

THE WATCH

A TWENTIETH CENTURY STYLE HISTORY

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Above Detail of movement backplate of
an Audemars Piguet, made in 1912.
A platinum open-faced keyless lever
watch with minute repetition (cal. 9½
SMV #61)
Diameter 25 mm

CONTENTS

FOREWORD

The journey of the twentieth-century watch is one that says as much about the collective need to know time as it does about one’s personality or social position. From the very beginnings of the watch more than five hundred years ago, its aesthetic style and form has been almost as important as the mechanics within. Time and our ever growing need to know it, to possess it, to capture and, yes, even if possible to stop it, never grows old.

Two hundred years ago the ownership of a watch was largely restricted to the wealthy. However, new mass-production techniques developed during the second half of the nineteenth century brought about a democratisation of the watch that placed it within reach of the wider population. Such advances had coincided with the expansion of the railways and socio-economic changes that meant accurate time-telling was increasingly of importance to the general public. At the start of the twentieth century, the pocket watch was the only common form of portable timekeeper, but the realities of modern warfare would soon render the pocket watch all but obsolete, superseded by a more practical means of telling time: the wristwatch.

Wristwatches are very personal objects; worn on the body rather than concealed in a pocket, they have a connection with their owner and, at the same time, are exposed for all to see. Having proved themselves practical in the trenches of the First World War, in the years that followed, watchmakers were quick to recognise the marketing potential that this new form of mass-market timepiece could offer. The 1920s and ’30s would be a period of extraordinary experimentation and development that would witness a range of new styles and forms appear. An entrepreneurial spirit mixed with an advanced and highly organised industry ensured that the Swiss quickly came to dominate the manufacture of high-end wristwatches, to the detriment of their counterparts in Britain and America. Developments were not led solely by trends in fashion; the two world wars would also impact watch design and influence civilian-issue watches of later years. In a similar way, technological and stylistic elements that were developed for specific users or tasks – whether for aviators or astronauts, mountaineers or divers – would in turn influence the design and production of watches for everyday use.

In the fifty-year period that followed the end of the First World War, the Swiss enjoyed an almost unbroken and unprecedented period of growth and prosperity. However, this would come to an end during the 1970s as vast numbers of inexpensive, highly accurate electronic quartz watches from Japan and America began to flood the international market, seemingly heralding the death of the mechanical watch. By the early 1980s, speculation was rampant in Switzerland about the demise of the Swiss mechanical watch. Most sobering was the rumour that the Swiss would destroy the machinery necessary to manufacture mechanical mechanisms and would instead install the technology required to make quartz movements.

Indeed, many Swiss watch companies and thousands of jobs disappeared entirely in the fallout of what became known as the ‘quartz crisis’. Yet all was not lost, and thanks to the determination of certain key players, other watch houses would be born, reborn or successfully amalgamated and reorganised to ensure their futures. A few of the most famous and historic watch houses would emerge from the crisis bruised but ultimately more resilient – following a period of reflection and recalibration, it became clear that demand for and marketing of the fine watch depended on the continued use of mechanical rather than quartz movements.

In the immediate aftermath of the quartz crisis, appreciation of vintage wristwatches began to grow in an unprecedented way. Suddenly, pocket watch collectors who had once spurned vintage wristwatches translated their knowledge of the field into the foundation of a new distinct collecting category. Driven partly by nostalgia and partly by what appeared to be the end of a horological chapter, this new enthusiasm for the vintage wristwatch in turn engendered an explosion of interest among the wider public, further fuelling the collector’s market. In the early 1980s auction houses such as Sotheby’s began to devote entire sections of their watch auctions to the sale of wristwatches, and within a few short years the market matured. The success enjoyed by the vintage market spread to contemporary makers, inspiring them to achieve heights of design and quality that helped lead to an overall market renaissance in the last two decades of the twentieth century.

The mechanical watch’s renaissance not only benefited existing brands, but it also led to the establishment of new independent watchmakers who were buoyed by the growth in demand for fine and innovative mechanical timepieces. First and foremost among the independents was the English maker George Daniels. Daniels believed that he could create a new type of mechanical movement, one that could take on the quartz watch. The result was the co-axial escapement. Daniels worked for more than twenty years to gain acceptance for his device, eventually achieving the first successful commercialization of a new escapement in over two hundred years. Daniels eventually sold his patented design to Omega, who launched their first line of co-axial watches in 1999. Such was Daniels’s genius and tenacity that he would inspire a new generation of talented watchmakers.

The twentieth century was a period of dramatic, fast-paced change in many arenas and an era in which the watch was transformed into almost every conceivable shape and form. Decade by decade, this book reveals the fascinating story of the stylistic development of the most personal of timekeepers, the watch.

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LA ROCHELLE

1900-1909

THE 1900s

The proliferation of the classically styled pocket watch of the early 1900s has rather unfairly tarnished the general perception of this period as one of plain design that occasionally verges towards the dour. By the last quarter of the nineteenth century, the successful mass production of cheap yet reliable watches by firms such as Roskopf in Switzerland had, for the first time, placed the portable timepiece within the grasp of almost all members of society.¹ Mass production techniques developed in the United States had also greatly increased availability; by 1886, for example, Elgin of Illinois were manufacturing a thousand watch movements per day.² Meanwhile, Waltham, that great behemoth of American watchmaking, was developing precision making techniques which would go on to be adapted and adopted by factories in Switzerland, Japan and England.³ In addition to higher quality watches, from the late 1870s, some American manufacturers began producing so-called ‘dollar’⁴ watches, their movement plates stamped out of sheet metal and their dials frequently

made of paper. As a consequence of the sheer volume of production during the last quarter of the nineteenth century, survival rates of the ‘textbook’ pocket watch from this era are far higher than any previous period. The fact that a large proportion of these follow similar forms and styles has certainly gone a long way to colour the way in which we think about the watch of 1900 [image 996].

Yet the watch has always been a diverse creature, never immune to the influence of changing fashions. At the luxury end of the market, watchmakers had collaborated for centuries with enamellers and jewellers to produce timepieces of exceptional beauty. No period of watchmaking could be unaffected by the influence of the decorative arts, and it is therefore unsurprising that the impact of the Belle Époque and Art Nouveau filtered into the watch designs of the early 1900s. [image 595]

Niello work (see fig XXX) [image 870], chasing and engraving and a wide range of decorative enamel techniques were used during this period. The use of translucent enamel was especially popular and this was

BELOW, LEFT Waltham, c. 1908.
A gold filled, open-faced keyless lever watch
Diameter 51.5 mm

BELOW, RIGHT Breguet, c. 1900.
A silver and niello half-hunting cased lever watch
Diameter 51 mm

OPPOSITE Patek Philippe, sold in 1902.
A silver open-faced keyless lever watch, the case back chased and engraved with irises, daffodils and a dragonfly
Diameter 51 mm

CUT OUT



CUT OUT



often applied above an engine-turned gold case back to form impressive, wave like patterns which added a sense of depth and grandeur to a watch. Figure XXX [image 873] shows an Omega watch made in 1905 which has a case back composed of concentrically chased and engraved borders of olive branches that naturalistically overlap the solid green enamel ring that separates them. Surrounding the central medallion, and framed by solid white enamel borders, a turquoise enamel has been applied over an engine-turned ground. This watch has elements of the classical and is certainly heavily influenced by the Belle Époque style. The dial remains traditional with a decoratively engine-turned centre and a satin-finished chapter ring that carries the black Arabic numerals. Raised, openwork, chased decoration also fitted well with the aesthetics of the Art Nouveau movement. In figure XXX [image 1164] a watch by Patek Philippe has leaves and branches of mistletoe naturalistically worked above a case back of enamel in tones of blue, green and yellow. The mistletoe berries are

represented by pearls, and the decoration continues across the case to include the original matching brooch to which the watch is attached. Traditional decorative techniques that had been used for decades continued to be employed within ornamental schemes. During the first decade of the twentieth century, for example, the English watchmakers Jump & Sons created some exceptionally beautiful pocket watches that paid homage to the style Abraham-Louis Breguet had established at the end of the eighteenth century – these included highly finished dials with multiple, engine-turned finishes. Fig XXX [image 866] shows an example of Jump’s work that dates to 1904. The watch has a silver dial with combinations of engine-turned decoration to give depth and contrast to the finish, and the Roman numerals are engraved and filled on a high-sheen, satin-finished chapter ring. Above the twelve o’clock position an aperture shows the phases of the moon, while a smaller window at six o’clock displays the date.

BELOW Omega, made in 1905.
A yellow gold and enamel open-faced lever watch
Diameter 51 mm

OPPOSITE Patek Philippe, made in 1900
and retailed by Critzer Bros. of San Antonio, Texas.
An 18 ct yellow gold, enamel and pearl-set pendant lever watch with mistletoe motif and matching brooch
Diameter 27 mm



REMOVE SHADOW





REDUCE SHADOW

OPPOSITE Jump, London, hallmarked 1904.

A platinum and gold open-faced lever watch with moon phases and date
Diameter 50 mm

BELOW Golay Fils & Stahl, c. 1900.

An 18 ct pink gold and diamond-set lapel lever watch
Diameter of dial 13 mm, diameter of case 24 mm

While the pocket and pendant styles were the dominant form of watch during the first decade of the twentieth century, other genres were also available. Lapel watches, for example, could be fitted to a jacket, the dial poking through the button hole while the main body of the watch remained concealed from view (see image XXX [fig 876]). Button and lapel-form watches remained popular for a number of years, the majority with plainer cases often made from gun-metal. It was also during these years that the wristwatch began to emerge as a distinct genre of timepiece.

Traditionally, the wristwatch had been a decorative bracelet with a timepiece attached and was almost exclusively the preserve of wealthy women. However, times were changing and as more women entered the workplace, so the wristwatch became an ever more useful means of tracking time throughout the day. Such wristwatches, intended for a working life, had no need to be overly decorative; being first and foremost objects of utility, these were usually adaptations of small pendant

watches with fixtures soldered to the case as a means to hold a wrist strap. While the early 1900s continued to see the wristwatch genre as almost solely designed for women, some precedents for men's wristlets had already been set and would continue to develop, albeit very slowly, as the decade advanced. The Swiss maker Girard-Perregaux were among the first to produce wristwatches in series. In 1879, at a trade fair in Berlin, Kaiser Wilhelm I approached Girard-Perregaux to produce a watch that could be fixed to the wrist using a strap. These wristwatches, designed for the Kaiser's naval officers, were to be fitted with a grill over the crystal to protect the glass. Following production of a prototype in 1880, two thousand examples were reportedly ordered. Sadly, none are known to survive, but their description would suggest a style not dissimilar to watches used by soldiers during the First World War.⁵ In 1904, Eterna patented the design of a wristwatch case under Swiss patent 29974.⁶ In the same year, Louis Cartier supplied his pioneering aviator friend Alberto Santos-Dumont



with a wristwatch that could be easily used to consult the time while at the controls of his plane. Although no trace of the original survives, it is believed to have been the inspiration for the Santos II, which was developed in 1908 and marketed commercially as the Santos-Dumont three years later (see p. XXX, fig. XXX).⁷ The significance of the Santos lay in the fact that it was designed as a wristwatch, rather than being adapted from a pocket watch, with special ‘lugs’ that formed an integral part of the case design and held the wrist strap in place.

Figure XXX [image 820] shows a pink gold ladies’ wristwatch. Made in Switzerland, the watch was exported to the UK and has English import hallmarks for the year 1909. The design is derived from the small pendant watches that were popular at the end of the nineteenth and beginning of the twentieth centuries and is of typical half-hunter form. The cover is glazed to the centre and this is surrounded by a pink guilloché enamel chapter ring with blue enamel Roman numerals and an inner minute track. As the watch is not designed to be

suspended from a brooch or chain, there is no pendant or bow. The winding crown is relatively flat but with a knurled edge to allow the watch to be easily wound. Pressing the crown towards the case releases a catch, causing the cover to spring open to reveal a white enamel dial which is calibrated to the edge with slim black Roman numerals and a red twelve o’clock. To the edge of the dial, the minutes are calibrated in black. The hands are made from blued steel and the hour hand has a double taper; this means that when the cover is closed, the first spade-form taper indicates to the hours engraved in blue to the cover, and when the cover is opened and time viewed on the white enamel dial, the secondary taper at the tip of the hour hand indicates hours to the dial’s black Roman numerals. Rather than requiring the crown to be pulled out to adjust the time, the watch incorporates an earlier form of adjustment whereby a fingernail may be inserted to press the small pusher to the case side, just beneath the crown, which itself is protected by rounded shoulders. With this button pressed

BELOW A 9 ct pink gold half-hunting cased wristwatch with unsigned Swiss gilt cylinder movement, the case with London import hallmarks for 1909
Diameter 27.5 mm

in, the crown can then be used to turn the hands. To enable a wrist strap to be fitted to the watch, gold wire has been shaped and soldered to the case to form lugs. The lugs have a pronounced downward trajectory, and the relatively large gap between the case and lugs allows a single strip of leather to be threaded through the lugs at both ends of the case and then wrapped around the wrist.

As the 1900s turned to the 1910s, it was the wristwatch which stood on the cusp of transformation. The advent of the First World War would prove the most influential driver of this change by proving the wristlet’s practicality to a wider audience. Experimentation with the form and shape of the wristwatch would lead to more decorative and varied dial designs. In Switzerland, the dominance of precision watchmaking had firmly taken root and the Alpine country’s reputation for the production of luxury watches was well established. Improved production techniques increased the output of ‘complication’ watches, placing chronographs, repeaters and calendar watches within reach of a broader clientele.



MATCH ALL GREY B/GS



ENAMEL-DECORATED CASES

The enhancement of the watch's case and dial with enamel decoration has a long and rich history, one that is largely dominated by Swiss and French artisans. During the first quarter of the nineteenth century, Switzerland witnessed the rise of spectacular enamel miniaturists, and during the latter part of that century it was an exceptionally talented enamel portraitist, John Graff (1836–1906), who dominated in this field. Executing works for important families throughout Europe and beyond, it is Graff's portraits of the Maharajahs of India that are among the most evocative and captivating of this genre. [image 817 A, B, C] Naturalistically painted, the portraits of the Maharajahs are often embellished with precious stones, in some cases applied to the necklaces and earrings that the sitters are shown to be wearing.

By the turn of the twentieth century, a broad range of decorative enamel techniques were being employed to enhance the cases of watches. Illustrated in fig. XXX [image 1156] is a gold pocket watch of Art Nouveau design that has an ivory dial and a further ivory panel

inset to the case back. Each panel is painted in muted polychrome enamel tones and depicts classical figures in an almost Pompeiian style. The panels are signed by the French miniaturist Fernand Paillet. A pupil of Albert-Ernest Carrier-Belleuse, Paillet's sitters included a number of American socialites and the novelist Edith Wharton. Paillet's reputation led to the artist receiving commissions from the Parisian jeweller Boucheron as well as Tiffany, New York. Figure XXX [image 1124] shows a pendant watch made by Verger Frères for Tiffany with panels also painted by Paillet. Of oval form, this watch has a border of pearls and, like the pocket watch discussed above, is set with ivory panels to the front and back, both of which are painted, once again, in similarly muted tones and depict neoclassical figures and putti.

Brighter and more vibrant enamel decoration was executed by using the technique of cloisonné. Figure XXXX [image 616] illustrates a polychrome cloisonné-enamel-decorated watch case which the Swiss maker Longines supplied to their Berlin agent in 1903. This is

OPPOSITE Unsigned Swiss movement, the ivory panels signed by Fernand Paillet, c. 1900.

An 18 ct yellow gold open-faced lever watch with miniature enamel painted ivory panels
Diameter 46 mm



BELOW AND OPPOSITE Seeland, c. 1890.
An 18 ct gold, enamel, ruby and
diamond-set watch with enamel portrait
by John Graff depicting Maharaja Pratap
Singh of Orchha
Diameter 51 mm



REDUCE ALL REFLECTIONS





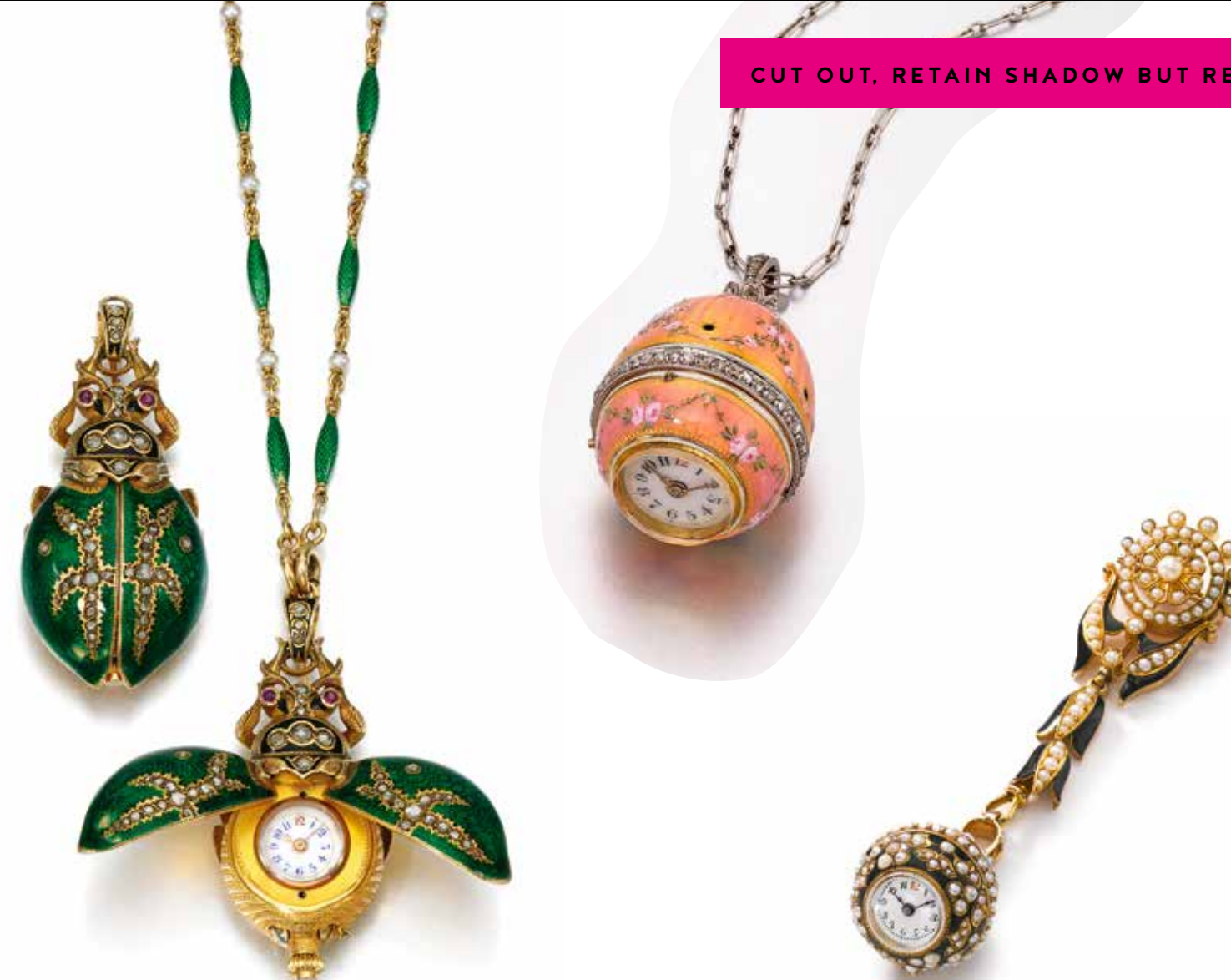
ABOVE Longines, made in 1903.
A gold and cloisonné enamel open-faced lever watch
Diameter 48 mm

RIGHT Verger Frères for Tiffany & Co., with ivory panels signed by Fernand Paillet, c. 1910.
An 18-ct white gold, diamond and pearl-set pendant watch with miniature enamel-painted ivory panels
Length 37 mm

CUT OUT



CUT OUT, RETAIN SHADOW BUT REDUCE



ABOVE, LEFT Unsigned, c. 1905.
A gold, enamel, diamond and ruby-set beetle-form watch with matching pendant chain
Length 50 mm

ABOVE, MIDDLE Paul Ditisheim, c. 1900.
An 18 ct gold and guilloché enamel egg-form pendant watch heightened with polychrome enamel-painted flowers
Length 28 mm

ABOVE, RIGHT Unsigned, c. 1905.
A gold, enamel and pearl-set sphere watch
Diameter 23 mm

typical of a style of watch decoration that had been applied to cases in varying forms throughout much of the previous century. The dial is traditional in design, with a gold ground, and the centre is engraved with stylised flowers.

Pendants and brooches in the form of insects, especially beetles, were a popular style of novelty watch. These watches had articulated wings which were released via a catch positioned at the base or head of the beetle's body. The wings themselves were invariably decorated with translucent enamels over a chased and engraved ground to give them a naturalistic appearance, and the abdomen and legs of the beetles were usually realistically rendered. Diamonds and enamels were often inlaid to further enhance the decorative scheme, and the eyes of the beetles were frequently set with rubies or other coloured stones. At the head of the beetle, the forelegs and antennae were formed into a framework onto which the pendant's chain could be affixed. [Image 1157]

Watches in the form of spheres (often referred to as *boule de Genève*), gourds or eggs had been popular during

the last quarter of the nineteenth century and continued to be fashionable in the early part of the twentieth. These watches could be suspended from a chain or brooch and would hang with the watch's dial facing downwards – a discreet way of carrying the time. Many of these watches incorporated a bezel winding system whereby the watch was wound by turning the top half of the case; a small button could then be depressed in the side of the case to allow the hands to be adjusted. Decorated with varying combinations of enamels, pearls, diamonds and other precious stones, their chains and pendants were regularly styled to match. [images 871 & 872]

COMPLICATION WATCHES

Although seemingly in terminal decline, the English watch was still a force to be reckoned with at the beginning of the twentieth century. Makers such as Charles Frodsham were continuing to produce watches of exceptional quality, such as that shown in fig. XXX [image 816]. This watch, made in 1902, has a superb movement with one-minute tourbillon, split-seconds chronograph and minute repetition. The dial, with its creamy, off-white enamel, wonderfully lustrous in appearance, is typically English in style and was made by T. J. Willis, one of the finest dial makers. There was no holding back with the use of gold: the 63 mm diameter case is large and heavy – satisfyingly so when held in the palm of the hand – and the covers are substantial, broad and thick, unapologetically adding to its heft. To the right-hand case side, a repeating slide will chime the hours, quarters and minutes past each hour when activated. Partially recessed into the band, the slide is protected by the channel in which it sits and its action is both solid and purposeful; watches of lesser quality

frequently had their slides mounted on the surface of the case side, which often resulted in significant wear and greatly increased the risk of damage to its function. The pusher to adjust the hands is also protected, positioned in the case side close to one o'clock and just to the right of the pendant: a fingernail can be used to press the pusher in the middle of its protective shoulders while turning the crown with one's other hand to adjust the time. Above the eleven o'clock position sits a large button that activates the split chronograph hand – the crown at the top can be depressed to start the chronograph running, releasing both central chronograph hands; pressing the pusher above eleven o'clock will stop one of the seconds hands while the other continues – this allows the timing of two events begun at the same time but finishing at different intervals. One other rather ingenious feature is the so-called 'thief-proof' bow: the ring that would hold a chain swivels on the pendant – a design intended to prevent a pickpocket from easily wrenching the watch off its chain, this being much easier

BELOW Charles Frodsham, hallmarked 1902.
An 18 ct yellow gold open-faced keyless one-minute tourbillon watch with minute repetition, split-second chronograph and 60-minute register
Diameter 63 mm

OPPOSITE Charles-Henri Meylan, Le Brassus, c. 1900.
An 18 ct yellow gold open-faced watch with perpetual calendar, moon phases, split-seconds chronograph and minute repetition
Diameter 54 mm



REDUCE REFLECTION

to do when the pendant is fixed.

One of Frodsham's great patrons was the Morgan banking family in the USA. In 1854, Junius Morgan became a business partner in the English branch of the banking house George Peabody & Co. It was while living in England that Junius began a tradition of purchasing Frodsham watches for himself and as gifts for family, friends and employees. The tradition was continued by Junius's son John Pierpont Morgan (1837–1913) and, in turn, his own son John Pierpont Morgan Jr (1867–1943). The watch shown here is one of a group of approximately 25 pieces made between 1897 and 1931 that the Pierpont Morgans commissioned from Frodsham's to give as gifts to partners and employees of the Morgan firm in recognition of their outstanding achievement. Known as the 'Morgan calibres', these watches all featured the same specifications as the present watch. Immensely expensive, the watches were sold for between £200 and £300 and at the time were among the most costly and complex English production watches available. The inner

cuvette (cover) of this watch is engraved 'W.G.H. from J.P.M.', recording that the watch was given by J. P. Morgan Sr to the American banker William Gould Harding. Later, Harding would serve as the second chairman of the US Federal Reserve from 1916 to 1922.

Watches with additional functions such as calendars, chronographs and repeaters became increasingly popular towards the end of the nineteenth century. The Swiss were already dominant in this field, and developing new and innovative forms of the complication watch became one of the industry's driving forces in the first half of the twentieth century.

Figure XXX [image 865 A & B] illustrates a fine-quality watch by Charles-Henri Meylan of Le Brassus, Switzerland. Made about 1900, the watch has a perpetual calendar with additional indication for the phases of the moon. The movement also incorporates a split-seconds chronograph: the two slimmest central hands could be used to time two events starting simultaneously but ending at different times; both hands were activated via



the top pusher, while the pusher to the left of the crown could be used to stop the first of these hands independently, allowing the other hand to continue to run. On the left side of the case, a slide protrudes fractionally, and when it is moved the watch chimes the time: first the hours, then the quarters and finally the minutes past each hour. While this is certainly one of the more complex watches of the era, the style and layout of its dial and case are fairly typical of the period, and similar watches were made, albeit in relatively small numbers, by the major watch houses.

While the majority of watches that displayed the day, date and month in combination used subsidiary dial displays, such as those found on the Meylan watch mentioned above, dials with ‘windows’ displaying the calendar were also available. The watch shown in fig. XXX [image 450] and which is unsigned dates to about 1900. The enamel dial has one long aperture to display the day, date and month, which are all engraved on separate discs mounted to the top-plate of the movement. Although a clear and highly legible form of calendar display, the traditional subsidiary dial remained dominant until the development of the calendar wristwatch. As the popularity of calendar wristwatches grew in the second and third quarters of the twentieth century, the aperture form of calendar display proved an essential method of space-saving and a means of ensuring greater clarity on the smaller dial of a wristwatch.

Innovations by watchmakers such as the Swiss firm Le Phare meant that, by 1910, the complication watch was no longer the sole preserve of a wealthy elite [image 1158]. The development of new equipment by Le Phare under their Dixi brand enabled the more efficient production of repeaters, chronographs and calendar watches, which allowed the firm to offer good-quality complication watches at a considerably lower price than their competitors at the higher end of the market. 1



RIGHT Le Phare, c. 1905.
A 14 ct pink gold, hunting cased, triple
calendar watch with moon phases
Diameter 57.5 mm

OPPOSITE Anonymous, c. 1900.
A gold open-faced watch with linear
triple calendar display and aperture for
moon phases
Diameter 50 mm



REDUCE REFLECTION

WORLD TIME WATCH

At the beginning of the twentieth century, the relevance of current time in different world locations was beginning to be of significance for business and politics. As the expansion of the railway network gathered pace in North America, Europe and India during the mid-nineteenth century, the establishment of standard time became increasingly important. Historically, towns and cities had kept their own local time based on solar time, and this meant that there was enormous discrepancy in the times held by different towns and cities across countries. With rail journeys passing through growing numbers of towns, the difference between railway time and local time was not only bewildering but dangerous, with accidents caused by confusion over running schedules. In 1884 the International Meridian Conference was held in Washington, DC, with 26 nations represented. An overwhelming majority voted to establish Greenwich, in the United Kingdom, as the prime meridian. The establishment of the prime meridian directly led to the formation of a standardised system of 24 times zones used around the world, each zone covering 15 longitudinal degrees, each representing 1 hour. At the same time, communications were undergoing a revolution with subsea cables now stretching across the Atlantic – already in 1866, time

signals were being sent from Greenwich’s Royal Observatory to Harvard University in Cambridge, Massachusetts. Watches with world time indications began to appear relatively soon after the 1884 Meridian conference. The Swiss watch illustrated in fig. XXX [image 607 A & B] dates to about 1900 and is a typical example of a double-dialled watch of the period displaying different time zones. Both dials are white enamel and this example is marked to the front ‘Greenwich Time’, with the added complications of full calendar and moon phases. To the back of the watch, a further white enamel dial is divided into seven subsidiary dials for time indication in New York, St Petersburg, Calcutta, Melbourne, Vienna, Berlin and Paris. The watch is fitted with an array of adjusting pushers to the sides of the case that control, via the top crown, the adjustment of the different time zones. This example was clearly intended for the UK market, but examples were made with different cities marked to the main dial and with London then taking the place of one of the smaller subsidiary dials to the back. It must have been an extraordinary sensation for the owner, when the watch was new, to be holding a watch that displayed time simultaneously across the globe, surely altering their perception of the world.

OPPOSITE Swiss, c. 1900.
An 18 ct yellow gold double-dialled watch
with world time indication, triple calendar
and moon phases
Diameter 54 mm



EARLY WRISTWATCHES

The wristwatch was still not a clearly defined genre at the turn of the twentieth century. In general, the application of a bracelet to a watch was a form of decorative enhancement, the bangle or bracelet being highly decorated and often set with enamels, precious stones and pearls [image 1159] or with decoratively chased and engraved gold panels and links. Debate still continues as to when the first wristwatch was produced, and convincing arguments can be made for a variety of different pieces, but certainly one of the earliest documented references to a watch worn on the arm is that of a timepiece presented to Queen Elizabeth I by her favourite, Robert Dudley, Earl of Leicester, in 1571. Unfortunately, the watch does not survive; however, the queen appears to have been an admirer of watches, with several references made within her inventories, including a ring watch which contained an alarm – a small protuberance from within the ring gently scratched the royal finger at the allotted time.

Breguet made an early bracelet watch for Napoleon Bonaparte’s sister Caroline Murat, Queen of Naples. Commissioned in 1810 and presented in 1812, the watch was slim and oblong in design with a bracelet composed of hair woven with gold thread. This is a significant piece since it was specifically designed for wrist wear, rather

than being adapted to it. Bracelet watches continued to appear throughout the nineteenth century but were relatively few and far between, seemingly failing to capture the public imagination. Patek Philippe, for example, produced a bangle-form bracelet watch in 1868, yet the Patek Philippe Archives make no further reference to bracelet or wristwatches until the turn of the century.¹

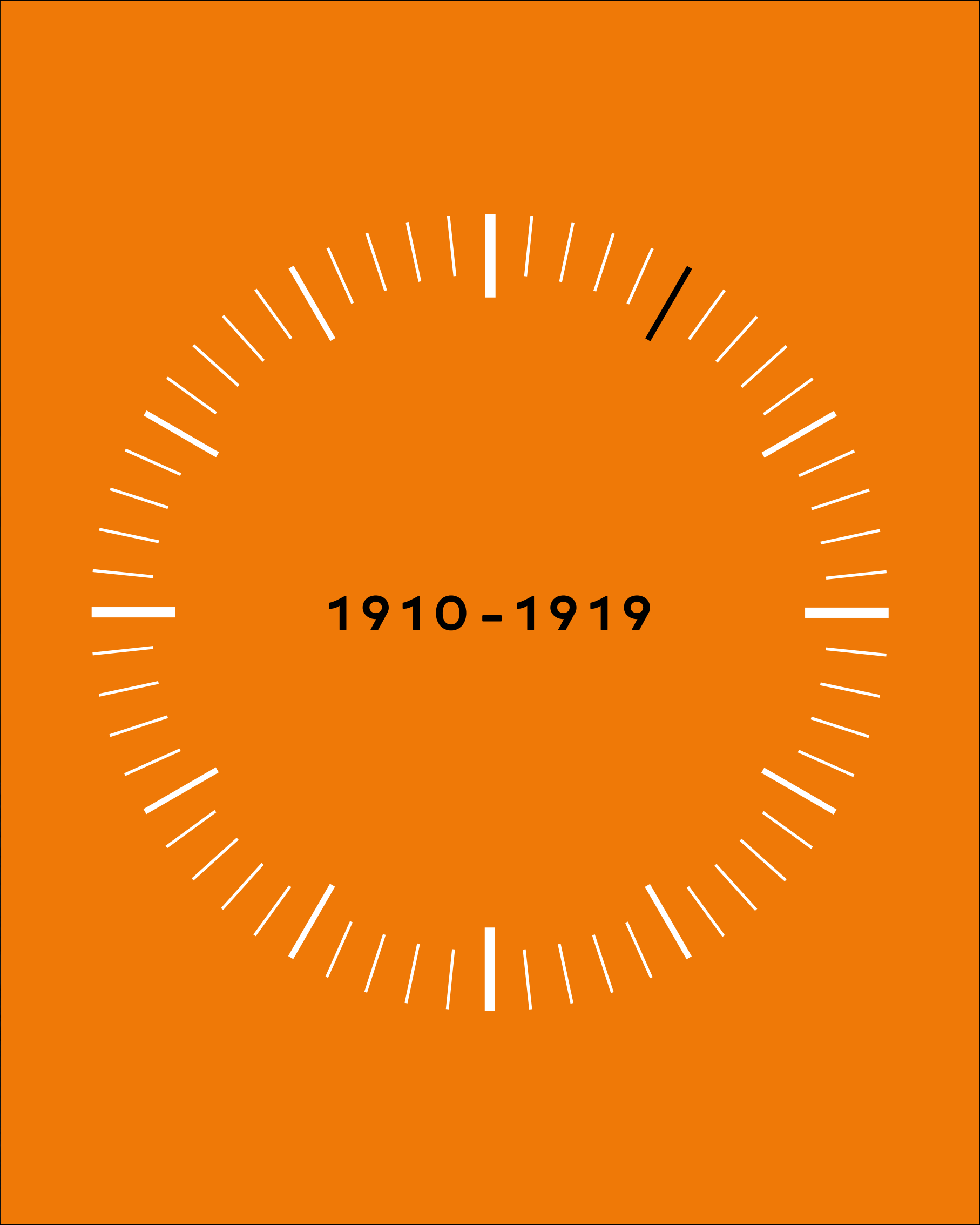
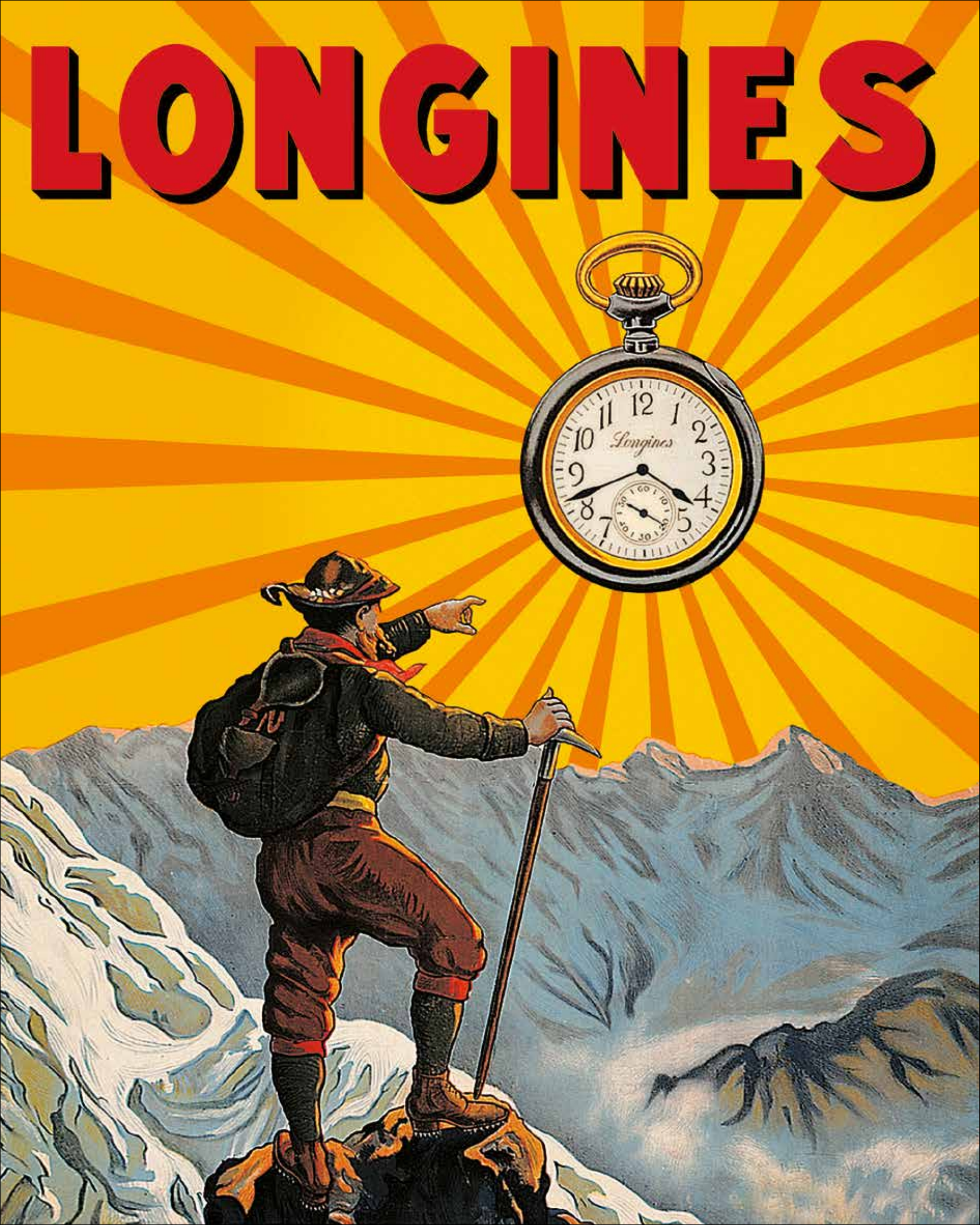
Figure XXX [image 612] shows a yellow gold, platinum and diamond-set bracelet watch that dates to about 1900. An ornate and highly decorative wristwatch, this very much follows the nineteenth-century pattern of the bracelet watch as an object of jewellery, where the timepiece itself is almost incidental. The watch head is of a style similar to decorative pendant watches of the period and was clearly not intended for everyday use. To the bezel are engraved gold floral swags, and these are interspersed with black enamel panels heightened with painted white flowers. The gold bracelet is composed of laurel wreaths interlaced with diamond-set bows and connected by enamel panels with theatrical scenes painted in grisaille. The movement was made by the Swiss watchmakers Henri Sandoz & Fils and the exceptional bracelet and case were executed by the French jeweller and metalworker Henri Husson.

