, is stamped English Watch Company, London.

Movements usually had a three-arm balance, or occasionally a bi-metallic balance, with the balance cock generally well engraved and with a going-barrel. There were generally fitted with traditional a Bosley regulation or sometimes a Swiss style regulation.

The following four exhibits as in plate 43, as shown below, from Watches.

1 S. Wotton, Paignton: as signed on the dial, and numbered on the backplate W1290202, the frame stamped with a repeat of the serial number and with the trademark for EWC, with a gold three-arm balance. (Shown in the plate, top left)
Silvanus Wotton is recorded working at 2, Church Street in 1889, 9 Victoria Street in 1893 with his son George Wotton working there alone from 1897.

2 H. Samuel, 97 Market St, Manchester: as signed on the dial and backplate, with a steel three-arm balance, the frame stamped with a repeat of the serial number. (Shown in the plate, top right)

3 Croydon & Son, Devonport, By Appointment to the Admiralty: as signed on the dial, and numbered on the backplate 11024, the frame stamped *Hassler's Patent* and with the EWC trademark, with a steel three-arm balance. (Shown in the plate, bottom left).
Charles Croydon is recorded working in Fore Street from 1844 until at least 1878 and then as and Son at 20 Fore Street circa 1890.

4 Warranted English Make, 188137: with the number on the engraved balance cock, with a traditional Bosley regulation, with a bi-metallic balance, the frame stamped with a repeat of the serial number and the EWC trademark. (Shown in the plate, bottom right)

Other Examples

5 English Watch Co. Ltd, Birmingham, 47563 V: as signed on the backplate and the only one in the collection actually signed by the English Watch Co, with a plain balance cock and steel three-arm balance, the frame stamped *Hassler's Patent* along with the EWC trademark and a repeat of the serial number, the dust cap stamped for Furneaux.

6 H.H. Hill, Hatherleigh, 179869: as signed on the backplate, with an engraved balance cock and gold three-arm balance, the frame stamped with the EWC trademark and numbered.
Henry H. Hill is recorded working at Church Gate circa 1889 and then Bridge Street from 1893 until at least 1902.

7 Chas. Croydon, Devonport, By Appointment to the Admiralty, 3692: with an engraved balance cock and steel three-arm balance and with, the frame stamped *Hassler's Patent* and with a repeat of the serial number.
Charles Croydon is recorded working in Fore Street from 1844 until at least 1878 and then as *and Son* at 20 Fore Street circa 1890.



7 & 3 top plates



3 Dial



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7 & 3 bottom plates



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5 Bottom Plate

William Ehrhardt (1831-1897)

A rival to Dennison as the first person to machine manufacture watches in England, the German William Ehrhardt arrived in England in 1851 where he was soon working with Upjohn and Bright in London and attending classes at the Royal School of Mines. On going his own way he decided, in 1856 to move to Birmingham to open small watchmaking business, feeling it was far enough from the accepted centres of the manufacturing business to allow him to teach his work force his methods without corruption from those who still held traditional watch making as the only way. In 1874 he built a factory, Time Works, in Barr Street. Upon his death in 1897 the business was continued by his two sons, William (junior) and Gustav Victor.

In Kelly's Directory of 1921, The British watch Company Ltd appears with the address given as that of Ehrhardt and their movements are found signed along with the trademark of Ehrhardt. An unusual movement signed by both is displayed in this exhibition. 1924 sees the last entry in the Kelly Directory.

1 Samuel Edgcumbe, 11 Cornwall St, Plymouth, 595778: a silver open-faced keyless pocket watch, with an engraved balance cock, split-bimetallic compensating balance and traditional Bosley regulation, the dial with gold hands and signed *Samuel Edgcumbe*, the case hallmarked for silver, Birmingham 1911, *SE* (cameo) for Samuel Edgcumbe.

Complete with leather box, the inside of the lid embossed: *Samuel Edgcumbe, Manufacturer & Importer, 2000 Watches & 2000 Rings for Selection, Under the Large Double Dialled Clock, 11 Cornwall St, Plymouth. The Only Address.*

2 H. Stone, Leeds, 539740: a silver open-faced keyless pocket watch with a club tooth escapement, split-bimetallic compensating balance, engraved balance cock and traditional Bosley regulation, the dial also signed *H. Stone, Leeds*, with a numbered dust cap, the case hallmarked for silver, Birmingham 1902, *WE* within a cameo, for William Ehrhardt.

H. Stone is recorded working circa 1907.

3 350193: an unusual hack watch movement with the rim to the balance marked *Reg. No. – 664485* and the backplate stamped *350193* with a Coventry *fleur-de-lys* mid-point mark to the index, the balance cock being integral to the backplate, held in place with a couple of screws. Another interesting aspect to this watch is the dial which is signed *British Watch Co. Ltd, London* with a trademark depicting a tree.

Full Plate Movements with Ehrhardt trademark stamped on the frontplate, engraved balance cock, all with split-bimetallic compensating balance, unless stated otherwise, and traditional Bosley regulation.

4 W. Ehrhardt, London, 258375: one of only two watches in the collection actually signed for Ehrhardt, with a numbered cover.

5 W. Ehrhardt, London, 11410: fusee with dummy fusee to the under dial, a finely engraved cock and gold three-bar balance, and a traditional Bosley regulation regulation, the dust cap stamped *Furneaux*.

6 J.N. Masters, Rye, 239334: with three-bar balance, the dial signed *J.N. Masters, Rye, Coastguard Watch*.

J.N. Masters, Mayor of Rye in 1893, was an extremely able salesman when it came to promoting his pocket watches, most of which seem to have been made by Ehrhardt as in this example. He penned a small anecdotal book entitled *Amusing Reminiscences of Victorian Times and of Today* which told a number of stories of his life as a clockmaker.

Westcountry Retailed Examples

7 A. Rohrer & Sons, Plymouth: as signed on the dial, the plain backplate numbered 575620.

Andrew Rohrer is recorded working at 39 Frankfurt Street in 1866, 55 Union Street in 1883 being *and Son* from circa 1897 at both addresses and later at 2 Old Town Street and 54 Union Street.

8 Croydon & Son, Devonport, 43375: a three-quarter plate fusee movement with a three-bar balance.

9 L. Reidinger & Son, Plymouth, 486670: a three-quarter plate fusee movement with a three-bar balance

10 R.J. Huddy, St. Austell, 975948: a three-quarter plate fusee movement with a three-bar balance

11 Samuel Edgcumbe, 11 Cornwall St, Plymouth, 574729: as signed on the dial, the plain backplate numbered 540605, part movement.

Three-quarter Plate Movements

12 360837, Warranted English Lever, 7 Jewels: with club tooth escapement, the frame stamped *Series 1906* alongside the Ehrhardt trademark.

13 354797, English Manufacture: identical to exhibit 12 but with an unmarked frame excepting for the serial number, the dial signed *Bravingtons, King's 'Cross', London*, the 'Cross' depicted by a red Maltese cross as opposed to the written word.

14 Two identical backplates with 525938 being plain except for the serial number, whilst 579063 is marked *Warranted English Lever, Safety Pinion*, both with Ehrhardt trademark to the frame.

