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JOSEPH WHITE OF COVENTRY

WATCHMAKER TO THE ADMIRALTY



by Jeromy Hassell

JOSEPH WHITE was born in Foleshill, Coventry, in 1835. His father, Thomas, had been a watchmaker in Victoria Parade, Leicester, before moving to the Coventry area.

Little is known of Joseph's father, but one of his watches, owned by one of his great-great-grandchildren, is an English lever pocket watch inscribed: '*Thomas White, Victoria Parade Leicester, number 2296*'. It has a detached lever escapement based on the design of Edward Massey (1772-1852) of Coventry. The movement of gilt-brass is in a gold case, hallmarked 1808 and initialled PW.

Joseph started to earn his living at the age of ten, probably as a watchmaker's errand boy. On 3 June 1851, aged fourteen, he was indentured to Nathaniel Hill, a watchmaker of Lord Street, Coventry.

To mark the end of his apprenticeship, he made a fine masterpiece, which was a small longcase regulator. As was the tradition, this probably became his workshop timepiece, used to regulate all the watches he ever made. This regulator was finally sold by his family, together with his original indentures, through Sotheby's in November 1999. Joseph qualified at the age of twenty-one, and then gained the freedom of Coventry. He became a partner and stayed with Nathaniel Hill until he was twenty-three.

Joseph was always a churchgoer and on 10 March 1858 he was one of the ten founder members of St Michael's Baptist Church, Earlsdon, who signed its formal constitution.¹ He remained connected with this Church for over forty years. He never ventured into public life.

In due course he was to become a master craftsman and manufacturer: the highest rank

in the watchmaking hierarchy above errand boy, apprentice, journeyman, and craftsman. His company was named Joseph White Ltd, which later became Joseph White & Son Ltd, when his oldest son, Howard Joseph, (born in 1867) became a director.

Joseph started to work on his own account in 1860. His first premises were at 54 Mount Street, Coventry, where he stayed until 1864. In 1865 he moved to 8 Russell Terrace, and in 1868 he purchased Earlsdon House in Earlsdon Street. This was a large house with room for his growing family and spacious workshops. At the same time he purchased thirteen artisans' houses² in nearby Arden Street to accommodate his employees. He also continued to operate from Russell Terrace until 1870 and then from Warwick Street until 1878. These five locations, which lie to the west of Coventry city centre, are shown on the map (Fig. 1).

There were still only about 110 houses in Earlsdon when Joseph moved there. Its development had been encouraged by the living conditions in Coventry which had become abysmal by the mid-nineteenth century; the city being overcrowded and 'disease ridden'. The Freehold Land Society had purchased farmland in 1852 and developed Earlsdon. This was an ideal place to live and run a business. It was clean, healthy and exempt from rates, as it lay outside the city until 1890.³

Watchmakers had soon begun to move there, mainly from the Spon Street and Butts areas. John Flinn had been the first manufacturer to do so, and he built Earlsdon House and the thirteen houses in Arden Street. The House 'was the largest and most important to be built in the area for at least fifty years'.⁴

1. *St Michael's Baptist Church, Coventry, Jubilee Volume: 1858-1908*.