OPPOSITE, LEFT Unsigned, c. 1905.
A ladies’ platinum, gold, emerald, seed pearl and diamond-set wristwatch
Total length 140 mm

OPPOSITE, RIGHT Henri Husson and Henri Sandoz & Fils, c. 1900.
A yellow gold, platinum and diamond-set wristwatch with enamel painted panels
Diameter 26 mm, total length 185 mm



CUT OUT



CUT OUT/ REDUCE SHADOW, REFLECTION



OPPOSITE Patek Philippe, made in 1917.

An 18 ct yellow gold wristwatch with enamel dial and luminescent radium numerals and hands
Diameter 31 mm

BELOW, LEFT Leon Hatot, c. 1910.

A slim square platinum and diamond-set watch
Width 28 mm

BELOW, RIGHT Patek Philippe, sold in 1915.

An 18 ct yellow gold tonneau-form wristwatch with engine-turned dial
Length 39 mm

THE 1910s

As the new decade opened, designs and formats that had been popular at the turn of the century continued to appear and formed the staple of many catalogues and retailers' window displays. However, a shift had begun. The continuing popularity of the pendant watch and the slow but gradual rise of the wristwatch encouraged experimentation with shape and form. Traditionally the pocket watch was circular in shape, for practical reasons – the movement's major parts, comprising wheels, balance and spring barrel, were all round; the dial was circular to allow the hands to navigate each minute division equally; and the case was round, not only to evenly follow the watch's components but also to slide easily and smoothly into a pocket. What better way to modernise and individualise a watch than by changing its form? [image 883] .

Manufacturers of wristwatches were quick to capitalise on the design possibilities offered by this relatively new time-telling medium, and shaping was an important means to diversify their ranges. The natural curvature of

the forearm meant that a wristwatch could be designed both for comfort and aesthetics. Lozenge, rectangular and barrel-form cases were among the earliest designs to appear, and these shapes were naturally enhanced when curved, giving a sleek design that would also fit comfortably to the wrist [image 133].

Enlarged numerals are a notable feature of many wristwatches from this period. In part this was due to the thickly applied, luminous radium numerals that were increasingly prevalent during the period [image 626]. However, in the newly shaped wristwatches, numerals were also stretched to fill the dial space or even the bezel of a watch [image 880 & 511]. A large proportion of early wristwatches were produced with subsidiary dials for seconds, usually located either at the six o'clock position but occasionally offset at nine o'clock. However, many wristwatches were manufactured without seconds indication, especially those with smaller dials. Examples of wristwatches with centre seconds are relatively unusual during this period. Figure XXX [image 537]



shows one of the earliest Rolex wristlets to have been produced with a centre seconds indication. Hallmarked for 1914, this watch is otherwise typical of the period, with a silver hinged case and white enamel dial.

The classic hunting-cased and open-faced pocket watches of this period were little changed, and their forms were transferred to early wristwatches, most notably those used during the First World War. However, the demand for slim dress watches, especially those with enamel decoration, was rising. Figure XXX [image 397 A & B] depicts a slim gold dress watch by Movado. This watch, which dates to about 1915, has an especially finely rendered case back with translucent grey enamel over engine-turned, chased and engraved decoration. To the centre of the case back, the bust of a Roman centurion is shown in profile, surrounded by a laurel wreath. Watches with polychrome enamel-painted covers [image 619 A & B] also continued to be produced with depictions of flora, landscapes, townscapes and portraiture. It was pendant watches for ladies that often displayed the most creativity in terms of design and decoration, and this period witnessed the perfect melding of the jeweller’s and watchmaker’s arts to produce timepieces of exquisite beauty.



BELOW, LEFT Rolex, hallmarked 1914.
A silver hinged-cased centre seconds wristwatch
Diameter 34 mm

BELOW, RIGHT Movado ‘Polyplan’, hallmarked 1918.
A sterling silver curved, tonneau-form wristwatch
Length 44 mm

Although few defined wristwatch models appeared during this era, Cartier commercially released their Santos model in 1911,¹ [image 1162] and this was followed, in 1912, by Movado, who registered a patent for their own pioneering wristwatch, the Polyplan (Swiss Patent 60 360, 7 June 1912). The Polyplan was one of the first wristwatch models by any company to feature a movement specifically designed for it, rather than incorporating a calibre that had previously been used in a pocket or pendant watch. Rectangular or tonneau-form (barrel-shaped), the Polyplan was an elongated, curved watch designed to fit the natural shape of the wrist. At the time of its introduction, the Polyplan would have appeared both modern and distinctive in design, a clear item of wristwear that was not merely a modified pocket or pendant watch strapped to the arm. However, the most remarkable aspect of the watch was its movement, the Movado calibre 400. Designed on three planes (hence ‘Polyplan’), the calibre had a flat central section incorporating the going train, and to either end the movement was chamfered downwards at a 25-degree angle. The top end of the movement consisted of a mechanism for winding and hand-setting, while, ingeniously, the lowest-angled portion held the balance,

which was mounted and connected to the watch’s train via an angled section of the pallet lever. Measuring 38 mm in length, 15.2 mm in width and with a depth of 4.5 mm, the movement design was a ‘reversed’ calibre – the wheel train side of the movement and balance were visible to the underside of the dial, which in turn resulted in the underside of the movement being largely composed of a plain backplate. This arrangement allowed for a slightly larger balance (crucial for enhanced precision) as well as a reduction in movement depth. Polyplans were made in their original form from 1912–17.² It would seem that production was hampered by the expense and difficulty of producing the specially made calibre. Nevertheless, Movado appears to have continued experimenting with the model, and a further patent for the Polyplan was registered in 1929. Perhaps a little ahead of its time, the Polyplan was an important early step in the development of the wristwatch and demonstrated the potential of mass-produced watch models specifically designed for wrist wear, not mere adaptations of pocket watches.

By the end of the decade, the innovative spirit of the Art Deco era was creating a renaissance in watch design. The successful mass-production techniques achieved

CUT OUT/ REDUCE SHADOW, REFLECTION

LEFT Vacheron Constantin, made in 1919.
An 18 ct yellow gold lozenge-shaped wristwatch
Length 46.5 mm

BELOW Patek Philippe, sold in 1912.
An 18 ct yellow gold tonneau-form wristwatch, the bezel with stretched dark blue enamel Roman numerals
Length 33.5 mm



CUT OUT



CUT OUT/ REDUCE SHADOW



during the second half of the nineteenth century had been in danger of relegating the pocket watch to a mere object of utility, yet by the 1920s the watch in all its forms had been firmly catapulted into an arena of glamour and fashion. The importance of personal timekeeping in the modern world had opened new opportunities for watch manufacturers. Through innovation and variety of design, the watch's case and dial could be tailored for specific activities or occasions, thereby encouraging multi-watch ownership. The rise of the wristwatch had also begun, its importance in the field during the First World War having transformed society's perception of the bracelet watch: its popularity and proliferation among returning soldiers meant that its visibility had greatly increased. In December 1917 the Horological Journal noted: 'the wristlet watch, little used by the sterner sex before the war, but now to be seen on the wrist of nearly every man in uniform and of many men in civilian attire.'³ It is perhaps telling that 1917 also saw the development of Cartier's Tank wristwatch, which Cartier would release to the market before the close of the decade, in 1919 [image 1077], and which would become one of the most successful watch designs of the twentieth century. As the 1920s opened, the steady rise in production of the wristwatch would gather pace, drawing innovation and creativity from a range of pioneers.



RIGHT Movado, c. 1915.
A slim 18 ct yellow gold and enamel
open-faced watch
Diameter 47 mm

OPPOSITE Longines, retailed by L. Kramer
& Co., Cairo, 1912.
An 18 ct yellow gold hunting-cased watch
with polychrome enamel-painted scenes
Diameter 48 mm

OVERLEAF, LEFT Cartier Santos,
commercially introduced during the
1910s.
A platinum and yellow gold wristwatch
Width 25 mm

OVERLEAF, RIGHT Cartier Tank, c. 1919.
A platinum, gold and diamond-set
rectangular wristwatch
Length 28 mm



CUT OUT



PENDANT WATCHES

Throughout the 1910s, there was an exuberant experimentation in the style and design of the watch, and it was through the ladies' pendant watch that these developments found their greatest expression. French artisans were especially influential during this era, working with enamels, rock crystal and onyx as well as diamonds and other precious stones to embellish the cases of watches. Jewellery makers would frequently buy in movements to complete watches themselves, as well as working to commission from watch houses, often to fulfil special orders.

Figures XXX, XXX, XXX [images 606 B, C, D] illustrate an 18 ct yellow gold, enamel, ruby and diamond-set hexagonal pendant watch that the Swiss watchmaker Longines supplied to their agent in Paris, the firm Hauser-Zivy, on 15 June 1910. The case was made for Longines by the Parisian jeweller Joseph Vergely. Vergely, who had made his name working at Cartier, had a particular talent for creating unusual watch cases. The hexagonal case, with its teardrop-shaped

diamond-set pendant, puts one in mind of a hand-held boudoir mirror; the case back is decorated with translucent blue-grey enamel over an engine-turned gold base, which creates wonderful, wave-form patterns. The central panel is similarly decorated in green guilloché enamel, centred with a neoclassical lady painted in white enamel and surrounded by a border set with rose-cut diamonds. The sides of the case are channel-set with calibr -cut rubies. The neoclassical figures that appeared on pendant watches during this period were often painted in similarly muted tones to the Longines watch mentioned above; however, they could also be sculpted. Figure XXX [image 886] shows a watch by the French jeweller George Fouquet. The square-shaped case is made from onyx, and the back is inset with a rock crystal panel which is carved and engraved with a neoclassical figure and surrounded by a border of single-cut diamonds.

Elaborate diamond settings were greatly favoured. The watch shown in fig. XXX [image 594 A & B], signed by

BELOW Georges Fouquet, c. 1915.
A platinum, onyx, rock crystal and diamond-set pendant watch
Width 41 mm

OPPOSITE Longines, made in 1910.
An 18 ct yellow gold, enamel, ruby and diamond-set hexagonal pendant watch with neoclassical motif
Length 31 mm



CUT OUT





BELOW Haas Neveux & Cie, c. 1910.
A gold, platinum, enamel and diamond-
set pendant watch
Width 33 mm



BELOW Cartier, c. 1911.
A platinum, enamel and diamond-set
pendant watch, the case back with a
pear-shaped diamond and surrounded by
old European and single-cut diamonds
Length 89 mm



CUT OUT





REDUCE SHADOW

OPPOSITE Cartier, c. 1915.
A ladies' gold, enamel and diamond-set
wristwatch
Diameter 27 mm

ABOVE Cartier, c. 1917.
A ladies' platinum, gold and diamond-set
tonneau-form wristwatch
Length 30 mm



Haas Neveux & Cie, is typical of intricately framed pendant watches of the 1910s. Similar watches were made by a number of makers, including Patek Philippe and Cartier. The range and variety of pendant watches made by Cartier during this period is astonishing; at their most opulent, these were dazzling items of jewellery into which the convenience of a watch had been added. [image 882 A & B]

Decorating with enamels and diamonds was by no means restricted to the pendant watch. One of the earliest Cartier wristwatch designs is shown in fig. XXX [image 507]. This ladies' wristwatch closely follows the established designs of the pendant watch, its front bezel heightened with translucent light blue enamel over engine-turned gold. A border of rose-cut diamonds surrounds the dial, while the dial itself is silver and also decorated with engine turning. Of course, being a wristwatch – where the reverse is not designed to be viewed – the back is gold but has a plain, polished finish. The design and form of gem-set wristwatches could be

further enhanced by the development of the shape and form of the lugs. Figure XXX [image 377] illustrates a Cartier wristwatch that, although influenced by the designs of pendant watches, is a distinct wristwatch form with lugs of fancy form.



ACTUAL SIZE

LAYOUT TBC



CUT OUT



1910s COMPLICATION WATCHES

OPPOSITE, TOP Audemars Piguet, made in 1912.
A platinum open-faced keyless lever watch with minute repetition (cal. 9½ SMV #61)
Diameter 25 mm

OPPOSITE, LEFT Detail of movement backplate

OPPOSITE, RIGHT Detail of movement under-dial

BELOW Henry Moser & Cie, c. 1915.
A silver calendar wristwatch
Diameter 36 mm

The miniaturisation of the watch movement has long been a means by which the watchmaker can demonstrate their skill and talent. However, it is in scaling down the size of the complication movement that the limits of the watchmaker's art are truly tested.

Fig. XXX [image 867 A, B & C] is a remarkably small minute repeating watch. The movement was made by Audemars Piguet in 1912, and the watch was subsequently sold to P. Schuch in Vienna in 1914. Incredibly, the movement is just 21.4 mm in diameter and 3.11 mm in height, and this tiny area has to incorporate not only the standard time-telling function but, additionally, one of the most complex mechanisms in horology: the function of minute repeating. Chiming on demand the hours, quarters and minutes past the hour, using two hammers on two gongs, the successful miniaturisation of its parts was an extraordinary achievement.

The significance of this type of movement lay in the possibility it allowed the watchmaker to manufacture

extremely complex movements that would fit into the small size of a wristwatch case. Success in 'miniaturising' other forms of complication movements had included the perpetual calendar and split-seconds chronograph. In 1898–99, Victorin Piguet developed a small (27-mm diameter) perpetual calendar ébauche for Patek Philippe which was later completed and cased as a wristwatch in 1925, in the process becoming the earliest known perpetual calendar wristwatch. In 1903, Victorin Piguet also supplied Patek Philippe with a similarly sized movement incorporating a split-seconds chronograph, which Patek Philippe subsequently finished and sold as a wristwatch in the 1920s [see p. XXXX chapter XXX]. Watches such as these would form the basis for future development of the complication wristwatch.

Although demand for complication wristwatches was extremely small during the 1910s, examples do exist. Figure XXX [image 1078] illustrates a rare and early calendar wristwatch, made by H. Moser & Cie in about 1915. The watch has a long aperture to the dial which



displays the days of the week, while an outer ring is calibrated in red for the date; the case is made in silver and has large hoop-form lugs. Repeating wristwatches are also known from this period. Between 1908 and 1918 Audemars Piguet produced and sold five wristwatches that incorporated minute repetition. Intriguingly, in 1910 the London retailer Guignard commissioned Audemars Piguet to produce a wristwatch with a *10-ligne* (22.6 mm diameter) movement that incorporated both minute repetition and chronograph functions. It seems that the project was halted at the outbreak of the First World War and it remains unclear whether the watch was ever completed. Had the watch been finished, it would have been an incredibly important example of an early complication wristwatch.

Development and refinement of the complication pocket watch continued apace during the decade, and pocket watches with chronograph, calendar and/or repeating functions were readily available. However, the ambitions of the most talented watchmakers led to the production of ever more innovative and complex watches. Unique pieces were created that tested the skills of the finest horologists and acted not only as advertisements of a brand’s prowess but as a springboard for further development. Some of these watches were specially ordered, and increasingly so by the industrialists and entrepreneurs of North America.

In 1914, Patek Philippe produced an exceptional and unique double-dialled pocket watch for George Thompson, an English-born entrepreneur who had emigrated to the United States in the 1880s. This piece, shown in fig. XXX [images 887 A & B] perfectly illustrates the advantages of the pocket-sized complication watch over its smaller, wrist-sized cousin. By dividing the watch into two dials, this example is able to combine the functions of a split-seconds chronograph and a perpetual calendar while maintaining the utmost clarity in its

BELOW AND OVERLEAF Patek Philippe, made in 1914.
A unique double open-faced minute-repeating watch with perpetual calendar, moon phases, split-seconds chronograph and register
Diameter 54 mm



displays. To the front, time is shown with hours, minutes and a subsidiary dial for seconds. Beneath the twelve o'clock position, a further subsidiary dial is calibrated for 30 minutes in order to record the minutes elapsed while the chronograph function is running – this minute-registering dial, being calibrated only to its lower half, does not interfere with the hours indicated above. The dial to the watch’s reverse is solely dedicated to a perpetual calendar, with its own subsidiary dials indicating days of the week, months of the year and date, together with a further dial which is combined with an aperture for the age and phase of the moon. In addition to the visual functions the watch also incorporates a minute-repeating function, activated via a slide to the case side. Chronograph activation is via a pusher through the crown which sets the two central chronograph hands running; an additional button to the shoulders of the case may be used to ‘split’ the seconds, thereby enabling the timing of two simultaneous events. The movement, which was developed for Patek Philippe by Victorin Piguet, is exceptional in its complexity, execution and finishing [images 887 e & f]. Especially remarkable is the fact that the watch is not great in size, measuring 54 mm in diameter and with a depth of 15 mm (excluding the glasses). George Thompson was an accomplished mathematician and it was perhaps this interest that fired his enthusiasm for mechanical complexity and ultimately led to the commission for this watch. One can imagine the satisfaction Thompson must have derived from the clarity of the design, which masked the incredible engineering beneath its two dials.

Ever more complex pocket watches would continue to excite and amaze in the decade to follow, and the production of wristwatches with mechanical complications would begin an inexorable rise that would reach its apotheosis in the golden age of vintage watch production during the 1940s and '50s.



CUT OUT/ REDUCE SHADOW, REFLECTION



EARLY WRIST CHRONOGRAPHS

Although some wrist chronographs were advertised during the opening decade of the 1900s, the wider commercial production of this genre did not begin to evolve until the 1910s. The majority of early chronograph wristwatches were made with relatively large movements of 40–45 mm in diameter. These were traditional pocket watch movements and therefore the cases of these wrist-chronographs were oversized. With the majority of early wristwatches being of sober design and modest proportions, the market for large-sized chronograph wristlets was presumably rather limited, and production would have been aimed at customers who had specific requirements, such as aviators. Some of the earliest wrist-chronographs were little more than pocket watches with bows soldered to either side of the case to act as fastenings for the wrist strap fig XXX [image 97], the dials with their calibrations shifted 90 degrees counter-clockwise to adjust to the wristwatch format.

The oversized chronograph wristwatch by Omega illustrated in fig. XXXX [images 628 A, B, C] measures 46 mm in diameter and was made in 1917. The movement is an 18-ligne (40.6 mm) calibre, and the watchmaker had already advertised a model almost identical to this one in 1913. Cased in silver, the watch has a traditional pocket watch shaping to the case, with hinged closures to the bezel and case back and corresponding lips for ease of opening. Simple wire attachments form the lugs, onto which the wrist strap may be secured. The dial is white enamel with black Arabic numerals; the two subsidiary dials to the left are for constant and subsidiary seconds and, to the right, a 15-minute register measures minutes elapsed while the chronograph is running. Divisions of just 15 minutes are relatively unusual: chronographs that featured minute registers were more usually calibrated for 30 or occasionally 60 minutes. As only every 15 minutes are displayed, there is space for each increment to be individually marked with its corresponding minute numeral, rather than simply being represented by linear dashes. The pink gilt activation pusher for the chronograph is wide but relatively sleek and is positioned to the side of the case below six o'clock. Many early chronograph wristwatches, such as that shown in fig. XXX [image 97], incorporated their activation pusher through the winding crown. By using a movement that entirely separated the crown and pusher, as well as using slim wire lugs to affix the wrist strap, the overall design is minimal and utilitarian.



REDUCE SHADOW COLOUR AND SIZE

ABOVE H. Moser & Cie, c. 1915.
A 14 ct yellow gold single-button
chronograph wristwatch with 30-minute
register
Diameter 43 mm



CUT OUT

RIGHT Omega, made in 1917.
A silver, hinged-cased single-button
chronograph wristwatch with 15-minute
register
Diameter 46 mm



MATCH GREY B/GS



WATCHES OF THE FIRST WORLD WAR

The earliest forms of production wristwatches were very closely based on the 'bassine' pocket-watch form – a traditional casing comprising a hinged back with rounded edge and a rounded bezel that retained the watch's crystal. Unlike a pocket watch, the wristlet dispensed with the pendant and bow to which the suspension chain was traditionally secured and, instead, added lugs onto which a wrist strap could be affixed. These lugs were often simple metal wire loops that were soldered onto the watch case, although larger, hinged hoops that were stylistically similar to the traditional pocket-watch bow were often affixed instead.

Of course, the wristwatch's dial had to be configured a little differently to the open-faced pocket watch. The traditional open-faced pocket watch displayed the numeral for twelve o'clock beneath the winding crown – that is, the three o'clock position on a standard wristwatch dial. Although some early advertisements show a number of wristwatches with the twelve o'clock position located beneath the crown, it seems that there was a general acceptance, early on, that the wristwatch required a realignment of the dial's configuration to compensate for its differing format – indeed, it is highly likely that at least some of those wristwatches advertised with the twelve o'clock located beneath the crown were pocket-watch stock that the manufacturers were themselves converting for sale as wristlets. To avoid confusion, it was not uncommon for manufacturers of early wristwatches to mark the twelve o'clock numeral in its 'new' position with a different colour – usually red, but occasionally blue. This practice was already common on watches of non-standard configuration, for example sphere watches and lapel watches, where the twelve o'clock position would not be immediately apparent at a quick glance without some form of highlight.

During the First World War, when communication and synchronised timekeeping were essential for operations, the practicality of the wristwatch ensured that this timekeeping genre gained the acceptance, among men, that it had lacked for so long. Requiring only a quick glance to the wrist rather than fumbling in a pocket, the advantages were obvious. Writing in March 1916, the chairman of H. Williamson Ltd noted, 'It is said that one soldier in every four wears a wristlet watch, and the other three mean to get one as soon as they can. Wristlet watches are not luxuries ... [and] have been selling in the greatest quantities for many months past.'

The silver watch illustrated in fig. XXXX [image 1100] is typical of the earliest style of wristwatch made for men. This watch is hallmarked for the years 1911–12, and the case's shape and the white enamel dial are both of



CUT OUT

REDUCE SHADOW COLOUR AND SIZE



OPPOSITE, TOP Swiss, unsigned movement, case with London import hallmarks for 1911–12. A silver, hinge-cased wristwatch with enamel dial and lever movement Diameter 34 mm

OPPOSITE, BOTTOM Borgel cased Swiss movement with London import hallmark for 1914. A silver wristwatch with shrapnel guard, black dial and luminescent numerals Diameter 35 mm

RIGHT Borgel cased Swiss movement with Glasgow import hallmarks for 1915. A 9 ct yellow gold wristwatch with early damp-proof case Diameter 34 mm

BELOW Harrods advertisement reproduced in Punch on 24 April 1918



traditional pocket watch style. Thick silver wire is attached to the case as the framework on which to attach a slim leather wrist strap. A good-quality Swiss lever movement is incorporated. To change the hands, a small pusher below the winding crown is depressed using a fingernail, and this simultaneously disengages the winding mechanism and activates the hand-setting mechanism – turning the winding crown while the pusher is depressed allows the time to be set. Numerous similar watches were used by soldiers in the First World War. While it is by no means certain that this particular watch was used in active service, the outside case back has a simple presentation inscription reading ‘K to W June 1914’ – doubtless many such watches were given as parting gifts by parents or loved ones to soldiers on their departure to the front.

Early wristwatches of this style were far from robust, and while ‘shrapnel’ grills (see fig. XXX) [image 1127] could be added to help protect a delicate watch glass, one of the main issues was the lack of protection the casing afforded its movement. With friction-fitted, hinged closures, there was no real protection against the ingress of dirt or moisture, the enemies of the mechanical movement. Also, in the darkness of the trenches, an unilluminated watch dial was next to useless at night. Watches aimed at officers included models with their hands and hour markers painted with radium for luminescence and cases constructed to provide some protection against ingress of water. Figure XXXX [image 438] illustrates a gold officer’s style watch from 1915. This watch has a white enamel dial with bold, radium-painted Arabic numerals and hands, which together would have provided a highly visible display at night. The watch’s case was made by Borgel, a Swiss company specialised in the production of dust- and damp-proof cases. Rather than a traditional hinged case with a cover and bezel that ‘snapped’ shut, the Borgel case’s main body was made from a single piece of gold or silver into which the dial and its movement were fitted and secured with a screw-down bezel. This design dramatically reduced the chance of moisture or dirt entering the watch and thereby greatly increased the watch’s reliability. By the middle of the decade, so-called ‘unbreakable’ crystals had been introduced. Made from celluloid, this form of glazing replaced the fragile glass and dispensed with the need for a separate shrapnel cover.

Despite these attempts to protect the wristwatch, it remained an inherently delicate object. Their smaller size compared to the pocket watch, combined with the harsh conditions in which they had to perform, meant that, in many instances, the pocket watch would have been a more reliable timekeeper. Early wristwatches of the period invariably had thin metal cases, often made of



CUT OUT

OPPOSITE A leather watch holder containing a Swiss gunmetal keyless lever watch
Width 60 mm

BELOW Vacheron Constantin, made in 1918.
A silver open-faced keyless lever chronograph watch with enamel dial, luminous numerals and hands
Diameter 53 mm



REDUCE REFLECTION

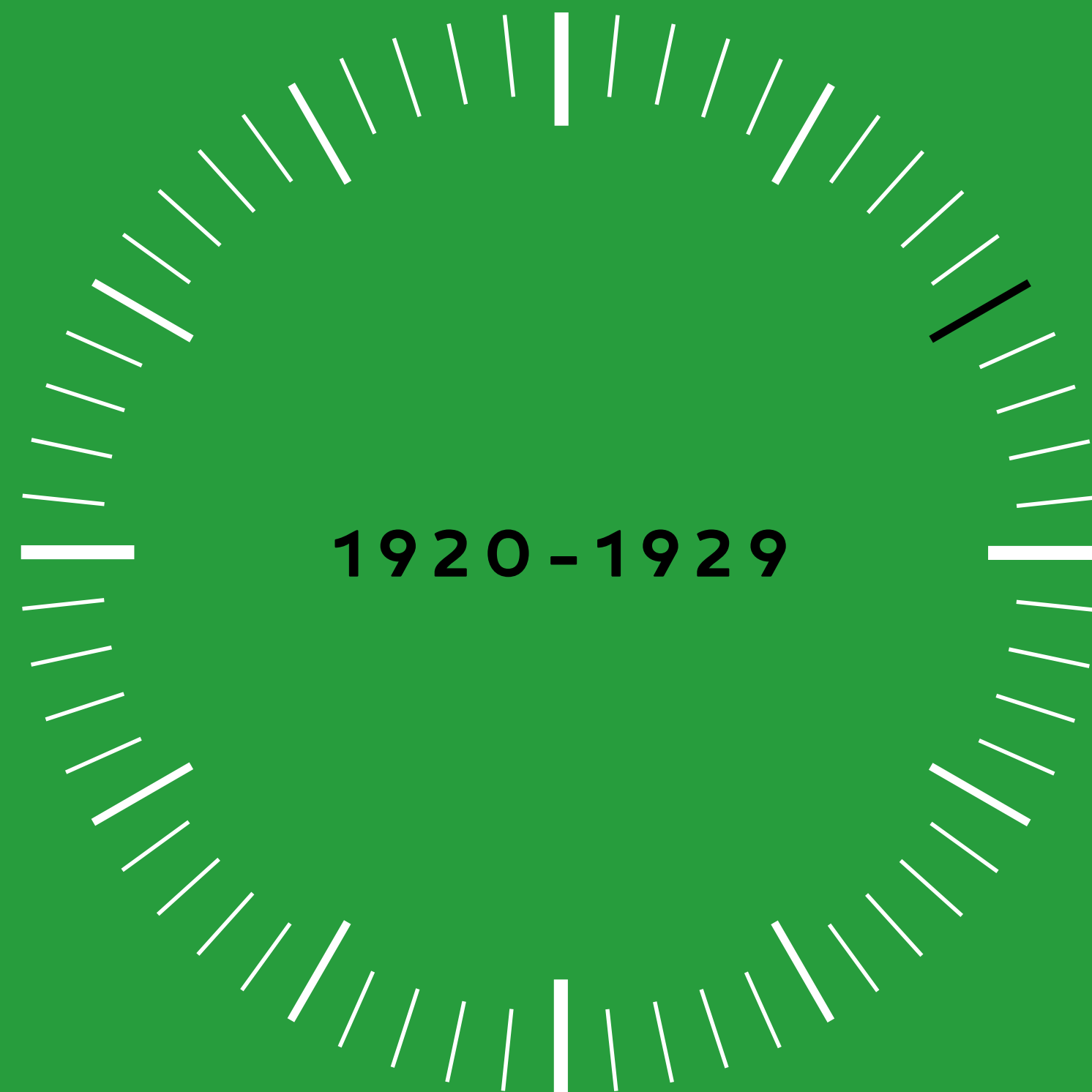
silver or gold, that comprised hinged, friction-fitted covers that lacked any real means of protecting the fragile movement within from dirt or moisture. Indeed, the movements themselves were without shock resistance, and, again, their small size meant that they were even more susceptible to damage or breakage than larger watches. Other solutions that were available included a large leather band with an integrated pocket-watch holder – that illustrated in fig. XXXX [image 885] is typical. Allowing for slight shrinkage due to age, the leather casing would have measured just under 60 mm in width. This example houses a pocket watch with a diameter of 44 mm. At this size, the pocket watch was able to accommodate a substantial movement, in this instance a 16-ligne (36 mm diameter) movement that was of good quality and relatively robust. The watch’s case is made from gunmetal and has a protective cuvette (hinged cover) directly over the movement, in addition to the case back itself. This provided some 4.5 mm of stepped rims which, while by no means water-resistant, provided some protection from the ingress of dirt and moisture. The leather holder itself lent further protection for the watch, enveloping the bezel, and when new must have provided a fairly tight seal around the watch’s case, again limiting the ability of dirt or moisture to enter.

Pocket watches were, of course, also used in the traditional manner during the First World War, concealed in a jacket or coat and secured with a chain. Those made specially for military use invariably followed the same pattern of design as the luminescent wristwatch, with bold radium numerals painted on enamel dials. Indeed, although the popularity of the wristwatch among the troops was increasing, substantial orders for ‘military’ pocket watches were still being made at the end of the war. In 1918, the American Expeditionary Forces ordered several thousand open-faced pocket watches with chronograph function from Vacheron Constantin. The order stipulated that each should have luminous numerals and hands, while the cases were to be made of oxidised silver. [image 846]

There is no doubt that the First World War transformed the perception of the wristwatch. A general reticence among men to wear a wristwatch had been dispelled by the widespread use of the strap watch during the conflict. Many men returning from the front continued to wear wristwatches after the war, and although the pocket watch would still dominate Swiss exports for the next ten to fifteen years, the tide was beginning to turn in the wristlet’s favour.



THE ALEXANDER
CLARK COMPANY, LTD.,



THE 1920s

No longer merely confined to the pocket, the watch had been liberated and suddenly its application appeared to be everywhere. In addition to the rise of the wristlet, watches began to be integrated into all manner of objects, from pencils and steering wheels to lipstick and cigarette cases [image 1082]. The watch's form was evolving and developing into designs that would influence the portable timepiece's style for decades to come [image 357]. An increasingly diverse choice of watches resulted in a far broader range of consumers having the means to express their own tastes. Watches were becoming a symbol of modernity itself, and fashion was increasingly playing its part.

Many within the industry still regarded the wristlet as little more than a gimmick: to them, exposing a delicate mechanical item on the wrist was anathema. Indeed, the introduction in the mid-1920s of avant-garde models such as wristwatches in the shape of car radiator grills may well have served to further the naysayer's argument that the wristwatch was little more than a passing fad [image 1149]. Innovation was therefore key during the decade – the wristlet had to prove itself indispensable. To achieve this, practicality was essential: the wristwatch had to be reliable and durable. For some horological entrepreneurs, the ultimate goal was to waterproof, shock-proof and automate the wristwatch. However,

designing novel and interesting case shapes was also key to winning over a new wave of buyers. The newly established styles of rectangular and tonneau-shaped wristwatches naturally lent themselves to the Art Deco period. In 1921 Cartier released their Tank Cintrée [image 132], a supremely elegant wristwatch with an elongated, slim rectangular case which was curved to naturally follow the contour of the wrist.

During the 1920s, Patek Philippe produced some extraordinary wristwatches for the Brazilian retailer Gondolo & Labouriau. Usually with large dimensions and, in many instances, dramatically oversized for the period of production, these watches featured square, rectangular, tonneau or round cases. The majority had silvered metal dials with engraved tracks for the minutes and hours which were filled with black enamel paint. Among the most dramatic of the period are those with large, curved rectangular cases and dials featuring stretched Arabic numerals and semi-circular dial signatures. [image 363] While the external stylistic elements were by no means exclusive to Patek Philippe, the perfection of this form of wristwatch design was honed by the company during this period, and many of the motifs incorporated are to be found recurring time and again across a variety of watch brands right up to the

BELOW, LEFT Dunhill, hallmarked 1929.
A 9 ct yellow gold cigarette case with
inset lighter and watch
Length 116 mm, width 77 mm

BELOW, RIGHT Mido Bugatti, made in 1925.
An 18 ct yellow gold wristwatch in the
form of a Bugatti car radiator grill
Width 24 mm

OPPOSITE Patek Philippe, made in 1928.
An 18 ct yellow gold wristwatch with
enamel dial, curved screw-set lugs and
hinged case
Diameter 33 mm

OVERLEAF, LEFT Cartier Tank Cintrée,
first introduced 1920s.
A platinum curved rectangular wristwatch
with platinum bracelet with movement by
the European Watch & Clock Co.
Length 47 mm

OVERLEAF, RIGHT Patek Philippe
Chronometro Gondolo, sold by Gondolo
& Labouriau in 1924.
An 18 ct yellow gold oversized curved
rectangular wristwatch (12" calibre)





REDUCE SHADOW, REFLECTION



CUT OUT

BELOW, LEFT Cartier, c. 1926.