15 Part J.G. Graves movement with Ehrhardt trademark to the frame. (see section on Graves)



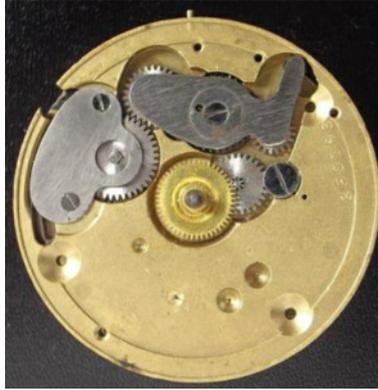
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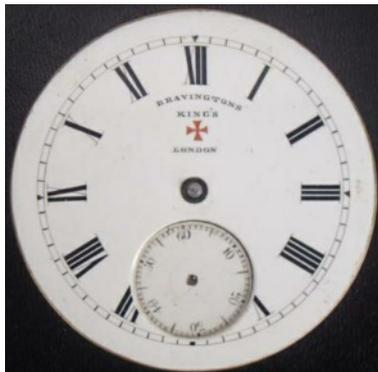
6 Dial



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12 Dial



14

Rotherham & Sons

The firm's origins start in 1747 with the founder clockmaker William Vale of Coventry and by 1754 had become *Vale, Howlett & Carr*. It was in 1790 that the Rotherham name enters the scene when Richard Kevitt Rotherham, an apprentice at the firm, becomes a partner in *Vale & Rotherham*, which is again renamed in 1842, *Richard Kevitt Rotherham & Sons*.

In 1843 an attempt was made to use a factory system (not machine based) to manufacture 6,000 watch movements per annum but with little success. In 1867 the firm, known since 1850 as *Rotherham & Sons*, held a successful trial using John Wycherley's system of manufacture and many movements of this period bear the *JW* stamp on the frontplate.

It was in 1876 that Mr Gooding joined the firm becoming a prominent member of the workforce working alongside John Rotherham. It was Gooding who in circa 1880 and now the firm's manager, was sent to America by John Rotherham to arrange the purchase of machinery from the American Watch Tool Co, being similar to that used by Waltham. It is suggested by some that it was Rotherham's in 1880 who made the first truly English machine made watch, but the history of both the EWC and Ehrhardt, among others, would refute this, although in 1881 Rotherham's machine made parts were shown to the Society of Arts by Rigg, who suggested that ninety-nine machines were used in the making of one watch movement.

By circa 1900 the company had diversified by using the machinery to make bicycle parts, and gas & electrical lighting amongst other items just as John Rotherham, in 1905, celebrated fifty years at the firm.

In 1911 the Lancashire Watch Company held a nine-day auction having had receivers in for a short period, with a representative of Rotherham's in attendance having plans for extensions to the watch making side of the business. Ten years later, Mr Gooding having retired in 1915, Rotherham's exhibited at the British Industry Fair showing watches made not only in Coventry but in their Swiss factory, possibly the Rode Watch Company in La Chaux de Fonds.

In 1932 they become agents for Buren of Switzerland, after the collapse of their previous agent, H. Williamson, and by 1934 were the only watchmakers on show at the British Industry Fair. But by 1937 watches had become an insignificant part of the rapidly diversifying Rotherham's manufacturing business, with it doubtful any were now being made in Coventry.

Rotherham's movements are either full-plate key-wound, with one exception; or three-quarter plate keyless, with the latter having a Swiss style index whilst the former has a modified Bosley with a raised silvered index, and all with a split bi-metallic balance. All are spring barrel driven with the one exception mentioned below. Frames are stamped with the Rotherham trademark and the dust covers, where applicable, are stamped 'Patd 7204'. All are signed on the backplate unless otherwise stated.

Full-plate Movements

1 W.J. Ching, Kingsbridge, 15279: the dial signed by Ching and with the Rotherham trademark with a patent stamped dust cap. William Thomas Ching is recorded working at 28 Fore Street circa 1889.

2 Squire & Son, Bideford, 138408: also signed on the dial and with the Rotherham trademark. Robert Squire & Son are recorded working at 12, High Street from circa 1866 until at least 1902, with the church clock at *St Giles in the Wood* signed and dated 1879.

3 Albert & Dark, Barnstaple, 214512: the dial damaged but indistinctly signed Albert & Dark, Barnstaple, The Favorite, with a patent stamped dust cap.

4 B. Butland, 90 Old Town St, Plymouth, 163554: with a patent stamped dust cap. Ben Butland is recorded working at 15 Old Town Street from circa 1883. until at least 1896.

Two Full plate movement frontplates, one showing the normal keywound example & the other an unusual keyless example.

5 Anon, 222117: with usual keywound system, with a patent stamped dust cap.

6 S. Lanyon, Portsmouth, 185901: with unusual keyless system for a full plate, missing the balance, balance cock and regulation. S Lanyon is recorded working at 4, Ordnance Place, Portsea, Portsmouth, Hampshire from circa 1895 until 1931.

Three-quarter Plate Movements, all keyless

Large Size

7 Page, Keen & Page, Plymouth, 400801: James Andrew Page is recorded working in George Street circa 1866 until at least 1902.

8 Page, Keen & Page Ltd, Plymouth, 'The Service', 385655: also signed on the dial. See previous exhibit for biographical details.

9 Thos. Peake, 142 from 118, Wardour St, London. W, 248078: To show the frame with the Rotherham trademark. Thomas Peake is recorded working from circa 1857 until at least 1881.

10 Jay, Richards, Attenborough & Co, Ltd, 142 & 144 Oxford St, London W: and signed on the dial *Jays, 142 & 144 Oxford Street, London. W.*

Mid Size

11 J. Willoughby, Kilkenny, 92326:

Small Size

12 G.E. Searle & Sons, Plymouth, 44187: also signed on the dial.

13 Anon, 198979: with a plain dial.

14 Bond & Kedge, Clock House, Putney, 44145: a small keyless three-quarter plate movement with a split bimetallic compensating balance, the frame with Rotherhams trademark. (Used in image for an article written by Dennis Bacon in the Antiquarian Horology magazine, Winter 1996, fig. 9)

Other

15 Rotherham's, London, 34738: as signed on both the top plate and dial, the full-plate movement with a modified Bosley regulation and bi-metallic balance and the only movement in the collection of any style that is actually signed by Rotherham's themselves and is also the only example which has a fusee and not a going-barrel.



2



2 Dial



4



7



8



11



14



15



15 Dial

Coventry Cooperative Watch Manufacturing Society Ltd

In 1876 a group of prominent, traditional Coventry watchmakers, urged on by Henry Gannay, set up a cooperative to combat the growing competition from America and Switzerland, with a trademark registered in November of that year, being a Maltese Cross with the monogram CCWMS entwined. The majority of movement frames were supplied to them by John Wycherley which would indicate a company *finishing* watch movements rather than making them from scratch. In 1890 Gannay reported that the group still hadn't taken up on his ideas for machine manufacturing but they were now accumulating capital to invest. Five years later and no progress seemed to have been made at which point Gannay suggested that with a little more investment the group could rival Waltham, although this didn't materialise and the cooperative seems to have faded away, especially with the growing influence of both the Coventry Watch Movement Company and the Lancashire Watch Company Limited.

The full-plate movements were generally stamped with the Cooperative *Maltese Cross* trademark, either on the backplate or balance cock, and had three-bar or compensating balances. All in the collection have a going barrel train with the exception of the silver watch, 50261, as described. Bacon suggests that the top number on the movement may indicate the Coventry finisher but gives no proof for this. Bacon states all are marked J.W although not found as yet, excepting 50261 and 4/151 which is described as unmarked.