2. Even street numbers 8 to 32.

3. Mary Montes, *Brown Boots in Earlsdon*, Coventry and Warwickshire History Society, pamphlet No. 15, (1989), pp. 5&6.

4. *Ibid.*, p. 35

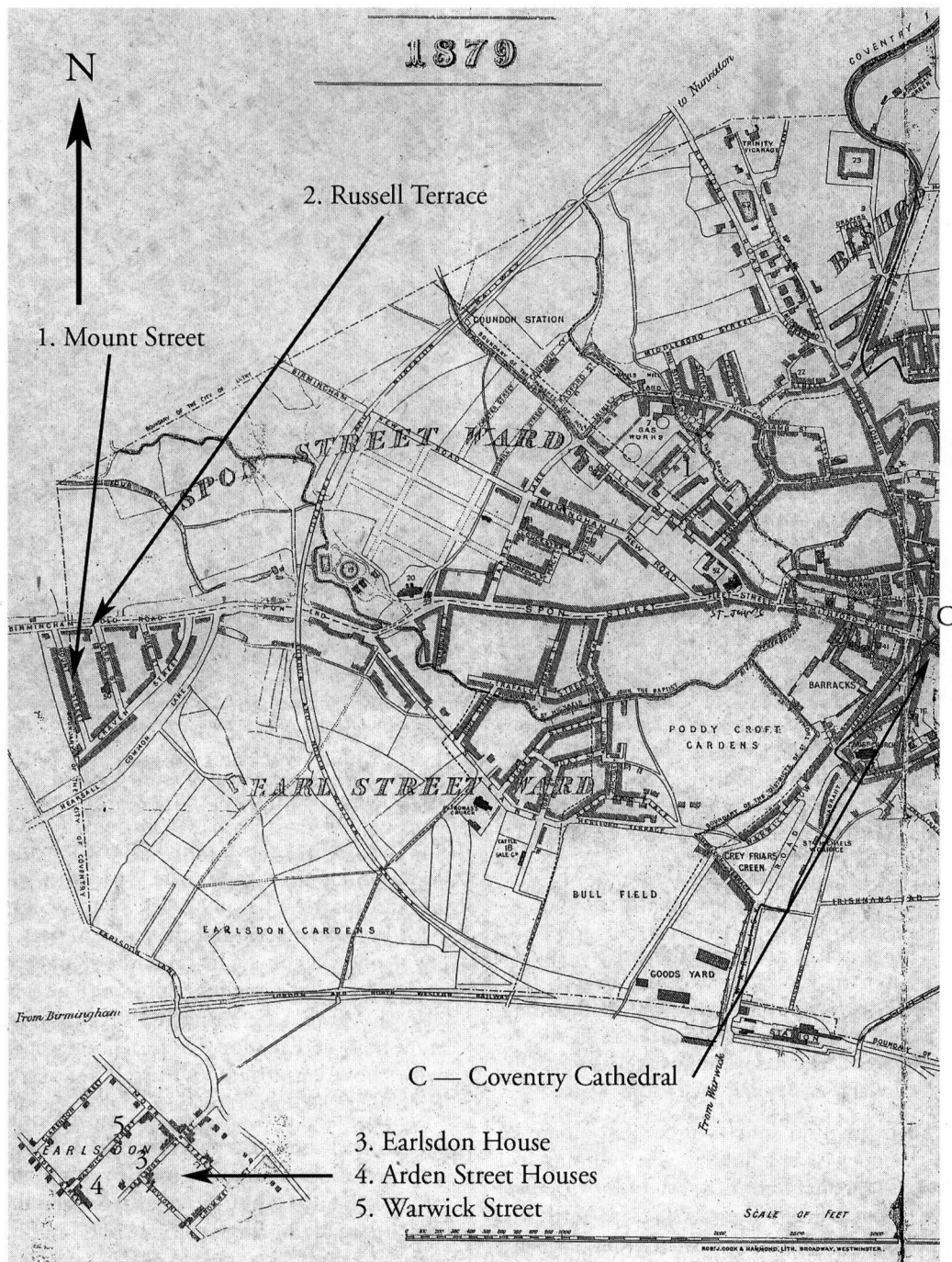


Fig. 1. The locations of Joseph White's businesses.

Joseph purchased all these properties from John Flinn, whom he was greatly to overshadow as a manufacturer.⁵ John Flinn had placed the following advertisement for Earlsdon House in the *Coventry Standard* on 14th February 1868:

5. *Ibid.*, p. 36.

Family residence and Manufactory at Earlsdon, near Coventry, Earlsdon House, pleasantly situated, and containing a good Hall, dining and drawing rooms, 5 bedrooms, two large attics, best and



Fig. 2. Joseph White, 1835 to 10 October 1906.

cooking kitchen, china closet, pantry, cellar, coach house, and two-stall stable, piggery and shedding; also the excellent WATCH FACTORY and OFFICES, together with the VINERY, Pleasure and kitchen garden and paddock.

The premises are well adapted for any branch of the Watch Trade, or for a boarding school. There is an abundant supply of good water upon the premises, which are situated without the Municipal Boundary, and free from District Rate.

Such premises were a direct descendant of the ribbon weaver's houses, where looms had occupied the first floor. Known as the *Top Shop*, this floor housed the workshop, and was equipped with large windows. A development introduced by watchmakers was to locate the Top Shop in a wing, jutting into the back garden, and thereby making it invisible from the



Fig. 3. Catherine White (née Steane), 1837 to 1904.

street. Offices and stores were located on the floor below. Earlsdon House was just so.

The 1871 Census shows Joseph living in Earlsdon House with his wife Catherine, whom he had married before 1860, seven children, aged between eleven months and ten years, and his nephew Thomas. In time, the Whites were to have twelve surviving children. The census also shows that he employed seven men and nine boys at Earlsdon House. These together with those employees at Russell Terrace and, later, Warwick Street, made a sizable operation.

In that same year there were 2,265 people engaged in watchmaking in Coventry, which accounted for about two-thirds of all the watches made in England.⁶

Like all other manufacturers, Joseph would not have made every watch-movement in its entirety,⁷ but would have purchased whole

6. Alun C. Davies, 'Old and New Technology in Watchmaking in Coventry, 1850-1920', *Antiquarian Horology*, 18/4 (winter 1989), 397-401.

7. Many years later, his son Howard informed his bank manager that he made 'all his movements as he could not rely on bought ones'. How long this practice had been in existence is not known. Lloyds TSB Private Memoranda B/379a/19, dated 12 February 1912.

movements and other parts from specialist makers. It was in the finishing process that the skill of the master watchmaker lay.

One firm making and selling unfinished watch escapements and movements was Joseph Preston & Sons, whose workbook in the Kullberg Archive of the Guildhall Manuscript Room shows that they completed at least fifteen orders from Joseph White & Son between 1892 and 1901.