A platinum, gold, enamel and rock crystal octagonal-shaped open-faced watch with movement by the European Watch & Clock Co.

Width 46 mm

BELOW, RIGHT Léon Hatot, made in 1927.

An 18 ct yellow and white gold curved octagonal wristwatch

Length 38 mm

present day. Patek Philippe's relationship with Gondolo & Labouriau was an immensely important one – during this period, almost a third of the watchmaker's total production made its way to the Rio de Janeiro retailer.¹

By the mid-1920s, wristwatch production still only accounted for around a third of all Swiss watch exports. Mechanically complex movements displaying all manner of functions, from calendars to sky charts, were increasingly in demand, and it was the pocket watch's size that allowed it to dominate in this area [image 550]. The 1920s also saw the development of an alternative portable timepiece, the so-called purse watch [image 565]. The purse watch was developed for use by both men and women, and the concept created an infinite number of decorative possibilities, with ingenious forms of sliding, hinged and sprung openings designed both to please the user and impress the casual observer.

The decade witnessed an increasing variety in the materials and decorative techniques employed by makers. A great range of metals were used, including

platinum as well as coloured golds in tones of yellow, pink, white and even green. Enamels, precious and semi-precious stones, corals, seed pearls, mother-of-pearl and rock crystal [image 572] were all incorporated for their decorative merits. Cases were often engraved with geometric patterns, occasionally infilled with enamel highlights. As the metal dial grew in popularity, so variation in their finish began to increase – in addition to elaborately configured numerals, some might be executed with contrastingly toned sections to their surface or enhanced with engine-turned decoration. [image 1083]

All this energy and creativity led to a boom in watch production. In 1920, some 13.7 million completed watches and movements were exported from Switzerland, and by 1929 this figure had reached almost 21 million.² But with great expansion came great risk. On 29 October 1929, the Wall Street Crash arrived and, with it, the beginning of the Great Depression. Swiss watchmakers were heavily exposed; the watch revolution seemed in danger of screeching to a halt.



ABOVE Audemars Piguet, made in 1922, retailed by Gübelin.

A platinum and yellow gold cushion-form perpetual calendar watch with moon phases (cal. 17SVF)

Width 43 mm

RIGHT Cartier Éclipse, c. 1929.

An 18 ct yellow gold and enamel shutter-form purse watch

Length 46 mm



CUT OUT



CUT OUT

JEWELLERY WATCHES OF THE 1920s

Nothing evokes the opulence of the Art Deco period more than its jewellery. Figure XXXX [images 567a & 567b] shows an astonishing platinum, diamond and synthetic ruby pocket watch. Made by Longines, the watch was delivered to the maker's agent in Mexico on 9 June 1921. The delicate filigree hands and gently stylised Arabic numerals could place the watch almost anywhere in the first twenty years of the twentieth century. Yet the case, its unapologetically clean lines dazzling with 4.65 carats of pavé-set diamonds, accented with synthetic ruby hour markers, is the epitome of 1920s glamour. The wonderful enamel dial is painted in grisaille with a sculptural rendition of a classical maiden riding a lion, all against a crimson background. To the sides of the case, a crisp, Greek key motif is engraved, a design element applied time and again to watch cases during the Art Deco period.

Cartier's influence on Art Deco design is, of course, legendary. At the defining Exposition Internationale des Arts Décoratifs et Industriels Modernes held in Paris

from May 1925, Cartier exhibited some 150 pieces of jewellery, among them fifteen watches, all of which were executed using a wealth of materials, including jade, coral, onyx, lapis, rock crystal, diamond, platinum and gold.¹ Figure XXXX [images 131 & 131b] illustrates a highly unusual triangular-form pendant watch made by Cartier in the early 1920s. The watch has an unmistakable Art Deco appearance with overtones of the then popular Egyptian revival style. Cased in platinum, the bezel is white enamel inlaid with stretched gold Roman numerals, all beneath a blazing sun. The dial focuses on function, with each hour marker pointing to its corresponding gold numeral. The contrast with the case back is startling – a plain, trapezoid onyx panel surrounded by glittering pavé-set diamonds follows through to the matching pendant, which is formed of a broad onyx and diamond-link chain. Cartier manufactured many sensational gem-set watches throughout the Deco period, including some magnificently stylised bracelet watches, often to special

BELOW Longines, retailed by Diener Hermanos, Mexico City, in 1921. A platinum, enamel, diamond and synthetic ruby-set open-faced watch (calibre 10.85") Diameter 41 mm

OPPOSITE Cartier, c. 1920. A platinum, diamond and onyx triangular-form pendant watch with movement by the European Watch & Clock Co. Length 36 mm, length including chain 140 mm



REDUCE SHADOW AND B/G





CUT OUT AND PLACE ON GREY/BG

REDUCE SHADOW, REFLECTION



OPPOSITE Cartier, c. 1920.
A slim platinum and sapphire-set
open-faced watch with movement and
case by the European Watch & Clock Co.
Diameter 45 mm

ABOVE Cartier, c. 1925.
A platinum, coral, enamel and diamond-
set rectangular wristwatch with
movement by the European Watch &
Clock Co.
Length 36 mm

commission. Figure XXXX [image 555] illustrates a spectacular ladies' wristwatch from the mid-1920s. Commissioned by the Marquesa de San Carlos Pedroso of Biarritz, the watch is made in platinum and decorated with coral, enamel and diamonds. Typical of Cartier's attention to detail, the design of the folding clasp has also been carefully considered, with gold exposed to the wearer's skin and only stark black enamel visible while worn.

Jewellery watches could also be subtle. The vogue for extra-slim pocket or dress watches saw the development of 'highlighted' case sides. A recessed channel cut into the sides of a watch case could be filled with calibr -cut stones, most often diamonds but occasionally other precious gems such as sapphires (see fig. XXXX [fig 542]). Dress watches of this style are beautifully refined: from the front an apparently plain timepiece devoid of adornment, yet a slight tilt brings a flash of colour.

JUMP HOUR AND WANDERING HOUR WATCHES

Innovation was not restricted to style and decoration alone; indeed, the 1920s witnessed experimentation with the display of time itself. One of the most dramatic Art Deco twists on telling time was the production of the so-called ‘jump hour’ or ‘digital display’ watch. Examples of watches with dials displaying the time in apertures had been made for more than 300 years, yet the reapplication of this style of time telling during the 1920s seemed to embrace the very ethos of the period with its confident modernity.

During the decade, a variety of jump hour models appeared. In 1926 Breguet patented one of the most unusual forms of this genre [image 576]. Known as a ‘wandering’ jump hour watch, the dial was composed of a central disc with engine-turned arrow, the tip of which contained an aperture that displayed the hours. As time advanced, so the central disc revolved, taking the hours around the circumference of the dial and pointing to the minutes as it passed. Upon reaching the top of the hour, the hour disc jumped forwards to reveal the next hour in

the arrow’s aperture. An ingenious display made more for show than practicality, the jump hour watch is a challenging timepiece to tell the time by in low light or with strained eyes; this is perhaps particularly so with this example: with the hours whizzing around the edge of the dial, one may easily be confounded by whether the hour shown is an upside-down 9 or 6, or perhaps an 8 or 5 in the low light. While not the best watch for making a surreptitious glance at the time during a long evening’s entertainment, it certainly was the watch to bring out to impress your host.

An arguably more user-friendly example of the jump hour watch, combining an aperture for hours with a traditional central hand for minutes, was introduced by a variety of companies [image 571]. However, the most commercially exploited form of the digital display watch was that which displayed both the hours and minutes (and increasingly during the following decade, seconds) through apertures to the watch’s cover [image 1080]. The action of these watches was achieved by modifying the

BELOW, LEFT Breguet, c. 1927.
An 18 ct white gold open-faced wandering jump hour watch
Diameter 44 mm

BELOW, RIGHT Touchon, c. 1925.
An 18 ct white gold open-faced jump hour watch
Diameter 41 mm

BELOW, LEFT Haas Neveux & Cie., c. 1925.
An 18 ct white, yellow and pink gold jump hour wristwatch
Width 26.5 mm

BELOW, MIDDLE Audemars Piguet, delivered in 1926 to the retailer Bittmann in St Mortiz.
An 18 ct white gold jump hour watch with minute repetition and simple calendar displayed linearly, the back opening to reveal a glazed aperture to display the moon phases and movement (cal. 17" SMOGV)
Diameter: XXXX

BELOW, RIGHT Audemars Piguet.
Inside case back of image XXXX 793 XXXX showing glazed cuvette covering the display for moon phases and movement

movement plate in the traditional under-dial area, raising the height of the movement to incorporate the additional wheel work required for a disc system of display. This latter form of jump hour watch removed the need for an exposed glass dome above the dial, the watch’s cover instead forming a grill under which a glazed insert would protect the revolving time discs.

Although some early examples of the jump hour wristwatch featured decorative cases – that shown in fig. XXX [image 1080], for example, has bands of yellow and pink gold applied to the white gold case – this genre of watch is usually plain and stark, the focus being solely the shape of the case and the time apertures themselves. As we have already seen, such ‘window’ forms of display were also well suited to calendar indications. Figure XXXX [image 793] shows an extraordinarily complex pocket watch made by Audemars Piguet in the mid-1920s. This watch not only has apertures for the hours and minutes, but a linear, three-aperture display calendar for the day, date and month. Like the hours and minutes,

the three calendar indications are each displayed on separate discs. On depression, a pusher mounted in the winding crown opens the case back to reveal the movement, which is displayed beneath a glazed cuvette (cover) [image 793B]; between the movement and the cuvette, the phases of the moon are shown in an aperture. Concealing the moon phases in this manner ensures the stark, monochromatic design of the watch’s time and calendar display is uninterrupted. To the watch’s left side one can just see a slide: rather brilliantly, this is also a minute repeating watch. In the half-light, a vexed user, unable to see the time clearly, may merely activate the slide and the time will be crisply chimed to the nearest minute.

MAKE BOTH B/GS GREY



CUT OUT/ REDUCE SHADOW, REFLECTION





CUT OUT



1920s CALENDAR WRISTWATCHES

Watches with mechanical complications gained greatly in popularity during the 1920s. The famously competitive watch commissioning of industrialists James Ward Packard of Ohio and Henry Graves Jr of New York, from watchmakers such as Patek Philippe and Vacheron Constantin, led to the production of some of the most complex watches ever seen. Almost every conceivable function was developed, from tidal indications to star charts. However, for the majority of wealthy purchasers, the favoured complications were calendars, chronographs and repeaters, incorporated either individually or in combination. [image 547]

Calendar wristwatches appeared only infrequently during the 1920s. Although there was no reason why the wristwatch medium should restrict the production of calendar models, their smaller size and delicacy when compared to the traditional pocket watch was certainly an issue. Cost was a further factor, and this, combined with the fact that the pocket watch’s dial was a larger, more convenient canvas on which to view complex indications, would have been among the reasons so few were produced during the decade. Indeed, if we put ourselves in the mind of the buyer purchasing an expensive calendar watch in the 1920s, the pocket watch must have seemed the logical format to choose – the calendar wristwatch, by contrast, perhaps appearing dangerously akin to a gimmick.

Figure XXXXX [images 37 A & B] illustrates an intriguing wristwatch. Exhibiting one of the most

beautiful designs from the early period of wristwatch production, this timepiece was originally sold by the Swiss retailer Gübelin. The watch displays a so-called ‘simple’ calendar: while the calendar will advance each day, unlike an annual or perpetual calendar it will not take into account differences in the lengths of the month, requiring the user to adjust the date at the end of those months with fewer than 31 days. Made by Audemars Piguet, the watch was specially ordered by Gübelin, whose signature appears to the dial, case and movement. Particularly arresting, however, is the inscription to the outside case back, which, beneath the original owner’s name, reads: ‘This is the first calendar wrist watch ever made by us and I believe it to be the only one in existence [sic]. E. Gübelin, Lucerne 1924 Switzerland.’ It is extraordinarily rare to find a statement of this type engraved on a wristwatch and it serves to show quite how special this wristwatch was considered to be in 1924. Mr Barr, the original owner, no doubt immensely enjoyed showing the watch to his friends and acquaintances.

Today we are used to the idea of limited-edition and unique wristwatches within the collector’s market, yet this watch demonstrates that cachet was already associated with a special wristwatch. Gübelin clearly found a demand for such watches among its clientele, and in the years following the sale of this wristwatch the firm ordered several further examples from Audemars Piguet.



BELOW, LEFT Audemars Piguet, made in 1925. A platinum open-faced split-seconds chronograph watch with register and minute repetition (cal. 18 SMCRV Diameter 46 mm

BELOW RIGHT AND OPPOSITE Audemars Piguet, sold in 1924. An 18 ct white gold simple calendar wristwatch with moon phases (cal. 10 HPVM) Length 28 mm, width 24.5 mm



EXTEND B/G



SPLIT-SECONDS CHRONOGRAPH WRISTWATCHES

Extremely mechanically complex, the split-seconds chronograph is considered one of the three most challenging complications in watchmaking. Designed to time events commencing simultaneously but concluding at different times, the split-seconds mechanism employs two central chronograph seconds hands, usually controlled by two push-buttons in the case side – although occasionally with a single button activation to start, stop and reset the chronograph and an additional pusher above or below for activating the split. One hand, the fly-back, can be stopped to register one event’s duration and then, in turn, be reactivated to resynchronise with the chronograph hand; this will allow, for instance, the timing and registering of an intermediary stage, and thus the length of multiple events can be recorded. This complication proves extremely useful during sporting events with multiple competitors, whether it be a horse race, a car race or the hundred-metre dash.

A very important timepiece, this Patek Philippe [image 559A] is believed to be the earliest known split-seconds

chronograph to have been born as a wristwatch (rather than converted from a pocket watch) and is also, therefore, one of the most mechanically complicated early wristwatches ever made. Production of the movement began in 1903, but the watch was not completed and sold until 1923. The watch was bought on 13 October 1923 by Attilio Ubertalli, the seventh president of Turin’s Juventus football club.’ It seems highly likely, therefore, that Ubertalli approached Patek Philippe with a special request for a split-seconds chronograph wristwatch and that Patek took the opportunity to complete this piece especially for the customer.

The 18 ct yellow gold case is of *bassine* style, one of the earliest wristwatch case designs to have been used. Clearly greatly influenced by the traditional pocket watch case, there is a hinged bezel and back as well as a traditional cuvette [image 559f]. An enamel dial is used, again a classical feature, but this is of course orientated for use as a wristwatch (the twelve o’clock being at 90 degrees to the crown, rather than next to it as one would expect on

BELOW AND OPPOSITE Patek Philippe, sold in 1923.
An 18 ct yellow gold split-seconds chronograph wristwatch with 60-minute register (cal. 12" Victorin Piguet ébauche)
Diameter 33.1 mm

an open-faced pocket watch). Straight, screw-set lugs hold the leather strap in place and are typical of the early wristwatch lug form known as the ‘officer’ style.

The movement [image 559b] was made for Patek Philippe by the specialist chronograph manufacturer Victorin Piguet, and it is remarkably slim, especially in consideration of the depth required to accommodate the chronograph/split mechanism and its bridge work; the movement’s diameter is a mere 28 mm. Cased, the watch has a diameter of 33.1 mm and is 11.1 mm thick. Such is the complexity and expense of the split-seconds chronograph that while standard chronograph wristwatches would quickly gain in popularity during the succeeding decades, the chronograph wristwatch with split seconds would remain a relatively rare variant for almost the entire twentieth century.

GIVE GREY B/G TO MATCH IMAGE ON RIGHT



EXTEND B/G



CUT OUT





OPPOSITE AND BELOW Usher & Cole, London, movement made in 1893, converted to a traveller's watch in 1929. A silver open-faced explorer's/traveller's watch with screw-down protective crown cap
Diameter 59 mm

SECURING THE WATCH CASE

Protecting the watch movement from water and dirt had long been a challenge for both watch and case maker. At sea, where navigation relied on the accuracy of marine chronometers and other marine timekeepers, protective cases had been developed to minimise the potentially corrosive effects of the salty elements. In the 1870s, the English maker Herbert Blockley began selling so-called traveller's or explorer's pocket watches. These were designed for use on land and, in some cases, at sea in the form of 'deck' watches. Cased in silver, these watches had plain covers, yet rather than the traditional friction-fitted case backs and bezels, the watches had screw-down bezels and backs; significantly, the watches also had a protective cap that entirely covered and screwed down over the winding crown. Gaskets made of leather were used to ensure a tight seal for the bezel, crown cap and case back.

The watch by Usher & Cole illustrated in fig. XXX [image 788 A & B] was originally sold to the Admiralty for use as a deck watch in March 1893, for £18 10s. However, Usher & Cole's surviving workbooks show that

the watch was repurchased by them in May 1929, converted to a traveller's watch and resold a month later in June 1929. Interestingly, the records note it was repurchased for £6 and resold for £18 10s.¹ Usher & Cole was a partnership formed in 1869 by Joseph Usher and Richard Cole. The firm produced some exceptional timepieces, and the fact that the movement of this watch was deemed worthy of reuse some 37 years after its original completion is testament to its quality. This is especially notable when one considers that the watch was specifically being reused as a traveller's watch and would have been intended for use on expeditions, where a reliable and accurate timepiece was of critical importance – the Royal Geographical Society had, for example, ordered a fleet of traveller's watches for use on Polar and African expeditions, where the watches would be exposed to extreme climates.

For the makers of wristwatches, the protection of the crown was still problematic in the 1920s. The use of a screwed cap over the winding crown of a wristlet must have been perceived as clumsy and impractical, especially



given the relatively small size of early wristwatches. Borgel's patented case design provided some level of water-resistance [see chapter XX no. XX], and examples of watches with Borgel cases continued to be made throughout the 1920s [image 811]. However, the issue with the Borgel cases remained the winding crown: this relied on close metal-to-metal adherence without the use of gaskets, and the separate 'pin-set' mechanism used to adjust the hands on many versions of these cases also provided potential weak points where moisture or dirt might enter, especially after some years or use. Other experimental watches were made during the period, one of the most interesting being the hermetic watch.

The hermetic watch shown in fig. XXX [image 790] has London import hallmarks for 1925 and was retailed by the Reading-based company Botly & Lewis. The sterling silver case was made by Jean Finger and follows Finger's 1921 patented design (Swiss patent no. 89276, granted 2 May 1921). Featuring a double case, the inner case is plain and made in three pieces with friction-fitted, snap-on bezel and back. This inner case is hinged into the outer and has a pronounced lip beneath the crown to enable it to be easily 'swung out' for winding and hand-setting [image 790d]. The outer case is made of two parts, a solid body and separate screw-down bezel; this latter has a knurled finish for the owner's fingers to grip when opening and closing the watch [image 790 b]. In theory this was an excellent way to protect the watch, providing an acceptable seal, yet it was also a rather fiddly daily exercise to open and wind the watch, and continued use eventually led to wear of the bezel's thread, thereby compromising its seal.

Finger's patent was not the only one for a hermetic-style wristwatch of this design. A very similar design by Frederick Gruen (US patent 1,303,888, filed 29 May 1918) was granted on 20 May 1919 for an almost identical case construction. Interestingly, an arrangement appears to have been made between Jean Finger and Rolex, for in 1923 Hans Wilsdorf of Rolex was granted British Patent no. 197208 for a hermetic case of identical design to Finger's, and Rolex subsequently put a model based on these designs into production.²

CUT OUT



BELOW Longines, c. 1925.
An 18 ct yellow gold wristwatch, the case made by Borgel, with screw-down bezel (cal. 11.84N)
Diameter 31 mm

OPPOSITE Retailed by Botly & Lewis, hallmarked 1925.
A sterling silver wristwatch, the hermetic case made by Jean Finger, with screw-down bezel
Diameter XXXXX



CUT OUT



THE ROLEX OYSTER

[image 273B] Early attempts at successfully waterproofing the watch were invariably thwarted by the winding crown. Producing a tight, water-resistant seal by the screw closure of the watch's front and back was a relatively straightforward procedure, so long as precision machinery was used. The crown was a different matter, for in order for it to be acceptable to the buying public, it had to be practical, easy to use and aesthetically pleasing. Rolex's solution was a screw-down crown. On 28 September 1926, Rolex registered the 'Oyster' name; today the Oyster is as synonymous with the Rolex name as the brand's crown logo. The patenting and application of the Oyster method transformed the company's future and has been one of the most successful and influential wristwatch designs ever conceived.

The solution of a screw-down crown may appear an obvious one, yet it was a challenging feature to incorporate. A regular winding crown is fixed to its stem, and when 'at rest' against the watch case, the crown and its stem are always engaged in the winding position.

While the standard winding crown can be free-wheeled backwards without engaging the watch's winding, if you are to screw down a crown, the crown must be disengaged from its stem (and thereby its winding system) both for its unscrewing and screwing down. In the Oyster watch, the crown itself screws onto a tube which is fitted to the watch case – this provides a hermetic seal. When the crown is unscrewed it springs away from the body of the watch, simultaneously engaging with the stem and activating the winding system, which allows the user to wind up the watch. Pulling the crown out will then allow the user to set the hands as normal. When the crown is pushed back to the case, the winding is disengaged and the crown can be screwed back onto its case tube. Without this disengagement of the stem, if the watch were already fully wound, the stem or mainspring could be broken by force when the crown was screwed back onto its tube. The Oyster solution was both reliable and practical, allowing the watch to be wound and set with ease, with

BELOW Advertisement for the Rolex Oyster, c. 1927

BELOW, LEFT Rolex Oyster retailed by Armstrong, Manchester, hallmarked 1926-27. An 18 ct yellow gold octagonal wristwatch with screw-down crown, bezel and case back Length 37 mm

BELOW, RIGHT Rolex Oyster, hallmarked 1927. A 9 ct yellow gold octagonal wristwatch with enamel dial, screw-down crown, bezel and case back Width 32 mm



only the simple and quick additional step of screwing and unscrewing the crown before and after use.

The first Oysters were formed of three main case parts, plus the crown [image 274]. The body of the watch had a screw-down bezel (holding the crystal) and screw-down case back with lead gasket. It has been noted by various researchers that the original patent for the Rolex Oyster crown is identical to one filed in October 1925, by Paul Perregaux and George Peret.¹ Hans Wilsdorf, Rolex's founder and ever the horological entrepreneur, recognised the importance of their invention and acquired the rights to the design. The Oyster design was able to be adapted in order to take advantage of the popularity of the 'shaped' wristwatch, and early models included cushion and octagonal designs. Indeed, so long as the watch's case had its Oyster crown and a solid body with circular screw-down bezel and case back, its actual shape had the potential to be extremely varied; advantageously, this also set it apart from the traditional circular cases of its hermetic predecessors by Borgel, Finger and others.

Wilsdorf was utterly convinced by the potential of the Oyster and vast sums were spent on its promotion. This included newspaper advertisements extolling the brilliance of the design and even corporate sponsorship. On 7 October 1927, Mercedes Gleitze became the first British woman to swim the English Channel. Throughout the event, Gleitze wore a Rolex Oyster, and on 24 November 1927 Rolex took out a full-page advertisement on the front of the *Daily Mail* newspaper which included an announcement declaring the perfect performance of their watch during Gleitze's swim. Clever shop displays were also used: in 1927 Rolex began issuing its retailers with branded goldfish bowls, a Rolex Oyster wristwatch suspended within.

THE MOVADO ERMETO

Undoubtedly the most famous, varied and commercially successful purse watch, the Ermeto comprises an inner watch case protected within a shell of outer sliding covers. The Ermeto name was derived from the Greek meaning 'sealed' and emphasized the watch's resistance to dirt and moisture. Patented in Germany on 12 October 1926 (DRP no. 443 555) by Huguenin Frères de Le Locle, Switzerland, Movado acquired the rights to market the Ermeto the same year.'

At a time when the wristwatch was still to gain universal acceptance, the Ermeto offered a striking alternative [image 1079]. This was a watch that was modern and stylish but which did not involve wrist wear and could be safely stowed in a bag or pocket, perfectly protected within its outer sliding shell. The sliding covers provided a canvas of infinite decorative possibilities, ideally suited to the Art Deco period, allowing the user to express their individuality. Movado produced a wide range of models with their covers variously finished with decorative engraving or ornamental enamel motifs, translucent enamels over engine turning or, most frequently, exotic leathers and shagreen. The perfect travelling companion, the Ermeto was also available with an integrated hinged stand that allowed the watch to be placed on a desk or bedside table, those with luminous numerals becoming an especially useful night clock.

In 1928 Movado released their ingenious 'automatic' case winding system. As the sliding covers were opened, a pinion on the winding stem was engaged, which automatically turned the winding crown and wound the watch. An ingenious piece of horological engineering, each opening and closing of the case was designed to provide four hours of running time—the user was therefore only required to open their watch six times a day in order to power it for 24 hours. Furthermore, the

use of a slipper spring device meant that, unlike a traditional manually wound watch, the 'automatic' Ermeto was impossible to overwind.

Such was the brilliance of the Ermeto's design that Movado were able to offer a compelling argument to the potential buyer. An early advertisement for the model explained:

'The round watch and wrist watch ... take a shock like a car without tyres. The "Ermeto" with its modern simplicity of line, winds itself. It is suspended in an air-cell, protected by smash-proof outer cases. No unnecessary protruding winder, exposed glass, or possibility of overwinding. The "Ermeto" is safe in any pocket or handbag.'²

Made in 1929, the example illustrated in fig. XXXX [image 791 A & B] is the smallest of Movado's purse watch range and is known as the Ermeto 'Baby'. Originally designed as a model to integrate into ladies' handbags, the Baby was quickly added to the general Ermeto range. The present example is one of the earliest made by Movado and has a sterling silver case with black-lacquered sliding covers. The silvered dial has a frosted, matt finish, there are raised Arabic numerals and outer minute track and blued steel 'cathedral' hands. The movement is Movado's calibre 11 and incorporates the 'automatic' case winding system mentioned above. Calibre 11 was the original Ermeto Baby movement and the forerunner of the calibre 575.

Over the years, the Ermeto was made with a variety of different case and dial designs and became one of the company's most recognised and iconic pieces. The artist Andy Warhol, who was a great fan of Movado, owned at least six different versions of the Ermeto from a wide range of periods.

OPPOSITE Advertisement for the Movado Ermeto from 1929

BELOW Movado Ermeto Baby, hallmarked 1929.

A small silver- and black-lacquered case-winding purse watch (cal. 11)
Width 42.5 mm (closed), 63 mm (opened)

CUT OUT



ERMETO MOVADO AUTOMATIC WINDING

The best protected watch ever conceived, and which has proved itself the marvel of the age. The fine Movado movement (leaders of the world at Kew Observatory trials in 1928) totally enclosed in the strong outer cases, is as "safe as a turtle in its shell." Being doubly proof against dust, damp, shocks and temperature variations, the ERMETO is the ideal watch for the modern age, and the most scientifically designed to suit all countries and climates.



The first watch which is not a delicate article.

The ingenious construction of the outer cases makes them act as shock absorbers. A shock or fall, which would put the average watch out of action (and possibly affect it permanently) has no effect on the reliability of the ERMETO.

The Automatic Winding mechanism is simplicity itself—devoid of any delicate parts and capable of outwearing the full life of the watch without any risk of trouble.

The ERMETO is also available in the Standard Winding. Models suitable for ladies or gentlemen for Sport, Day or Dress Wear.

Obtainable from first class jewellers, or full information and list of retailers can be had on applying to:—

de Trevars, Ltd.,

Sole Wholesale Agents for the ERMETO Watch,
197a, Regent Street, London, W.1.



INTRODUCING THE AUTOMATIC WRISTWATCH

The invention of the perpetual or ‘automatic’ watch is generally ascribed to the Swiss watchmaker Abraham-Louis Perrelet (1729–1826). In the 1770s Perrelet developed a system by which a pocket watch would self-wind, using the motion of the owner’s body to ‘charge’ its mainspring and thereby power the watch. This revolutionary concept was quickly exploited by other watchmakers and further developed by, among others, Abraham-Louis Breguet and Louis Recordon [image 813]. At the time, watches were wound by means of a key, and the somewhat cumbersome nature of this arrangement meant that an automatic watch had the potential advantage of allowing people to dispense with a fiddly daily routine.

Problems with reliability and no doubt concern among some that this technology might fail to ensure the watch was kept wound and on time seem to have hampered the widespread adoption of the perpetual pocket watch. Keyless winding systems, which dispensed with the need for a key and allowed a watch to be wound via a crown, were developed in earnest during the first half of the

nineteenth century, with Adrien Philippe of Patek Philippe transforming the medium in 1842. The convenience and reliability afforded by the keyless winding system made the requirement for an automatic solution of seemingly minor importance.

Today the automatic watch may be considered primarily for its convenience, yet the idea of a wristwatch that wound itself was, for the early pioneers, also one of protection and enhancement of the movement’s performance. While the pocket watch lay relatively well protected in one’s pocket, the wristwatch was exposed to a barrage of potential hazards, from water and dirt to knocks and bashes. If one were able to protect the delicate mechanical movement from the ingress of dirt and moisture, reliability, accuracy and longevity could, potentially, be greatly enhanced. Early wristwatch cases tended to follow the designs of pocket watches, but the former’s friction-fitted bezels and case backs were generally thinner than the latter’s and therefore provided little protection against the elements; furthermore, their

BELOW Recordon, Spencer & Perkins, London, c. 1780.
An early pedometer-wound watch movement, made according to patent no. 1249 of 1780.
Diameter (cased) 52 mm



THIS IS THE ONLY IMAGE I HAVE FOR 813

BELOW, LEFT Harwood, hallmarked 1929.
A 9 ct pink gold automatic wristwatch
Diameter 29 mm

BELOW, RIGHT Harwood automatic movement

winding crowns provided a tube into the movement through which water could potentially flow.

John Harwood was an English watchmaker convinced by the potential of the automatic watch. His research and experimentation, in part carried out with his business partner Harry Cutts, began after the First World War. His experience in the trenches had shown Harwood the convenience of the early wristwatch, but also demonstrated its failure to withstand exposure to the elements and rugged wear on the wrist. In 1923, having secured funding, Harwood applied for a Swiss patent (no. 106583, granted 1 September 1924) for his automatic movement system. This was formed of a pivoted weight moving backwards and forwards around the movement, buffering off springs and winding the watch in a hammer-like action (see fig. XXX [image 1081]). Quite apart from the automatic system itself, Harwood’s genius also lay in the development of a hand-setting system which dispensed with the need for either a button/crown or key, meaning that the entire movement could be encased and,

potentially, hermetically sealed. Ingeniously, the hands were set by turning the bezel of the watch. [image 266]

Harwood approached, among others, Schild SA, a Swiss movement manufacturer who went on to commercially develop Harwood’s watches together with Fortis. By mid-1929, Harwood watches were being acclaimed on both sides of the Atlantic and were available at hundreds of prestigious outlets. Blancpain manufactured watches with Harwood’s movement for the French market, and in the USA watches with Harwood’s movements were sold by the Perpetual Selfwinding Watch Company.¹ The future of the Harwood watch seemed assured, yet the vagaries of history dealt a crushing blow. On Tuesday 29 October 1929, the Wall Street Crash heralded a cataclysmic economic depression. This, coupled with the high production costs of the Harwood watches and the delicacy of their movements, saw the venture quickly unravel, and the Harwood Self-Winding Watch Company ceased trading in 1931,² filing for bankruptcy in December the following year.



GIVE GREY B/G

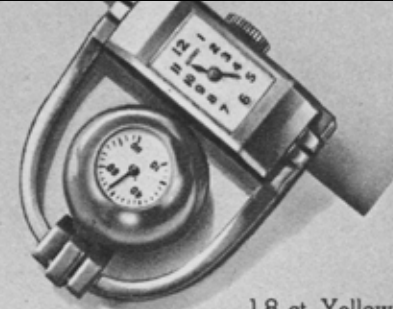


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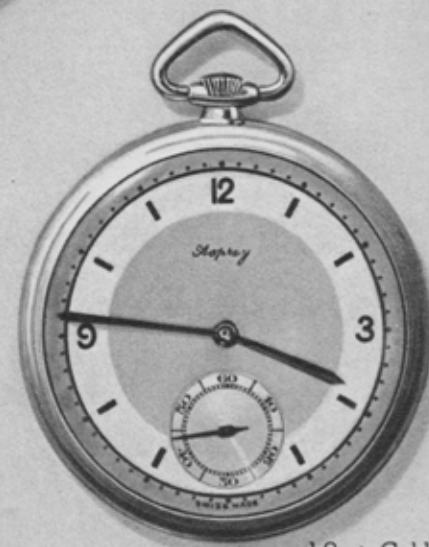
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ASPREY PURPLE

1930-1939

The effects of the Wall Street Crash and its aftermath were dramatic for the Swiss watch industry. From a height of almost 21 million watches exported in 1929, shipments crashed to a little over 16 million in 1930 and just above 8 million in 1932.¹ Despite this seemingly cataclysmic turn of events, the 1930s proved, from the outset, to be one of the most inventive and creative decades for watchmaking in the whole of the twentieth century. Many icons of twentieth-century watch design made their entrance in the first few years of the decade, including LeCoultre’s Reverso, 1931; Rolex’s Oyster Perpetual of 1931–34; Patek Philippe’s Calatrava, 1932 (fig. XXX) [image 276]; and the Cadenas by Van Cleef & Arpels, 1935. These watches would be joined by an array of other novel designs as the decade progressed.

Despite the early failure of the pioneering automatic wristwatch company of John Harwood, watchmakers still vied with one another to produce a commercially successful watch that could wind itself. A host of solutions were proffered, some rather outlandish, including whole movements and dials that whizzed back and forth on runners within a case. Waterproofing the watch remained another important area of development. The popularity of rectangular watches challenged many case makers to experiment with waterproofing the ‘shaped’ watch. Omega provided one solution in the form of the ‘Marine’ case, which was introduced in 1932; several others would follow (see p. XXX image XXX).

Watches with their time shown in apertures, rather than via a traditional analogue dial, were increasingly prevalent, especially during the first half of the 1930s. However, while they were made and sold in relatively large numbers at the less expensive end of the market, they remained relatively few and far between at the higher end. Other forms of unusual time display included a series of watches made by Verger Frères for Vacheron Constantin. Known as *bras-en-l’air*, literally ‘arms in the air’, these watches used figures, animals or objects to indicate the time. Figures XXX and XXX [image 1084 & 1085] illustrate two examples of these watches, with a design of a magician applied to the centre of one and an American eagle to the other. They were operated via a pusher to the left case side which, when depressed, would cause the magician’s arms or eagle’s legs to be raised; these would then indicate the time – to the left the hours and, to the right, the minutes.

ABOVE Patek Philippe Calatrava, ref. 96, made in 1937.
A steel circular wristwatch with flat bezel



OPPOSITE, TOP Verger Frères for Vacheorn Constantin, c. 1930.
An 18 ct white and yellow gold keyless lever bras-en-l’air watch (cal. RA 17” 15/12)
Diameter XXXX

OPPOSITE, BOTTOM Verger Frères for Vacheron Constantin, c. 1930.
An 18 ct white and yellow gold keyless lever bras-en-l’air watch (cal. RA 17” 15/12)
Diameter XXXX



REMOVE REFLECTION AND ADD SHADOW LIKE IMAGE BELOW





OPPOSITE Cartier, hallmarked 1933.
An 18 ct yellow gold and enamel
rectangular wristwatch with shutters
concealing the dial, movement by the
European Watch & Clock Co.
Length 38 mm

BELOW, LEFT Image Movado driver's
wristwatch, c. 1935.
A steel wristwatch with deeply curved,
cuff-form case

BELOW, RIGHT Cartier Tank, made in
1930.
A platinum rectangular wristwatch with
platinum brick link bracelet, with
movement by the European Watch &
Clock Co.
Length 30.5 mm

CUT OUT / REDUCE SHADOW, REFLECTION



REDUCE SHADOW, REFLECTION



CUT OUT



other clear advantage, in a time of austerity, was the cost of steel versus that of precious metals. As an option, steel allowed manufacturers to increase their range, offering models in a variety of different case metals at correspondingly varying prices, potentially expanding their customer base. Mixed-metal cases also became more visible – combining steel bodies with yellow or pink gold panels and/or caps, for example, helped enhance and vary case design. [image 858] Such mixing of metals was also frequently seen in solely precious metal cases, where combinations of white and yellow golds proved particularly popular. At the most exclusive end of the market, contrasting sections of platinum and yellow or pink gold might also be used. Rectangular cases were well suited to such treatments, and the popularity of this form during the 1930s saw a great diversity of oblong styles emerge, many with stepped sides in steel or a combination of metals in differing colours.