1 50261: A silver open-faced pocket watch, the fusee movement stamped with the trademark on the backplate, the balance cock numbered 50261, the Swiss style escapement with Coventry *two arrows* mid-point mark to the index and a compensating balance, the size 16 frame stamped *J.W* for Wycherley with the dust cover stamped *W&A O.* for the Oxley. The silver case has a repeat of the serial number and is hallmarked for London, 1880 and is stamped with the initials *J.W (cameo)* for the case maker Joseph Walton, 7 Upper Charles Street, Clerkenwell, London EC. Also interesting to note the style of the trademark differs slightly, it has rounded ends to the S rather than the pointed ends normally seen, is stamped on the backplate rather than the balance cock, and doesn't have a top number.

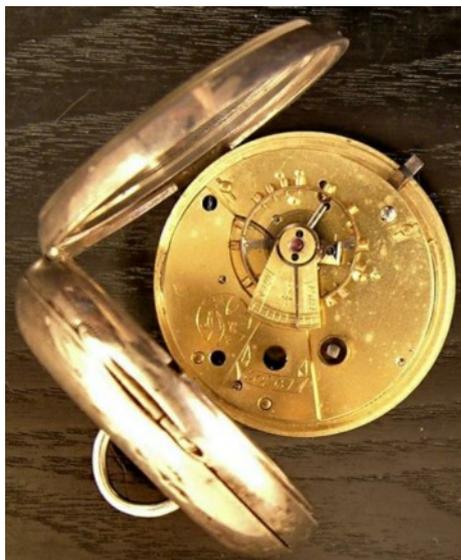
2 0/206: a going-barrel movement stamped on the backcock with the trademark, with a steel three-bar balance and traditional Bosley regulation with the Coventry *convict arrow* mid-point mark to the index, with a size 14 Wycherley frame, a white enamel dial and a dust cap stamped *W & A O.* for Oxley.

3 2/268: a going-barrel movement stamped on the backcock with the trademark, with a steel three-bar balance and traditional Bosley regulation with the Coventry *convict arrow* mid-point mark to the index, with a Wycherley frame, a white enamel dial and dust ring. (Illustrated in *Watches*, plate 53 as below)

4 4/151: a going-barrel movement stamped on the backcock with the trademark, with a split bi-metallic compensating balance and traditional Bosley regulation with the Coventry *convict arrow* mid-point mark to the index, with a size 18 Wycherley frame.



1



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3



2



4

Lancashire Watch Company Ltd

In 1882 T.P. Hewitt purchased the movement making business of John Wycherley in Prescott, Lancashire. To form John Wycherley, Hewitt and Company and so start one of the most significant watch producing businesses in England. (See section on Wycherley)

In 1887 Hewitt proposed a company, the *British Watch Company*, be set up to machine-make movements having seen the success of both Rotherham and Ehrhardt using these methods with Hewitt visiting America to study the methods used there. He even lined up an ex-employee of the Trenton Watch Company in America, Mr Byam, to manage the new company but nothing materialised. A year later the Lancashire Watch Company Ltd (L.W. Co.) was registered at the Stock Exchange with a capital of £50,000, with their factory opened in 1890 by Lord Derby. Although in reality 30,000 plus movements had been made in the factory, in January 1893 a ceremony was held to celebrate the factory 'completion' with the first watch made presented to Lord Derby.

The success of the Lancashire Watch Company was evident when a reconstructed company was formed in 1897 with authorised capital of £200,000, although by 1906 the accounts showed a different story and 'A' debenture share holders took over the running of the business. Two years later receivers were appointed on behalf of the 'B' debenture share holders and by 1911 the situation reached crisis point and a nine-day auction of tools, stock etc ensued after one of their main competitors, either Rotherham, Williamson or Ehrhardt, declined to take over the running of the business. And so it was that in 1914 the company was struck off the Stock Exchange register.

1 Richd Hague, Liverpool, No 7000: a fusee movement with a gold three-bar balance, Swiss lever escapement with engraved balance cock and traditional Bosley regulation with Lancashire *arrow-head* markings to the index, the dust cap stamped *S.W.*

2 S. Leighton, 2 Newmarket, Lancaster, 13506: a fusee movement with a gold three-bar balance, a Swiss lever escapement with engraved balance cock and traditional Bosley regulation with Lancashire *arrow-head* markings to the index.
A *John Leighton* is recorded working in 1838 when he cleaned the Lancaster church clock.

3 D. Lloyd, Broad St, Welshpool, 8747: a fusee movement with a gold three-bar balance, a Swiss lever escapement with engraved balance cock and traditional Bosley regulation with Lancashire *arrow-head* markings to the index and jewelled to the top plate.

4 J.E. Haydock, Manchester, No 4336: a fusee movement with a steel three-bar balance, a Swiss lever escapement with balance cock engraved *Patent* and traditional Bosley regulation with Lancashire *arrow-head* markings to the index.

5 Kay & Company, Worcester, 4687: a going-barrel movement with a dummy fusee, engraved balance cock and split-bimetallic compensating balance with a traditional Bosley regulation, the frame stamped *LW Co Ltd*, and with a signed dial.

6 H. Samuel, Market St, Manchester, 198894: a going-barrel movement with a dummy fusee, engraved balance cock and split-bimetallic compensating balance, the modified Bosley regulation with silvered index, with the *H. Samuel* registered trademark stamped to the top plate.

7 J. Sewill, 61 South Castle St, Liverpool, 28994: a fusee movement with an engraved balance cock and split-bimetallic balance, the flat traditional Bosley regulation with small Lancashire *arrowhead* markings to the index, the dial signed around the seconds dial *Prize Medals International Exhibitions, London 1862, Paris 1867.*

James Sewill, a famed chronometer maker working 1848 until at least 1857.

8 J.B. Dent & Sons, London, 33237: a going-barrel movement with a dummy fusee, engraved balance cock and split-bimetallic balance, the modified Bosley regulation with silvered index, the frame stamped *LW & Co Ltd.*

9 Anon. 56642: a fusee movement with an engraved balance cock, a gold three-bar balance and traditional Bosley regulation with Lancashire *arrowheads* index markings and dust rim, the gold dial with raised numerals.

Two Movements with Reversing Pinion engraved to the backplate

10 Langdon, Davies & Co, Birmingham, No 795114: *Reversing Pinion*, a going-barrel movement with an engraved balance cock, a modified Bosley regulation and split-bimetallic compensating balance.
Langdon, Davies & Co are recorded working circa 1889.

11 Anon, No. 794101: *Reversing Pinion*, a going-barrel movement with a Swiss escapement with a split-bimetallic balance, the frame stamped *LW & Co Ltd.*



To Show the Similarities & later Interaction between the Lancashire Watch Co and Coventry Watch Movement Manufactory

Although the Coventry Watch Movement Company was set-up to counteract the formation of the Lancashire Watch Company, and the belief that this latter business would squeeze dry the supply of Prescott movements for finishing, there was generally a cordial relationship between the two as presumably all parties knew each other well. As such the Coventry concern may well have used some parts supplied from Lancashire, mainly during their reconstruction period after 1891, when the companies came to an agency agreement, even having a joint list issued. That the Lancashire underdial work wasn't used by the Coventry finishers allows a method to differentiate between the two places of movement finishing. As can be seen from the *C.R. Frost* example below, the fact that the Lancashire movements were not conceived to have a fusee didn't cause a problem as there was a drilled hole for the dummy fusee used by the Lancashire makers to give anticlockwise winding and was therefore obviously in the correct position for the Coventry finishers to place a fusee, as was their practice.

The following two examples also show the similarities in watch movements supplied by the two companies, as discussed and shown in *Watches*, page 104, plate 59. Both backplates are near-identical with the Coventry example having a fusee which is wound below the cock, whereas that hole is utilised on the Lancashire movement for the dummy fusee and the barrel is therefore wound above the cock.