Joseph would have employed, either in his factory, or as pieceworkers: escapement doers (makers); jewellers; half-doers (makers of wheel-pivots); motion doers (finishers of the gears that interconnect the hour and minute hands); and finishers.

Over the years, he also trained many apprentices, one of whom the Coventry Archives identify as William James Burton. William, who was under the auspices of The Baker, Billing and Crow's Charity, was serving his apprenticeship as a watch finisher. On 6 March 1884, the trustees of the charity recorded the receipt of a telegraph from Joseph White stating that he wished to dismiss William because of a lengthy absence without leave.

The trustees' records do not give the reason for William's absence, but it may be concluded that he had been tending his widowed mother. The matter was resolved, however, as an entry in the trustees' records dated 7 July shows that, for a payment of £3 by the charity, Joseph had offered to pay the mother of the apprentice 4s 3d weekly, instead of providing William's maintenance, William's 'absence from work excepted'!

In 1860, Gladstone had removed the tariffs on imported watches. This had initiated the decline of the watch-trade, and just one year later, the number of watches imported into the country had risen by 60% to 160,000.⁸ British exports also declined at this time, as the American Civil War of 1861-2, both stimulated the US watch-trade and led to their imposing punitive duties on imports. UK exports to the Continent also reduced during the Franco-Prussian War in 1870.

Both American and Swiss watchmakers were to develop mass-production techniques, which

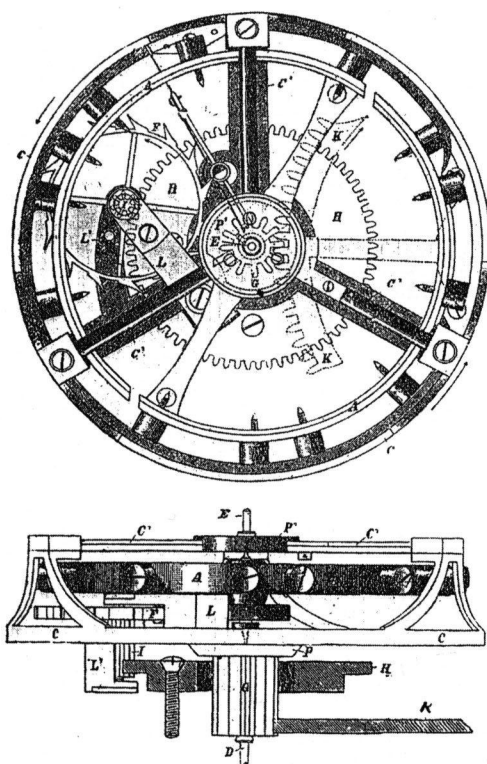


Fig. 4. The tourbillon, from the *Horological Journal*, May 1893.

undercut the higher costs and prices of Britain's cottage industry. Joseph White & Son's answer to this was to diversify into the production of specialised timepieces, horological components and precision watches. Many of the last were to be used as deck-watches by the Admiralty.

The firm made simple pocket-watches as well as fine repeaters and chronographs, including keyless and key-winding adjusted lever-watches. Their real specialities, however, were to be *tourbillon*, *karrusel* and 'Flying Tourbillon' watches.

The tourbillon had been invented in France in 1795 by Abraham Louis Breguet. It was revolutionary in that the escapement assembly and balance were housed in a circular, rotating platform or carriage (CC in Fig. 4), which rotated in a period of one minute. The fourth wheel (H) was fixed, and the tourbillon carriage revolved around it. The third wheel (K) geared with the pinion (G), which was fixed to the carriage, and the escape pinion (I) geared with

8. E. Castle and C. Kennedy, *Past Timers*, (Coventry Through Time series), p. 26.

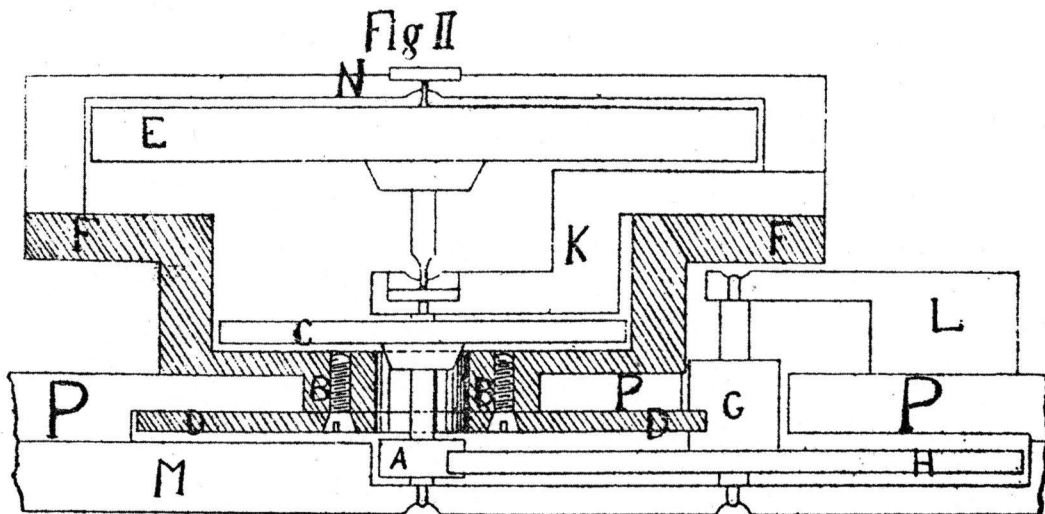


Fig. 5. The karrusel, from Patent Application No. 21,421, dated 4 November 1892.