Metal dials had almost entirely supplanted the traditional enamel dial, and experimentation was rife.



RIGHT Vacheron Constantin, c. 1925.
An 18 ct yellow and white gold rectangular wristwatch
Length 32 mm

REDUCE SHADOW, REFLECTION

BELOW, LEFT Patek Philippe, ref. 453, made in 1937.
A steel and pink gold wristwatch with three-tone dial and T-bar lugs (cal. 10'')

BELOW, RIGHT Universal Genève Prince, retailed by Hermès Paris, c. 1935.
An 18 ct yellow gold wristwatch with black lacquered dial (cal. 246)
Diameter: 29.5 mm

Not only could metal dials be made faster and in larger numbers, but the range of potential decorative finishes was limitless. Numerals and indexes could be applied, painted or punched outwards, tracks could be added in a variety of finishes, sizes and thicknesses, subsidiary dials could be decoratively engine turned. The surface of the dial could be lacquered [image 903 or 904], painted, or sectoried and ‘shaded’ by varying the satin finishes across the surface. While many techniques had been employed before, it was the experimentation of design in the 1930s that transformed the dial’s appearance. Such variation meant that watch houses could offer a greater range of designs, yet without the need for a large quantity of watch models: the same model could be fitted with several different dial options, from classic and traditional to modern or avant-garde.

There is no doubt that it was the wristwatch that primarily drove the creativity of the 1930s. The innovation and foresight of watch manufacturers in the dark days following the Wall Street Crash was already

proven by the mid-1930s; in 1934, twice as many wristwatches as pocket watches were being exported from Switzerland. Yet pocket and purse watches still played an important part, and forms and styles continued to be shared and modified between the different genres. In addition to the creative and experimental watch cases of the period, also emerging was what we now consider to be the classic forms of the circular and rectangular watch. By the end of the decade, an entirely new structure and pattern book existed for the watch; indeed, such variety of form and style had been developed that the influence of the 1930s can still be found in watchmaking today.



MATCH GREY B/GS



SHUTTERS AND SLIDES TO PROTECT THE WATCH

Jaeger-LeCoultre's Reverso is undoubtedly one of the icons of twentieth-century watchmaking [image 825 A & B and 1163]. The case was developed by the designer René-Alfred Chauvot, who filed his patent in France under no. 712.868 on 4 March 1931. The patent application was described as being for: '[Une] montre susceptible de coulisser dans son support et pouvant se retourner complètement sur elle-même' – that is, a watch that could slide within a holder and turn completely upon itself.

The French patent was granted on 14 October 1931, and the rights were purchased before its publication by the Swiss businessman César de Trey. In November the same year, de Trey formed a marketing company with Jacques-David LeCoultre called Spécialités Horlogères in order to market the Reverso. During the early years of the Reverso's production, a small number of Reverso cases were sold to other companies, including Cartier, Favre-Leuba, Hamilton, Patek Philippe and Vacheron Constantin. However, in 1934 Spécialités Horlogères was renamed the Société de Vente des Produits Jaeger-LeCoultre, and it was this firm that acquired the Reverso patent.

The Reverso's primary aim was to protect the glass of the watch, and from the outset the model was aimed at the sportsman. It is said that César de Trey had originally approached Chauvot to design a watch that could withstand the rough and tumble of a game of polo – de Trey had apparently seen a gap in the market when challenged to produce a shock-proof watch by a polo player whose watch glass had just been broken during a match. With its elegant, clean lines and rectangular shape, the watch's design was perfectly suited to the Art Deco period. Reversing to a plain back, the watch also offered the tempting possibility for the buyer to personalise their watch with their own initials, their family crest or a unique decorative motif. Early advertisements for the model already showed examples with monochrome, enamel-decorated initials and monograms.

REDUCE SHADOW, REFLECTION

RIGHT LeCoultre Reverso, patented in 1931, this example c. 1935. A steel rectangular reversible wristwatch with black dial and centre seconds Length 33 mm, width 23 mm

OPPOSITE Advertisement for the Jaeger-LeCoultre Reverso from December 1932

RESCAN

ILLUSTRATION

10. DECEMBRE 1932

REVERSO

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During the 1930s, other solutions for protecting the watch's glass continued to appear. One of the most eye-catching models was named the Montre à Volets (Shutter Watch) and designed by the Parisian jeweller Verger Frères. These watches, with shutters over the dial, were designed to open and close rather like a Venetian blind. Made in wrist, pocket and pendant form, they are wonderfully redolent of the Art Deco period. The cases were designed with two crowns, one at three o'clock and another at nine, creating a perfectly symmetrical shape to the watches. While the crown at three o'clock acted as a standard button for winding and hand-setting, the opposing crown at nine o'clock opened and closed the shutters, in turn revealing or concealing the watch's dial and creating a protective barrier for the crystal. Watch cases made by Verger Frères were extraordinarily creative, and during this period the company had an especially close working relationship with the watchmaker Vacheron Constantin. Figure XXXX [image 821] illustrates a Vacheron Constantin Montre à Volets wristwatch with a case made by Verger Frères in 1930. The case is composed in two colours of gold, with a white gold body and flat, yellow gold bezel engraved with stylised Art Deco and triangular hour indexes

that have been filled with enamel paint. The shutters themselves are formed of banded yellow and white gold. Movado continued to develop and market their Ermeto range (fig. XXX [image 864 A & B]), with a whole variety of different styles appearing during the 1930s, while Rolex released a pocket watch version of their rectangular Prince with a spring-released cover over the dial – this was marketed to both men and women and named the Sporting Prince or Sporting Princess accordingly [image 1165]. Figure XXXX [images 863 A, B, C] shows one such watch, signed by Texina (a sub-brand of the Swiss watchmaker George Dimier SA). Instead of the vesta case's hinged lid, the user slid the front cover backwards to reveal the time on the dial within. This example has a sprung closure so that, when the cover is released, the cover automatically closes on concealed runners. Made in 1931, this form of purse watch remained particularly popular during the first half of the decade, with examples often made in sterling silver with decorative, engine-turned covers, frequently with a blank cartouche to allow the owner's initials to be engraved. One advantage of the design lay in the fact that it could be operated with one hand, and for those examples with a sprung closure, checking the time was particularly quick and easy.



BELOW Vacheron Constantin Montre à Volets with case by Verger Frères, made in 1930.
An 18 ct yellow and white gold square-shaped wristwatch with shutter-form cover to the dial (cal. XXX)
Width XXX mm

OPPOSITE, TOP Movado Ermeto, c. 1935.
A steel and leather-covered centre seconds purse watch (cal. 157)
Width (closed) 49 mm

OPPOSITE, BOTTOM Rolex Sporting Princess Ref. 1563, c. 1935.
A steel duo-dial purse watch with hinged red lacquered cover (cal. Extra Prima)
Length 40 mm

CUT OUT



CUT OUT



BELOW AND OPPOSITE Texina Impervo,
hallmarked 1931.
A sterling silver purse watch with
engine-turned sliding cover (cal. 2001)
Width (closed) 46 mm

CUT OUT



CUT OUT



CUT OUT



AUTOMATIC WATCHES AND THE ROLEX PERPETUAL

During the early years of the 1930s, a host of automatic movements were developed by a variety of different watch manufacturers. Some, such as the Glycine and Autorist automatics, were based around John Harwood’s ‘hammer’ automatic movement. Skirting around the Harwood patent was doubtless made easier by the watchmaker’s bankruptcy, which perhaps meant a challenge to the patent was less likely. Other makers approached the automatic movement in rather unusual and novel ways. The Rolls automatic (designed by Léon Hatot SA of Paris), for example, incorporated a movement that, with its dial, slid up and down within the watch case, the motion of which activated a lever mounted on the frame to wind the watch (see fig. XXX [image 1138]). As it reached either end of the case, the movement and dial buffered off springs. Although intriguing to see in action, the constant swinging back and forth of the dial may easily have proved an irritation to the user, and this model was produced for only a short period – about 1930 to 1934.

Rolex were ultimately the winners of the early battle for dominance of the automatic field. In 1931 a self-winding ‘perpetual’ movement was designed and patented by Emile Borer of Aegler (Aegler being Rolex’s primary movement supplier). Research suggests that the first Rolex Perpetual watches were released two or three years later, towards the end of 1933 or early in 1934.¹ The highly competitive environment meant that Rolex would have been keen to secure a patented, winning design, but in light of the complaints over the inefficiency of early automatic models by some of their competitors, Rolex would have been particularly focused on ensuring that, upon release, their automatic watch was heralded as a success. Rolex’s early automatic movements were to be fitted into the firm’s Oyster case; in so doing, Rolex’s founder’s dream of a perpetual watch that would not require daily winding and need not be taken off when in water was to be realised.

Part of the success of Rolex’s automatic movement was in not attempting to reinvent the entire mechanics of the

BELOW Rolls, c. 1930–34.
A silver, rectangular, automatic wristwatch, the movement and dial sliding within the case to wind the watch



BELOW, LEFT Rolex Oyster Perpetual, c. 1934–35.
A steel automatic wristwatch
Diameter 32 mm

BELOW, RIGHT Detail of the rotor module from the Rolex Oyster Perpetual

calibre. These early Perpetuals used a standard, manually wound calibre movement, onto which the automatic rotor mechanism was mounted. This had the advantage of using a tried-and-tested base movement, rather than integrating an automatic system, from scratch, into an entirely new movement. Although requiring a thicker watch case to accommodate the automatic module, the system meant that a full rotor, moving freely and continuously in a 360-degree arc, could be used. Such a system resulted in a quieter movement, which contrasted with the ‘hammering’ action from a semi-rotor buffering off springs, as in the Harwood, or the sound of a movement sliding on runners as in the Rolls automatic. Crucially, this watch also allowed the watch to be manually wound if required, something that had not been possible in other early automatic watches. The Rolex Perpetual had a 35-hour power reserve that could be obtained by, on average, less than half a day’s wear. Illustrated in fig. XXX [IMAGE 849] is a particularly early example of the Rolex Oyster Perpetual which dates to about 1934–35.

The back of the movement is shown in fig. XXX [image 850], with the semi-circular rotor mounted uppermost. One can see instructions in both English and French engraved to assist the watchmaker in dismantling the rotor work in order to access the main body of the movement beneath – perhaps a nod to watchmakers who had been quick to criticise the complexity and difficulty of servicing other early automatic watches.

By sealing the watch successfully in the Oyster case and ensuring the watch stayed running automatically, Rolex had in fact created a sensational timepiece. The enemies of the mechanical movement – dirt, dust and water – could be kept at bay even more successfully with the Perpetual, since manual adjustment of the time would be required perhaps no more than once per week, even by the most punctilious. This meant the crown was hardly ever unscrewed, ensuring that a tight seal was maintained at all times. With such brilliance of design, it is little wonder that the Oyster Perpetual remains the basis for Rolex’s success today.



EIGHT-DAY WRISTWATCHES

With convenience in mind, and given the perceived lack of reliability of early automatic watches, another solution was offered in the form of the ‘eight-day’ wristwatch. As its name suggests, such a watch required winding only once a week; however, although eight-day movements were not uncommon in small desk timepieces, this genre’s miniaturisation and application to a wristwatch was both a tricky and costly exercise. In 1931 LeCoultre introduced their calibre 9/12 GVH, one of the first shaped calibres for wristwatches that offered an eight-day power reserve. The great challenge in producing a long-duration movement is ensuring the even distribution of power throughout the watch’s running period – when a movement’s spring barrel is fully wound, its power is at its greatest, but as the spring uncoils, this power is reduced. Unless the release of energy from the spring is evenly controlled by a precision-gear train and escapement, the varying strength of a mainspring can play havoc with a watch’s timekeeping. For a watch wound daily, with a power reserve of 35 hours or so, such variances can be easily adjusted for; however, a movement with a duration of eight days presents a far greater degree of complexity. Part of LeCoultre’s solution was in utilising two mainspring barrels instead of a standard single barrel. In order to accommodate both barrels, the LeCoultre movement was

a broad rectangle in shape, with the two large barrels fitted at either end of the movement (see fig. XXX) [image 851]. The movement’s shape and size (28 mm 19.73 mm) meant that it was ideally suited for use in the fashionable rectangular wristwatch cases of the 1930s. Vintage eight-day wristwatches are extremely rare. For example, research suggests that only four examples were made by Patek Philippe in the 1930s using *ébauches* by LeCoultre; fig. XXX [image 852 A & B] shows one of these watches. This particular watch was made in 1931 with an 18 ct yellow gold rectangular case. Cartier also produced a small number of eight-day wristwatches during this period, introducing their version of the model in 1931, using the same LeCoultre *ébauche* discussed above. The movements were fitted to Cartier’s elongated, rectangular Tank Allongée cases. In addition to the maker’s signature, the dials of these watches were invariably marked ‘eight days’.

It seems strange that eight-day watches did not prove more popular. Despite the exceptional quality of the LeCoultre movements, perhaps there was a reluctance among the public to put their trust in a watch that would be wound only once a week, or maybe their original cost simply proved too prohibitive compared to aesthetically similar watches with standard, daily-wound movements.

BELOW Patek Philippe ‘eight days’, made in 1931.
An 18 ct yellow gold manually wound wristwatch with eight-day duration
Length 38.5 mm, width 22 mm

OPPOSITE Patek Philippe eight-day duration movement incorporating a LeCoultre *ébauche* made in 1931 (cal. 9”) – this movement is housed in the watch illustrated in image 852



CUT OUT

LINDBERGH AND WEEMS

Longines were quick to associate themselves with the pioneers of flight. The watchmaker’s chronographs and chronometers were supplied to many early air expeditions as aids to navigation. In May 1927 Charles Lindbergh, a 25-year-old American pilot, flew from Roosevelt airport on Long Island, New York, to Le Bourget airport just outside Paris, thereby becoming the first person to fly non-stop and solo across the Atlantic. At the time, Longines was the official timekeeper for the World Air Sports Federation and was responsible for timing Lindbergh’s flight. Following this flight, Lindbergh and Longines worked together to develop a pilot’s watch. The result was an ‘hour angle’ watch, appropriately known as the Longines Lindbergh. With a massive case measuring 47 mm in diameter, the Longines Lindbergh was designed for visual clarity and ease of use while in the air. Acting as a tool to find longitude, by calculating the time difference between the pilot’s current location and Greenwich, the difference could be turned into degrees of longitude. The watch was in fact just one part of the navigational calculation, since the

pilot/navigator would also need to be able to determine the solar time of their current position, as well as the equation of time. As the earth makes one rotation of 360 degrees every day, each hour may represent 15 degrees. Consequently, each 15-degree increment was printed beneath the hour numerals displayed on the Longines Lindbergh dial, to aid the positional calculations. Bordering the case, a rotating bezel was calibrated to allow correction for the equation of time. At the dial centre, a separate rotating disc permitted synchronisation to the second; a separate crown to the case side adjusted the seconds, and these could be accurately set using a radio signal transmitted to the aeroplane. Seconds synchronisation was important since the inaccuracy of a few seconds could lead to several miles of navigational error. This seconds setting feature was in fact originally developed in conjunction with Longines by the naval Captain Philip van Horn Weems and patented in 1929. Although initially intended for naval navigation, its application to air navigation was quickly recognised by Lindbergh and others [image 923].

OPPOSITE Longines Lindbergh, ref. 3210, made in 1938.
A large silver hour-angle wristwatch (cal. 18.69N)
Diameter 47 mm

BELOW Longines Weems, ref. 5350, made in 1937.
A large silver second-setting watch (cal. 18.69Z)
Diameter 47 mm





OPPOSITE Audemars Piguet no. 43792, made and sold in 1938 to the Geneva retailer Bader Mel Maxima.

An 18 ct yellow gold chronograph wristwatch with three-tone dial, outer telemeter scale continuing to inner spiral, subsidiary dials for constant seconds and 30-minute register, and luminous radium hour indexes and hands (cal. 13CHRO CPT) Diameter 33 mm

BELOW Universal Genève Compur, c. 1936.

A steel medical chronograph wristwatch with black lacquered dial and outer pulsometer scale, subsidiary dials for constant seconds and 45-minute register (cal. 281) Diameter 30 mm

1930s CHRONOGRAPHS

Throughout the 1930s, the appearance of the chronograph wristwatch became increasingly common. Multiple scales, including tachymeters, telemeters and pulsometers, were added to dials to allow the watch to perform a variety of functions. While many owners may have used their chronographs for little more than timing a boiled egg, these were edgy, modern timepieces that were perfect for watchmakers to market to a public whose attitudes to the wristwatch were just beginning to turn in the latter's favour. Modern, complex and with swirling calibrations which were often banded in multiple colours, these watches had a sense of purpose beyond simple time telling. The intricacy of their dial calibrations also had the advantage of suggesting that the watch was of superior precision [image 86o].

While not all this gadgetry may have been used for its intended purpose, there were genuine and important uses for the chronograph. Timing motor cars during races was of course essential for the organisers, yet the wrist-chronograph also allowed the amateur enthusiast to

keep their own records. Dials that were calibrated with tachymeters would, for example, enable the user to easily compute the speed of a car when travelling over a set distance. For the doctor, the pulsometer chronograph was an extremely helpful tool [image 862]. Such medical dials were calibrated and marked for a specific number of pulses – for example, if graduated for 30 pulsations, the doctor would start their chronograph as they began counting their patient's pulse and stop it again after feeling the subject's thirtieth pulse; the now static seconds hand would display the patient's pulse rate per minute against the scale printed at the edge of the dial. Chronographs also had their uses for photographers as a tool to time exposures; within industry, meanwhile, a dial calibrated for production counting could be used, for example, by a factory manager to time how long a component took to make and, by using the corresponding scale, calculate hourly production rates.

Prior to the 1930s, the single-button chronograph had largely dominated this genre, often with all functions

MAKE B/G GREY



activated via the crown. In such watches, the crown was multifunctional, allowing the watch to be wound and set in addition to starting, stopping and resetting the chronograph. An alternative format separated the pusher from its crown, placing the former to the case side, usually just above the crown (see fig. XXX [image 861]). As the 1930s advanced, however, the use of two buttons became increasingly common. Such an arrangement had the advantage of lending the watch a more balanced, symmetrical design, with a pusher placed above and below the crown. The upper pusher would usually be equipped to start and stop the chronograph, while the lower pusher would reset to zero, although variations of function were common – some chronographs, for example, started solely via the upper pusher and then were stopped and reset via the lower pusher. In design terms, the harmonious placement of twin chronograph pushers was dominant by the end of the 1930s [image 862]. Universal Genève were one of the leading developers of chronographs and among the first to introduce the two-button chronograph in 1934; the watchmaker was also the first to introduce an hour

register in addition to minute register to the dial of a chronograph wristwatch.

Towards the end of the decade, Rolex launched a very small series of fly-back centre seconds wristwatches under the reference number 3346 [image 954]. Although not strictly speaking chronographs, these watches were nevertheless intended for timing. Known by either the model name Centregraph or Zerograph, the watches had a continuous centre seconds hand and a single pusher which, when depressed, would reset the centre seconds to zero, upon which it would immediately restart running. The fly-back function was especially useful to aviators and those who needed to time repeated events in succession. However, the most significant feature of the watch was its rotating bezel, which was calibrated to 60 seconds/minutes. By aligning the 0/60 marker of the bezel with either the second or minute hand, the user could read off either seconds or minutes elapsed against the bezel. This was the first time that Rolex had added a rotating bezel to its Oyster model, and it was a feature that would play an important part in the formation of a new range of sports watches, more than a decade later, in the 1950s.

BELOW Tissot, c. 1938.

A steel single-button chronograph wristwatch with two-tone dial, outer telemeter scale continuing to inner spiral, subsidiary dials for constant seconds and 30-minute register, and black Arabic numerals (cal. Lemania CHT15)
Diameter 37 mm

OPPOSITE Rolex Oyster Centregraph, ref. 3346, c. 1937.

A steel wristwatch with fly-back centre seconds and rotating calibrated bezel (cal. 10½")
Diameter 32 mm

CUT OUT



MAKE B/G GREY



PERPETUAL CALENDARS

OPPOSITE Breguet No. 3282, made in 1935.
A white gold perpetual calendar wristwatch
with moon phases and retrograde date
(cal. 11" Victorin Piguet ébauche)
Diameter 30 mm



Perpetual calendar watches are among the most mechanically sophisticated timepieces in horology. Displaying the days of the week, months of the year and date, they will also self-adjust for the varying lengths of the months and even the extra day of 29 February in a leap year. In other words, as long as a perpetual calendar watch is kept running, it will continually show the correct date without any need for adjustment by its owner.

Although by 1930 examples of the perpetual calendar pocket watch had been made for around 170 years – quite possibly the earliest was made by the English watchmaker Thomas Mudge in about 1762¹ – the application of this form of calendar mechanism to a wristwatch was extremely rare. At a time when the majority of circular men’s wristwatches were between 28 and 32 mm in diameter, the physical display area available on the watch’s dial was very restricted. Traditionally, perpetual calendar pocket watches had commonly (though not always) displayed their calendar indications separately, in subsidiary dials for days of the week, months of the year, date and often, additionally, a counter displaying the leap year cycle itself. Cramming all these registers onto a wristwatch’s dial while ensuring they were still useful and legible was certainly challenging. Part of the solution to this issue was dispensing with the dial indicating the leap year cycle and incorporating apertures in place of dials for the display of the days of the week and months of the year; this meant that only one additional scale was then required for the date indication. While not an entirely

new concept, as calendar apertures had previously been used in pocket watches, their use in the calendar wristwatch became more prevalent from this period on.

Illustrated in fig. XXXX [image 228 A or B] is an early perpetual calendar wristwatch created by Breguet in 1935.² This wristwatch has a silver dial with traditional Breguet styling: a variety of decorative, engine-turned finishes and classic Roman numerals on a satin-finished chapter ring. The movement’s *ébauche* was manufactured by Victorin Piguet, a family firm of watchmakers specialising in mechanical complications, especially calendars, chronographs and repeaters. Between them, the Piguet family executed a dazzling array of mechanical masterpieces, often incorporating unusual features such as, in this instance, a retrograde date: rather than showing the date as a full, circular display, the movement of this watch is geared to show the date in a wide arc. This required an additional mechanism to ensure that the gold sword-shaped date hand would jump across the dial to the 1st as each month ended – having already adjusted to the length of the month. Quite apart from the pleasing action of the retrograde hand, calibrating the date in an arc greatly enhanced the clarity of the dial’s display by not interfering with or overlapping the other indications. Indeed, the only major obstruction to the display is the broad, sword-shaped date hand, which rather obscures from view the aperture for the day of the week on the 5th of each month and the aperture for the month of the year on the 27th day of each month. A remarkable watch, this Breguet cost 10,000 francs when it was sold on 24 December 1935.

WORLD TIME WATCHES

Watches that indicated different time zones around the world were not new, and the most common way to show these zones was via a series of subsidiary dials (see p. XXX, fig. XXX). Unifying the display on a single dial to allow local time to be read in a convenient manner, while also indicating the hour in a variety of locations around the world, required some clever mechanical engineering, and the dominant figure of this genre was the Swiss watchmaker Louis Cottier.

Louis-Vincent Cottier, a watchmaking genius from Carouge, just outside Geneva, was the son of Emmanuel Cottier, the latter a maker of watches and automata. Louis was obsessed with how a watch displayed time, inventing ingenious ‘complications’ for watches that displayed time without hands, such as jumping digital-hour watches and even a linear, dashboard-inspired time display. He also created specialist aviator watches and, like his father, automata. In 1931 Louis invented the Heure Universelle mechanism, which would allow the hour in each time zone to be displayed simultaneously.

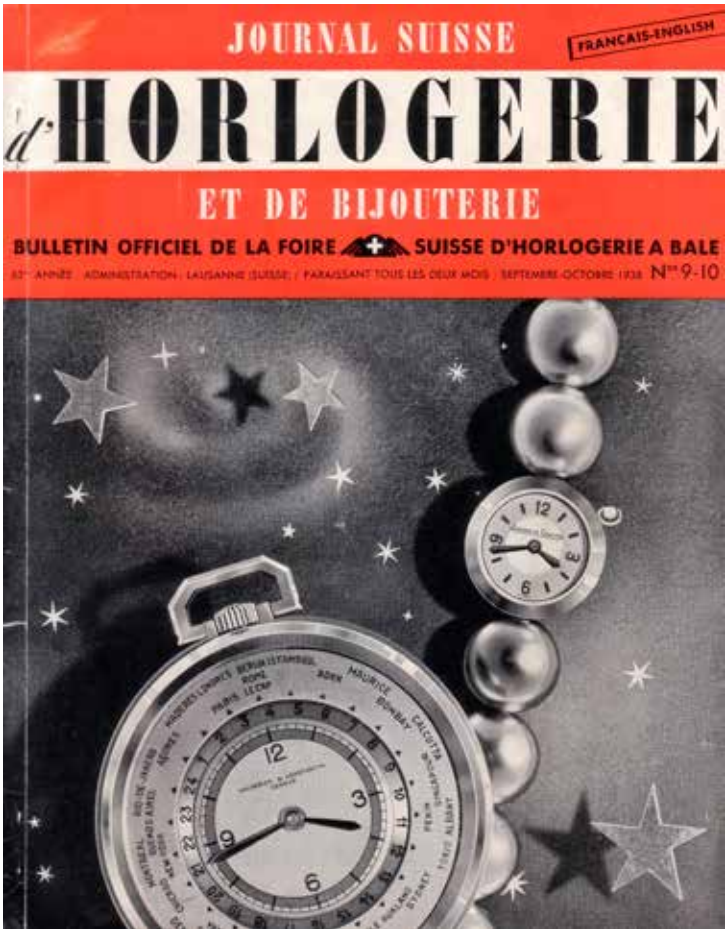
Cottier produced this complication for a variety of watch firms, including Agassiz, Patek Philippe, Rolex and Vacheron Constantin.

Made in 1933, the watch illustrated in fig. XXXX [image 58] is one of the earliest examples of a world time watch to incorporate Louis Cottier’s Heure Universelle mechanism. Elegantly designed and intuitive to use, with the owner’s time zone displayed at the twelve o’clock position and the hands set to the current time zone, the recessed 24-hour ring will rotate as time advances, so that one can view the current hour in all major time zones. These zones are marked with triangular indexes, and a variety of cities and locations are displayed on the bezel, some in multiple, so that a total of 31 named positions are shown. Since the case, dial and movement are all integral to the technical function of the watch, Cottier would have supervised the production of each element. Interestingly, the dial of the present watch shows London and Paris indicated in the same zone: Greenwich Mean Time. It was not until 15 June 1940 –

BELOW, LEFT Image 58 A or B – Vacheron Constantin Ref. 3372 no. 416362, made in 1933.

An 18 ct white and pink gold open-faced pocket watch with world time indication displayed on a three-tone dial, the world time mechanism made by Louis Cottier (cal. RA 17” 15/12) Diameter 45 mm

BELOW, RIGHT Image 58 D – Cover of the 1938 *Journal Suisse d’Horlogerie et de Bijouterie* illustrating another of Vacheron Constantin’s world time models using the Cottier system



ABOVE Image 842 – Patek Philippe Ref. 1416, made in 1939.
An 18 ct yellow gold world time wristwatch, the world time mechanism made by Louis Cottier (cal. 12” HU) Diameter 31 mm

during and because of the Second World War – that Paris converted to Central European Time. Cased in two-colour gold, the watch has an 18 ct white gold bezel and case back, while the band, pendant and bow are all made from 18 ct pink gold.

As international communication and travel continued to develop, the world time watch would become an increasingly useful gadget. Wrist versions of the world time watch began to appear before the end of the decade. In 1939 Patek Philippe introduced two such models, the Ref. 1415 and Ref. 1416 [image 842]. These wristwatches had a rotating bezel engraved with a variety of world locations, representing the different time zones. The user simply rotated the bezel so that their current location/zone was indicated at the twelve o’clock position, and when the hands on the watch were then set to their local time, the dial’s outer 24-hour ring would indicate the hour in each zone around the world. Throughout the 1940s and ’50s the major watch houses continued to offer models with world time mechanisms by Louis Cottier, both in pocket and wristwatch form.

THE HENRY GRAVES SUPERCOMPLICATION

In 1925 one of Patek Philippe’s greatest patrons, Henry Graves Jr, commissioned the watchmaker to create the most complex watch ever made. During the previous two decades, Patek Philippe had increasingly received special requests from the rich businessmen and industrialists of the United States. Henry Graves was himself a wealthy man, born into a prominent banking family; his father, Henry Graves Sr, was a partner in the New York bank Maxwell & Graves. Another major patron of Patek Philippe during this period was the automobile manufacturer James Ward Packard. Between them, Graves and Packard appeared to vie with one another to obtain watches of ever greater precision and complexity from the major watchmakers, especially those made by Patek Philippe. For the watchmakers, the revenue that these commissions brought was of course very welcome; however, the attempts to create ever more complex and ingenious functions and displays also pushed the makers to the very limits of horological possibilities. This process enabled the development of new systems of display and, crucially, improvements in the miniaturisation of parts, which in turn would allow further innovation in the smaller scale of the wristwatch.

Henry Graves’s commission would become known as the Supercomplication and included an astonishing 24 functions/complications. Such was the complexity of the watch that it would take almost eight years to complete, requiring years of planning, study and experimentation before construction could begin in earnest. Patek Philippe engaged the services of many of the finest Swiss watchmakers, astronomers, mathematicians and dial and case makers of the day. Finally, in December 1932, Patek Philippe was able to ship the completed watch from Geneva to New York, accompanied by a rather nervous letter directed to the customs officials, pleading with them not to wind the watch or test its functions.’ The Supercomplication was delivered to Henry Graves on 19 January 1933.

In order to incorporate all the visual forms of its complications, the watch was double-dialled. To the front or ‘mean time’ dial, standard time was displayed together with: a perpetual calendar showing days of the week, months of the year, date and phases and ages of the moon; a split-seconds chronograph with registers for 60 minutes and 12 hours; a subsidiary seconds dial; further dials for indicating the state of wind (the power remaining in the spring barrels) of the strike and going trains; and an additional gold central hand for alarm time indication. To the back or ‘sidereal’ dial, sidereal time

was displayed together with: times of sunrise and sunset; the equation of time; subsidiary seconds; and a large aperture displaying the star chart for the night sky over New York City. In addition to the alarm function, the watch also included *grande* and *petite sonnerie* (striking time in passing, like a clock), and minute repetition for chiming time on demand. The watch weighed 535 g and had a traditional case design of *bassine* form, yet of course the watch’s complexity meant that it had unusually large proportions: a diameter of 74 mm and a depth of 36 mm (including the glasses). Thirteen functions were operated from the case, via the crown and a series of slides, switches and buttons. There were a total of 900 components, including 110 wheels, 50 bridges, 430 screws, 90 springs, 120 mechanical elements, 70 jewels, 2 dials and 19 hands.² The dials were made by the specialists Stern Frères – at the time, the Stern family were in fact poised to take over Patek Philippe, and by the time the watch was delivered to Henry Graves, Charles and Jean Stern were managing Patek Philippe as the firm’s new owners. Both dials were made especially for the watch and were traditional in style, despite the immense complexity of their displays. The ‘sidereal’ dial was made from a plate of gold which was given a silvered finish, the three subsidiary dials were slightly recessed into the surface, and the disc for the sky chart was made from gold and overlaid with blue champlevé enamel; the hands were made from blued steel. The mean time dial was white enamel and had to accommodate seven layers of hands – the two split-seconds hands, hour hand, minute hand and alarm hand, and double hands within each of the subsidiary dials – all of which had to glide seamlessly above one another. To help achieve this, the subsidiary dials were ‘double sunk’ to provide extra depth. All hands to this dial were of blued steel except for the gold alarm hand; the disc for moon phases was gold, heightened with blue enamel.

For Patek Philippe and the other watchmakers involved in the watch’s construction, the huge US\$15,000 cost of the watch must have provided a welcome lifeline – its construction continued through the Wall Street Crash of 1929 and its immediate aftermath. Henry Graves’s Supercomplication watch is the most complicated watch ever made without the assistance of computer technology, and it would remain the most complicated watch made with or without computer assistance for 56 years, until the advent of another Patek Philippe watch, the Calibre 89, in 1989 (see p. XXX).

OPPOSITE Patek Philippe, Henry Graves Supercomplication, commissioned in 1925, completed in 1932 and delivered on 19 January 1933.
A gold double-dialled and double open-faced minute-repeating clockwatch with Westminster chimes, *grande* and *petite sonnerie*, split-seconds chronograph, registers for 60 minutes and 12 hours, perpetual calendar accurate to the year 2100, moon phases, equation of time, dual power reserve for striking and going trains, mean and sidereal time, central alarm, indications for times of sunrise and sunset, and celestial chart for the night-time sky of New York City at latitude 40° 47", longitude 73° 58" (cal. 25") Diameter 74 mm

Under the sidereal time dial with the sidereal time train removed, showing the time and chronograph mechanisms

Under the mean time dial with the calendar mechanism removed





CUT OUT/ REDUCE SHADOW, REFLECTION



TIER 1 -
UNDER SIDEREAL TIME DIAL
VIEW WITH SIDEREAL TIME TRAIN REMOVED SHOWING THE
TIME AND CHRONOGRAPH MECHANISMS

CUT OUT



TIER 1 -
UNDER MEAN TIME DIAL

RECTANGULAR WATCHES

Advertisements from the 1930s are filled with a dazzling array of rectangular and barrel-shaped wristwatches. Rectangular watches had, of course, increased in popularity during the 1920s, with Cartier releasing their Tank Cintrée (see p. XXX fig. XXX) at the beginning of the decade and Rolex introducing the Prince at its end.

During the 1930s the Rolex Prince was available in several different models. The watch's movement took advantage of its rectangular housing by placing the balance and mainspring at opposing ends of the movement. This allowed both elements to be larger and resulted in improved timekeeping and a longer running reserve. Indeed, almost all Prince watches sold during the decade were chronometer rated, and Rolex advertised the model as running for 58 hours on a single wind. Such accuracy and efficiency was combined with elegant styling, with the model being available in a variety of styles and a choice of metals. The consumer could pick from silver, steel, gold or platinum, with further options including combinations of white and yellow gold or steel with gold caps or mounts. Figure XXX [image 840] illustrates a classic flared-sided example of the Prince in a steel case. Interestingly, the steel Prince, which was introduced in 1934, was priced slightly higher than models in silver, no doubt in large part due to the greater labour involved in producing the case in this harder metal.¹ In addition to the choice of case style, metal and dial finishes, Rolex also released a version with jumping hours: an aperture to the dial in place of the twelve o'clock numeral displayed the hour in digital format, while a single hand displayed the minute on the upper dial, with seconds beneath.