17 C. Frost, Plymouth, N 8537: Coventry frontplate with the backplate stamped with the diamond trademark of the *Coventry Watch Movement Manufactory Company*, with a modified Bosley regulation index, engraved backcock, split bimetallic balance and fusee.

18 Anon. 55585: with the *Lancashire Watch Company* mark on the backplate and signed on the frontplate *LW Co. Ltd*, with a dummy



Two near identical John Wycherley movements, excepting the size, with plates stamped *JW*. Both with Coventry frontplates, a fusee, three-bar balance, traditional Bosley regulation, engraved backcock and near-identical style of engraving to the name, but with the Russells movement having Lancashire *arrowhead* markings to the index.

15 Phillips, 1 The Quay, Yarmouth, 28996:

16 Russells', 18 Church St, Liverpool, Makers to the Queen, No. 78680: (with the dial also signed by Russells) but with arrowheads to the index indicating a movement worked on by a Lancashire finisher.



Further interaction:

19 Thos. Lee, Bolton, 5269: a fusee movement with Liverpool jewellery, traditional Bosley regulation, engraved backcock and a gold three-bar balance. The index has both the Coventry star at the mid-point mark and Lancashire *arrowhead* markings, with a Coventry bottom plate. Thomas Lee is recorded as working in the neighbouring town of Bury at 40 Fleet Street in 1851, otherwise there is no record of him in Bolton.

20 Anon: fusee with deep chiseled engraving to the cock, signed *Patent* on the apron, steel three-bar balance, the traditional Bosley index has Lancashire *arrowhead* markings, but with a Coventry frontplate.



Coventry Watch Movement Manufactory Company

The Coventry Watch Movement Company was formed In February of 1889 to counter any loss from the supply of Prescott-made blanks and to try and end the Prescott monopoly now that the manufacturers in that town had formed their own cartel, the Lancashire Watch Company. Made up of a number of the smaller Coventry watchmaking concerns, as seen by the make up of the founder members and board. Chairman was S. Yeomans with C.H. Errington, the local watchmaker who became part of Williamson's, a shareholder who spoke of '*breaking the back of the Lancashire Watch Company*'.

Lacking capital the company purchased the tools of Prescott maker Edward Scarisbrick for £1,000 and appointed his brother, Charles Scarisbrick, as manager.

In 1891, after losses of over £500 in the first two years, the board realised their methods were outdated and the company purchased machine tools and hired engineers to make proper watch making equipment, at which point Scarisbrick's contract was terminated. During this reconstruction, and to boost their limited output, the company, ironically, purchased a considerable number of movements from the Lancashire Watch Company having come to an agency and price agreement with them.

By 1900 the company was showing a small profit but was hampered by the fact that not all the local watchmakers were giving their support and therefore by 1903 the company once again found itself in financial difficulties. With Yeomans having retired as Chairman and his successor ill, it was the watchmaker S.T. Newsome who reported the bad trading figures. One of the reasons being given that orders were coming in for small batches of movement, sometimes as low as ten at a time, which did not suit their machine production. A new minimum order of five hundred was stipulated and two new centre seconds movements were put into production. Unfinished movements were again being supplied to makers to finish themselves rather than completed ones.

In 1907 it was reported that the machinery was being utilised for 'small light repetition work' including the making of parts for electrical and cycle requirements and by 1912 watchmaking took up only a third of the production line with bicycle, motor and electrical trade making up the majority. With the factory being turned over for the war effort in 1915, making wartime products including aircraft parts very few, if any, watch parts were being manufactured and by 1919 the Coventry Movement Company had joined the Cycle & Motor Cycle manufacturers Trade Association and watchmaking becomes a thing of the past.

The majority of Coventry Watch Movement Manufactory movements had a fusee with lever escapement, engraved backcock and either a three-bar balance or a bi-metallic compensating balance, with Bosley style regulation, the majority being the flat to the plate type, with some having a raised silvered index to an overslung hairspring. The regulation index has a distinct marking to the mid-point, the design of which varies. There is sometimes found a trademark on the frontplate, either the CWMC mark or the maker's name Newsome or Yeomans.

Full Plate Movement with Three-Bar Steel Balance, engraved balance cock and traditional Bosley regulation

1 E. Wise, Manchester, 27171: with a Coventry *asterix* mid-point mark to the index, the dial with gold spade hands and marked *Improved Patent*, the dust cover stamped *W & A. O* for Oxley of Coventry.

2 R. Davies, Portmadoc, 2051: with a Coventry *four-arrows* mid-point mark to the index, the dial unsigned, the dust cover stamped *WH* for Hitchen & Co.

3 J. Harris & Sons, Manchester, 6120: with a Coventry *asterix* mid-point mark to the index, the dial unsigned.

4 L. Reidlinger, Plymouth, 42471: with a Coventry *four-arrows* mid-point mark to the index, the dial unsigned. Ludwig Reidlinger is recorded at 2 Richmond Street in 1878, 4 Duke Street in 1889 and being *and Son* from 1897.

5 Fattorini, Skipton, 3603: with a Coventry *four-arrows* mid-point mark to the index, the dial signed *Fattorini, Skipton*, the size 18 frame stamped *J.W* for Wycherley.

6 Page, Keen & Page, Plymouth, 10319: with a Coventry *four-arrows* mid-point mark to the index, the dial unsigned and with gold spade hands.

7 French, Top High Street, Bristol, 5340: with a Coventry *fleur-de-lys* mid-point mark to the index, with a size 10 frame.

Full Plate Movement with Three-Bar Gold Balance, engraved balance cock and traditional Bosley regulation

8 Jno Gaydon, Barnstaple, 44706: with a Coventry *four-arrows* mid-point mark to the index, the dial signed *Jno. Gaydon, Barnstaple*.

9 Rudd, Devonport: with a Coventry *four-arrows* mid-point mark to the index, the size 10 frame stamped for *JH* John William Rudd is recorded as a watchmaker in Tavistock Street between 1866 until 1902.

Full Plate Movement with Compensating Balance, engraved balance cock and traditional Bosley regulation

10 E. Meyer, Manchester, 83719: with a Coventry *asterix* mid-point mark to the index, the dial signed *E. Meyer, Manchester*, the frame stamped S.Y for Yeomans.

11 Thos. Russell & Son, Makers to the Queen, Church St, Liverpool, 4000324: with a Coventry *four-arrows* mid-point mark to the index, the dial signed *Thos. Russell & Son, Liverpool, 4000324*.

12 A.J. Fraser, Preston, 18690: with a Coventry *four-arrows* mid-point mark to the index, the dial signed *A.J. Fraser, Chronometer Maker, 5 Lune St, Preston*, the size 16 frame stamped *J.W, GC & Co*, for Wycherley and G. Croft & Co, known customers of the Coventry Watch Movement Manufactory Company.

13 H.J. Sobey, Beeralston, 22097: the frame stamped with the CWMC diamond with a further unusual trademark on the backplate depicting an arrow with the initial *J.S.* above a *B*, the dust cap stamped *W & A O* for Oxley. The initials J.S B are presumably for the maker/retailer.

14 Jas. J. Pinder, 26 Ashley Crescent, No. 2664: with a raised silvered quadrant to the modified Bosley regulation and Coventry *asterix* mid-point mark to the index, the unsigned dial with blued steel spade hands.