the fixed fourth wheel. The motion transmitted by the third wheel caused the escape pinion to turn on its axis, and also to revolve around the fourth wheel. The lower pivot (*D*) of the carriage ran in the main plate of the movement and carried the second hand. The upper pivot (*E*) rotated in a high and long bridge, which spanned the carriage.⁹

This mechanism overcame the tendency of the escapement to vary in accuracy, as the centre of gravity of the balance was slightly affected by the lateral attitude of the watch. Fortuitously for the Admiralty, this invention also neutralised the polarization caused by steel-hulled ships. To make tourbillons great skill was required, and no watchmakers of Breguet's time appear to have attempted to make them. Even a century later, Joseph White & Son were one of the very few makers to do so successfully.

As accurate as the tourbillon, the less costly, more compact and robust *karrusel* watch was patented in 1892. This was the invention of a Dane, named Bahne Bonniksen, who had settled in Coventry in 1887. The carriage of the karrusel (the shaded parts in Fig. 5) was off-driven by the third-wheel pinion (*G*) and had its own axis upon which the escapement and

balance (*E*) could turn in any period, being that which was the most suitable for that calibre of movement (this was usually 52.5 minutes). The upper pivot of the balance rotated in a cock (*N*). To put it in Bonniksen's own words, the disadvantage of the tourbillon was that it rotated 'at the exceedingly rapid rate of 60 turns per hour; this high speed making it necessary to make all the parts as delicate as possible, for if strongly made, the friction of the fourth pinion bearings would be too great a resistance...'¹⁰ Joseph White & Son made karrusels under licence from Bonniksen.

Next came an improvement on both Breguet's original tourbillon and the karrusel. This was the 'Flying Tourbillon', invented by Robert Benson North and, later, patented by him in 1903. The purpose of his invention was to 'attain a cheap and practical form or mode of mounting the revolving platform which carries the escapement... [and also] obtain less friction and thus counteract the error produced by lengthened wear'.¹¹ Unlike the tourbillon and karrusel, North's revolving platform (*a* in Fig. 6) had no upper support such as a bridge or cock, but was instead, more simply mounted with its own bearing, on a steel stud (*b*). It was

9. F. J. Britten, *Watch and Clockmakers Handbook, Dictionary and Guide*, 11th ed., (London: Bloomsburg Books, 1915).

10. Bonniksen's Patent Application No. 21,421 of 24 November 1892.

11. North's Patent Application No. 6737 of 23 December 1903.

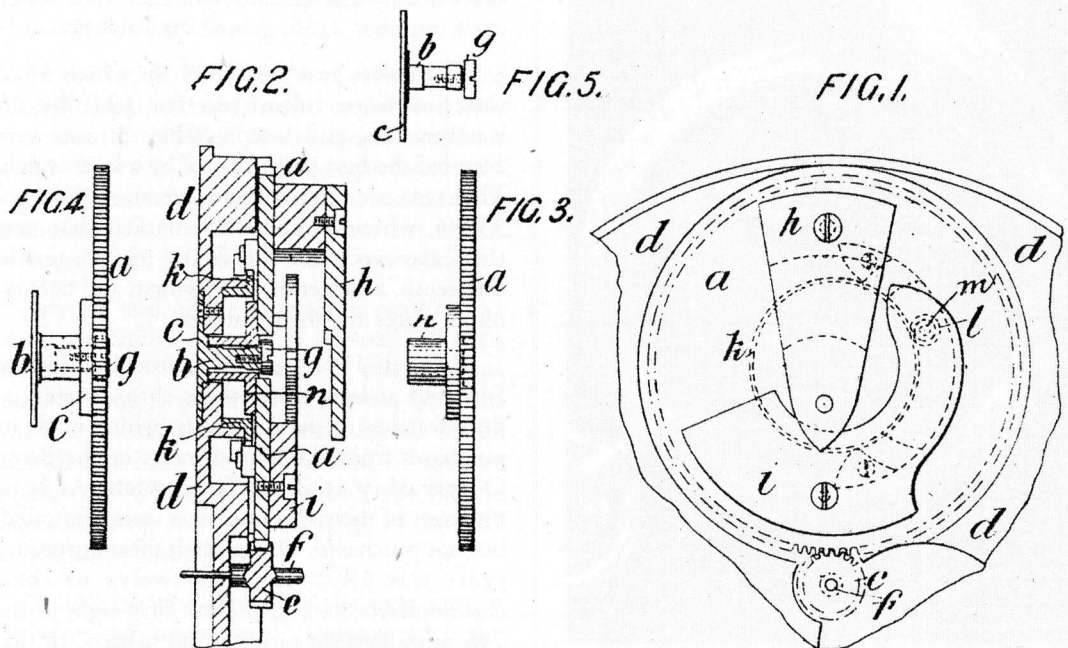


Fig. 6. The 'Flying Tourbillon', from Patent Application No. 6737, dated 23 March 1903.

held in place by a single screw. Having no upper support, the platform was said to be 'flying'.