RIGHT Rolex Prince, Ref. 1490, c. 1935.
A steel duo-dial wristwatch with flared sides and two-tone pink dial
Length 42 mm

OPPOSITE Patek Philippe Ref. 508, made in 1937.
An 18 ct yellow and white gold rectangular wristwatch with cylindrical hooded lugs
Length 34 mm

CUT OUT





MATCH GREY B/GS



Rectangular and tonneau-form watches lent themselves to highly detailed finishes, and case makers produced some exceptionally elaborate examples during the 1930s, including multifaceted, stepped cases that could be further enhanced with contrasting satin or brushed surfaces and polished chamfers. The Vacheron Constantin wristwatch illustrated in fig. XXX [image 854 & 854 B] shows an especially elaborate and beautiful example of this genre from the first half of the 1930s. Combining white and yellow gold, the case is hexagonal with multiple facets that incorporate a variety of finishes. Figures XXXX and XXX [image 367 & 367 B] display a watch by Patek Philippe that has an equally sophisticated case design. Made in 1939, this example has been treated with several contrasting satin finishes to enhance the watch's unusual shape. Such exuberant experimentation was rife in the 1930s, and even rectangular watches of classic design could be given a new twist. Cartier, who had continued to introduce new and elegant rectangular models during the 1930s, released an especially avant-garde take on their traditional tank model. Released in 1936 and known as the Tank Asymétrique (see fig. XXX) [image 855],² this was a truly modernist wristwatch,

seemingly years ahead of its time.

As the 1930s gave way to the 1940s, the rectangular watch would become a little less experimental. While watchmakers would continue to release an impressive range of shaped watches, the designer's hand was somewhat less free – the Second World War ensured production was in large part focused on satisfying the military on both sides of the conflict, while in many countries the restrictions on the import of watches for civilian use suppressed the ability of watch brands to offer the wider ranges of the pre-war period.

ABOVE, LEFT Vacheron Constantin, c. 1935.

A two-colour gold multifaceted hexagonal wristwatch (cal. 7½")
Length 38 mm

ABOVE, RIGHT Patek Philippe Ref. 510, made in 1939 and retailed by Walser Wald in Buenos Aires.

An 18 ct pink gold multifaceted, rectangular wristwatch (cal. 9"-90)
Length 42 mm

OPPOSITE Cartier Asymétrique, made in 1937.

An 18 ct yellow gold asymmetrical wristwatch with movement by LeCoultre
Length 36 mm



WATERPROOFING THE SHAPED WATCH

In 1931 Cartier released their Tank Étanche model, a wristwatch based on their already classic rectangular Tank design. Waterproofing a rectangular or ‘shaped’ wristwatch is considerably more challenging than sealing a circular-cased watch. In order to achieve the necessary resistance, the movement of the Tank Étanche, together with its dial, was first screwed into an inner gold case back; this was then surrounded by a rectangular-shaped seal made of caoutchouc, which held the crystal and integrated the stem of the winding crown; the outer gold case top and back were then fitted to the watch and the case was clamped tightly together with gold screws. Figure XXX [image 933] illustrates an early example of the Tank Étanche, the case of which was made for Cartier by Edmond Jaeger. The model appears to have been made in very small numbers, no doubt due to the complexity of producing the specially sealed case. Interestingly, Cartier would retail another form of rectangular wristwatch in the 1930s, one that was manufactured by Omega, a model known as the Marine.

The Marine, introduced in 1932, was the first wristwatch to be officially tested and certified for diving.¹ In 1936 the Omega Marine was tested by immersion in Lake Geneva to a depth of 73 metres, returning to the surface unharmed and in working order. A year later, in 1937, the Marine was officially tested to withstand pressure of 13.5 atmospheres, the equivalent of 135 m, at the Swiss Laboratory for Horology in Neuchâtel.² The Marine’s case, which was adapted from designs by Louis Alix registered under Swiss patent 146310 in 1931, was composed of two main parts. Effectively the watch was in two halves and was clamped together by means of a clip to the back of the case. The main body of the watch, which housed the dial and movement, slid into the upper case and, by means of internal gaskets, a watertight seal was achieved. Glasses that were not shaped in the round were especially difficult to waterproof, and in order to achieve a strong and tight seal around the dial aperture of the Marine’s outer case, a sapphire crystal was used – this was one of the first applications of this type of glazing in a wristwatch and at the time was advertised as being nine times as strong as glass. Steel versions of the watch were fitted with waterproof straps made of seal skin and had a special folding clasp.

Rather like the Hermetic watches of the 1920s (see p. XXX image XXX), the disadvantage of the Omega Marine was the necessity of removing the inner case daily for winding. Although the unclipping of the case to access the winder was undoubtedly a much quicker operation than unscrewing the bezel of the earlier Hermetic watches, it was still somewhat fiddly. Perhaps more

significantly, the constant uncoupling and sliding would have risked wear not only to the seals but to the metal of the case itself, both of which would have potentially compromised the long-term integrity of the watch’s water-resistance. Nevertheless, one may assume that most purchasers were not keen divers, and the general resistance the case afforded against the ingress of both dirt and moisture, as well as the added protection the double casing would have given to the crown, its stem and the movement itself, should have ensured an especially robust and reliable model. Indeed, the Marine was clearly popular, with production continuing throughout the 1930s.

The Omega Marine illustrated in figs XXX and XXX [image 827 A & B] is one of the earliest examples of the model to have been made and was sold by Omega to the US market on 26 May 1932 (the gold bracelet is a later addition). The inside of the outer case is stamped: ‘U.S. Patent Appl 520.818’; this application, which was filed in March 1931 and later granted under U.S. Patent no. 1907700 on 9 May 1933, followed Louis Alix’s original Swiss patent of 1931.

OPPOSITE Cartier Tank Étanche, with London import hallmarks for 1932. An 18 ct yellow gold rectangular water-resistant wristwatch with gold bracelet, the movement by the European Watch & Clock Co. Length: 37 mm

BELOW Omega Marine, Ref. OT 680, made in 1932. A yellow gold rectangular water-resistant wristwatch (cal. 19.4T1) Width 24 mm, length 36 mm



VAN CLEEF’S CADENAS AND A CARTIER RING WATCH

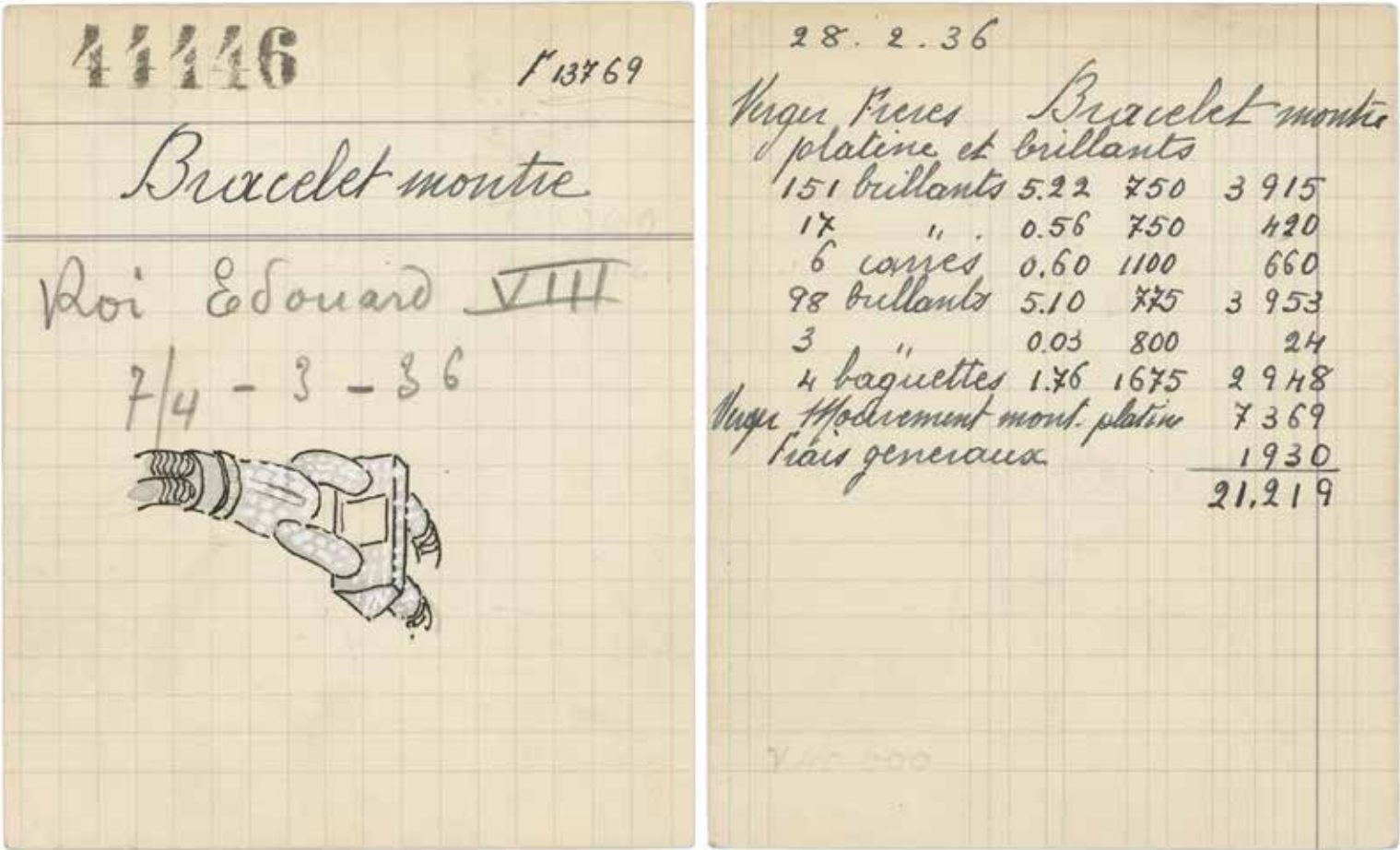
With the advent of the wristwatch, wearing time on one’s wrist was not always considered politic, and dress watches for ladies often went to considerable lengths to masquerade, first and foremost, as items of jewellery. In 1935, Van Cleef & Arpels introduced their Cadenas or ‘Lock’ watch. Designed to look like a bejewelled bracelet, it had an asymmetrically shaped case with inset dial facing the wearer. This almost wholly disguised the bracelet’s watch element, allowing the owner to view the time privately and at a glance. Figure XXXX [image 819 A] illustrates an early example of the Cadenas, dating to about 1936. The platinum case is set with single-, circular- and brilliant-cut and baguette diamonds. Two lengths of snake-form linking allow the bracelet to be attached to the wrist, while the clasp clips on to a semicircular, diamond-set hoop that sits in front of the watch’s dial and ‘locks’ the bracelet in place. This particular example was originally owned by Wallis Simpson, the Duchess of Windsor, and it is rumoured that it was the Duke (the former King Edward VIII) and

Duchess themselves who originally suggested the design concept. Other timekeeping solutions for ladies included ring watches; fig. XXXX [image 56] shows a platinum and diamond example made by Cartier. Made in 1937, the watch is housed in a geometrically designed platinum case that is set with single-cut and baguette diamonds. While it might seem rather obvious that the ring is set with a watch to its centre, the dial is only just over 4 mm in width, giving the time element itself a subtlety that, considering its setting, is rather surprising. The ring’s watch movement is LeCoultre’s calibre 101. This movement, which was the smallest in the world, had been introduced by LeCoultre in 1929; it was a mere 14 mm in length, just 4.8 mm wide and 3.4 mm thick. Comprising 74 parts, the calibre 101 weighed in at just about 1 g. The winding crown is set to the movement’s reverse, meaning that, in this instance, it is concealed from the front of the ring.

DIRECTIONAL Image 819A– Van Cleef & Arpels Cadenas, c. 1936.
A platinum and diamond-set bracelet watch
Length 170 mm

DIRECTIONAL Image 884 – Retail card for the platinum and diamond Cadenas watch formerly in the collection of the Duchess of Windsor, from the Van Cleef & Arpels Archives

DIRECTIONAL Image 56 – Cartier, made in 1937.
A platinum and diamond-set ring watch with LeCoultre movement (cal. 101)
Width 17.5 mm [AQ: correct, or 19 mm?], thickness 5.5 mm



NEEDS SCANNING



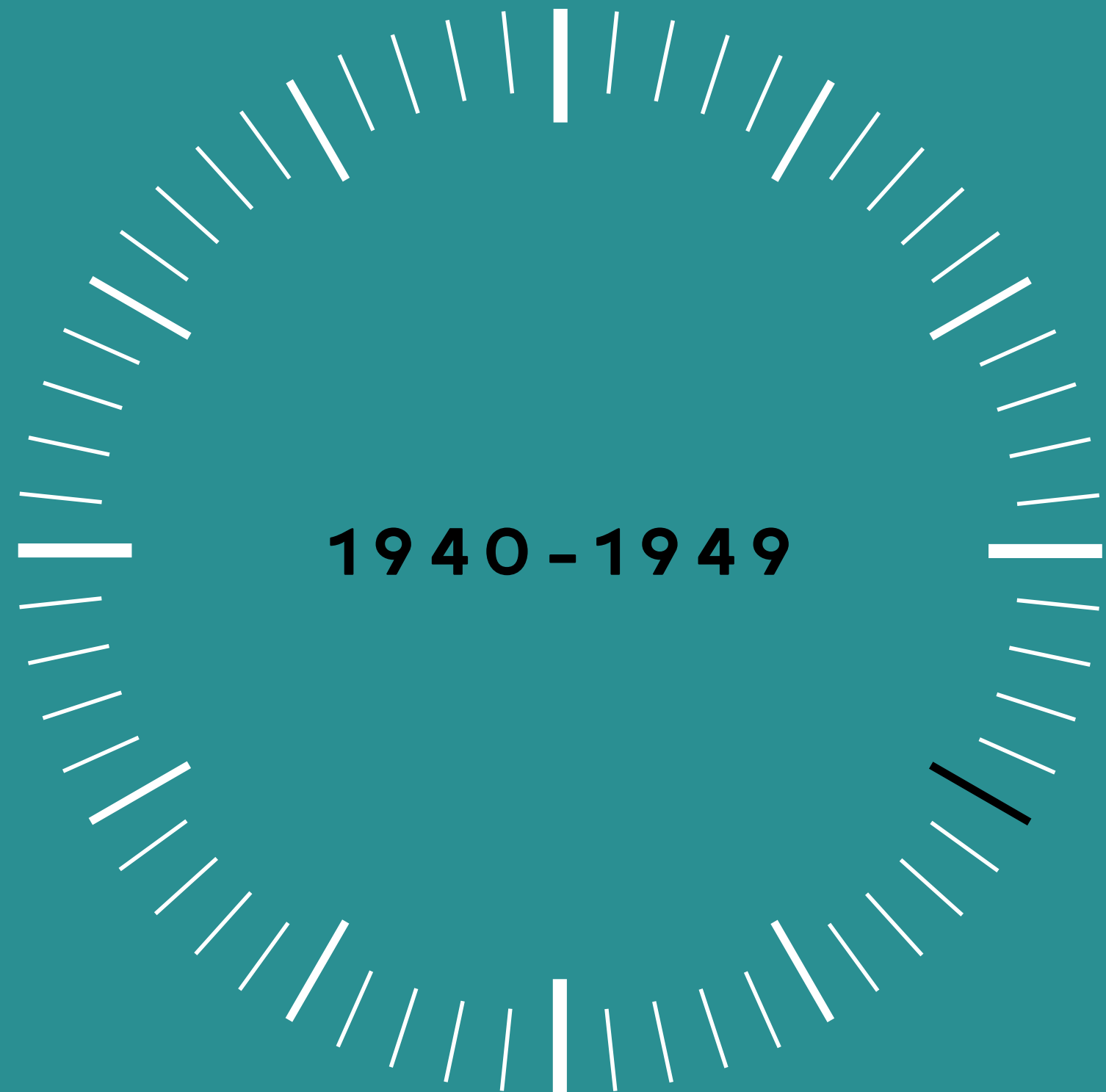
1518

Calendrier perpétuel
et chronographe compteur



Calendrier perpétuel
1526

COLOUR WILL ADJUST IF IMAGE IS RESCANNED OR CHANGED



1940-1949

THE 1940s

The 1940s marked the beginning of the golden age of vintage mechanical watch production. The threat of the electronic watch was still far in the future, and the wristwatch, by now the dominant personal timekeeper, had matured in design and form [image 1154]. The result was the increasing visibility of brand identity as firms established their house styles. Inevitably, however, the outbreak of the Second World War had a dramatic impact on the production of watches in the first half of the decade, with a significant proportion of output concentrated on supplying the armed forces on both sides of the conflict. Meanwhile, wartime restrictions placed by many countries on the import of watches limited their supply for civilian use. Total exports of Swiss watches and watch movements, which had begun to reach record highs following the economic depression of the 1930s, were suddenly subjected to renewed shock. Exports shrank from a pre-war high of nearly 24 million pieces in 1937 to reach a low of just under 12 million in 1944, the lowest figure since 1933.¹ Nevertheless,

creativity was by no means stifled, and this era would witness continued development, especially in the areas of calendar and chronograph wristwatches [image 829] . As watch brands began to refine their house styles, defining individual models became increasingly important to them. Rolex had very much led the charge in this direction. Early on, the company’s founder, Hans Wilsdorf, had recognised the marketing appeal of labelling models with specific names. During the 1930s Rolex were already using a reference numbering system, and by the end of the decade model names such as the Oyster and Prince were well established. As Rolex continued to launch new watches in the 1940s, some of the firm’s other iconic model names began to emerge, including the Air-King, which first appeared in the middle of the decade [fig. 910]. Other watchmakers followed suit, and in 1948 Omega launched their Seamaster range. Inspired by the robust, water-resistant military watches that the firm had been making for the British during the war, the Seamaster would become

BELOW, LEFT 829 – Patek Philippe Ref. 1526, introduced in 1941 (this example made in 1945).
An 18 ct yellow gold perpetual calendar wristwatch with moon phases (cal. 12’’120)
Diameter 34 mm

BELOW, RIGHT 910 – Rolex Oyster Air-King Ref. 4499, c. 1946.
A steel centre seconds wristwatch (cal. 10.5’’)
Diameter 34 mm

OPPOSITE 1154 – Patek Philippe Ref. 96, made in 1941.
A steel, circular wristwatch with black dial and radial Arabic numerals (cal. 12’’-120)
Diameter 31 mm



Omega's most enduring model line, with multiple variations produced in the succeeding decades.

The use of multi-tone dials became more prevalent in the 1940s. Already employed in the 1930s, electroplating techniques were used to deposit a layer of precious metal onto the dial's surface, usually in tones of yellow and pink gold or silver. This surface would then be meticulously worked with fine powder pastes and wire brushes to create contrasting, grained satin bands with varying depths of tone. Two-toning was often used to complement the calibrations of the watch's dial. The main dial body would frequently be finished in a single tone or colour, while the minute or hour ring was rendered in a contrasting colour or an opposing satin finish [image 192]. This was particularly effective on the dial of a chronograph, where multiple scales could be separated from one another through the use of tonal variation.

Watches with water-resistant cases continued to be introduced. Several brands turned to Taubert & Fils, a specialist case-making company that was still

manufacturing hermetically sealed cases under the name Frères Borgel. Borgel's cases during this period were usually made in two parts, with a solid upper body into which a separate case back was screwed. These robust cases were also used for calendar and chronograph models, with their pushers specially constructed to resist the ingress of water [image 914].

During the decade, protective devices were increasingly incorporated into movements to help guard the balance from shocks. Anti-magnetic parts were also commonly used within the watch's escapement – a magnetised watch will play havoc with its timekeeping. Such features were often mentioned on watch dials to emphasize the model's attributes. (see fig. XXX) [image 921].

Although watches with hooded lugs were already in use in the 1930s, their range and incorporation grew greatly during the 1940s. This style of lug produced a deliberate blurring between the watch case and its leather strap or metal bracelet. By placing hoods over the tops of the lugs, the join between band and case could be

BELOW, LEFT Rolex Oyster Ref. 3358, c. 1942.
A steel and pink gold tonneau-form wristwatch with two-tone dial (cal. 10½")
Length 38 mm

BELOW, RIGHT Patek Philippe Ref. 1463, made in 1949.
A pink gold chronograph wristwatch with two-tone dial (cal. 13-130)
Diameter 34 mm

OPPOSITE Rolex Oyster Perpetual Ref. 3065, c. 1946.
A yellow gold and steel automatic wristwatch with hooded lugs and steel- and gold-link bracelet (cal. 9¾")
Diameter 31 mm





CUT OUT

OPPOSITE Vacheron Constantin, made in 1945, presented in 1947.
An aluminium open-faced keyless lever watch (cal. 17" - 439/7)
Diameter 45 mm



CUT OUT

ABOVE Tissot, c. 1942.
A steel open-faced keyless lever watch with three-tone dial
Diameter 46.5 mm (cal. 38.2)

RIGHT Vacheron Constantin, made in 1949.
An 18 ct yellow gold 'mystery' wristwatch with black dial (cal. 9")
Diameter 30 mm



CUT OUT/ REDUCE SHADOW, REFLECTION



concealed. This allowed case designers the opportunity to create a housing that was not wholly bound by the need to incorporate protruding lugs, and they could, instead, create shapes that appeared to sit on top of the strap or bracelet, rather than within it. Rolex introduced hooded versions of their Oyster Perpetual model; fig. XXX [image 920] shows one of these, in which a curved strip of metal is soldered between the lugs, under which the strap or, as in this instance, the bracelet passes. Interestingly, this style of lug fixture would influence the later Rolex bracelets whose end pieces would mimic the curved pieces of these hooded lugs, yet be separate and detachable from the watch's case.

One of the most novel and surprising watches from this period was made by Vacheron Constantin for the Aluminium Company Canada Ltd (ALCAN), a firm that boomed during the war years, supplying aluminium to the Allies. ALCAN commissioned the specially made watches as gifts for their employees to recognise long service, and the case backs were engraved with an appropriate commemorative dedication. [Images 1093 A & B] These watches had their cases, dials and much of their high-grade, precision-regulated movements made in aluminium, with the result that the model weighed just 19.61 g – less than half that of an equivalent watch in a gold or silver case. Styled as an open-faced dress watch, the model, at first glance, appears to be almost identical to many other watches of the period. Yet closer inspection reveals an unusual tone of grey to the dial, while picking the watch up is the most curious sensation, for it feels so light to the touch that one's immediate reaction is that the casing must be empty. Produced between 1938 and 1952, the watches are among the lightest ever made.

As the decade ended, exports of Swiss watches had begun a dramatic recovery. The relaxation of import restrictions imposed by many countries during the war had seen demand soar. In 1945, total exports of complete Swiss watches and finished movements rose by nearly 59 per cent compared with the year before. By 1947, Swiss exports were more than double the 1944 level of 11.8 million pieces, averaging more than 24 million pieces per year between 1947 and 1949.² The range and diversity of models was rapidly increasing to meet demand, innovation was once again a driving force and, as the 1950s opened, the future of the mechanical watch would seem assured. [image 925]

SHAPED WATCHES

One of the most noticeable features of this period was a continuing improvement in the construction of cases. The popularity of the rectangular watch in the 1930s had brought with it some inherent design issues. Circular watches were considerably easier to construct with case backs and glasses or crystals that were tight-fitting and able to withstand a certain degree of dirt and moisture ingress, even without additional waterproofing features. By contrast, guarding the movement of an oblong or square-cased watch was extremely difficult. The angles and edges of the ‘shaped’ watch did not naturally lend themselves to tight closures and seals, their crystals were more susceptible to chipping at their edges, and both these and the case backs were more prone to warping with wear, all of which risked allowing dirt and moisture to enter the watch with consequential damage to both the movement and dial. This problem was exacerbated by the fact that most square and oblong watches of the 1920s and ’30s were constructed with thin metal cases, making them even more prone to wear.

Improvements in both the quality and handling of steel in case construction helped lead to more robust case construction. In 1936 Schmitz Frères & Cie, under Swiss patent 189190, had designed a new water-resistant case system for both circular and shaped watches. The method was licensed to a small number of manufacturers, including Gallet, who used it to produce their Clamshell circular chronograph, and also Cyma, who released a rectangular Watersport model in the 1940s. Cyma’s watch had a relatively thick two-part casing and the synthetic crystal had a broad, flat lip that sat comfortably under the bezel of the upper case. The two halves of the case were clamped together and tightened via four screws drilled through the underside of the lugs. Together with a water-resistant crown, the design was robust and offered a good level of protection to both movement and dial [images 902 A & B].

Makers of the finest watches were increasingly generous with the amount of gold and platinum used in the production of their precious metal cases. This

BELOW, LEFT Cyma Watersport Ref. 25310 5550, c. 1940.
A steel rectangular wristwatch with case made according to Swiss Patent 189190 (cal. 364k)
Length: 38.5 mm, width 22.5 mm

BELOW, MIDDLE Patek Philippe Ref. 1450 ‘Top Hat’, introduced in 1940, this example retailed by Beyer, Zurich, in 1947.
An 18 ct pink gold rectangular wristwatch with hooded lugs (cal. 9”90)
Length 37 mm

BELOW, RIGHT Patek Philippe Ref. 1593, introduced in 1944, this example retailed by Freccero, Montevideo, in 1947.
An 18 ct pink gold rectangular wristwatch with flared sides (cal. 9”90)
Length: 42 mm





OPPOSITE Patek Philippe Ref. 439, made in 1942 and sold by Cartier in 1943. An 18 ct gold square wristwatch with flat bezel (cal. 10-110) Length 32 mm



resulted in not only a flurry of new shapes but also a range of more robust designs. Patek Philippe released an elegant array of rectangular watches during the 1940s. Compared to the shaped watches of the 1920s and '30s, these tended to be relatively substantial in proportion, with heavier cases that had a dramatically different feel to the standard models of the previous generation. In 1940 the firm launched their Ref. 1450 wristwatch, with hooded lugs [image 924]. Popularly known as the 'Top Hat', this rectangular model had a gently curved case, yet the lugs were bold and stepped and, with the fixtures for the strap concealed, the shape of the case was clean and sharp. A few years later, in 1944, Patek Philippe's Ref. 1593 was released [image 838]. With a deep curvature to the case sides, the model was shaped like an hourglass and, in a striking departure from the traditional rectangular watch, the back was no longer curved, but flat. This more defined and bold shaping of rectangular models was to become increasingly visible in the watches of Patek Philippe, Vacheron Constantin and Audemars Piguet throughout the 1940s and into the 1950s.

Straight-sided rectangular and square models continued to be made alongside the more shapely, oblong models. The bezels of the former were often broader than those of earlier periods, in some instances significantly so [image 915A]. One particularly remarkable model from the 1940s is a skeletonised rectangular wristwatch made by Audemars Piguet, illustrated in fig. XXXX [image 919]. Skeletonised watches – which have the bridgework of their movements hollowed out and decoratively finished or engraved – are extremely rare in the first half of the twentieth century. It is believed that only around ten examples of this particular Audemars Piguet model were made. Each one is unique, since the *horloger squeletteur* was given free rein to cut and engrave the movement to their own design. As there is no dial, the hour indications are engraved and filled with black enamel to the bezel. Skeletonised watches would continue to appear only infrequently in the decades to come, before becoming more widely available towards the end of the century.

LEFT Audemars Piguet Ref. 5036, sold in 1948. An 18 ct yellow gold rectangular skeletonised wristwatch (cal. 10"TS) Length 34, width 24 mm

LADIES’ WATCHES

Wristwatches for ladies remained relatively small, yet, in common with the developments seen in other watches of the period, models aimed at women were beginning to transform into more recognisable ‘modern’ styles [image 916]. Watches that concealed the dial from view continued to be popular. Figure XXX [image 905 A & B] illustrates a rectangular wristwatch made by Jaeger-LeCoultre for Cartier. This example, manufactured in 1943, has an inner case that slides on runners within the main body of the case. A finger may be used to move the inner case from right to left, thereby revealing the dial; upon release, the two halves spring back together, once again hiding the dial from view. This design had the advantage of providing the watch with a greater level of protection, ensuring the crystal was guarded against accidental knocks while simultaneously protecting the movement with its double casing. In this model, as with many others of the period, LeCoultre used their small Duoplan movements; these were wound through the back rather than the side of the watch, thereby ensuring that the winding crown was invisible to the front of the watch, in turn ensuring the

clean lines of the case’s design were uninterrupted. Although the small, ‘cocktail’ wristwatch [image 909] was a popular theme during the decade, a new trend also developed for bracelet watches that were formed of bolder, thicker links of sinuous, flowing forms. Many of these bracelets were ordered from the specialist firm Gay Frères, one of Geneva’s finest bracelet makers. Often the models were produced with a concealed dial, the face revealed by opening a hinged cover or, occasionally, as in fig. XXX [image 908], with the watch’s case and dial sliding out from the bracelet. Watches with these substantial gold bracelets were also frequently heightened with precious stones. Figure XXX [fig. 917] shows a wristwatch where the watch case and lugs are based on the classic cocktail watch design, yet the lugs have been enlarged and are set with substantial round-cut diamonds. A ruby-set connecting link joins the heavy-gauge bracelet to the watch’s head and, in so doing, transforms the lugs into an integral part of the bracelet. Such was the popularity of these styles that the fashion for thick-link bracelet watches would continue well into the following decade.

BELOW Movado Ref. 14177, c. 1940. A ladies’ steel, curved, rectangular wristwatch with black dial (cal. 65) Length (including lugs) 23.5 mm, width 13 mm

OPPOSITE Cartier/Jaeger-LeCoultre Baguette Coulissante, made in 1943. A ladies’ 18 ct yellow gold rectangular wristwatch, the inner case sliding to reveal the concealed dial (cal. Duoplan) Width (closed) 22 mm



CUT OUT / REDUCE SHADOW, REFLECTION





OPPOSITE 909 – Patek Philippe, made in 1942.

A ladies' platinum and yellow gold, diamond- and ruby-set wristwatch with bracelet
Diameter 17 mm

RIGHT 908 – Jaeger-LeCoultre Ref. 1776, c. 1945.

A ladies' 18 ct pink gold wristwatch with concealed dial and bracelet by Gay Frères (cal. 426)
Length of bracelet approx. 160 mm
(diameter of watch case when slid out of bracelet 19 mm)

BELOW 917 – Patek Philippe Ref. 2164, sold in 1947.

A ladies' 18 ct pink gold, diamond- and ruby-set watch with bracelet by Gay Frères (cal. 7^{me} 70)
Diameter of watch case 20 mm, overall length 165 mm



MILITARY WATCHES

Watches for aviators took many forms during the Second World War. Longines continued to produce watches for pilots and navigators based on the Lindbergh and Weems models (see p. XXXX); however, they also made a range of other watches to aid navigation. These included a patented fly-back system with central minute register which, although first introduced in the 1930s, began to appear more frequently in the 1940s. Figure XXX [image 891 A & B] illustrates a typical example of this type of watch. The black dial has luminous Arabic numerals and luminescent hands for hours and minutes. Two slim additional hands are positioned to the centre, one with a chromed finish, the other painted red, which indicate seconds to the dial's outermost scale and minutes elapsed to the innermost scale, respectively. Unlike a standard chronograph, these two hands are constantly in motion – the pusher above the crown merely resets them with one depression, upon which they immediately restart. The small counter to the base of the dial is a standard constant/subsidiary seconds dial.

In Germany, Lange & Söhne were one of a handful of companies to supply the German Luftwaffe with aviation watches – fig. XXXX [image 832] shows a typical example. Made by Lange & Söhne in about 1940, this aviator's watch has a 55 mm diameter case and correspondingly large dial. The dial surface is black with highly visible luminescent Arabic numerals and tracking for minutes/seconds at the dial's edge, while the centre of the dial is calibrated in a separate ring for hours. All hands, including the seconds, are luminescent; the hour hand is deliberately shortened to follow its inner hour ring. Designed first and foremost for utility, the large size and luminous dial allowed easy readings to be taken both during the day and at night. A 'hack' feature designed by the German watchmaker Junghans stopped the balance (and therefore the movement) when the crown was pulled into the hand setting position, thereby allowing the user to easily synchronise the seconds hand to a time signal. These were precision timekeepers that were designed to be accurate to under one second per day – a specific requirement of the Wehrmacht.' The watches also had oversized crowns, enabling them to be wound and adjusted even with gloved hands and were fitted with extra-long wrist straps designed to fit over the wearer's flight suit.

In the mid-1930s, the Italian Royal Navy commissioned Panerai to produce a specialist diving watch for the navy's frogmen [image 1109]. Designed both to be highly legible and to fit over a diving suit, these watches were exceptionally large. Panerai's first model was named the Radiomir, a name derived from



REMOVE SHADOW



OPPOSITE Image Longines Ref. 23696, c. 1948.
A steel single-button fly-back chronograph wristwatch (cal. 12.68z)
Diameter 37 mm

RIGHT Lange & Söhne, c. 1940.
A steel, oversized aviator's wristwatch with centre seconds (cal. 48.1)
diameter 55 mm

BELOW Panerai Radiomir, Ref. 3646, c. 1940.
A large steel diver's wristwatch (Rolex cal. 618)
Width 47 mm



CUT OUT/ REDUCE SHADOW, REFLECTION



the luminous varnish used for the hour indexes, which was made of zinc sulphide, mesothorium and radium bromide – a formula patented by Guido Panerai in 1915. With a case measuring 47 mm in diameter, the dial was consequently large and the luminous numerals were visible even deep underwater. The dial was layered with the numerals incised into the top portion of the dial, and these hollows were then filled with the luminous material. Having established a reputation for producing reliable waterproof wristwatches, it was to Rolex that Panerai turned for assistance with casing the watches. The steel cases followed the Oyster principle, with a screw-down crown and screw-down bezel and case back. Rather than milling to the edge of the case back as found on Rolex’s standard Oyster watches, the oversized case backs of the Panerai had multifaceted edges, and the lugs were formed of thick, solid bars onto which the strap could be stitched – a more robust fixture than those using spring bars, which risked being broken during operations. Bearing the reference number 3646, these

first generation Radiomir watches were made, with a few alterations, between 1938 and the early 1950s. During the Second World War, the Air Ministry in Britain ordered watches from a number of different manufacturers. These included the Ref. 2292 from Omega [image 895]; the dial and hands were specially made by Omega for this model and were designed for use by pilots and navigators in the RAF. The case backs of these watches were made of steel; however, the upper cases were formed from a less expensive alloy known as Duralumin, which consisted of aluminium, copper, magnesium and manganese. Duralumin also had the advantage of having a more matt, silvery white appearance than steel and was less reflective, therefore helping to prevent distracting glare from the upper case while the watch was in use. The 2292’s case has distinctive elongated lugs and, in the traditional military fashion, fixed bar lugs which help to ensure the strap is not accidentally detached from the case. To the outside case back, these watches are usually engraved with the

BELOW, LEFT Omega Ref. 2292, made in 1944.

A duralumin and steel pilot/navigator’s wristwatch supplied to the British Government (cal. 30T2 SC)
Diameter 33 mm

BELOW, RIGHT Cyma, mid-1940s.

A steel wristwatch supplied to the British military (cal. 234)
Diameter 36 mm

OPPOSITE, TOP Lange & Söhne, c. 1940.

A large silver open-faced deck watch with power reserve indication (cal. 48)
Diameter 59.5 mm

OPPOSITE, BOTTOM Longines, c. 1946.

A nickel-chrome open-faced deck watch with enamel dial and centre seconds (cal. 19.70N)
Diameter 52 mm



Air Ministry’s military coding/serial number.

Towards the end of the war, in 1945, the British War Department placed orders with several different watchmakers to produce a new type of robust, waterproof model for the army. These watches were to have a black, luminous dial; a 15-jewel, high-precision movement; a shatterproof ‘crystal’; a water-resistant steel case with waterproof winding crown; and solid, fixed-bar lugs. The cases were engraved ‘W.W.W.’ for ‘Watch, Wrist, Waterproof’ and were further engraved with the manufacturer’s serial number as well as the military store number. A total of twelve manufacturers are known to have delivered versions to the British Army; all were of very similar styling to that of the Cyma wristwatch illustrated in fig. XXX [image 897].