Full Plate Movement with Compensating Balance, engraved balance cock and Swiss style Regulation & Index

15 J.W. Morris & Co, Faversham, 95116: with a Coventry *four-arrows* mid-point mark to the index, the dial signed *J.W. Morris & Co, Faversham, Naval Timekeeper, Faversham (Registered)*, the size 14 frame stamped *J.W* for Wycherley. James W. Morris is recorded working in Faversham, Kent between 1866 and 1874

16 J.W. Morris & Co, Faversham, 95122: with a Coventry *four-arrows* mid-point mark to the index, the dial signed *J.W. Morris & Co, Faversham, Naval Timekeeper, Faversham (Registered)*, with blued steel spade hands, the size 14 frame stamped *J.W* for Wycherley.

17 F. Penberthy, Devonport, 143596: the frame stamped *Newsome*, with the dustcover stamped *W & A. O* for Oxley of Coventry. Frederick Penberthy is recorded at Marlborough Street from 1893 onwards.

Three-quarter Plate, Keyless without Fusee and Compensating Balance

18 H. Aaronson, Hanley, 44393: with an engraved backcock, the chronograph dial marked 44393, with outer numerals 0-300, the size 18 frame stamped with the CWMC diamond trademark. 'G' Aaronson is recorded working in Greater Manchester from circa 1860 until 1881.

19 C. Frodsham & Co. Ltd, 115 New Bond Street, W, 09561: with a Coventry *two-arrows* mid-point mark to the index, the dial signed C. Frodsham 09561, the plates stamped for Newsome.

20 Anon. 38999: centre Seconds Chronograph with engraved backcock, the size 20 frame stamped *S. Yeomans* and *S.H.*

Three-quarter Plate, Keyless with Fusee and Compensating Balance

21 Willm Tanner, 83 Upper Street, Islington, No 9147: with Coventry *fleur de lys* half way Coventry mark on index, with size 16 frame. William Tanner is recorded working between 1844 and 1851.

22 James Stoddart, Red Lion Square, London, 67679: three-bar gold balance, with Coventry *four arrows* mid-point mark to the index, the size 14 frame stamped *WF*.

23 Jas Westwood, Royal Exchange, London, No 3466: three-bar steel balance, with Coventry *four arrows* mid-point mark to the index, with size 14 frame.

24 John Walker, 68 Cornhill, 230 Regent Street, 76, Strand, London. 14139: missing cock and balance, the dial signed *John Walker, 14139*.

Chronograph with Sweep Centre Seconds and Compensating Balance

25 Anon. No 15152: with a Coventry *two-arrows* mid-point mark to the index and split-bimetallic compensating balance,

26 Anon. 31202: with a Coventry *four-arrows* mid-point mark to the index, the dial marked *Centre Seconds Chronograph*, with outer numerals 0-300.





H. Williamson Ltd

It was circa that 1895 H. Williamson acquired the small factory of Charles Huton Errington (CHE) in Coventry and two years later bought the remnants of the English Watch Company, including the machinery to make both front and backplates.

In 1898 the firm became a public company and took control of, or founded, a Swiss watchmaking concern in Buren to supply the Coventry factory, using Dennison's idea of making the plates in England but obtaining the internal parts from Switzerland. But a year later Williamson was found guilty of describing watches on both invoices and approbation notices as *bolt and cap English lever* and *domes keyless English levers* when foreign parts were so obviously being utilised. For this reason by 1901 the Errington factory expansion was completed which allowed Williamson to make the parts for watches previously imported from Switzerland.

In 1902 Williamson acquired a clock factory in Salisbury, Wiltshire supplying a number of concerns with clock movements, including the rapidly expanding S. Smiths & Sons. Unfortunately in 1909 a fire destroyed this factory and clockmaking transferred to the Coventry factory.

During 1912 *The British Horological Institute* made a visit to the factory to report on its operation.

The intervention of the Great War saw the factory turned over for the war effort and in 1918 it was reported that Williamson's were

producing around 1,000 watches per week for the Government.

In 1921, in common with the majority of English watch producers, Williamson saw the need to diversify and the business was expanded to now making gramophones. But by 1931, after a period of six years of losses, a receiver was appointed

The end of the company virtually ending the mass-production of watches for this period in England, although *S. Smith & Sons* acquired the remaining Williamson clock making department.

Williamson Movements

Generally Williamson watches came in two main types; full plate key-wound and three-quarter plate keyless both types with lever escapement.

Full Plate Keywound Movements

1 H. Samuel, Manchester, 13241, going-barrel movement with the steel balance having three poising screws, the frame stamped *H. Williamson, Coventry*, with the dial signed for H. Samuel.

2 H. Samuel, Market St, Manchester, 17417, Patent Trip Action, along with the Samuel registered trademark, with an engraved balance cock and split-bimetallic balance, without pillars but inclusive side pieces, the dial signed for H. Samuel.

3 Anon, 49118, going barrel with a false fusee and a split-bimetallic balance, the dial with bold numerals as also seen in exhibit 9.

4 Warranted English Lever, Non Magnetic, 10988, a going-barrel movement with a 'false' fusee, with the steel balance having poising screws and inclusive side pieces, with a numbered dust cap.

CHE Patent

5 Anon 12058, a going-barrel movement with a 'false' fusee, finely engraved balance cock, with a bimetallic compensating balance and, unusually for the Williamson exhibits shown here, a traditional Bosley escapement but with a raised quadrant to the underslung hairspring rather than a lower version, the frame is stamped *CHE Patent, 13069, 18766, 10356*, with dust cover. CHE for Charles Errington.

Three-quarter Plate Keyless Movements

6 Thos Russell & Son, Makers to Queen Victoria, Liverpool, 108731, with winged Tempus Fugit trademark on the backplate, the dial signed: *Thos Russell & Son, 12 Church St, Liverpool*.

7 Thos Russell & Son, Liverpool, 74970, the engraved balance cock has a straight line balance with club tooth escapement, the frame stamped *Errington Watch Factory, 73972*.

8 Warranted English, 73248, a straight line balance with club tooth escapement, the frame stamped *Errington Watch Factory, 72125*.

Extras

9 H. Williamson, London, a spare dial with bold numerals as also seen in exhibit 3, with an offset seconds dial and the only one in the collection actually signed for H. Williamson, London.

10 CHE, Patent, 954: a dust cap differing from the norm by having a round lock as opposed to a slide, the inside stamped *CHE*,



Selected Watches and Well-known names

Movements

1 Josh. Penlington, Liverpool, No.2109: a three-quarter plate fusee movement with an unusual balance that has a split-bimetallic balance to the lever escapement, with stop-work operated via a lever to the side allowing the sweep seconds hand to be set, the backplate with *Liverpool windows* jewellery and signed *Detached Lever by Josh Pennington, Liverpool, No.2109*, missing wheelwork. Joseph Penlington was a well-known chronometer maker in Church Street from 181-34, and then St George's Crescent.

2 Josh. Williamson, Rochdale, No.15880: a three-quarter plate fusee movement with a gold three-bar balance to the lever escapement and an extremely fine engraved cock, with stopwork operated via a lever to the side allowing the sweep seconds hand to be set, the backplate with signed *Detached Lever, Josh Williamson, Rochdale, No.15880*. Joseph Williamson is known to have been working in Yorkshire Street, Rochdale from before 1848 until at least 1858.

3 Bethel Jacobs, By Appointt. To the Queen, Hull, 12809: a full-plate fusee movement with a free-sprung split-bimetallic balance, the signature repeated to the dial. Israel Jacobs & Son are recorded as working circa 1813 until 1834 at which date the son, Bethel Jacobs, continued alone at White Friargate and then Dock Street.