Another advantage of the 'Flying Tourbillon' was that the platform was not itself rotated directly as the fourth pinion, but by an intermediate pinion (*e*), which was geared down. This enabled the platform to rotate in 6 minutes rather than 1 minute and, thus, wear was reduced. Joseph White & Son made these 'Flying Tourbillons' under license. They were of the finest quality and are now of great rarity and value. Apart from use as Admiralty deck-watches, they were highly desired as gentlemen's watches.

A rare example of one of Joseph White & Son's 'Six-Minute Flying Tourbillons' is number 38715, retailed through D Norris of Brazil (Figs 7 & 8). This is a silver, open face, free sprung keyless lever watch. It has a gilt-brass movement, bimetallic compensation balance with gold screws, blue steel spiral spring with terminal curve. The back plate is signed Joseph White & Son, Coventry & London. It also has a fine white enamel dial, roman numerals, and subsidiary seconds, similarly signed. The plain polished gold case is hallmarked 1889 and bears the casemaker's initial W B (William Bullock?).¹²

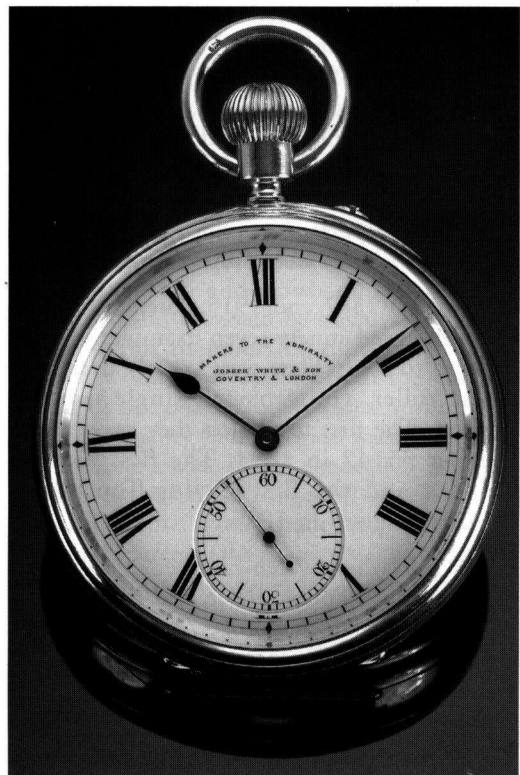


Fig. 7. Joseph White & Son's 'Six-Minute Flying Tourbillon' No. 38715. © Sotheby's.

12. From Sotheby's Geneva auction catalogue, 14 November 2000.



Fig. 8. Joseph White & Son's 'Six-Minute Flying Tourbillon' No. 38715, the back plate. © Sotheby's.

Watchmakers aspired to be top of the Kew Observatory trials list. The highest class involved a forty-five day trial, later extended to fifty-five days. During the trial, the watches were tested in various positions and in normal, heated and refrigerated conditions, all of which could affect their accuracy. One hundred marks denoted the perfect watch. The Greenwich Observatory trials were even more exacting.

Between 1887 and 1915, Joseph White & Son submitted ninety-seven examples of their watches to Kew. They were mostly double or single roller, going barrel, single overcoil watches. The first tourbillon they entered was number 35142 in 1894. The first karrusel (35440) and the first 'Flying Tourbillon' (35421) followed in 1895.

In 1887 their watch number 29999, with single overcoil, double roller, and going barrel, came first overall in the Kew trials with 88.1 marks. This watch was subsequently retailed through D Norris of Brazil.¹³ Out of 1344 watches submitted to Kew in 1891, Joseph White & Son gained first place in the 'Minute and Split Seconds Chronograph, and Minute Repeater' section of the 'Highest Records

Obtained by Complicated Watches'. The watch itself, number 2286, gained 76.4 marks.

Their best year was 1893, in which 1521 watches were submitted for trial by all watchmakers, and Joseph White & Son were awarded the best performance by a lever watch. This was a centre seconds version, number 33884, which gained 84.9 marks. That year they also secured the fifth, ninth, tenth, thirteenth, nineteenth, twenty-first, and twenty-ninth places for their watches.