Deck watches, in the form of pocket watches, were used by navies on both sides of the conflict during the Second World War. These high-grade timepieces were deployed on ships as well as submarines. Lange & Söhne produced large deck watches which, in common with the firm’s aviator watches, the Wehrmacht specified must have a daily deviation of less than one second.² Figure XXX [image 480] illustrates a standard version of one of these observation watches, with two subsidiary dials – to the right for constant/subsidiary seconds and, to the left, a dial displaying the power reserve; this latter dial served to show how much power was left in the mainspring, thereby helping to ensure those in charge of the watch did not allow it to run out of power. These watches were made with plain silvered dials or, occasionally, with the entire dial surface coated in luminous paint – the latter type being used on German U-boats. Plain, utilitarian-dial deck watches with centre seconds were also in use both during and after the war. Figure XXX [image 898] shows a Longines deck watch made just after the end of the war. With a nickel-chrome case, the dial is of white enamel with black Arabic numerals and tracking for the minutes and seconds. Both the bezel and case back screw down to the body, thereby ensuring a tight seal and providing some protection from the ingress of moisture. The blue steel hands are distinctive and, in common with many other military Longines watches, have a lozenge form towards the tip to increase legibility.

Military watch designs would prove highly influential in the development of new watch models immediately after the war and in the decades that followed. Their clear utilitarian styling and robust designs, together with the advances they incorporated in terms of anti-magnetism and water-resistance, saw many of their features adapted for civilian use.



OPPOSITE Universal Genève Aero-Compax Ref. 22477, c. 1940.
A steel chronograph wristwatch with minute and hour registers, 'memento' dial and tachymeter scale (cal. 287)
Diameter 37 mm

BELOW Rolex Oyster Ref. 3525, c. 1940.
A steel chronograph wristwatch with register and scales for tachymeter and telemeter (cal. 13'')
Diameter 35 mm

OVERLEAF, LEFT Rolex Gabus Precision, Ref. 8206, c. 1949.
An 18 ct gold square chronograph wristwatch with register and spiral tachymeter scale (cal. 69)

OVERLEAF, RIGHT Patek Philippe Ref. 1436, first introduced in 1939, this example made in 1947.
An 18 ct yellow gold split-seconds chronograph wristwatch with minute register and tachymeter scale (cal. 13'')
Diameter 33 mm

CHRONOGRAPHS OF THE 1940s

A proliferation of chronographs permeated the 1940s. By this time, the chronograph was invariably a two-button model, with pushers placed symmetrically either side of the winding crown. While the majority of chronographs displayed two subsidiary dials – one for the constant or subsidiary seconds and one for recording minutes while the chronograph was running – a third dial for registering hours elapsed was increasingly available.

Having been the first company to introduce a chronograph wristwatch with hour register during the 1930s, Universal introduced a new Aero-Compax model [image 11] in 1940, which featured four subsidiary dials, creating a perfectly symmetrical appearance. Three subsidiary dials displayed constant seconds and registers to record 30-minute and 12-hour intervals while the chronograph was running. The fourth subsidiary dial was placed beneath the twelve o'clock position; this dial was not connected to the going or chronograph trains of the movement and was set independently via a crown to the case at nine o'clock. Known as a 'memento' dial, this allowed the user to set, to the minute, a time of departure or the commencement of an event, with the indication serving as a static reminder.

As the decade opened, Rolex launched their first Oyster cased chronograph, the Ref. 3525 [image 835]. In addition to the standard Oyster features of screw-down crown and screw-down case back, the model featured round, water-resistant chronograph pushers. The

round-button chronograph had begun to appear towards the end of the 1930s, and during the 1940s watch brands increasingly released models with this style of pusher, while continuing to offer the more traditional rectangular pusher designs. Chronographs were rarely made in square or rectangular cases, the circular dial lending itself much more readily to the display of multiple scales and subsidiary counters. However, Rolex, who had previously offered a square chronograph, released a new model with a cushion-form case in 1949 [image 911]. This had a broad, scooped bezel that was stepped at its inner edge to hold the watch's crystal.

Split-seconds chronographs, which allowed the timing of two events via two central chronograph hands, were more readily available during the 1940s. However, the complexity and consequent expense of this form of chronograph meant that production numbers were low. Patek Philippe launched a split-seconds chronograph model in 1939 under reference number 1436 [image 893]. While Patek Philippe had previously offered the complication, this was the first time a dedicated model with a specific reference number had been in production by the firm. To illustrate the rarity of this model, when Patek Philippe ceased production of the Ref. 1436 just over 40 years later, in 1971, it is thought that a total of just 165 pieces had been made, equating to an average of fewer than five pieces per year.

CUT OUT





CALENDAR WRISTWATCHES OF THE 1940s

OPPOSITE Patek Philippe Ref. 1518, first released in 1941, this example dated 1946.
A yellow gold perpetual calendar chronograph wristwatch with moon phases (cal. 13-130Q)
Diameter 35 mm

BELOW, LEFT Universal Tri-Compax Ref. 22279, c. 1944.
A steel triple-calendar chronograph wristwatch with moon phases and registers (cal. 481)
Diameter 34 mm

BELOW, RIGHT Movado Calendograf Ref. 14776, c. 1945.
A steel triple-calendar wristwatch (cal. 475)
Diameter 32 mm

The 1940s witnessed a surge in the production of calendar wristwatches, from simple apertures displaying only the date to watches displaying the day, date, month and moon phases. In 1941 Patek Philippe launched their Ref. 1518, a perpetual calendar wristwatch with additional chronograph function [image 828]. A highly significant watch, this was the first perpetual calendar wristwatch to be produced in series; prior to this date, perpetual calendar wristwatches had been manufactured either on an ad hoc basis or to special order. Yet what really makes this model stand out is its styling – a design so harmonious and classic that it has formed the template for many complication wristwatches ever since. From 1941 to 1954 Patek Philippe produced 281 examples of the model – a tiny production run by today’s standards, but this represented a substantial investment for the period in such a complex wristwatch. The model was quickly followed by the Ref. 1526, which also featured perpetual calendar and moon phases but without the addition of a chronograph. Patek Philippe’s continuing

development of perpetual calendar wristwatches ensured that they remained the dominant manufacturer of this complication for the next 40 years.
Universal Genève were heavily involved in the development of calendar and calendar/chronograph watches during this period. To mark the fiftieth anniversary of the watchmaker, in 1944, Universal released what has since become one of the most recognised vintage wristwatches, the Tri-Compax [image 892]. This triple calendar wristwatch, while not a perpetual calendar, displayed days, months and moon phases in apertures, with four subsidiary dials indicating date, constant seconds and chronograph registers for 30 minutes and 12 hours. An enormously popular model, its success was undoubtedly assisted by an important breakthrough in the US market. In 1942 the Henri Stern Watch Agency – Patek Philippe’s US distributor – became the official importer of Universal watches to the United States. This was a coup for both companies, as restrictions covering watch imports were severe during



GIVE GREY B/G AND MATCH THE IMAGES



the war; however, the US military's requirement for chronograph watches had enabled the Herni Stern Watch Agency to obtain a licence to import Universal watches.'

A plethora of alternative date displays were marketed by other watchmakers during the decade. Movado's Calendograf models were produced with apertures for day and month indication, while the date was shown at the edge of the dial (fig. XXXX) [image 89o A or B]. This layout had the advantage of allowing the date to be displayed in a larger format than that permitted by a more traditional subsidiary date dial. Date indication was via a central hand, often long and slim with a coloured triangular or circular tip to clearly delineate it from the hour and minute hands. Placement of the date at the extremity of the dial was favoured by many manufacturers, including Omega for their triple calendar Cosmic model and Rolex for their triple calendar chronograph models (fig. xxx) [image 34o].

In 1945 Rolex announced the launch of a new model to coincide with the company's Jubilee celebrations. Initially launched under reference 4467, with milled bezel, further models, including the 5030 (with smooth bezel) [image 889], were introduced before the end of the

decade. Although wristwatches with date apertures had been produced previously, the significance of the Rolex design lay in the simplicity of its layout, and the watch helped establish the default three o'clock placement of the date window that to this day remains the most common placement of this feature. For Rolex, the Datejust represented another updating of its Oyster design and added a further feature that would help to develop the company's reputation. Although the Datejust has undergone many modifications over the years, the basic principles of its design remain little changed.

ABOVE Rolex Dato-Compax Ref. 4768, c. 1948.

A steel and pink gold triple-calendar chronograph wristwatch (cal. 13'')
Diameter 35 mm

OPPOSITE Rolex Oyster Datejust Ref. 5030, c. 1948.

A yellow gold automatic wristwatch with date indication (cal. 10½'')
Diameter 36 mm



BUMPER AUTOMATICS

A renewed attempt by the watch industry to market the automatic wristwatch led to the introduction of a range of new calibres during the 1940s. Although it may seem surprising that so few of the major brands had previously released automatic movements, their reticence to invest in this area should be viewed against the backdrop of the public’s continuing mistrust of a watch that wound itself, largely a result of the perceived unreliability that had dogged many of the first generation of automatic models.

Most of the automatic movements that were launched in the 1940s were based upon the ‘bumper’ system, first exploited in a wristwatch by Harwood (see p. XX). Eterna had begun marketing an automatic wristwatch at the close of the 1930s with their new calibre 834 and, in 1944, introduced an updated version of this movement named the calibre 1076H (see fig. XXX) [image 899 a - c]. Like the Harwood, the Eterna had a semi-rotor which buffered off springs as it reached the beginning and end of its arc of motion. A similar system was used by several other manufacturers, including Omega, who introduced

their own automatic calibres, the 30.10RA PC and 28.10RA PC, in 1942 and 1943 respectively [image 900]. Despite the seemingly strange ‘hammer’ action of these bumper automatics, the system was efficient, relatively robust and, crucially, its design allowed for a slimmer watch – this was achieved by the swinging ‘weight’ being partially integrated into the body of the movement. Part of the criticism of early rotor automatics was the thickness of their cases and the fact that their case backs had a pronounced, domed surface – necessitated by the way in which the rotors were mounted above the back plate of the movement. In this area, therefore, the ‘bumper’ movement had a clear design advantage. To illustrate the point, the first Rolex Perpetual rotor movement (cal. 620NA), from the early 1930s, had a height of 7.5 mm. By contrast, the slimmest of the first two Omega bumper calibres mentioned above was just 4.5 mm in height; remarkably, this was just 0.5 mm thicker than Omega’s regular-production, manually wound wristwatch calibres of the period. This is

BELOW 899 Eterna, c. 1946.
A steel ‘bumper’ automatic wristwatch with two-tone dial (cal. 1076H)
Diameter 34.5 mm



MATCH ALL GREY B/GS HERE

BELOW, LEFT Omega Ref. 2420, c. 1945.
A steel ‘bumper’ automatic wristwatch with centre seconds (cal. 28.10RA)
Diameter 33 mm

BELOW, RIGHT Jaeger-LeCoultre advert from c. 1950 for a wristwatch with power reserve indication



significant since it meant that the shape and style of the wristwatch’s case was not unduly influenced by the size of its movement, allowing the watch a sleeker profile. Nevertheless, the rotor design would eventually win the battle for supremacy, and a few new, slimmer ‘rotor’ movements did appear in the 1940s. These included the Bidynator, released by Felsa in 1942 (5.2 mm high), and Longines’ calibre 22A (5.5 mm high), introduced in 1945. It was also significant that both the Felsa and Longines calibres had the advantage of winding the watch while the rotor moved in either direction – most early bumper automatics wound in one direction only.

Despite the growing efficiency of the automatic movements, complaints were still common from owners whose watches ran out of power – one wonders how much of this was down to a lack of activity, the automatic system relying on the motion of the owner during the day. In 1948, Jaeger-LeCoultre introduced their Powermatic model (calibre 481), a ‘bumper’ automatic wristwatch that had the addition of a power reserve

indication. Located beneath the twelve o’clock position, an aperture displayed the amount of power left in the mainspring in hours, turning red when almost fully unwound (see p. XXX fig. XXX). By this period, automatic watches could also be manually wound, and the wearer was therefore able to top up the power of their watch with a few turns of the crown/winder, making the power reserve warning indicator a particularly useful feature [image 1101].





OPPOSITE AND BELOW 843 Patek Philippe, sold in 1941.
A \$20 gold coin watch (cal. 9")
Diameter 34 mm

COIN AND ENVELOPE WATCHES

The heyday of the purse watch had passed, and while production of Movado's famous Ermeto model continued, the range and diversity of this genre among other makers was greatly depleted. However, one unusual form of watch that continued to make an appearance was the gold coin watch. Examples of coin watches had already been marketed in the 1920s, and they were a novelty that would reappear throughout the remainder of the century. Invariably made using \$10 or \$20 gold coins, although other denominations and currencies were occasionally used, these remarkable timepieces were formed by hollowing out the inside of a coin and integrating a hinged inner case that contained the watch's dial and an extra flat movement. The example illustrated in fig. XXX [image 843 A, B, C] was sold by Patek Philippe in 1941. In common with the finest examples of these coin watches, a push piece to open the front of the coin is flush with, and almost entirely concealed by, the milling to the coin's sides. Remarkable objects, these watches have a pleasing weight and their quality is quite exceptional.

One of the most charming forms of purse watch was a

model sold by Cartier in the 1940s and made in the form of an envelope. Intended to be purchased as gifts, the fronts of these watches were engraved with the recipient's name and address, while the 'franking' to the envelope could be dated with a special occasion such as a birthday or anniversary. Figure XXX [image 837 A, B, C] shows one of these envelope watches, made in silver and retailed by Cartier in 1940. The watch is engraved with the name and address of the recipient, and close inspection shows that the envelope is 'franked' with the date of Christmas Day – 25 December 1940. To the reverse of this watch, a simple engraved motif imitates the flap to the back of an envelope. A gold version of this model is shown in fig. XXX [image 894 A, B, C]; this example is 'franked' with the date 20 June 1943, the birthday of James Ortiz, whose name and address appears to the front. The back is further engraved 'From Mr and Mrs Ortiz New York City' in the manner in which one might inscribe a return address. These watches open by sliding apart the two halves of the cover, in a similar fashion to the Ermeto design by Movado.



BELOW Cartier, c. 1940.
A silver purse watch in the form of an envelope
Length (closed) 42 mm



CUT OUT X3



BELOW Cartier, c. 1943.
A pink gold purse watch in the form of an envelope
Length (closed) 36 mm



THE WATCH THE WORLD HAS LEARNED TO TRUST



Precision makes perfect

Only watches of exceptional precision may be called 'Chronometers'. The standard of precision which they must attain is set by astronomical observatories and by Official Rating Bureaux under the control of the Swiss Government. Every watch under their supervision must pass the most severe tests over a fifteen day period before it is qualified to receive a Rating Certificate and the title "Chronometer".

The C 180 SC wrist chronometer illustrated is supplied with such a Rating Certificate. The heavy 18 ct. English-hallmarked gold case, designed by leading craftsmen, houses the famous Omega 30 mm. movement, and is enhanced by a quietly distinguished dial bearing solid gold figures and hands.

OMEGA

OMEGA RECORDS OLYMPIC ACHIEVEMENTS

Since 1932 Omega Time has decided the athletic event of the world—the Olympic Games. Again in 1952 at Helsinki Omega have been exclusively entrusted with the official timing of the Games.

1950-1959

THE 1950s

As the US and much of western Europe entered a period of strong economic growth, the 1950s witnessed a period of positive expansion for the Swiss watch industry, with exports increasing by almost 54 per cent over the decade. Indeed, the decade had a jump start with a 38 per cent increase in the export of watches and watch movements between 1950 and 1951 alone.¹ Although by now many classic watch styles had firmly taken root, there was a renewed sense of innovation within the industry, somewhat akin to the enterprising spirit of the 1930s. Boosted by the increasing demand for fine watches, the 1950s would see the rapid development and release of a new range of models fit for a changing world.

The war had heavily influenced watch design, and the bold styles established in the 1940s would be further developed during the new decade. The soft iron ‘cages’ used during the Second World War to protect pilots’ watches from the effects of magnetism would find new markets within the growing ranks of scientists, technicians, engineers and civilian pilots. Meanwhile, the advent of

intercontinental air travel would create new avenues for watchmakers to pursue, leading to a range of watch models offering indications to help manage changes in time zones.

A sense of exploration and adventure permeated the post-war world. In 1943 Jacques Cousteau and Émile Gagnan had developed their Aqua-Lung system, thereby opening up the world’s oceans to a new obsession: scuba diving. Fascination with life under the surface of the sea reached fever pitch in 1956 with the release of *Le Monde du silence*, a French documentary and one of the first films to show the depths of the ocean in colour. Co-directed by Jacques Cousteau and Louis Malle, the film was based on Cousteau’s book *The Silent World: A Story of Undersea Discovery and Adventure* (1953). Watchmakers seized on the public’s appetite for this new underwater world by releasing a variety of diving watches throughout the decade.

While discoveries were being made in the depths of the seas there was, simultaneously, a battle to conquer the world’s highest peaks. Rolex had supplied their

BELOW, LEFT Rolex Oyster Perpetual Explorer Ref. 6350, dated 1953.
A stainless steel automatic centre seconds wristwatch with black ‘honeycomb’ textured dial (cal. A296)
Diameter 35 mm

BELOW, RIGHT Tudor Oyster Prince Ref. 7809, c. 1952.
A stainless steel automatic centre seconds wristwatch (cal. 390)
Diameter: 34.5 mm



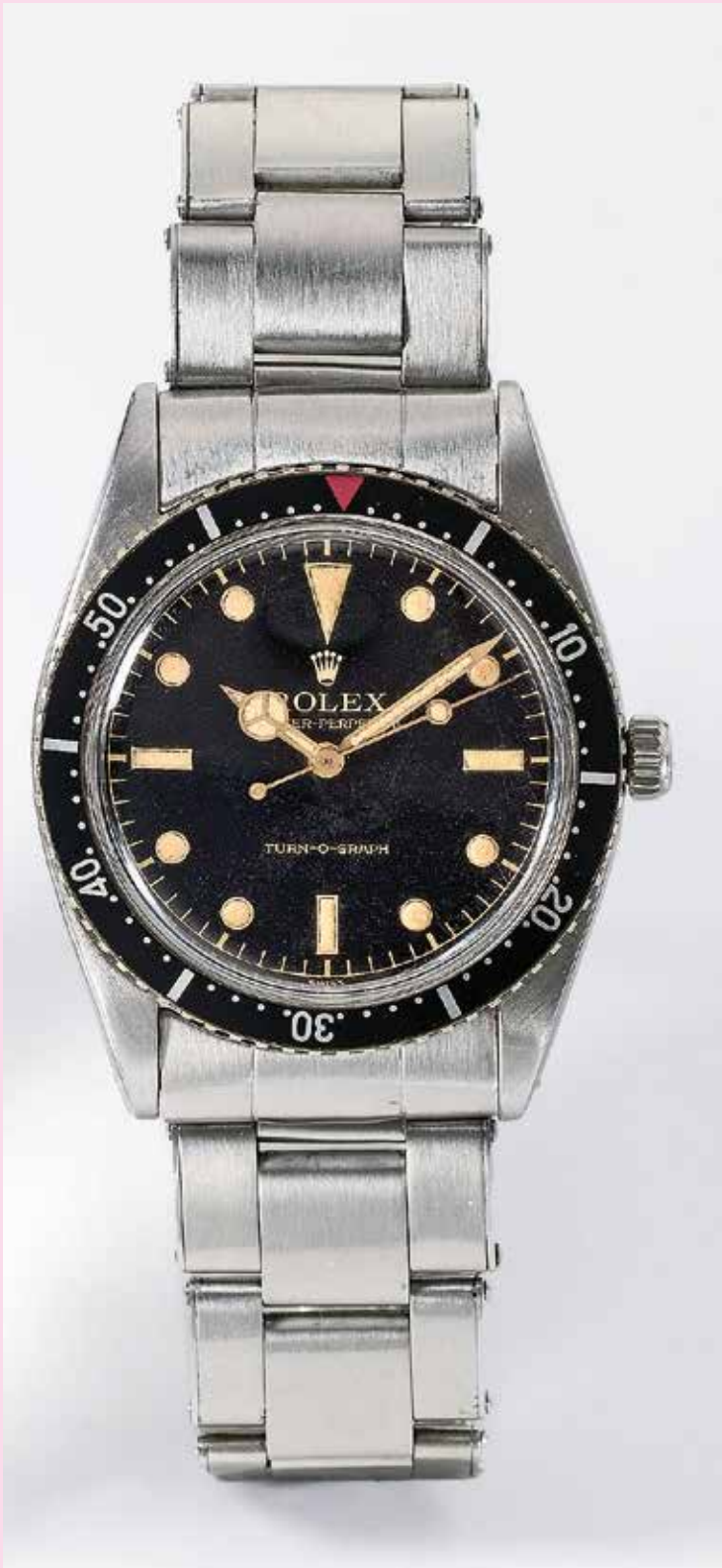
BELOW Tudor Oyster Elegante Ref. 7960, c. 1958.
A stainless steel manually wound centre seconds wristwatch (cal. 2402)
Diameter: 34.5 mm

Oyster watches to several Himalayan mountaineering expeditions during the 1930s and '40s. For Rolex, these expeditions provided an excellent testing ground for their Oyster watches, exposing them to the most extreme conditions on earth. However, they also provided the watchmaker with a brilliant form of marketing alliance and, to celebrate Edmund Hillary and Tenzing Norgay’s successful ascent of Mount Everest in 1953 (for which Rolex also supplied watches), Rolex launched their Oyster Explorer model. Designed to be both robust and highly visible, the dial was black with bold luminous numerals – the configuration of a triangular-shaped twelve o’clock and Arabic numerals at three, six and nine o’clock was a style similar to that which had been used earlier in the 1940s; however, this configuration, combined with the black dial, would become an iconic Rolex dial design that would be applied to the company’s Explorer models for decades to come. [image 1087]

No doubt encouraged by the gathering growth in post-war economic activity, Hans Wilsdorf, the governing

director of Rolex, staged a relaunch of his Tudor brand in 1952, the highlight of which was the new Tudor Oyster Prince [image 958]. Though the Oyster case was not a new addition to the Tudor line, an emphasis was placed on the new Prince model as a watch of extreme durability. Following a similar pattern to the Rolex Explorer’s marketing, Wilsdorf supplied the 30 members of the British North Greenland expedition of 1952–54 with a Tudor Oyster Prince, providing yet another useful testing ground and publicity opportunity for his watches. Wilsdorf had always intended the Tudor to be a less expensive alternative to his Rolex brand, and the Tudor Oyster models in particular would undergo a transformation during the 1950s. While sharing much of the Rolex DNA through the release of watches such as the Tudor Submariner in the same year (1954) as the Rolex Submariner, the Tudor brand was also given its own identity with an extraordinary variety of dials [image 961 A or B] and some novel models such as the Tudor Advisor, an alarm wristwatch.





OPPOSITE Rolex Oyster Perpetual Turn-O-Graph Ref. 6202, c. 1953. A stainless steel automatic centre seconds wristwatch (cal. A296) Diameter 35 mm

BELOW Omega Seamaster Ref. 2576-10, c. 1950. A stainless steel automatic wristwatch (cal. 342) Diameter: 34.5 mm

Rotating bezels very much defined the era of the 1950s for sports-style watches. In 1953 Rolex launched their Turn-O-Graph model [image 942], and although it was by no means the first wristwatch to have a rotating bezel, its design became a blueprint for an array of future models. By aligning the bezel's triangular marker at the o/6o position with the centre seconds hand, the watch could be used as a simple chronograph by reading off the time elapsed from the bezel's markings; by instead aligning the bezel with the minute hand, longer periods could be recorded. The Turn-O-Graph was marketed as a multi-use watch, one that could, for example, be used by a businessman to time the duration of a long-distance phone call; a doctor to help calculate a patient's pulse rate; a photographer to time development of a film and so on. Standard versions of the model were styled with black dials and bold luminescent numerals, showing the influence of the military watches of the 1940s. Using the firm's Oyster case, the watch was also waterproof, further boosting the model's appeal to a broad audience. The

'tool' watch concept would lead to a succession of releases in the decade, including the Rolex models of Submariner, GMT-Master and Milgauss. As the 1950s opened, Omega were rapidly developing their new Seamaster range [image 959]. These modern, robust models had notably thicker bezels and lugs compared with civilian models of the previous generation. Based on one of the military models Omega had supplied to the British Army during the war, the watches were designed to be waterproof and resistant to climatic and atmospheric changes. Throughout the decade, Omega released a range of Seamasters, from manually wound to automatic and from date models to chronographs. In 1954 Longines released a similarly robust model, named the Conquest, this watch had a screw-down case back that was centred with a gold plaque bearing a fish logo, heightened in green enamel, representing the manufacturer's guarantee of water-resistance. In a similar way to Omega's Seamaster, the Conquest would be developed by Longines as a 'line' of models, all under the



banner of the Conquest name. One of the first additions to this family of watches was a calendar version, introduced in 1956 [image 960 A or B & C]. Omega’s Seamaster line was soon joined, in 1952, by a new deluxe wristwatch model named the Constellation. The Constellation would be produced in a broad range of styles, all of which would have observatory-certified chronometer movements, and their case backs would bear an embossed logo featuring an observatory building under a constellation of stars. Among the most opulent of these models was the Constellation Grand Luxe, which was released in the middle of the decade [image 1160]. The model was available in pink, yellow or white gold as well as platinum; however, they were monochromatic in appearance – regardless of the case metal, the dials would match the colouring of their cases. The Grand Luxe’s dial would also feature a so-called ‘pie-pan’ edge – a multifaceted, downward chamfer.

Watches with flared or teardrop-shaped lugs continued to appear during the 1950s. Some square and rectangular

watches were given curvaceous, flowing sides [image 1088], but in general there was an increasing angularity to elements of watch design as the 1950s progressed. The softer shapes of the 1930s and ’40s gave way to more facets and chamfers. Traditional *feuille* (leaf-shaped) hands became much less prevalent, with more angular styles such as the alpha, dauphine and straight baton hands beginning to dominate. Hour indexes and numerals were also becoming increasingly bold in appearance. Raised and applied hour markers were more frequently multifaceted, allowing light to play across their surfaces, thereby producing added depth and contrast. Diving watches followed the military precedents of black dials with thick luminescent hour indexes and hands. Two-tone finished dials continued to be available but their use was often restricted to chronograph and calendar watches, where secondary tones would be used primarily for utilitarian reasons, highlighting specific scales for example, rather than being used for their decorative merits alone. Silvered, pink and champagne

BELOW Longines Conquest Calendar Ref. 9007-6, c. 1957.
A pink-gold-capped and steel automatic centre seconds wristwatch with date (cal. 19ASD)
Diameter 35 mm

OPPOSITE Omega Constellation Grand Luxe Ref. 2930, c. 1959.
An 18 ct pink gold automatic centre seconds wristwatch with pink pie-pan dial and an 18 ct pink gold bracelet (cal. 505)
Diameter 35 mm



coloured dials tended to have a 'silk' matt finish to their surface, while black dials could be either matt or gloss in finish. Just before the middle of the decade, textured dials with stippled surfaces, often referred to as 'honeycomb' or 'waffle' dials, began to appear; such dials remained an option for much of the remainder of the decade. The technique of guilloché was used to create highly decorative, engine-turned finishes: using a hand-turned lathe known as a rose engine, multiple contrasting finishes could be built up on the dial's surface. Vacheron Constantin were particularly experimental in this area, creating a range of sophisticated patterns for dress-style watches during the 1950s [image 1089]. Colourful enamel dials were also offered by several manufacturers [see p. XXXX]. Although many wristwatches for ladies continued to follow established patterns during the 1950s, one of the most striking developments was a trend for watchmakers to release models in men's and ladies' versions, with similar styling given to each version both in terms of case and dial design. Nevertheless, dress-style watches with small dials, as well as concealed dials, remained popular. The heavier bracelet styles of the 1940s continued to be found throughout the 1950s, and these were joined by wider, finely woven bracelets [image 955]. Asymmetrical designs were also increasingly prevalent as the decade wore on.

A feature that was becoming somewhat more visible was the enhancement of designs for men through the incorporation of diamonds or other precious stones. While a few watches for men had featured diamonds in the previous two decades, their application to some of the larger-sized watches of the 1950s was notable. Makers such as Patek Philippe and Audemars Piguet offered diamond-set dials as an option for a small number of their models: these would see the replacement of printed or applied indexes with diamonds, usually a combination of round and baguette cuts. Some models would push the boundaries further, with cases also enhanced with gem settings [image 962 A or B]. Such watches showed just how far the wristwatch had come since the first timid wristlets of the early twentieth century.

RIGHT Vacheron Constantin, c. 1952 .
An 18 ct pink gold wristwatch with
two-tone guilloché dial (cal. P453/3B)
Diameter 35 mm

OPPOSITE Audemars Piguet Ref. 5008,
sold to Gübelin in 1951.
A platinum square wristwatch with flat
bezel (cal. 9 1/2 RS)
Length 31 mm, width 24 mm



EXTEND B/G



CUT OUT/ REDUCE SHADOW, REFLECTION

In 1954, Universal, in partnership with Scandinavian Airlines (SAS), developed an anti-magnetic wristwatch that would be suitable for use by the latter's flight crew. SAS had recently launched a new route from Copenhagen to New York which flew over the North Pole. This new route exposed the planes to strong magnetic fields that could adversely affect the timekeeping of a mechanical wristwatch. The Polerouter [image 956] was designed to counter these effects and provide precision timekeeping for the airline. Originally named the Polarouter, the case had a bold design, with flowing, so-called *bombé* lugs. The watch's bezel was broad and flat, enhancing the model's perceived solidity. An inner steel bezel was calibrated at the hours, with fine milling between each marker. The dials were invariably centred with a cross-hair motif, itself a design element that would recur on models by a variety of different makers.

Calendar and chronograph wristwatches remained extremely popular, and while the finest makers, such as Audemars Piguet, Patek Philippe and Vacheron Constantin, dominated the luxury end of the market [image 941], the availability of good-quality affordable alternatives was growing. At the start of the 1950s, Record were one of the few independent watch manufacturers to have developed their own in-house movement calibre with the combined complications of day, date, month and moon indication. Their Datofix model [image 945], first introduced in the 1940s, was once again on the company's exhibition stand at the 1950 Basel watch fair. Available in a variety of case designs, the majority of Record's calendar watches were housed in chrome- or gold-plated cases with steel backs. Well designed and highly legible, the Datofix was a stylish and aspirational-looking model, ideally suited to the post-war era. In 1953, to celebrate the company's fiftieth anniversary and capitalise on the popularity of the calendar watch, Record launched a Datofix model for ladies, which they billed at the time as the smallest wristwatch to have been made with moon phases.

RIGHT Blancpain, retailed by Spritzer & Fuhrmann, Curaçao, c. 1955.

A ladies' 18 ct yellow gold, diamond- and sapphire-set wristwatch with sliding concealed dial and woven bracelet. Internal bracelet length 155 mm



CUT OUT/ REDUCE SHADOW, REFLECTION

OPPOSITE, TOP LEFT Audemars Piguet, made in 1956.

An 18 ct yellow and white gold wristwatch, the bezel set with baguette sapphire hour indexes (cal. 2002) Diameter 29 mm

OPPOSITE, TOP RIGHT Universal Polerouter Ref. 20217-5, c. 1955.

A stainless steel automatic centre seconds wristwatch (cal. 138SS) Diameter 36 mm

OPPOSITE, BOTTOM Vacheron Constantin Ref. 6087, made in 1955.

An 18 ct yellow gold chronograph wristwatch with register (cal. 13") Diameter 35 mm



CUT OUT/ REDUCE SHADOW, REFLECTION





ABOVE, RIGHT Record Datofix, c. 1950.
A chromed and steel triple-calendar
wristwatch with moon phases (cal. 107C)
Diameter: 33 mm

OPPOSITE AND ABOVE LEFT Hamilton
Ventura, first introduced in 1957, this
example early 1960s.
A 14 ct yellow gold electronic centre-
seconds asymmetrically cased wristwatch
(cal. 505)
Length (including lugs) 49 mm

At the Savoy Plaza Hotel in New York on Thursday 3 January 1957, a press conference was held by the Hamilton Watch Company to announce the release of the first series-produced electric wristwatch. Using battery power, these early electric watches incorporated both a traditional gear train and balance but were modified for electrical impulse. Hamilton commissioned the industrial designer Richard Arbib to create one of the launch models. Arbib's design, which was called the Ventura, was a futuristic-looking wristwatch that had an asymmetrically shaped case that boldly represented the beginning of a new era [image 957 A & B]. The idea of an electric watch was by no means new, and although Hamilton's first electric watch would be beset with issues, the fact that an electric watch had been developed for series production at all must have been enough to furrow the brows of many traditional watch manufacturers. The question was where this would lead; for the time being, many traditional techniques were employed alongside the electrical power source of the new Hamilton watch, yet clearly technology would not stand still. During the next two decades the rise of the electronic wristwatch would pose a threat to the very survival of the mechanical watch industry.

DIVING WATCHES

At the beginning of the 1950s, the increasing interest in scuba diving, both for civilian and military purposes, led to the development of specialist diving watches. These were rugged, waterproof watches that had utilitarian designs and were clearly influenced by the military watches of the previous decade. In 1953 Blancpain introduced their Fifty Fathoms model, the first modern diving wristwatch [image 938]. The model was developed by Blancpain following a request made by two French naval officers, Captain Maloubier and Lieutenant Riffaud, for a practical watch that could be used by their new elite unit of combat divers. The Fifty Fathoms had a black dial with thickly painted luminescent hour markers and white luminescent hands to ensure maximum visibility at depth under sea. The model also had a bezel which was calibrated at each five-minute increment with luminescent markers. Rotating the bezel allowed the diver to align the 0/60-minute marker of the bezel with the minute hand of the watch, at the start of their dive. As the minute hand continued to advance, the time elapsed since the start of the dive could be read against the bezel's calibrations. Such a system allowed the user to quickly calculate the length of the dive and keep track of the amount of air left in their breathing apparatus. For safety reasons, the bezel rotated in a counter-clockwise direction only, thereby ensuring that, if it was accidentally knocked, the bezel would only turn in the

direction that indicated a longer dive duration than had actually taken place. The Fifty Fathoms quickly gained a successful reputation and orders were placed by a number of navies around the world. In 1956 the model was used by Jacques Cousteau during filming for his Oscar-winning sea exploration film *Le Monde du silence*. Almost simultaneously with the launch of the Fifty Fathoms in 1953, Rolex began producing their first Submariner models, which they exhibited at the Basel Watch Fair of 1954 [image 939]. In common with the Fifty Fathoms, the Submariner also had a black dial with bold luminescent hour numerals and a rotating bezel calibrated at each five-minute increment. Rather than luminescent numerals to the bezel, however, the Submariner had a luminescent dot within a triangular marker at the 0/60-minute marker. These earliest Submariners included models with depth ratings of 100 or 200 metres. Both the Fifty Fathoms and Submariner had a tremendous influence on future diving watches, the bold luminescent dials and rotating bezels proving to be highly practical features that ensured the raw DNA of these early models was passed on through the generations. For the watch manufacturers, the diving watch was a great commercial success, as, far from being restricted to the diving fraternity, their sporty, robust designs and high performance ensured that they had a wide-ranging appeal.

BELOW Blancpain Fifty Fathoms, c. 1954.
A stainless steel automatic centre seconds diver's wristwatch
Diameter: 41 mm

OPPOSITE Rolex Submariner Ref. 6204, c. 1954.
A stainless steel automatic centre seconds diver's wristwatch (cal. A260)
Diameter 37 mm



WATCHES WITH TIME ZONES

With demand increasing for watches that indicated the time in multiple zones, Tissot entered the world time market in 1951 with their Navigator wristwatch [image 927]. This model used a central rotating disc to display, simultaneously, the current time in 24 locations around the world. To do this, Tissot introduced a new movement calibre, the cal. 28.5-N21, which incorporated a pusher, set to the case side, that allowed the uncoupling of the central world time disc to allow local time to be set. The time was read in the usual twelve-hour format against an outer black track to the dial's edge, with corresponding hour numerals engraved and filled in black to the bezel. The inner revolving disc was for the 24 world locations, with the time in each location indicated against applied Arabic and triangular numerals that were divided into 24 hours. To select the local time, the crown would be pulled out into the hand-set position and the inner disc rotated until the current city and location was lined up beneath the 24-hour numeral/twelve o'clock position. When this had been set, the pusher above the crown would be

pressed inwards, thereby disengaging the central disc; the hands could then be moved to the 24-hour numeral/twelve o'clock position. Pressing the crown inwards reactivated the central world time disc, and the actual time could then be set.