4 Jas. McCabe, Royal Exchange, London, 18833: a three-quarter plate fusee movement, with a gold three-bar balance to the lever escapement, the regulation with a Coventry *fleur-de-lys* mid-point mark, the signature repeated to the dial which has fine blued steel fleur-de-lys hands. James McCabe, born circa 1748, was an Irish watchmaker from Lurgin, near Belfast, the son of the watchmaker Patrick. He ventured to London in 1775, via Belfast where he had worked with his brother Thomas, becoming Free of the Clockmakers Company in 1781. He was raised to the Livery in 1787 and became a Junior Warden in January 1809, a Renter Warden in October of that year and finally a Senior Warden in July 1811, the year of his death on the 6th of October at his home in Stoke Newington of 'mortification of the leg'. He left a wife, Elizabeth, and eleven surviving children. The business came to further prominence after his death when he was succeeded by his sons Thomas & James, along with Robert Jeremy, helped by James Snrs widow Elizabeth. After 1833, when Elizabeth died, only two sons, Robert and eldest son Charley, survived with Robert taking sole charge of the business. The firm made fine clocks and carriage clocks as well as chronometers.

5 Jas. McCabe, Royal Exchange, London, 04130: as above but numbered 04130 and without a dial.

6 Thomas Sherwood, Leeds, 1234: a full-plate fusee movement with a savage two-pin escapement, with a finely engraved balance cock to the flat steel, three-arm balance, with dial. Thomas Sherwood is recorded as marrying Ann Peacock in 1802 at York with a shop in Briggate, Leeds from 1807 until at least 1817, where his son was born in 1813, moving to 44, Briggate in 1826 where he is still recorded in 1834.

7 Robins, Soho, 13 Frith Street, Soho, London, 1321: a full-plate fusee movement with a duplex escapement and split-bimetallic balance, signed on both the backplate and dust cover as above, with the regulation index also engraved on the cover which is stamped inside, R.E (cameo), with dial and gold spade hands. John Robins is recorded as working in Frith Street circa 1825.

8 James Bishopp, 20 Bunhill Rd, 56308: a three-quarter plate fusee movement with a free-sprung bimetallic balance to the lever escapement, with a reversed fusee and Brequet overcoil, the dial with up & down work to 30 hours. Add the details on the back of the card. James Bishopp is recorded as working in Bunhill Road circa 1876.

9 T.J. Mercer, Manufacturer, 9098: a full-plate fusee movement with an engraved balance cock to the unusual three-bar balance with poising screws, the traditional Bosley regulation has a Coventry star to the mid-point mark of the index, with a dust cover stamped H.O. Thomas Mercer was a fine chronometer maker who founded the famous Mercer firm of makers who monopolised the chronometer movement industry at the turn of the 20th century.

10 Allam & Caithness, London, 3460: a full-plate fusee movement with a cylinder escapement with a steel balance to the finely engraved balance cock, a diamond endstone and wound through the convex dial, with a Tompion regulator, the front plate is interestingly scratched *CC Petler, Riverhead, Kent*, with dust cover. Allam & Caithness were successors to Allam & Clements circa 1800 – 1805.

11 Haley, Wigmore Street, London M/DCII: a full-plate barrel movement with a gold three-bar balance, missing the index lever, beautifully engraved in script on the backplate, with dial. Charles Haley, a well-known horological innovator, was apprenticed in 1762 to Brockbank and free of the Clockmakers Company in 1781. In 1797 he patented an invention for a marine chronometer and died in 1823.

12 William Bellion, 89 Park Road, 1801: engraved on the dust cover *Bellions' Improved Patent Lever Warranted for 20 Years*, with a fusee, chiselled engraving to the balance cock & apron, which is also engraved *Liverpool*, three-bar gold balance with traditional Bosley regulation, the size 6 Coventry frame stamped W*F.

13 Arnold & Dent, 5003: three-quarter plate movement with a lever escapement, a brass balance and capped jewels, circa 1837. A partnership between the two eminent chronometer makers, John Roger Arnold & Edward Dent, formed in 1830 working from their premises in the Strand and ended in 1840, three years before the death of Arnold.

14 Kendal & Dent, London, 16908: a full-plate fusee movement with an engraved balance cock, split-bimetallic balance and modified Bosley regulation with a raised silvered quadrant, signed on the dial *Kendal & Dent, London, 16908*. Kendall & Dent are recorded working as a partnership from 1881 until 1927.

15 Thos Earnshaw, 7134: as signed on the dial, with remains of a movement with the lever escapement intact. Thomas Earnshaw, born 1749, died 1829, was one of the most eminent chronometer makers working at this period and invented the spring detent escapement bearing his name that did so much to revolutionise chronometer making. He was succeeded by his son and then in turn by his son, both also named Thomas.

16 Sir John Bennett, 65 & 64 Cheapside, London, 42128: a full-plate fusee movement with a finely engraved balance cock and gold three-bar balance, the traditional Bosley regulation with a Coventry *asterix* mid-point mark, the dust cap stamped *W&A. O* for Oxley, Coventry. Sir John Bennett was a prominent watch maker and businessman working from circa 1857 until after 1881.

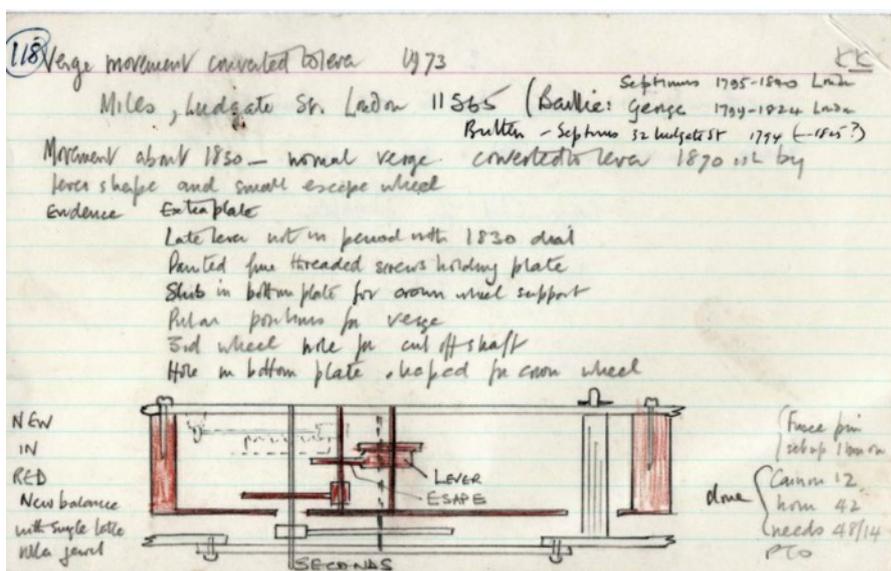
17 C. Cross, Royal Exchange, London, No 9810: a three-quarter plate fusee movement with index to the top-plate and Coventry *four-arrows* mid-point mark, missing the balance and balance cock.

18 J.B. Dent & Sons, London: as signed on the dial, the going-barrel movement with a plain top plate engraved with the serial number 159370, the Bosley regulation with raised silvered quadrant, the front plate of Lancashire form.

19 Alfred Russell & Co, Makers to the Queen, Liverpool & London, 24706: the full-plate movement with a finely engraved balance cock, a split-bimetallic balance and traditional Bosley regulation with a Coventry *four-arrows* mid-point mark to the index, the size 16 plate numbered 24706 and unsigned but of typical John Wycherley form, the dial signed *Alfred Russell & Co, 24706*.

20 John Forrest, London, Chronometer Maker to the Admiralty, 40751: with a finely engraved bridge, missing the balance cock and balance. John Forrest was a well-known maker recorded working between 1857 and 1911 as a watch and clockmaker to the Admiralty.