Between 1892 and 1914, Joseph White & Son sold at least thirty-three chronometers as deck-watches to the Admiralty, which made its purchases from the best entrants in the Royal Observatory trials at Greenwich. At least nineteen of their chronometers were also rated, but not purchased. One of their most impressive years was 1895-6, when twelve of their chronometers were in the top fifty-eight of the 746 submitted for rating by all makers. In that year, their best entry came sixth with 85.2 marks, compared with the overall best of 87.4 marks.

Not every one of the Whites' watches was successful, at least at first. One of those prepared and finished by the firm was number 37553, a karrusel chronometer, supplied by Bahne Bonniksen. It was one of very few watches prepared with spring detent escapement and with a two-arm bimetallic Guillaume balance, in a silver case with 1902 London hallmarks and the casemaker's initials WB. It was in a three-piece mahogany deck-box, the top being centred with an engraved ivory disc.

On the first occasion that it was submitted to the Greenwich Observatory, it was entered for the 1903-4 heat trials, which were more exacting than for other deck-watches. It fared badly, coming eighth out of nine. After further work, it was re-entered in 1906-7 and then came sixth out of twelve. Still not satisfied, Joseph White & Son prepared it again for the 1910 trials. This time it won a comfortable first place for both 'Box Chronometers' and 'Chronometer Watches', and was purchased by the Admiralty. Among other ships, it served on *HMS Waterwitch*, *HMS Endeavour* and *HMS Hermione* and was finally decommissioned on

13. Tony Mercer, *Chronometer Makers of the World*, (Colchester: N.A.G. Press Ltd, 1991) p. 255.

2 June 1948. This watch is now in the Science Museum, Chicago.¹⁴

In an article entitled *The Coventry Watch Trade*, in the journal *Clocks*, November 1984, Rita Shenton refers to a very special watch of Joseph White & Son '... made entirely of gold – gold plates, wheels and so on – and cased in platinum. It is not known however the reason or occasion for which the watch was made...'

By the end of the nineteenth century, the concept of *interchangeability of parts* had been introduced into the watch trade, thus standardising finely-machined parts between watches. This concept was, later, to be introduced into the production of motor-engines by White & Poppe Ltd, the engine manufacturing company initiated by Joseph's second son, Alfred James.

Joseph became 'probably the best known Earlsdon manufacturer',¹⁵ and provided the following description of the Earlsdon House business on page 152 of the 1898 commercial publication, *Coventry Up-to-date*:

The highest excellence of make and finish has been attained in the manufacture of chronometers and watches by Messrs Joseph White and Son, one of the oldest firms in the Coventry trade. The business was originally established at Chapelfields nearly forty years ago, and a few years later the firm removed to the more commodious and convenient premises now occupied at Earlsdon, one of the prettiest suburbs of the City. The factory, adjoining the handsome private residence of the proprietor, was especially designed for the business and includes offices and warehouse at the entrance, and an extensive range of lofty, well ventilated workshops, the sides of which are nearly all window, ample light being a *sine qua non* in carrying out the delicate operations of the watchmaker's art. The works are replete with the most perfect appliances for the manufacture of *accurate timekeepers*; the firm while holding even in the cheapest work they touch that this is the essential

thing, are yet second to none in high quality and artistic finish. Specially noticeable are the various apparatus for subjecting the watches to prolonged tests in wide ranges of temperatures, and also in every conceivable position, enabling them to make their watches perfect pocket timekeepers in whatever climate they may be worn. Messrs White and Son cover a wide range in their manufacture extending from the working-man's watch to the most elaborate and costly chronometers, repeaters and chronographs, making a speciality of their well-known adjusted lever watches in gold and silver cases, keyless and key-winding patterns. Every watch is timed exclusively by the members of the firm, and after being subjected to the most severe tests, many are forwarded to Kew Observatory to receive the official seal of accuracy and it speaks volumes of eulogy in favour of the firm's make that during the past ten years; out of the large number of watches sent up for examination, only one failed to stand the test applied by the authorities, and each year they hold a very high place in the list which is published annually to show the best 30 or 40 watches out of 400-500 submitted by all makers. During the past year they have taken a place with no less than 12 watches.

Messrs White and Son have been awarded first prize medals for excellence of workmanship and finish in 1867 and 1889,¹⁶ and it should be stated also that the junior members of the firm hold bronze and silver medals from the City Guilds of London Technological Institute for proficiency in horological science. The firm have a wide-spread connection in all parts of the United Kingdom, as well as a considerable export trade and are also manufacturers to the Admiralty. The works are admirably organised in each department under the personal supervision of the principals, who give the closest attention to every detail of the work performed by the numerous staff employed in the various branches of manufacture.

14. Details from an entry by Anthony G. Randall in *The Time Museum Catalogue of Chronometers*, (Rockford, 1992) and information from The Royal Observatory Greenwich.

15. Montes, *op. cit.*, p. 37.

16. Identified as the Paris Show.

In order to meet the convenience of their increasing circle of London clients, Messrs White and Son have opened stock-rooms at 101, Hatton Garden, where specimens of their make may be inspected and prices and particulars obtained.