The year 1952 saw the introduction of a new world time wristwatch by Patek Philippe. The model, known by the reference number 2523 [image 929], used a world time mechanism devised by Louis Cottier (see p. XXX) and was an updating of the earlier, smaller world time watches that Patek Philippe had offered from the late 1930s onwards. The watch featured a central time dial that was bordered with a 24-hour ring, the latter indicating the hour in a series of world locations, listed on a bezel to the dial's edge. A crown to the left case side rotated the disc with the world locations, and the user would ensure that their current zone was indicated at the twelve o'clock position. The hands could then be set using the crown at the right-hand side of the case; this simultaneously rotated the 24-hour ring and if the user

BELOW Tissot 'Navigator' Ref. 4002-2. c. 1952.
A gold-capped and steel automatic world time wristwatch (cal. 28.5-N21)
Diameter: 36 mm



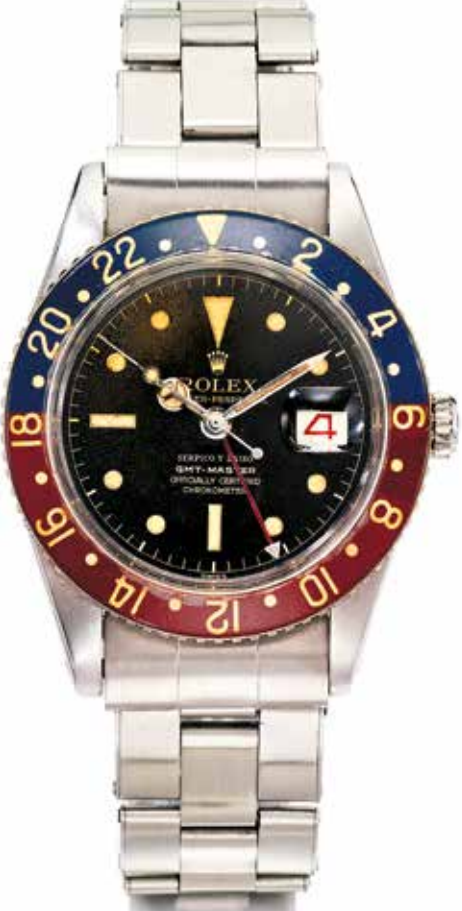
BELOW, LEFT Patek Philippe Ref. 2523, made in 1954.
An 18 ct yellow gold dual-crown world time wristwatch with cloisonné enamel map of Europe (cal. 12-400 HU)
Diameter: 35 mm

BELOW, RIGHT Rolex Oyster Perpetual Date GMT-Master Ref. 6542, retailed by Serpico y Laino in Caracas, dated 1957.
A stainless steel automatic centre seconds wristwatch with 24-hour or second time zone indication (cal. 1030)
Diameter: 38 mm

ensured that the appropriate day or night hour was pointing at their current location, which they had previously set at the 12 o'clock position, the correct hour would then be displayed for all time zones.

In 1955 Rolex released the GMT-Master [image 928 A]. The watch used the company's Oyster case and had a rotating bezel that was calibrated for 24 hours. In addition to standard hour, minute and second hands, a slim central red hand with triangular tip acted as a secondary hour hand. Revolving once every 24 hours, this additional hand indicated hours to the watch's bezel. The watch could therefore be used to show time in the current time zone, simultaneously in both 12 and 24 hours, or, alternatively, the bezel could be rotated and the hour of a second time zone could be aligned to the secondary hour hand, thereby creating a dual-time wristwatch. Initial versions of the model included a stainless-steel version with a Bakelite bezel graduated in red and blue for day and night hours, and an 18-ct gold version with maroon Bakelite bezel. These early versions

of the models had their hour indexes both to the dial and bezel rendered in luminous paint. The GMT was the official watch of Pan American Airways, the leading intercontinental airline of the period, and was used by its pilots to assist in calculating time zone differences, enabling them to continue, as advised, to observe home time to minimise jet lag, while also allowing the time at their destination to be easily read.



CHRONOGRAPHS OF THE 1950s

For much of the 1950s, the classic chronograph styles established in the 1930s and '40s continued to dominate. Patek Philippe, for example, kept in production chronograph models that had initially been introduced in the 1930s, including the references 130, 530, 533 and 1436, together with further models from the 1940s, such as the 1463 and 1579 [image 953]. Quite simply, these established chronographs had been so well styled and designed that there was little reason for them to be substantially altered, and therefore changes, when they were made, tended to be modest stylistic updates to dial finishes, numerals and tracks.

Rolex continued to release new chronograph models, largely concentrating on their Oyster cases but again following patterns that had been formed during the previous decade. The watchmaker still marketed a chronograph with triple calendar, the so-called Dato-Compax, which had first been introduced towards the end of the 1940s. Figure XXX [image 952 A or B] illustrates an example of the model that was made at the

beginning of the 1950s. The dial has a silvered, two-tone finish, the date showing within the secondary tone at the dial's edge and indicated via a central date indicator hand; apertures for the day and month appear beneath twelve o'clock. There are three subsidiary dials, two of which are dedicated to the chronograph, one recording minutes elapsed and the other hours, while the third sub-dial is calibrated for constant/subsidiary seconds.

In 1952 Breitling introduced their Navitimer – a conflation of the words 'navigation' and 'timer'. This chronograph wristwatch had a rotating bezel that was calibrated with a flight-specific slide rule to enable the user to perform navigational calculations. The model was quickly taken up by flight enthusiasts, and by the middle of the decade Breitling was producing Navitimer models for the US-based Aircraft Owners and Pilots Association (AOPA). Figure XXXX [image 950] illustrates an early example of the model that already displays the Navitimer's distinctive styling. The dial is black with bold luminescent Arabic numerals and hands, while the slide

BELOW Patek Philippe Ref. 1579, made in 1955.

An 18 ct pink gold chronograph wristwatch with register and tachymeter scale (cal. 13'')

Diameter 36 mm

OPPOSITE Rolex Oyster Ref. 6036 Dato-Compax, c. 1950.

An 18 ct pink gold triple-calendar chronograph wristwatch with registers (cal. 72C)

Diameter 36 mm



rule is calibrated in white to the edge of the dial. The watch has three subsidiary dials, including chronograph registers that allow up to twelve hours of time to be recorded. Around 1954, Breguet began producing their Type XX pilot's wristwatch for the naval air arm of the French Navy [image 951]. The model had a black dial with luminous numerals and incorporated a special fly-back mechanism that, when the chronograph seconds hand was reset, immediately restarted, allowing the pilot or navigator to make multiple calculations quickly and easily. The bezel rotated and was calibrated with a triangular index; this could be aligned to the minute or seconds hand as a further means of measuring elapsed time. A second generation of the model was produced for civilian use, and the model would make repeated appearances in the decades ahead.

Undoubtedly one of the most significant chronographs introduced during the decade was the Speedmaster, which Omega launched in 1957, initially under reference number 2915 [image 948]. Produced in a waterproof case

and marketed alongside their Seamaster line of watches, this model was also heavily influenced by the styling of military watches. The dial was black with luminescent baton indexes and was first released with a broad, arrow-tipped hour hand. There were three subsidiary dials which consisted of a constant/subsidiary seconds dial and two registers for the chronograph, one recording minutes and the other, hours. Although the model would undergo a series of updates over the years, the styling of the original Speedmaster would provide the blueprint for its successors and ensure the model's place as one of the most influential wristwatches of all time.

BELOW, LEFT Breitling Navitimer for Aircraft Owners and Pilots Association, c. 1955.

A stainless steel chronograph wristwatch with registers and flight-specific slide rule (cal. Valjoux 72)
Diameter 40 mm

BELOW, RIGHT Breguet Type XX, c. 1955.

A stainless steel fly-back chronograph wristwatch with register, made for the French Air Force (cal. Valjoux 222)
Diameter 38 mm

OPPOSITE Omega Speedmaster Ref. 2915, c. 1958.

A stainless steel chronograph wristwatch with registers and tachymeter scale (cal. 321)
Diameter 38.5 mm



CUT OUT/ REDUCE SHADOW, REFLECTION

MAKE B/G GREY, REDUCE/REMOVE REFLECTION



CALENDAR WATCHES OF THE 1950s

OPPOSITE Rolex Oyster Perpetual Ref. 6062, c. 1952.
An 18 ct yellow gold automatic triple-calendar wristwatch with moon phases (cal. 9 ¾")
Diameter: 36 mm

BELOW, LEFT Patek Philippe Ref. 2497, introduced in 1951, this example made in 1952.
An 18 ct yellow gold perpetual calendar wristwatch with centre seconds and moon phases (cal. 275C Q)
Diameter 37 mm

BELOW, RIGHT Patek Philippe Ref. 2499, made in 1951.
An 18 ct pink gold perpetual calendar chronograph wristwatch with minute register and moon phases (cal. 13-130)
Diameter 37 mm

With the increasing popularity of calendar watches, the year 1950 saw Rolex release a new Oyster model that displayed the day, date, month and moon phases. Registered under model number 6062, this watch had a chronometer-rated automatic movement, becoming one of the first automatically wound triple-calendar wristwatches [image 949 A or B]. The dial had a clear display with apertures for day and month beneath the twelve o'clock position, while the date was shown to the edge of the dial and indicated via an additional central hand. Above the six o'clock position, a subsidiary seconds dial was combined with an aperture for moon phases. Some early examples of the model were fitted with star-shaped hour indexes. This model was one of the few to be fitted with Rolex's new Super Oyster crown. Unlike the standard Oyster crown, the Super Oyster did not screw down to the case and instead operated like a standard crown, using three gaskets to maintain water-resistance. The Super Oyster crown was not a success, however, and the 6062 was one of the few

models to incorporate it – production of the Super Oyster crown ceased within five years.

Towards the end of 1950, Patek Philippe were assembling the first example of a new perpetual calendar wristwatch. Given the reference number 2497, the model was released the following year [image 946]. With a 37 mm diameter case that had a broad, scooped bezel and stepped lugs, this was a considerably bigger and bolder watch than its predecessor of the 1940s, the ref. 1526 (see page XXX). One of the most significant features of this new model was the incorporation of a centre seconds hand. The use of a centre seconds hand required the case to be deeper, including a raising of the bezel to ensure clearance between crystal and hands; however, the larger case perfectly absorbed the model's new proportions. Early versions of the ref. 2497, such as that shown in fig. XXXX, were still heavily influenced by the designs of the 1940s, with combination Arabic and dot numerals and *feuille* (leaf-shaped) hands. By the mid-1950s, the model was also available with dauphine hands and faceted baton



MATCH GREY B/GS



REDUCE REFLECTION

indexes, together with a sister model, the ref. 2438, which was released with a waterproof version of the 2497’s case. In 1950 Patek Philippe also began production of a new perpetual calendar chronograph wristwatch, the ref. 2499 [image 186]. Similarly styled to the 2497, the supplementary chronograph function saw the addition of subsidiary dials for constant seconds and minute recording. This would become one of the defining models of the twentieth century – indeed, although the design underwent slight modifications through the years, the basic layout of its dial and shape of its case remained unchanged until 1985, when production of the model ceased. Even then, its replacement would share many of the characteristics of its predecessor.

Halfway through the decade, in 1955, Audemars Piguet manufactured the first perpetual calendar wristwatch to display the leap year cycle on its dial. Added to its ref. 5516 model, this feature, which had previously appeared on pocket-watch dials, was a subsidiary dial that displayed each of the 48 months in the four-year leap year cycle [image 944 A or B]. However, the smaller size of the wristwatch meant that a display of this type would make the individual months extremely difficult to read. Nevertheless, the practicality of showing the leap year cycle had an obvious advantage: for the owner of a watch without such a display, there was no way to be sure that their watch was set up and running in the correct cycle

until 29 February in a leap year was reached – and imagine the disappointment on that date if your watch failed to advance correctly because it was set to the wrong year. In order to circumvent the conundrum of how to display leap years and months clearly on the diminutive wristwatch dial, Audemars Piguet used two separate month displays – a standard twelve-month display was shown in its own subsidiary dial at three o’clock, while a further dial was shown at six o’clock. This additional subsidiary dial was sectioned and clearly marked for the four years of the leap year cycle, with smaller divisions for each of its 48 months. The dial, which was made in gold with a silver-plated finish, was brilliantly designed: the main body had a silk-matt surface, while all the calendar indications were displayed within rings of a higher, circular, satin finish. The date was calibrated to the edge of the dial, and the days of the week and months were held in their own subsidiary dials. The day, date, month and leap years were all indicated via blued steel hands, which contrasted with the yellow gold hands for the hours, minutes and seconds – the latter being displayed in combination with the leap year cycle at the base of the dial. Finally, the ages and phases of the moon were shown via a gold and blue enamel disc in an aperture at twelve o’clock. Only three examples of this model were made by Audemars Piguet in 1955, with a further six leap-year display perpetual calendar wristwatches going into production in 1957.¹ Despite the advantages of

OPPOSITE Audemars Piguet Ref. 5516, made in 1955.
An 18 ct yellow gold perpetual calendar wristwatch with leap year display and moon phases (cal. 13VZSSQP)
Diameter: 36 mm





showing the full cycle, the practice of displaying the leap year on the dial of perpetual calendar wristwatches would not become more prevalent until the 1980s.

The decade also saw the introduction of increasing numbers of date-only calendar watches. In 1950 Movado launched their Calendoplan model [image 947 A or B], a watch that displayed the date within an aperture to the dial. Especially significant was the fact that this watch had a date corrector button placed within the case sides. Although corrector buttons were commonly used for triple-calendar watches, they were extremely unusual in date-only watches; most models relied on the user to manually advance the hands through 24 hours until the correct date was reached. In 1952 Omega launched their Seamaster Calendar wristwatch, ref. 2627 [image 943]. This was Omega's first model to display the date within an aperture (rather than via a date ring with a separate hand for indication). The date aperture was placed at the six o'clock position, and the model was automatically wound via Omega's bumper-automatic calibre 353 movement. The ref. 2627 had a bold case with relatively long lugs that were gently flared and had chamfers to their upper outer edges. Measuring 35 mm in diameter, the

case had rounded sides and a screw-down back. Depth-rated to 30 metres, this was a practical everyday wristwatch that was described in Omega's contemporary marketing materials as being designed 'for the man of action'.

In 1956 Rolex made a move towards a new type of calendar wristwatch, releasing a model that fell between the triple calendars and date-only models. This new model would become one of the watchmaker's most emblematic models and was named the Day-Date. A bold and self-assertive model with its heavy gold bracelet, the Day-Date brazenly and unashamedly spoke of its owner's success. With an aperture for date at two o'clock, the distinguishing feature of the Day-Date was its long, arched aperture, which stood proudly at the twelve o'clock position displaying the days of the week in full. Rolex described the watch in their marketing materials as 'the crowning achievement of Rolex' [image 940].

ABOVE, LEFT Movado Calendoplan, hallmarked 1953.
A 9 ct yellow gold manually wound wristwatch, the date aperture with dedicated pusher for quick adjustment (cal. 128)
Diameter 33.5 mm

ABOVE, RIGHT Omega Seamaster Calendar Ref. 2627, c. 1952.
A stainless steel automatic centre seconds wristwatch with date aperture (cal. 353)
Diameter: 35 mm

OPPOSITE Rolex Oyster Perpetual Day-Date Ref. 6611, c. 1958.
An 18 ct yellow gold automatic centre seconds wristwatch with day and date indication (cal. 1055)
Diameter: 36 mm

Day-Date

Création Genève
ROLEX



ALARM WRISTWATCHES

The history of the alarm watch stretches back to the sixteenth century, but it was not until the middle of the twentieth century that successful commercial production was achieved within the confined space of the wristwatch case. At the end of the 1940s the Swiss firm Vulcain introduced their Cricket wristwatch, a model with two separate barrels, one for winding the mainspring of the watch's going train, the other to power the alarm function [image 932]. While the technology itself was not new, what Vulcain achieved was the production of a standard-sized movement calibre that was able to emit a sound loud enough to alert its owner. The watch had a cover over the movement that acted as a form of bell, against which a 'hammer' within the movement would vibrate when the alarm was activated. This produced a chirping, cricket-like sound, from which the model earned its name. A further cover was placed over the 'bell' for added protection, and this was pierced in order to allow the sound to escape more easily. Ingeniously, the springs for the going and alarm trains were both wound

using the single crown at three o'clock; turning the crown in one direction wound the going train (for time), while in the other direction, the alarm's spring barrel was charged. The pusher above the crown acted as a 'switch' to engage the alarm setting mechanism and could also be depressed to silence the alarm when it sounded.

Early alarm wristwatches appear to have been largely aimed at the businessperson, to act as a reminder for a meeting or other event; however, many such watches were remarkably loud – and often more so when placed flat on a table, thus ensuring they were suitable as a morning alarm. Jaeger-LeCoultre, who would become the leading maker of alarm watches, named their first alarm model, launched in 1950, the Memovox – literally, the 'Voice of Memory' [image 931]. Initially a manually wound model, LeCoultre released several further models during the decade. These included their first automatic alarm watch in 1956 and, in 1958, to the celebrate the firm's 125th anniversary, a Memovox World Time and Memovox Parking model were added to the collection

BELOW, LEFT Jaeger-LeCoultre Memovox, c. 1951.
An 18 ct gold centre seconds wristwatch with alarm (cal. P489/1)
Diameter 34.5 mm

BELOW, RIGHT LeCoultre Memovox Parking, c. 1958.
A gold-capped and steel centre seconds wristwatch with parking meter alarm (cal. 814)



BELOW, LEFT Vulcain Cricket, c. 1950.
An 18 ct gold centre seconds wristwatch with alarm (cal. 120)
diameter 33 mm

BELOW, RIGHT Movdao Ermetophon, c. 1958.
A gilt metal and leather-covered case-winding purse watch with centre seconds and alarm (cal. 1475)
Width (when opened, as shown) 77 mm

[image 992]; the latter ensured you did not forget the expiration of your parking meter payment. The Memovox was fitted with two crowns: the lower wound and set the time, while the upper crown charged the alarm barrel and turned a central disc; the disc had a triangular pointer which the user aligned to the time they desired the alarm to sound.

In 1955 Movado launched their Ermetophon, an alarm version of their sliding-cover purse watch [images 930 A]. Like LeCoultre's Memovox, the Ermetophon had two crowns, one for the going train and a second for the alarm. Like earlier versions of the Ermeto, this model was case-wound, and the action of opening and closing the covers wound, in tandem, both the going train and alarm barrels. Each opening and closing of the case was designed to provide three and a half hours of running time, meaning the user was only required to open their watch seven times a day to power it for 24 hours. The Ermetophon had a stand integrated into the case back which, when the covers were opened, could be hinged

outwards to stand the purse watch on a bedside table. With the dials invariably bearing luminescent accents to the numerals and hands, the Ermetophon acted as the perfect travelling alarm clock.



ANTI-MAGNETISM

The effects of magnetism on the movement of a watch had long been understood. Steel parts within a movement can become magnetised and thus greatly impact a watch’s timekeeping. A magnetised balance spring, for example, may see the coils of the spring ‘stick’ together, leading to a much faster balance swing, which of course results in highly inaccurate timekeeping. Part of the solution to avoiding such effects was in manufacturing the watch’s parts from metal alloys that were less susceptible to, or even resistant to, magnetism. The introduction of the Nivarox balance spring in the 1930s and the adoption of the mono-metallic rather than cut bi-metallic balance had already reduced, but not eliminated, the susceptibility of a watch to the effects of magnetism. During the Second World War, air forces had required protection for the watches of their pilots and navigators – flight instruments could be highly magnetic and consequently injurious to the performance of airborne watches. One particularly successful solution involved the construction of a ‘cage’ of soft iron, which took the form of an inner casing that surrounded the watch movement, absorbing any magnetism the watch might encounter. These ‘cages’ had been used in some military-issue watches by the International Watch Company (IWC) and others during the war. In 1948 IWC began supplying the British military with a new model that would become commonly known as the Mark XI; as well as incorporating the soft iron anti-magnetic cage, this model had a crystal that was specially secured to prevent the risk of detachment during sudden drops in pressure [image 934]. The benefit of these developments was by no means restricted to the military, and demand for highly anti-magnetic watches for a range of civilian uses was growing by the middle of the twentieth century.

DIRECTIONAL International Watch Co.
Mark XI, c. 1951.
A stainless steel manually wound
anti-magnetic wristwatch made for the
British military (cal. 89)
Diameter 36 mm



DIRECTIONAL International Watch Co.
Ingenieur, launched in 1955, this example
c. 1958.
A stainless steel automatic anti-magnetic
centre-seconds wristwatch (cal. 852)
Diameter 36 mm



Accurate timekeepers had long been essential tools for engineers and scientists, and the requirement of a wristwatch that could be used in laboratories, where exposure to strong magnetic fields was often unavoidable, had become increasingly important by the 1950s. The International Watch Company was one of the first firms to introduce a civilian version of their anti-magnetic wristwatch. This new watch, launched in 1955 and named the Ingenieur, was designed to withstand magnetism of 1,000 gauss (gauss being a measurement for magnetic induction) [image 935]. Although originally created for engineers, technicians, chemists, pilots and doctors, the watch had a number of other features that ensured its appeal to a much wider public. The first version of this watch contained IWC’s calibre 85 movement, which incorporated a highly efficient bi-directional rotor that automatically wound the movement in both directions of travel. This system had been developed by Albert Pellaton, the head of IWC’s engineering division. Also significant was the fact that the watch was designed to be water resistant up to 10 atmospheres (100 metres). The Ingenieur was a classic example of 1950s watch styling, having a robust stainless-steel case with thick lugs and a clean, chamfered bezel. The dial was invariably silvered and calibrated with applied, pointed, faceted baton indexes and matching dauphine hands, and a flash symbol travelled through the Ingenieur model name to the lower half of the dial.

Soon after the Ingenieur’s introduction, Rolex released their own specialist anti-magnetic watch, the Milgauss. Like the Ingenieur, the Milgauss also used a soft iron ‘cage’ to surround the movement and protect the watch from magnetism. The model was also guaranteed to resist magnetic fields up to 1,000 gauss, and this claim



OPPOSITE Rolex Oyster Perpetual Milgauss Ref. 6541, c. 1956.
A stainless steel automatic anti-magnetic centre-seconds wristwatch (cal. 1065M/1066M)
Diameter 37 mm

BELOW, LEFT Omega Railmaster Ref. 2914, c. 1957.
A stainless steel manually wound anti-magnetic centre-seconds wristwatch (cal. 284)
Diameter 38 mm

BELOW, RIGHT Jaeger-LeCoultre Chronomètre Geophysic Ref. E168, made in 1958.
A stainless steel manually wound anti-magnetic centre-seconds wristwatch (cal. P478/BWSbr)
Diameter 35 mm

was confirmed by scientists at the CERN laboratory in Switzerland, where the Milgauss was later tested. Rolex used their Oyster case for the Milgauss to ensure water-resistance, and the first versions of the model were automatically wound via a modified version of the watchmaker's calibre 1065, which was marked 1065M (this was later replaced by the 1066M). The watch was fitted with a rotating bezel that was divided into 60 minutes, allowing it to be used to measure time elapsed. A few design changes were made to the model during the first years of production; however, the black 'webbed' dial and 'lightning bolt' centre seconds of the mid- to late 1950s is the most instantly recognisable version of the model [image 936].

In 1957 Omega launched their own specifically anti-magnetic wristwatch, the Railmaster [image 937]. Designed to more of a military theme than the Ingenieur and Milgauss, the Railmaster was a manually wound watch that like Rolex's and IWC's models, used a soft iron 'cage' for the movement. The dial was matt black with

luminescent triangles at the hours and Arabic numbers at the quarters, and early versions of the model also had distinctive luminescent hands, with a broad arrow tip to the hour hand. The stainless-steel case was robust and again reminiscent of military wristwatches, with a substantial screw-down case back, broad lugs, and a thick bezel that was faceted with a chamfered side and flat top.

Jaeger-LeCoultre marked their 125th anniversary in 1958 with the release of a new watch named the Geophysic [image 1161]. Manufactured for only one year, the launch of the model was also timed to coincide with the International Geophysical Year (IGY), which ran from July 1957 until December 1958. The IGY involved the participation of 67 countries in the mutual pursuit of advances in a variety of scientific endeavours. The anti-magnetic Geophysic wristwatch had a movement surrounded by a Faraday cage that was resistant to magnetic fields up to 600 gauss. In design, the watch had a precision-graduated dial, the outer track with elongated batons to mark the seconds and minutes.



AUTOMATICS OF THE 1950s

Patek Philippe introduced their first automatic wristwatch in 1953. Although relatively late to the market with this technology, by choosing to focus purely on manually wound watches in the previous decades, the firm had arguably managed to avoid the negativity that surrounded some of the early entrants to this field. The watch chosen to receive the new automatic movement was the model reference 2526 [image 1091]. Often viewed as one of the first ‘modern’ Patek Philippe models, this watch had a bold case with thick, downturned lugs and a substantial screw-down case back. Made solely in gold or platinum, this watch was a clear symbol of the owner’s status, more so when paired with one of the fine, precious metal bracelets that were available as an option with the model. The automatic movement (calibre 12 -600AT) utilised a solid 18 ct gold rotor, the weight of which ensured especially smooth and efficient winding. These rotors were beautifully finished with engine-turned decoration – all the more remarkable when one considers that, in the days before display case backs, the owner would never have the pleasure to see it.

Jaeger-LeCoultre continued with the use of a power reserve indication for some of their automatic models to ensure a wearer could easily see how much wind remained in the watch’s movement. [image 901]. In the early 1950s LeCoultre introduced a new model which they named the Futurematic [image 1090]. Especially unusual was the fact that this model entirely dispensed with a manual winding function. This was a bold move, for part of the criticism of early automatic watch models of the 1920s and ’30s was the inability for most to be manually ‘topped up’ with power if required. LeCoultre were so confident in their new model that they deemed the manual function surplus to requirement, and certainly the watch’s addition of a power reserve function to the dial must have done much to allay users’ concerns that the watch might stop without warning. By placing a crown to the case back of the model that merely served to adjust the hands, the circular shape of the watch was interrupted only by the lugs, which held the watch strap in place.

BELOW, LEFT 1091 – Patek Philippe Ref. 2526, made in 1953.

An 18 ct pink gold automatic wristwatch with enamel dial and gold bracelet (cal. 12"600AT)
Diameter 35 mm

BELOW, RIGHT 901 – Jaeger-LeCoultre Powermatic, c. 1950.

An 18 ct pink gold automatic centre seconds wristwatch with power reserve indication (cal. 481)
Diameter 35 mm

BELOW, LEFT 1090 – Jaeger-LeCoultre Futurematic, introduced in the 1950s.

An 18 ct pink gold automatic wristwatch with power reserve indication (cal. 497 bumper automatic)
Diameter 37 mm

BELOW, RIGHT

In the battle to reduce the depth of the automatic watch’s case, the bumper movement was still in widespread use during the 1950s. Indeed, LeCoultre’s Futurematic was introduced with the watchmaker’s calibre 497, a bumper automatic movement. However, the use of rotors became increasingly prevalent as the decade advanced. In 1954, another important development for the automatic watch occurred with Buren’s patent for a movement (cal. 1000 series) that incorporated a micro-rotor. Released commercially in 1957, this invention allowed the rotor, the automatic drive and the movement train to be placed on the same plane as each other, rather than stacking the components. Almost simultaneously with Buren’s introduction, Universal released their own micro-rotor (cal. 215), leading to a legal battle between the two firms. While the incorporation of the micro-rotor within these two calibres enabled the two watchmakers to shave the best part of 1 mm or so from the depth of their movements (the slimmest being Universal’s, with a height of 4.1 mm), it

was another firm that more fully realised the potential of this system. In 1959 Piaget took the watch world completely by surprise, launching a new super-slim calibre, the 12P [image 1167]. Using a 24 ct gold micro-rotor, the weight of which ensured efficient winding, the movement had a depth of just 2.33 mm, almost 2 mm thinner than the slimmest of the Buren and Universal calibres. This was a dramatic development that would pave the way to the extra-slim automatic watches of the following decade and place Piaget at the forefront of the dress-style wristwatch market.



CUT OUT/ REDUCE SHADOW, REFLECTION



DECORATIVE ENAMEL DIALS

During the 1950s, specialist Swiss manufacturers such as Stern Frères and Huguenin & Cie produced a dazzling array of enamel dials for a range of different watchmakers. These dials ranged from plain, translucent enamels in single colours to detailed scenes with multiple colours using the cloisonné technique. Rolex were among those to offer enamel dial options for some of their models and fig. XXX [image 926] illustrates an example from the early 1950s. The dial of this watch has an amber-coloured translucent enamel finish that covers almost the entire dial surface, leaving a silvered, ‘pearled’ minute track to the edge. The gold, multifaceted hour indexes are applied to the surface, as is the print for the Rolex signature and model text.

Cloisonné enamel dials had been produced in very small numbers during the 1940s, yet their heyday was undoubtedly the 1950s. Although never produced in great quantity, this dial genre was available in a range of subject matters, the most popular of which depicted

sailing ships, stylised floral motifs, animals and maps [image 831 & 1092] – the last occasionally used, appropriately enough, to enhance the dials of Patek Philippe’s world time watches. The manufacturing of these dials involved complex procedures. The surface of the dial, usually gold, silver or copper, would first be prepared; this included counter-enamelling the surface to ensure a base layer of enamel was applied to both sides, thereby preventing the metal from distorting and damaging the enamel decoration during firing. Wire, often in gold, was then fixed to the dial to create the desired pattern, and the furrows these created were filled with powered enamels before being fired in a specialist kiln. Several applications and firings would be made. The production of a rich and tonally varied design relied as much on the artist’s ability to successfully mix different enamels as it did on their knowledge of how the colours would change during firing.

BELOW Rolex Oyster Ref. 6101/6085, c. 1951.
An 18 ct yellow gold automatic centre seconds wristwatch with amber-coloured, translucent enamel dial (cal. 9¾")
Diameter: 33 mm

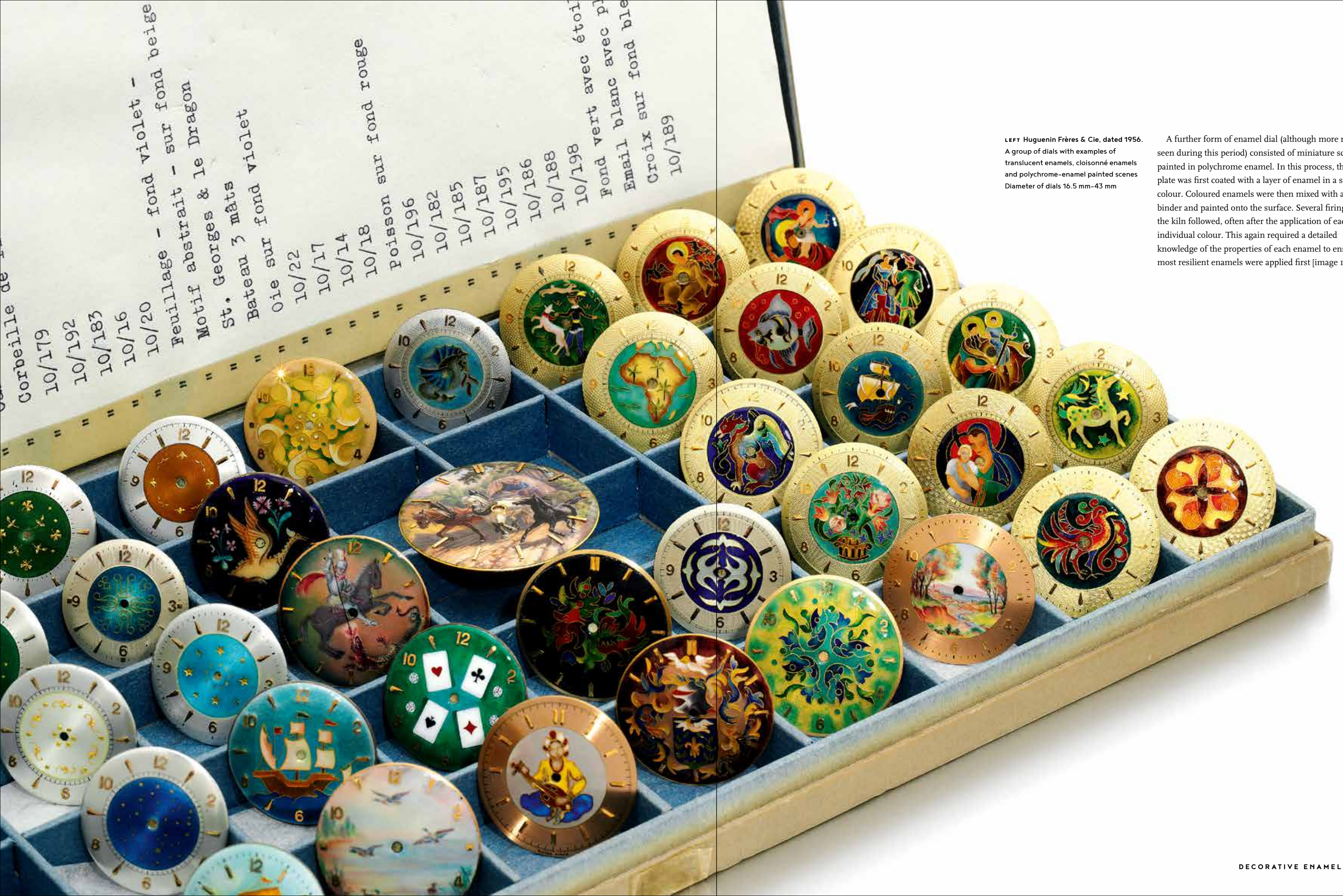
OPPOSITE, LEFT Vacheron Constantin, made in 1950.
An 18 ct yellow gold manually wound centre seconds wristwatch with cloisonné enamel dial made by Stern Frères, depicting a sailing ship (cal. 9" - 466/2B)
Diameter 31.5 mm

OPPOSITE, RIGHT Patek Philippe Ref. 2494, made in 1954.
An 18 ct pink gold manually wound wristwatch with cloisonné enamel dial made by Stern Frères, depicting stylised flowers (cal. 12-400)
Diameter: 33 mm



CUT OUT/ REDUCE SHADOW, REFLECTION





LEFT Huguenin Frères & Cie, dated 1956.
A group of dials with examples of
translucent enamels, cloisonné enamels
and polychrome-enamel painted scenes
Diameter of dials 16.5 mm-43 mm

A further form of enamel dial (although more rarely seen during this period) consisted of miniature scenes painted in polychrome enamel. In this process, the dial plate was first coated with a layer of enamel in a single colour. Coloured enamels were then mixed with an oil binder and painted onto the surface. Several firings in the kiln followed, often after the application of each individual colour. This again required a detailed knowledge of the properties of each enamel to ensure the most resilient enamels were applied first [image 141].

PIAGET

*présente
en première mondiale*

LA SEULE MONTRE
AUTOMATIQUE
ULTRA-PLATE

Épaisseur du mouvement:
2,3 mm

*Cette réalisation technique
quasi incroyable est l'œuvre
du spécialiste des montres
les plus minces du monde.*

CHEZ LES PLUS GRANDS JOAILLIERS DU MONDE

1960-1969

THE 1960s

Although the classic watch styles established in the preceding two decades would continue to be found throughout the 1960s, there was an increasing focus on clean, pared-down designs in which the emphasis was on utility and clarity of display [image 988]. However, the 1960s was also a period of significant cultural and social change, the influence of which the watch world was by no means immune to. While traditionally styled watches continued to be widely available, the rejection by some designers of established forms led to some radical reinterpretations of watch designs. This resulted in the appearance of a diverse range of asymmetrical and abstracted case designs where much was also made of variation in surface texture.