21 Miles, Ludgate Street, London, 11565: conversion from verge escapement to lever as described on the index card shown below. Septimus Miles is recorded working in Ludgate Street becoming Free of the Clockmakers Company in 1797, and died in 1840. His son, also Septimus, is recorded working in the mid-to-late 1800's.



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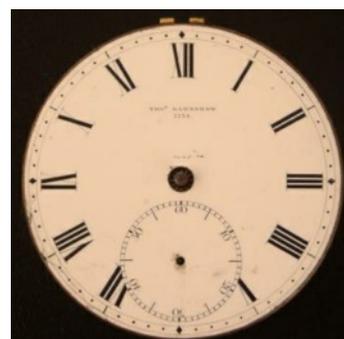
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Watches

22 Brockbanks', London, 4046: a silver open-faced pocket watch, the full-plate fusee movement has maintaining power, a duplex escapement with a flat steel three-arm balance, finely engraved balance cock and traditional Bosley regulation, with the off-white dial signed *Brockbanks, London* and having written on its underside *Oct 1810*, the serial number would indicate a date of manufacture of circa this date, with the dust cap stamped *I.E.* The case is hallmarked for London 1859, which would indicate it being re-cased at this time, and is stamped with the case maker's initials, *EH* (cameo) Brockbanks was a partnership between two members of this famous chronometer making family, John, apprenticed 1761, and Myles, apprenticed 1769, died 1821, who were working from circa 1790.

23 Litherland & Co, Liverpool, 3268: an open-faced silver pocket watch, the full-plate fusee movement has a rack lever escapement with a thirty-tooth escape wheel and with a flat steel three-arm balance and slide adjustment, the finely engraved cock of typical rack-lever form, with *Patent* engraved across the centre and traditional Bosley regulation with Lancashire *crows-feet* index markings, the serial number 3268 would suggest a date of circa 1803. The case is hallmarked for silver, London 1859 which would indicate it being re-cased at this time, and is stamped with the case maker's initials *?T*, with a gold spade hour hand, missing the minute hand.

Peter Litherland, of Mount Pleasant, was a well-known watch maker who patented a new form of rack lever in 1792. He died in 1805.

24 Grant, Fleet Street, London, 1298: a full hunter silver pocket watch, the full-plate fusee movement with a cylinder verge-style escapement and Tompion regulation, steel three-bar balance with a stunning pierced & engraved cock, with a diamond endstone and engraved backplate. The case is hallmarked for London 1851, with case makers initials *WB* (cameo), probably William Brady, 53 Rahere Street, Goswell Road, London N, along with the name *John Davies April 1871*, the off-white dial has blued steel spade hands. John Grant is recorded working in Fleet Street becoming free of the Clockmakers Company in 1781 until his death in 1810. His son, also John, born 1796 was free of the Clockmakers Company in 1817 until 1867.

25 William Thomas, 93 Strand, London: a full hunter silver pocket watch, the full-plate fusee movement with a duplex escapement and three-bar balance with three poising screws, jewelled balance pivots, diamond endstone, ruby cylinder and maintaining power, the backplate and dust cover both signed *William Thomas, 93 Strand, London*, the dial signed *Willm Thomas, Strand*, with gold spade hands. The full hunter case is hallmarked for London 1817, with case makers initials *TG*, probably Thomas Gooch, 23 Coppice Row, Clerkenwell, and inscribed *JH 1830*.

William Thomas was apprenticed in 1762 becoming free of the Clockmakers Company in 1772. His son, also William, is recorded working from circa 1828.

Movements

26 J.R. Arnold & Chas Frodsham, 84 Strand, London, 6/3253: a three-quarter plate fusee movement with a lever escapement and split bimetallic balance, the index with a Coventry *fleur-de-lys* mid-point mark, the dial is signed *Arnold*, in typical form, above *Chas Frodsham, 3253*.

A business run by Charles Frodsham after the death of John Roger Arnold in 1843 having approached Arnold's executor Richard Steele who granted Frodsham the right to purchase the whole of the business.

27 Brockbanks', London, 4797: a lever movement converted from duplex, with a short curved sided lever and later maintaining power, the underdial having scratched 'Leverised by HH, Coventry, 21/1/84' (being 1884), the case probably made at the time of conversion. See exhibit 22 above for details of Brockbanks'.

28 Viner & Co., London, 5467: a full-plate fusee movement with a lever escapement and steel three-arm balance and modified Bosley regulation. Charles Edward Viner was a fine and innovative watchmaker who was apprenticed in September 1802 to Thomas Savage of Red Lion Square, he became Free of the Clockmakers Company in 1813 and a Liveryman in 1819 until 1840, possibly the year of his death.

29 Barraud's, Cornhill, London, 2/1688: remains of a movement with a duplex escapement and brass four-arm balance, typical Barraud *saw-cuts* to the cock, and a modified Bosley regulation, along with the remains being the fusee, barrel and dust cap.

Barraud's were a famous family of watch, clock and chronometer makers working mainly at 86, then 85 and finally 41, Cornhill, London, originating with Francis-Gabriel Barraud but really coming to prominence with Paul Philip Barraud, Master of the Clockmakers Company in 1810 & 1811, who was followed by his sons John, Frederick & James, and then grandsons Frederick and Hilton.

30 Danl. Desbois, Grays Inn Passage, Holborn, 44203: a full-plate fusee movement with a lever escapement, gold three-arm balance, finely engraved cock and modified Bosley regulation with a raised silvered quadrant, the frame stamped with the initials *PR*, with the dust cover stamped *J.H*

Daniel Desbois set up as a clockmaker in circa 1785 having been apprenticed to John Johnson of 9, Grays Inn Passage, London and whom he succeeded in 1799. He died in 1848, aged 75 and was succeeded by his son, also Daniel, with whom he had been in partnership from 1836. Daniel Desbois jnr continued until his own death aged 76.

31 De La Salle, Cannon Street, London, 5494: a three-quarter plate fusee movement with a free-sprung lever escapement, split bimetallic balance, the backplate signed, the dial signed *De La Salle & Christie, London*. (See next exhibit) James Thomas De la Salle, Clockmakers Company 1816 – 1844, & William Christie are recorded as working in Cannon Street from circa 1820 until circa 1845 when Christie went alone until circa 1880, presumably on the death of De La Salle.

32 Wm. Christie, Chronometer Maker to the Admiralty, 129 Cannon Street, London, 56160: a full-plate fusee movement with a lever escapement, split-bimetallic balance, engraved balance cock, the dial signed *Christie, Cannon St, London, 56160*.

33 Webster, Cornhill, London, 7071: the remains of a full-plate fusee movement with a lever and steel three-arm balance, the barrel plate signed *Rd Webster, Cornhill, London, 7071*, with dial plate, minute wheel and dial signed *Webster, London, 7071*.