In around 1881, and in response to the continued decline in the watch trade, Joseph had diversified his business interests by becoming Managing Director of, and a major investor in, The Coventry Machinists' Company. Having made a very significant contribution to the business, he retired from this major manufacturer of bicycles on its sale to Ernest Terah Hooley in July 1896.

Joseph supported all his children, but in the case of Alfred, he played a vital role in the establishment of White & Poppe Ltd in 1899. Though this company was initiated by Alfred, who shared the responsibility of running it with his co-founder, Peter Poppe, its early finances were entirely guaranteed by Joseph. Interestingly, Joseph did not appear in the Company's register of shareholders until 18

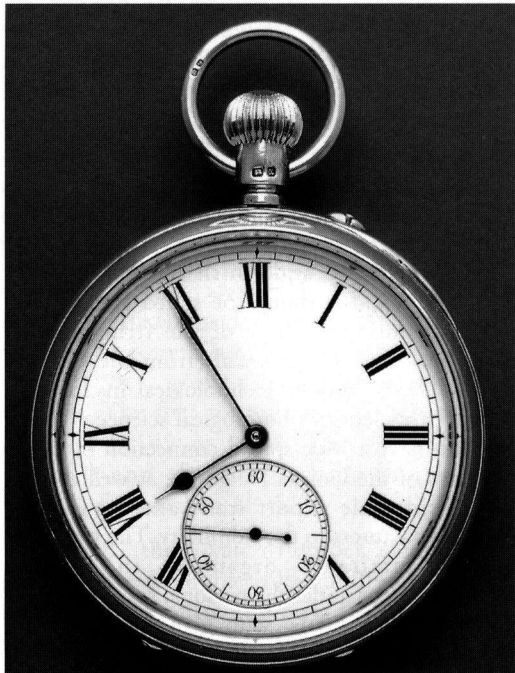


Fig. 9. Dial and hands of Joseph White & Sons 'Six-Minute Flying Tourbillon' No. 39450, finished by Anthony G. Randall, as No 4. Courtesy Anthony G. Randall.

January 1902, when he was the major shareholder.¹⁷ By 1907 the company had become the largest British owned manufacturer of proprietary petrol engines.

Joseph died on 14 March 1906, and was predeceased by his wife, Catherine. Under the terms of his will, his estate was managed on behalf of his children by his trustees, Howard and Cyril, his third son.

Howard, continued to run Joseph White & Son after his father's death. In 1912, the business moved into a new factory in the grounds of Earlsdon House,¹⁸ and it remained in operation until the early 1930s,¹⁹ when it was finally taken over by The Coventry Gauge and Tool Company.

The Public Record Office shows that Coventry Gauge recorded two £1,200 mortgage charges: one, on 11 June 1918, to finance the purchase of the thirteen artisans' houses in Arden Street ; the other, on 16 January 1920, to finance the purchase of Earlsdon House. This suggests that Howard was, by this time, already



Fig. 10. Rear View of complete movement No 4. Courtesy Anthony G. Randall.