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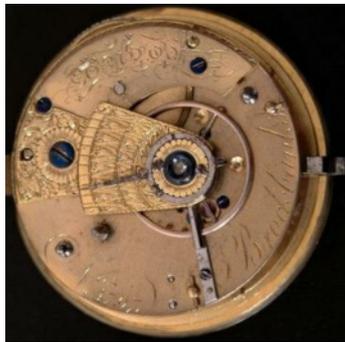
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Westcountry Retailled

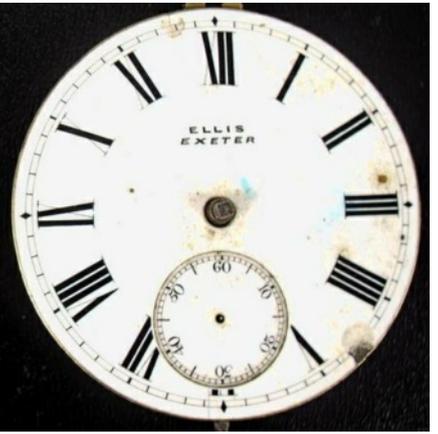
- 1 Wm Edwards, Truro, No.30385:** a full-plate fusee movement with a finely engraved balance cock, gold three-bar balance and modified Bosley regulation with a raised, silvered quadrant.
- 2 C.F. Crewes, Plymouth, 26535:** a full-plate fusee movement, finely engraved balance cock, steel three-bar balance and modified Bosley regulation with a raised, silvered quadrant.
Charles F Crewes is recorded at 45, Treville Street in 1828 and 23, Bedford Street from 1844 until 1850.
- 3 Searle & Son, Plymouth, 16345:** a full-plate movement with fusee, plain balance cock with a gold three-bar balance, the traditional Bosley regulation with a Coventry *asterisk* mid-point mark to the index.
G. Elliot Searle is recorded at Edgcumbe Street, Stonehouse in 1850 and 111, Union Street from 1856 until at least 1873. From 1878 the business became *and Son* at 21, Bedford Street, becoming *and Sons* from 1902.
- 4 Searle & Sons, Plymouth, 25344:** a full-plate movement with going-barrel and false fusee, engraved balance cock with a gold three-bar balance, the traditional Bosley regulation with a Coventry *asterisk* mid-point mark to the index.
Note: now *and Sons* rather than *and Son* on the previous example.
- 5 Samuel Edgcumbe, 11 Cornwall Street, Plymouth:** a full-plate fusee movement with a plain balance cock and gold three-bar balance, the traditional Bosley regulation with a Coventry *asterisk* mid-point mark to the index.
See previous notes on Edgcumbe. Recorded from before 1883 until 1902 and later, at 11 Cornwall Street.
- 6 Ellis, Exeter:** a full-plate fusee movement with a plain balance cock and steel three-bar balance, the modified Bosley regulation with raised quadrant, also signed on the dial.
The Ellis family were one of the most well-known and prolific of the Westcountry makers, with Henry Ellis leaving a wonderful journal chronicling both his working and personal life. See Clive Ponsford *'Devon Clocks and Clockmakers'* for a full biography of the family.
- 7 Ellis, Exeter:** a full-plate fusee movement with a plain balance cock and steel three-bar balance, the modified Bosley regulation with raised quadrant, with a dust rim, signed dial.
- 8 C. Ford, 89 High Street, Barnstaple, No.6451:** a full-plate fusee movement with a plain balance cock and steel three-bar balance, the modified Bosley regulation with a raised, silvered quadrant, the frame stamped W*E.
Charles Ford is recorded in the High Street from before 1866 until 1893 and later. He supplied a number of local houses and institutions with turret clocks including that at Arlington House, now owned by the National Trust.
- 9 E. Pearce, Launceston, 38866:** a full-plate fusee movement with a finely engraved balance cock and steel three-arm balance, the traditional Bosley regulation with a Coventry *four-arrow* mid-point mark to the quadrant the dial with gold spade hands.
- 10 Alfred Ryder, Devonport, 21786:** a three-quarter plate fusee movement, with a gold three-arm balance and modified Bosley regulation.
- 11 Jackson & Son, Observatory, Bristol, No.5117:** a three-quarter plate fusee movement, the plain balance cock with a steel three-arm balance and modified Bosley regulation with a raised silvered quadrant.

Three Ehrhardt movements, all with 'false' fusee, engraved balance cock, three-arm balance and traditional Bosley regulation

- 12 George H. Lidstone, Tavistock, 88345:** with gold balance.
- 13 F.J. Kaupp, Liskeard, 81790:** with steel balance.
- 14 Samuel Edgcumbe, 11 Cornwall St, Plymouth, 166259:** with steel balance.

Retailled Abroad

- 15 Sam O'Connor, Dublin, No.15280:** a three-quarter plate movement with a gold three-bar balance.
- 16 Walsh Bros. Melbourne, 77987:** a three-quarter plate fusee movement with an engraved balance cock and gold three-bar balance.
- 17 George Falconer, Hong Kong & London, 1755:** a fusee movement with a finely engraved balance cock with a gold three-bar balance, modified Bosley regulation with a raised silvered quadrant, three top pivot holes jewelled, the size 10 frame stamped W*E, the dust cap stamped with Chinese figures presumably for the retailer.
George Falconer is recorded as a retailer, a possibly a maker, in Hong Kong from circa 1872 until at least 1921. A carriage clock is known signed by him which is obviously of English manufacture, having a twin fusee movement and a case design typical of McCabe amongst others, and was the property of the Hong Kong Jockey Club in the late 1800's.



Glossary

Balance: The oscillating wheel which controls the speed at which the mainspring unwinds and therefore controls the timekeeping

Bimetallic Balance: A balance whose rim is made of two differing metals such that here expansion rate counteracts the effects of temperature changes on the rate of the watch.

Bosley Regulation: As described within the text.

Bottom plate: The plate of the watch nearest the dial and on which the maker's stamp, if any, is usually to be found.

Chronograph: A watch with a seconds hand capable of being started, stopped and reset independently of the main hands.

Club-tooth Lever: A type of escapement in which the teeth of the escape wheel are shaped rather than pointed, a *Swiss* escapement.

Cock: A bracket supporting the pivot of a wheel, usually the term for the balance cock for the top balance pivot.

Detached escapement: In which the balance vibration is free from friction except during locking and unlocking impulse action.

Double roller: A lever escapement with two rollers, one for the impulse action, the other for the safety action.

Dummy fusee: See *False Fusee* below.

Escapement: That part of the watch movement which constrains the train movement motion to small increments.

'False' Fusee: Also known as *dummy fusee*. An extra wheel added to watch trains after the removal of the fusee to keep the train the same wheel count and allow winding in the same direction as previously.

Figure plate: The small dial on a *Tompion* regulator indicating the amount of regulation increments.

Free Sprung: A watch with no regulator or curb pins, regulation achieved purely through the timing screws on the balance.

Full plate: A watch with a complete top plate, unless with an added barrel plate, with the balance fitted to the top of the plate.

Fusee: The conical-shaped piece with a spiral groove allowing for greater leverage as the mainspring winds down.

Hairspring: The balance spring which allows the balance to oscillate.

Half plate: A watch in which the top plate covers the main train but the balance, lever, escape wheel and fourth wheel have separate cocks.

Index: The pointer on the regulator.

Keyless: A watch movement that doesn't require a key for winding or setting hands, generally set via the winding stem at the top.

Keyword: a watch movement that requires a key to wind and set the hands.

Liverpool Jewelling: Over-sized quartz jewellery set into the top plate, any number from one to four plus the fusee jewel.

Liverpool Runner: A watch movement that has the winding stop-work set on the top plate and therefore visible. (See section on these)

Reversing Pinion: The centre wheel pinion is a screw-fit onto the wheel arbor, therefore should the mainspring break, the force allows the centre wheel pinion to unscrew itself, causing little or no damage to the pivots and teeth.

Three-quarter plate: A watch in which the balance, lever and escape wheel have separate cocks.

Tompion Regulation: As described in the main text.

Top plate: The plate of the watch furthest from the dial and which is generally visible with the retailers/makers signature, if any, engraved on it.

Train: The series of wheels and pinions connecting the barrel or fusee to the escapement.

Up-and-down dial: An extra dial on the main dial showing the state of mainspring winding, generally used on chronometers and free-sprung movements.