17. The Public Record Office.

18. Lloyds TSB B/379/a/19.

19. Montes, *op. cit.*, p. 39.

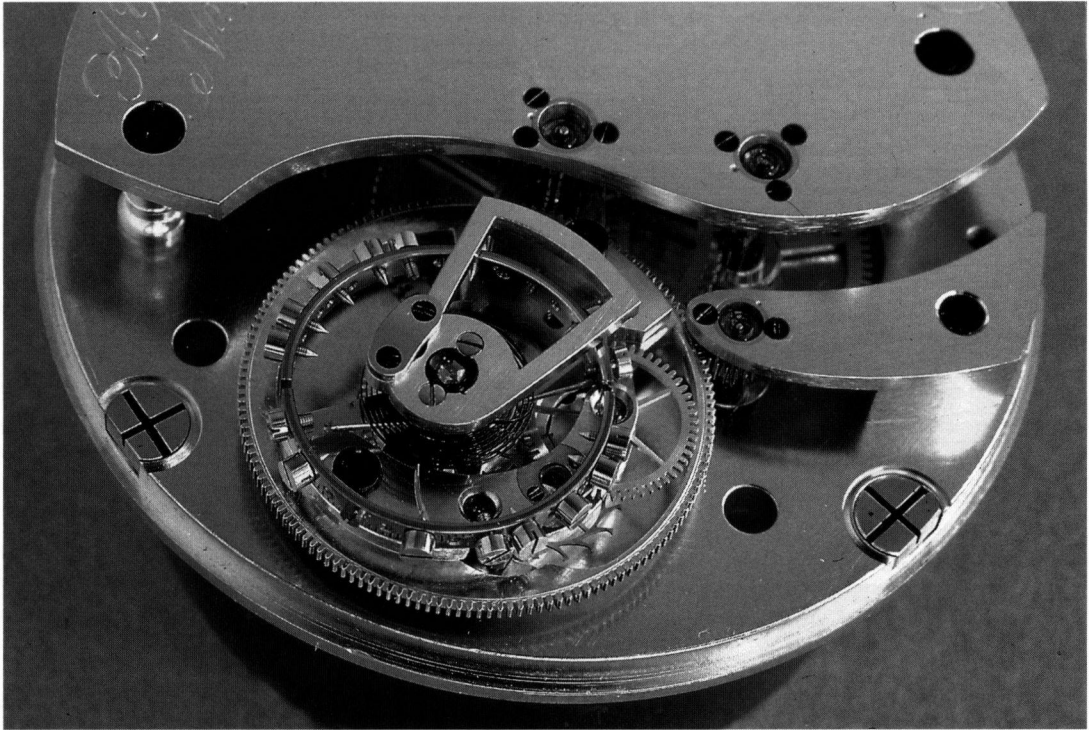


Fig. 11. Close up of the tourbillon of No 4. *Courtesy Anthony G. Randall.*

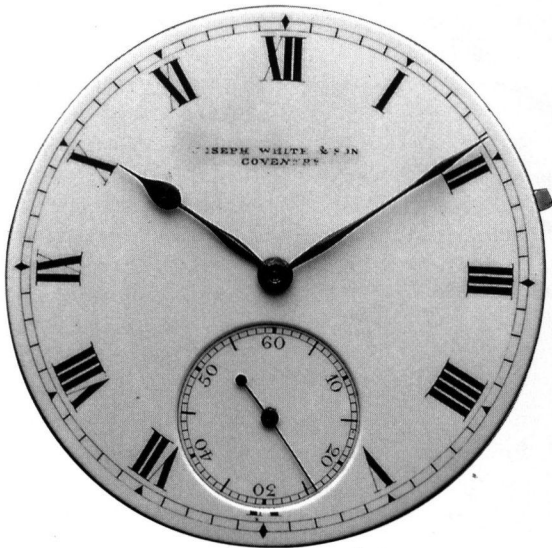


Fig. 12. Dial and hands of Joseph White & Son's pocket watch No. 40465. *Courtesy Anthony G. Randall.*

a major stakeholder in Coventry Gauge, which, thereafter, gradually purchased Joseph White and Son's assets.

The Coventry Gauge and Tool Company went public in 1928, and was later taken over by Tube Investments Ltd.



Fig. 13. Detail of Joseph White & Son's punchmark on No. 40465. *Courtesy Anthony G. Randall.*

Two of Joseph White & Son's 'Six-Minute Flying Tourbillons', one in a silver case and one in gold, which remained incomplete when the firm ceased production, were expertly finished by Anthony G. Randall in 1981, as numbers 4 and 11. These were exhibited at The Prescott

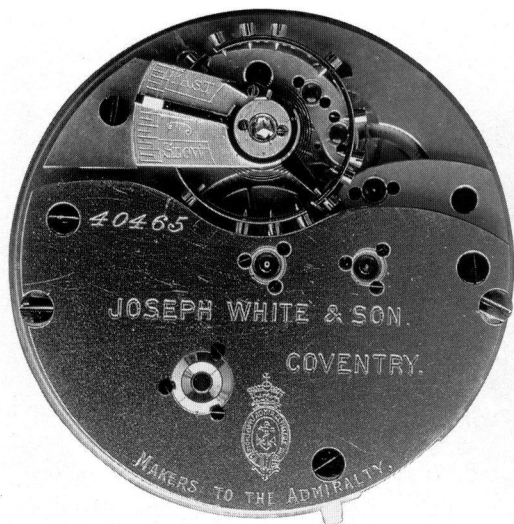


Fig. 14. Rear view of complete movement No. 40465. Courtesy Anthony G. Randall.

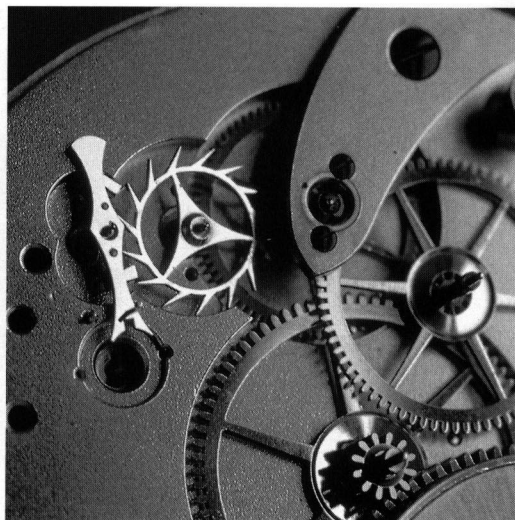


Fig. 15. Detail of train and escapement No. 40465. Courtesy Anthony G. Randall.



Fig. 16. Movement components No. 40465. Courtesy Anthony G. Randall.

Museum exhibition of watch- and clock-making in 1985. Number 4 was originally Joseph White & Son's number 39450, and is illustrated in Figs 9 to 11. A third, incomplete movement, purchased by Anthony G. Randall, was a pocket watch, number 40465. Though still unfinished, it is illustrated in Figs 12 to 16. Figure 13 shows a close up of Joseph White & Son's punchmark.

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