Slim watches were especially well matched to the simplified designs of the 1960s. Extra-slim manually wound watches were readily available from a variety of manufacturers; however, the growing popularity and demand for automatic watches led to the development of ever thinner automatic movement calibres, allowing

watch manufacturers the opportunity to broaden their offerings within this genre. The introduction of the micro-rotor during the second half of the 1950s had already led to the production of some slimmer automatic models, but it was Piaget’s introduction of a super-slim automatic movement, the calibre 12P in 1959, that would prove especially significant to the development of the dress-style wristwatch during the 1960s [image 1103]. With a height of just 2.3 mm, Piaget’s movement incorporated a micro-rotor made from 24 ct gold, the weight of which ensured efficient winding of the watch, despite the fact that the rotor was necessarily both small and slim. A remarkable movement, its development, together with the company’s super-slim manually wound calibres, transformed Piaget’s production. Armed with these movements, Piaget’s designers successfully captured the mood of the period, releasing a range of stylish models that would help the company dominate the dress watch market for the next two decades.

Variations of the silvered dial increased greatly as the

BELOW, LEFT Audemars Piguet Ref. 5129, sold in 1961.
A platinum and diamond-set wristwatch with concealed lugs (cal. 2001)
Diameter 58 mm

BELOW, MIDDLE Piaget, c. 1960.
An 18 ct yellow gold ultra-thin automatic wristwatch (cal. 12P)
Diameter 34 mm

BELOW, RIGHT Piaget ultra-thin calibre 12P.
Automatic movement with 24 ct gold micro-rotor



BELOW, LEFT Omega Seamaster De Ville Ref. 165.020, c. 1966.
A stainless steel automatic centre seconds wristwatch with bracelet (cal. 552)
Diameter 34.5 mm

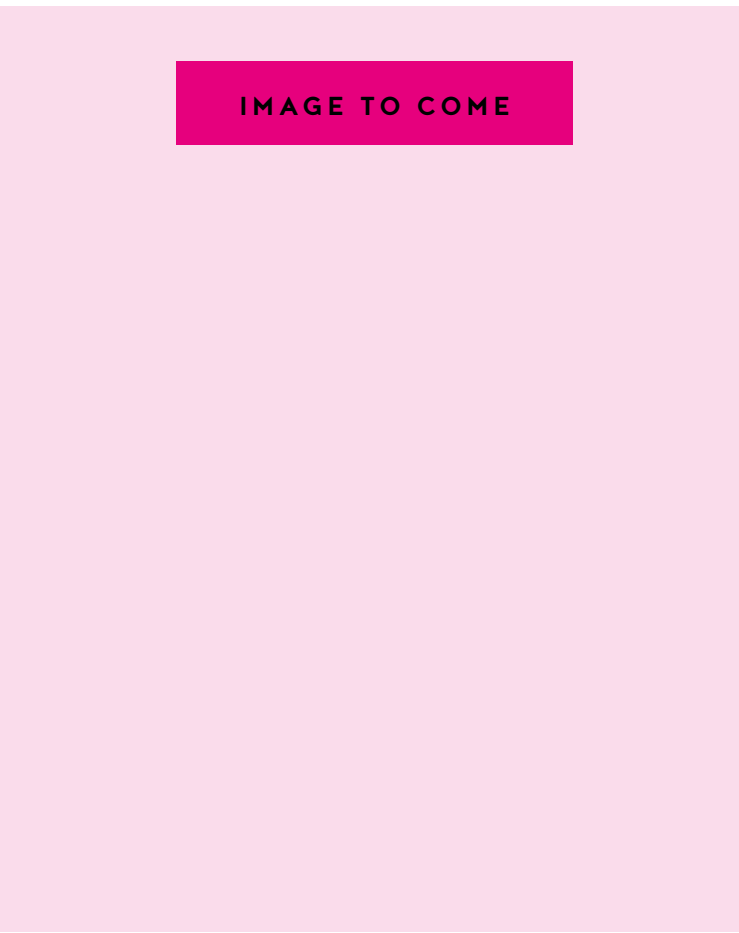
BELOW, RIGHT Junghans, designed by 'Max Bill' c. 1962.
A stainless steel centre seconds wristwatch

decade progressed. With the rising popularity of satin, sunburst finishes, a whole variety of other styles emerged, including dials with vertical, diagonal or multi-directional grained surfaces. Straight, baton-shaped hour and minute hands began to dominate as the shaped styles of earlier decades began to fade from view. The use of minute tracks was deemed less essential, and many models appeared without such calibrations to their dials. Omega’s Seamaster models became noticeably slimmer in lug gauge and bezel width, and a new De Ville line was launched to concentrate on the dress watch side of the market [image 989 A or B]. Meanwhile, Longines released their new Flagship line. Largely classically styled, the Flagships were also decidedly less chunky than the watchmaker’s Conquest models of the previous decade.

Rolex made a number of updates to their models during the 1960s. Now with a signature line of established models, many Rolex designs, such as the Submariner, GMT, Datejust and Day-Date, received

relatively subtle stylistic updates, ensuring they retained their essential DNA. Adjustments were more obvious to the Milgauss and Turn-O-Graph models – in the 1950s, these had been similarly styled to the Submariner, and so, with the experimental period over, both were given a new identity. The Turn-O-Graph retained its signature rotating bezel but was transformed into a dress-style model that was marketed under Rolex’s Datejust range [image 1102]. Meanwhile, the Milgauss was given a dramatically different look, with a simplified and more utilitarian design; the watch had an outer track calibrated to fifths of a second, implying heightened precision. The design was focused on extreme clarity, a look ideally suited to the scientific community to whom the watch was most closely associated and marketed [image 1104].

In keeping with the period’s move towards clean design, Patek Philippe’s Travel Time (Ref. 2597), patented in 1959, offered an alternative solution to the world time or two-time-zone wristwatch. With a classic and clear dial layout, the complexities of the world time



calibrations were entirely removed [image 990]. To the left case side of the watch, two recessed pushers allowed the hour hand to be advanced or retarded quickly and easily, jumping in hour increments. By not requiring the crown to be pulled out and the hands manually adjusted for time zone change, this system also did not interfere with the watch's timekeeping. When the hands of a mechanical watch are adjusted, a few seconds of timekeeping can be gained or lost, and Patek Philippe used this fact as part of the model's marketing appeal. Soon after production began, Patek introduced a secondary hour hand to the model. This meant that two time zones could be shown simultaneously, allowing the user to display both home time and local time; when the user was not travelling, the two hour hands could be overlapped to create a standard display. Chronographs and calendar watches also followed the move towards simplified displays, with the use of day and/or date apertures increasingly favoured over the earlier triple-calendar formats.

Towards the end of the decade, one of the most defining models of the second half of the twentieth century was introduced. Known as the Golden Ellipse and launched by Patek Philippe in 1968, the model's design was based on the golden section, an ancient mathematical ratio that was used by some to determine the 'perfect' proportions for a building or object. The elegant, simple form of the model's elliptically shaped case, combined with a striking blue, satin-finished dial that was devoid of calibrations – save for the slim, straight baton indexes and hands – seemed to encapsulate the very design ethos of the 1960s. [image 1094]

The rise of the electronic watch could no longer be ignored, and the release in the US of the Bulova Accutron model in 1960 must have sounded the alarm at many watch manufacturers [image 991]. Unlike earlier battery-powered watches that had sought to electrify the mechanical watch movement, the Accutron almost entirely dispensed with the traditional watchmaker's art.

BELOW, LEFT 1102 – Rolex Oyster Perpetual Turn-O-Graph Ref. 1625, c. 1967.
A stainless steel automatic centre seconds wristwatch with date and bracelet (cal. 1570)
Diameter 36 mm

BELOW, RIGHT 1104 – Rolex Oyster Perpetual Milgauss Ref. 1019, introduced in the early 1960s, this example c. 1968.
A stainless steel automatic, anti-magnetic centre seconds wristwatch with bracelet (cal. 1580)
Diameter 37 mm

OPPOSITE 1128 – Patek Philippe Ref. 2597, made in 1960.
An 18 ct yellow gold dual-time-zone wristwatch (cal. 12-400 HS)
Diameter 35 mm





CUT OUT/ REDUCE SHADOW, REFLECTION

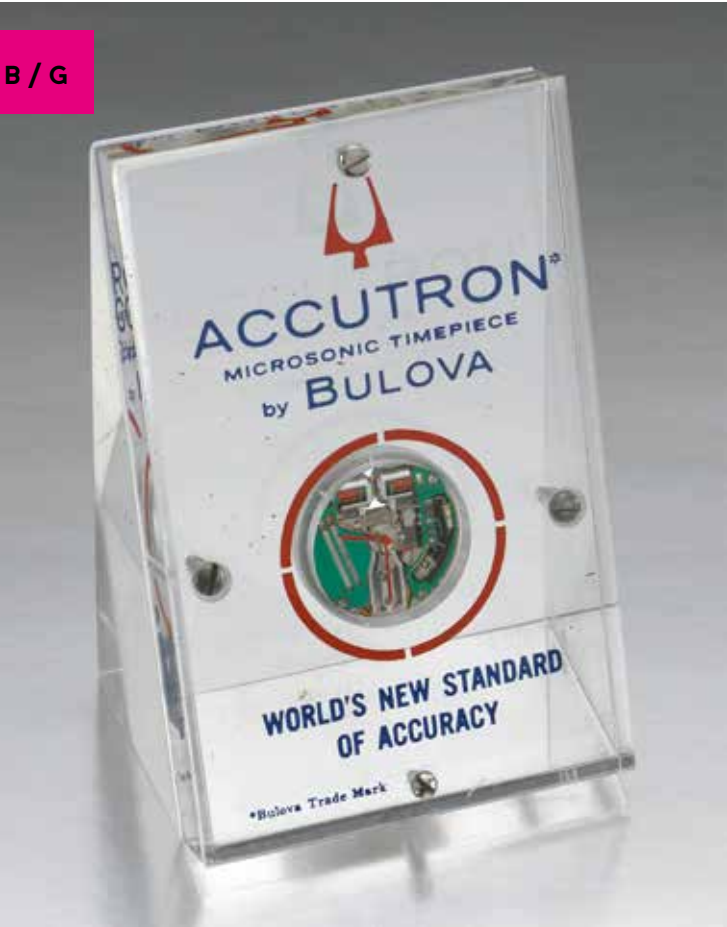
OPPOSITE 1094 – Patek Philippe Ellipse
Ref. 3548-1, introduced in 1968.
An 18 ct yellow gold elliptically shaped
wristwatch (cal. 23-300)
Length 32 mm, width 27 mm

BELOW 991 – Bulova Accutron
wristwatch, shop display model, c. 1960

Indeed, the model was advertised so as to encourage the public to wear an Accutron rather than a watch, making clear the company’s belief that they had invented an entirely new time-telling medium. This threat from the electronic watch caused a scramble among the traditional Swiss watch manufacturers to produce a quartz rival, and in 1962 a consortium of Swiss watchmakers set up the Centre Electronique Horloger (CEH) in Neuchâtel. Pooling their resources, the group – which included, among others, Ebauches SA, IWC, Omega, Piaget, Rolex and Patek Philippe – set out to build a quartz calibre that could be put into series production. By 1966 the first prototype, known as the Beta 1, was ready, and in 1967 a second, the Beta 2, had been completed. Examples of these calibres were tested at the Neuchâtel Observatory, where they won first prize and far exceeded the accuracy of the best mechanical chronometers, with an average daily variation of just 0.0003 seconds during the test period. In 1969 a calibre suitable for series production was created; named the Beta 21, it would be released at

the Basel Watch Fair of 1970. The Swiss-made Beta 21 was a big and bulky movement – a far cry from the increasingly slim mechanical movements of the period – and the calibre’s size was to have a dramatic impact on case designs of the early 1970s. Meanwhile, on 25 December 1969 the Japanese watchmaker Seiko had successfully released the first commercially available quartz wristwatch, the Astron. The 1960s had seen the export of watches from the US and Japan increase dramatically, and this trend would continue throughout the 1970s and would be formed increasingly of electronic watches. The dawn had arrived of what would become known as the Quartz Crisis, a period that would threaten the very survival of the mechanical watch industry.

EXTEND B/G



1960s ASYMMETRICS

During the late 1950s and into the 1960s, there was a reaction among some designers against the classical watch shapes that had been established during the previous two decades. One of the most influential figures in this area was a young jewellery designer named Gilbert Albert. In 1955, at the age of 24, Albert was spotted by Henri Stern, the president of Patek Philippe. Albert designed a range of asymmetrically shaped watches that began to appear at the very end of the 1950s, before being more widely available throughout much of the 1960s. These watches would defy convention, and through them Albert offered a fresh approach to watch design, one that was inspired by his love of modern sculpture, especially works by Constantin Brâncuși and Piet Mondrian. The asymmetric watches that Albert produced included both pocket and wrist versions [images 24, 975, 977]. The dials of the watches were kept simple, usually with slim baton indexes, often crossing the dials in a spider's web design.



CUT OUT/ REDUCE SHADOW, REFLECTION



ABOVE Patek Philippe Ref. 3270, designed by Gilbert Albert, retailed by Serpico y Laino, Caracas, made in 1962. A ladies' 18 ct yellow gold asymmetrical wristwatch (cal. 13.5-320) Length 20 mm

BELOW Patek Philippe Ref. 3424, designed by Gilbert Albert, made in 1961. An 18 ct yellow gold asymmetrical wristwatch (cal. 8^{'''} 85) Length 37 mm

OPPOSITE Patek Philippe Ricochet Ref. 788/1 designed by Gilbert Albert, made in 1964. An 18 ct yellow gold asymmetrical pocket watch (cal. 23-300) Length 44 mm





OPPOSITE Rolex Midas Ref. 9630, c. 1961.
An 18 ct yellow gold asymmetrical
bracelet watch (cal. 650)
Case length 29 mm

Although unusually shaped, the clean lines of the asymmetric forms that Albert created fitted perfectly with the 1960s aesthetic for clear, uncluttered design. In 1962 this aesthetic was taken a step further by Rolex with the introduction of a new model named the Midas [image 976]. Also asymmetrically shaped, this model was designed by another jewellery designer, Gerald Genta, as a homage to the mythological figure of King Midas. Genta's inspiration came from the architecture of ancient Greece and, specifically, the temple of the Parthenon. Genta took the sharp lines of a square form, adding a peak to the left side where the winder was partly concealed from view. An integrated bracelet was fitted to match the asymmetry of the watch's case – the bracelet had a straight side to the right and tapering side to the left, the left side following the line to the case's peak. The dial was almost entirely plain, with no numerals or calibrations.

Released in 1967, the Cartier Crash wristwatch went further into abstraction with an asymmetric case of surrealist appearance [image 974]. Popular legend

dictates that the model was influenced by a badly distorted Cartier wristwatch that had been damaged during an accident and which had been taken to Cartier in London for repair. Although the firm had played with asymmetry remarkably early in their production of wristwatches, notably with their parallelogram Tank Asymétrique of the 1930s [see p. XXX image 855], the Crash took design abstraction to a whole new level with its bold and daring look. An inspired and highly unusual wristwatch, its popularity among collectors led to its rerelease several times during the succeeding decades.

It is interesting that, despite the highly accurate and refined movements incorporated in all these watches, the ability to use them to tell the exact time was seemingly of secondary importance. With a lack of calibrations for minutes and in some instances without hour indexes, the precise reading of time was by no means easy. Design had been given the ultimate precedence, for, with these watches, function was forced to follow form.

RIGHT Cartier Crash, introduced in 1967,
this example a faithful reissue of the
model made in 1986.
An 18 ct yellow gold asymmetrical
wristwatch
Length 43 mm

FAR RIGHT An early 1960s Patek Philippe
advertisement for asymmetric
wristwatches designed by Gilbert Albert





OPPOSITE Piaget Ref. 9826 A6, sold in 1966.
A ladies' white gold and diamond-set oval bracelet watch (cal. 9P)
Width 24 mm

BELOW Bulgari Serpenti, c. 1965.
A ladies' gold, enamel and diamond-set snake-form bracelet watch with movement by Piaget

LADIES WATCHES OF THE 1960s

Piaget were extremely influential in the development of a new style of watch for ladies. With the ultra-thin, manually wound and automatic calibres that the firm had developed in the late 1950s, Piaget set about introducing elegant, slim watches for women that were no longer constrained by the traditional, diminutive size of the cocktail watch. This new style sat well with the growing trend in the 1960s for simplified designs and saw dials often calibrated with straight hour indexes and matching baton hands. The cases could be embellished by bezels set with diamonds or other precious stones, all the while with an emphasis on slim refinement. Integrated mesh, woven and fine-link watch bracelets, often with textured surfaces, were becoming increasingly fashionable during the 1960s, and these bracelets were ideally suited to Piaget's new style of dress watch. Such bracelets could be seamlessly soldered to the watch's case [image 981]. Usually of one fixed size, without the possibility to adjust their length, the bracelets could be uniquely tailored for the purchaser, lending them a feeling of the bespoke.

The dress watch with integrated textured bracelet would remain a popular offering for the next 30 years.

Despite the growing trend for simplified watch designs, the 1960s also witnessed the development of a number of highly unusual and innovative models for ladies that challenged the role of the watch as primarily an object of utility. As in previous decades, the concealed dial wristwatch remained a popular design concept, especially for the most elaborately decorated ladies' wristwatches. During the 1960s Bulgari developed their Tubogas flexible bracelets into a range of snake-form watches [image 963 A & B]. These extraordinary creations were produced with a variety of decorative schemes. The watch itself was concealed within the serpent's head, the top of which would hinge open to reveal the time dial, while the tip of the 'tail' was invariably styled to match the head. The flexible sprung bracelet would often be left undecorated, the design naturally imitating stylised scales. However, in their most elaborate form, the entire lengths of the bracelets were

CUT OUT



decorated with coloured enamelled 'scales'.

Other remarkable bracelet watches with concealed dials were produced by several manufacturers [image 980 A & B], the most imposing of which were often unique and occasionally made for exhibition purposes. Gilbert Albert, the Swiss jewellery designer, produced some extraordinary bracelet watches, winning the prestigious 'Oscar' prize at the Diamonds International Awards ten times, twice for Omega, three times for Patek Philippe and five times under his own name. His creative talent led to a daring reinterpretation of the watch's form and to the production of many avant-garde designs.

Figure XXXX [image 979 A & B] illustrates an 18 ct gold bracelet watch Albert made for Omega in about 1966. The bracelet has a bow-like shape and the undulating surface has the appearance of conjoined gold nuggets.

In 1969 Omega commissioned the British jeweller Andrew Grima to produce a collection of watches for a special exhibition titled, appropriately enough, *About Time*. Incorporating a range of daring, modernist

designs, the models blurred the lines between watch and jewel. One of the most innovative elements used throughout the range was the replacement of the traditional watch crystal with a coloured semi-precious stone. Figure XXX [image 1097] illustrates a watch by Grima that seems to echo the Brutalist architecture of the period in rich, golden form. The watch's crystal is formed from a step-cut green tourmaline. Hallmarked for 1969, the model is similar to a Grima watch named Utopia that he made for the *About Time* exhibition.

BELOW Patek Philippe Ref. 3292/7, made in 1963.

A ladies' platinum bracelet watch with concealed dial, set with approximately 14.74 carats of diamonds (cal. 13.5)
Width: 25 mm

OPPOSITE, ABOVE Omega Ref. 7180 Maille d'Or, designed by Gilbert Albert c. 1966.

An 18 ct yellow gold bracelet watch with concealed dial
width 21 mm

OPPOSITE, BELOW Andrew Grima for Omega, hallmarked 1969.

An 18 ct yellow gold asymmetrically shaped bangle-form watch with step-cut green tourmaline 'crystal', the movement by Omega
Inner circumference: 58 mm



CHRONOGRAPHS OF THE 1960s

In the early 1960s Rolex introduced a new chronograph model under reference number 6238. Initially produced with dials stylistically similar to those of the previous decade, the model was soon modified to have a silvered, satin-finished dial with applied angular baton indexes. The subsidiary dials were calibrated with block-style Arabic numerals [image 969]. A cleaner, crisper look, this was a dramatic new image for the Rolex chronograph. In 1963 the firm introduced what would become one of the most famous watches of the twentieth century, the Cosmograph, which would soon be designated the ‘Daytona’ to celebrate Rolex’s sponsorship of the NASCAR Stock Race at Daytona Beach, Florida. Initially introduced under reference number 6239, a range of models would follow. All these Daytona models would feature calibrations to their bezels, usually marked in units per hour, with some references featuring steel bezels, while others had black acrylic inserts. Dials varied, being either matt black with white subsidiary counters or the reverse, with silvered dials and black

subsidiaries. An exotic form of the dial, popularly named the ‘Paul Newman’ following the picturing of the latter wearing an example, comprised a more colourful option, with the baton hour numerals replaced with small squares at the dial’s edge, complimented by distinctive squares within the calibrations of the subsidiary dials [image 995]. In 1964, NASA contacted several watch companies to obtain quotations for robust chronograph wristwatches that could be used during their space missions. Of the firms contacted, only four replied, and from these, three watches were selected.¹ The chosen watches underwent extraordinarily rigorous testing during which they were exposed to all manner of shocks and extreme atmospheric changes. Ultimately it was the Omega Speedmaster that impressed above all others – the model’s highly legible design, robust construction and ability to perform accurately in extreme conditions had ensured its adoption. In fact, the first Omega Speedmaster watches in space pre-dated the official NASA adoption of the model, since the astronauts Walter

OPPOSITE Rolex Pre-Daytona Ref. 6238, c. 1963.
A stainless steel chronograph wristwatch with registers and bracelet (cal. 72B)
Diameter 36 mm

BELOW Rolex Daytona ‘Paul Newman’ Ref. 6239, c. 1968.
A stainless steel chronograph wristwatch with registers and bracelet (cal. 722-1)
Diameter 36.5 mm

CUT OUT





OPPOSITE The American astronaut Donn Eisele's Omega Speedmaster wristwatch, worn on the Apollo 7 mission in October 1968. Omega Speedmaster Ref. S105.012-65, c. 1965.

A stainless steel chronograph wristwatch with black dial and registers (cal. 321) Diameter 42 mm

BELOW, LEFT Heuer Autavia Ref. 3646, first released in 1962.

A stainless steel chronograph wristwatch with register (cal. Valjoux 92) diameter 38 mm

BELOW, RIGHT Heuer Carrera Ref. 2447S, c. 1963.

A stainless steel chronograph wristwatch with registers (cal. Valjoux 72) diameter 36 mm

Schirra and Gordon Cooper had privately purchased their own Omega Speedmasters, which they wore during space missions in 1962 and 1963.² The Speedmaster's use by NASA officially began during the Gemini III mission in 1965. The model was also used during the Apollo missions and, most famously, on 21 July 1969, the Omega Speedmaster became the first watch to be worn on the Moon; for ever after, the Speedmaster Mark I would be referred to as the 'Moon Watch' [image 968]. Before the close of the 1960s, Omega launched a new version of their Speedmaster model, named the Mark II. The watch had a massive tonneau-form case – a significant departure from the more traditional, circular style of the first Speedmaster models. While the dial closely followed the established Speedmaster styling, the tachymeter bezel was affixed to the underside of the crystal rather than being a separate metal bezel with acrylic insert.

The Heuer brand, which had already been involved in automobile racing during the 1950s, supplying dashboard watches, launched a new wristwatch

chronograph named the Autavia in 1962 [image 970]. The Autavia, its name deriving from 'Automobile and Aviation', had originally been introduced as a dashboard chronograph for planes and cars in the 1930s. The new wristwatch Autavia was once again designed for racing drivers and aviators. The Autavia chronographs focused on the legibility of the display and the watch's ease of use. The first models were based on the established styles of military and aviation watches and had the addition of a rotating, calibrated bezel of similar style to 1950s diving watches. In addition to highly visible luminescent hour indexes, these early models had enlarged subsidiary dials for the constant seconds and time-recording dials. In 1963 Jack Heuer, the great-grandson of Heuer's founder, set out to develop a new chronograph model that would be both classic in style and highly legible, in keeping with the new trends for pared-down designs. The result was the launch of the Carrera, in tribute to the Carrera Panamericana road race held in Mexico in the 1950s [image 972]. As the 1960s advanced, Heuer would



become ever more involved in the world of motor racing. With the rise in popularity of the automatic wristwatch, Heuer, in collaboration with Breitling and Hamilton, worked in secret to produce an automatic chronograph. These chronographs used micro-rotor technology to ensure that the automatic system could be introduced without greatly increasing the depth of the movement, an important consideration for a form of complication that already required a substantial movement area. At the time, the Breitling–Heuer–Hamilton joint venture was in competition with Seiko and Zenith, who were working to release their own automatic chronograph models. On 3 March 1969, Heuer, Breitling and Hamilton held a joint press conference to announce the release of their new line of automatic chronographs [image 971]. The development of the automatic chronograph movement would result in the release of a varied assortment of models in the succeeding decade.



BELOW Heuer Autavia, c. 1969.
A stainless steel automatic chronograph wristwatch with date and register (cal. 11)
Case length 47 mm

CUT OUT / REDUCE SHADOW, REFLECTION

One of the most famous chronographs of the twentieth century was also released in 1969: the Zenith El Primero [image 986]. Also an automatic model with date indication, this watch used a full-sized rotor and yet, with a height of just 6.5 mm, managed to be 1.2 mm slimmer than the micro-rotor movements of the Breitling–Heuer–Hamilton enterprise and around 0.7 mm thinner than Seiko’s first automatic chronograph calibre. The Zenith movement was a fast-beat calibre with a rate of 36,000 BPH (beats per hour). The fast beat meant that the central chronograph seconds hand could register increments of one-tenth of a second. Zenith’s El Primero calibre would become so highly regarded that it would be incorporated into a number of models by other watch brands for decades to come.



BELOW Zenith El Primero, c. 1969.
A stainless steel automatic chronograph wristwatch with registers and date (cal. 3019 PHC)
Diameter 37.5 mm

CALENDAR WATCHES OF THE 1960s

RIGHT Patek Philippe Ref. 3448, made in 1968.
An 18 ct yellow gold automatic perpetual-calendar wristwatch with moon phases (cal. 27-460Q)
diameter 37 mm

OPPOSITE Patek Philippe Ref. 2499, made in 1968 and retailed by Tiffany & Co., New York.
An 18 ct yellow gold perpetual calendar chronograph wristwatch with register and moon phases (cal. 13-130)
Diameter 37 mm

With the continuing popularity of watches with a date aperture and a general move towards clearer displays, the complex triple-calendar dial became much less visible as the 1960s progressed. Patek Philippe, who remained the leaders in this field, released a new perpetual calendar wristwatch in 1962 under reference number 3448 [image 994]. This was the first series-produced perpetual calendar wristwatch with automatic winding. The dial had a crisp, utilitarian design that focused on the clarity of its display. Notably, the second hand, which had moved from a subsidiary dial to the central position in the model's predecessor, was entirely removed from the new model. Aside from simplifying the display, this removal had two further advantages: first, it allowed for a single subsidiary dial dedicated solely to the date; second, it removed the need to incorporate extra wheel- and bridgework for a centre seconds hand, thereby ensuring the watch retained a relatively slim profile – this was an important consideration as the gold automatic rotor was mounted to the backplate of the watch, already increasing

the movement's depth. Patek Philippe also continued to make a perpetual calendar chronograph model, updating but retaining their model from the previous generation (Ref. 2499) [image 1099]. Revised once again for clarity of display, the tachymeter scale was removed from the dial's edge, leaving a single scale that acted for both minutes and chronograph seconds. Interestingly, despite regular updates to their perpetual calendar models from the 1940s until the 1960s, Patek Philippe would not significantly alter their perpetual calendar and perpetual calendar chronograph models again until the 1980s. Although very complex watches were becoming increasingly scarce, a small number of significant complication pocket watch movements from the earlier part of the twentieth century were cased and completed during the 1960s. Examples of watches with perpetual-calendar split-seconds chronograph and minute repetition by Audemars Piguet as well as Patek Philippe are known to have been completed during this period. Figure XXX [image 967 A & (B)] shows one such watch,





OPPOSITE Audemars Piguet Ref. 5543BA, movement begun in 1907, cased and completed in 1968.
An 18 ct yellow gold perpetual calendar watch with split-seconds chronograph, register, moon phases and minute repetition (cal. 18 SMCROV)
Diameter 50 mm

BELOW, LEFT Zenith 3600 Ref. 230A, c. 1965.
A stainless steel automatic centre seconds wristwatch with date (cal. 2532PC)
Diameter 34 mm

BELOW, RIGHT Omega Seamaster Cosmic Ref. 166.035, c. 1969.
A stainless steel automatic centre seconds wristwatch with day and date indication (cal. 752)
Width 35 mm

the movement of which was begun in 1907 but not completed and cased until 1968. In common with the wristwatches of the period, the design was focused on ensuring a highly legible dial, and this was mixed with a crisply chamfered case.

Rolex introduced their last triple-calendar Oyster model in 1958, and production ceased around 1962. The watchmaker would instead focus on increasing their range of models with a single date aperture, and by the end of the decade these included the Air-King-Date and Submariner Date [see p. XXX image xxx]. Meanwhile, the variety of Rolex Datejust, Date and Day-Date models continued to rise. Although Omega had also offered triple-calendar models during the 1950s, they, like Rolex, also concentrated on more simplified designs with date apertures. In the second half of the decade, Omega introduced a model with an elongated aperture at three o'clock that showed both the day and date; this form of display was used by the watchmaker across a range of different models during the period. [image 993 A or B].

By now, the default place for the date was at three o'clock; however, some models continued to play with the positioning, the date aperture making intermittent appearances at, for example, twelve o'clock or between four and five o'clock. Occasionally the apertures were tapered as they followed their allotted sector of the dial – thinner towards the dial centre and wider towards its edge [image 966 A or B].



MATCH ALL GREY B/GS ON SPREAD

DIVING WATCHES OF THE 1960s

OPPOSITE Rolex advertisement from the early 1960s showing (top right) the Deep Sea Special, which travelled to the depths of the Mariana Trench in 1960 and (lower left) a so-called 'Explorer' dial 'Submariner'.

BELOW, LEFT Favre-Leuba Bathy 50, c. 1965.
A stainless steel diver's wristwatch with depth gauge (calibre P 320)
Diameter 40 mm

BELOW, RIGHT Movado Super Sub Sea Ref. 206 704 501, c. 1965.
A stainless steel diver's chronograph wristwatch with registers (cal. 146HP)
Diameter 41 mm

In 1960, Rolex tested an extraordinary diving watch known as the Deep Sea Special [image 273 A] by strapping it to the outside of *Trieste*, a bathyscaphe (a type of deep-sea submersible vessel) that was piloted by the Swiss oceanographer Jacques Piccard and US naval lieutenant Don Walsh. *Trieste* reached a depth of 10,916 m in the deepest-known point of the ocean, the Challenger Deep section of the Mariana Trench, in the Pacific Ocean. Rolex had tested earlier versions of their Deep Sea Special during the 1950s, but the 1960 dive marked a sensational achievement and was, of course, an excellent marketing opportunity with which to further promote the growing success of their commercially available diving watch, the Submariner. The Submariner line had continued to receive subtle updates with the release of each new model within the range. By 1960, one of the most noticeable additions to the new models was the use of the 'crown guard' feature. First introduced to the Submariner in 1959, these guards protruded from the case, sitting either side of the crown to offer

protection from accidental knocks that might otherwise cause harm to the crown and potentially compromise the watch's water-resistance – a dangerous affair if the watch was being used to time a dive. The popularity of Rolex's Explorer model also saw the introduction of a Submariner model with Explorer-style dial.

Further capitalising on the adventures of the bathyscaphes, Favre-Leuba launched their 'Bathy 50' [image 982]. In common with other diving models, the watch had a rotating bezel calibrated for minutes that could be used to time the length of a dive – the minute hand had an extended, luminescent triangular tip for ease of reading. However, a significant feature of this model was a depth gauge; this sat at the edge of the dial and a central hand indicated to its scale. Capable of measuring depths down to 50 m, the system operated by allowing water to enter the case and press against a membrane that not only protected the movement but also moved the central indicating hand, as the water pressure increased, to provide an approximate depth reading on the dial.



A special Rolex "OYSTER" was fitted to the outside of the bathyscaphe "Trieste" when it dived to a record depth of 35,798 feet—nearly 7 miles! The Rolex was still working perfectly when the "Trieste" returned to the surface after eight hours, having withstood pressures of nearly seven tons per square inch! This unique watch is now on permanent display at the Smithsonian Institute in Washington D.C.



Another "first" by Rolex of Geneva—the pace-setting Oyster Perpetual "SUBMARINER"—was developed specially for deep-sea and skin divers, but thousands of others have found it the ideal watch for everyday wear. Extra robust, waterproof to 660 feet, it is a favourite with yachtsmen, fishermen, water skiers and all those fond of aquatic sports. Its revolving bezel, which was introduced as a means of measuring time elapsed under water, has commended it to all those who want a simplified stopwatch, as well as an accurate time-piece, on their wrists.



A special Rolex-built gauge, used in the laboratories of Rolex at Geneva for testing the effects on watches of pressures up to 600 atmospheres—the equivalent of four miles under the sea!



CUT OUT/ REDUCE SHADOW, REFLECTION



OPPOSITE LeCoultre Polaris Ref. E859, c. 1967. A stainless steel diver's alarm wristwatch
Diameter 42 mm (cal. K825)

BELOW Rolex Sea-Dweller Submariner 2000 Ref. 1665, c. 1967. A stainless steel automatic centre seconds diver's wristwatch with bracelet (cal. 1570)
Diameter 39 mm



The popularity of diving watches led to the development of diving chronographs and alarm watches. Movado introduced their Super Sub Sea chronograph, which followed the traditional diving watch format with a rotating calibrated bezel and black dial with bold luminous numerals [image 983]. This model had three subsidiary dials which, between them, displayed constant seconds as well as recording minutes and hours elapsed while the chronograph was running. Jaeger-LeCoultre extended their alarm watch range to include diving versions of their Memovox model. In 1961 the firm introduced the Memovox Deep Sea, an alarm wristwatch with traditional rotating diver's bezel. In 1968 an updated model called the Polaris was released; this watch had its rotating bezel fitted to the underside of the crystal, at the edge of the dial itself [image 984]. There were three crowns to the case side, separately for rotating the inner bezel, controlling the time function and setting the alarm time. The International Watch Company adopted a similar inner rotating bezel for their Aquatimer watch, which was released in 1967. By using an inner rotating bezel, there was less chance of the bezel being accidentally moved once it had been set up for recording a dive's duration.

Following Rolex's deep-sea watch tests, the company developed a series-produced model suitable for saturation diving. Launched in 1967, the watch was called the Sea-Dweller Submariner and was depth-rated to 610 m [image 1098]. With an even more robust case than the standard Submariner models, the Sea-Dweller incorporated a gas escape valve to the case side by nine o'clock. When resurfacing after deep-sea diving, a watch case may fill with helium, creating a pressure imbalance that may force the crystal from the case, thereby ruining the watch; the gas escape valve allowed the helium to safely leave the watch case. The helium escape valve was also used in a special range of Submariner watches developed for the French industrial deep-sea diving company Comex.

ELECTRONIC AND FAST-BEAT MECHANICAL WATCHES

In 1960, after several years of research and development, the American watch firm Bulova released an electronic watch named the Accutron. The movement was invented by Max Hetzel, a Swiss national who began working at the Bulova Watch Company in 1948. The Accutron’s movement was revolutionary, dispensing with the watch’s traditional balance and spring. At the heart of the movement was a tuning-fork-shaped oscillator that vibrated 360 times per second. A battery powered the watch’s transistorized electronic circuit. These watches were guaranteed to be accurate to within one minute per month, or two seconds per day. Among the Accutron models released was the Spaceview, a watch that dispensed with the dial and allowed the viewer to see directly into the movement. A futuristic-looking watch, its visual impact was dramatic, the watch’s circuitry and ‘tuning fork’ clearly visible. Although the Accutron was available in a range of models with more traditional case and dial designs, the Spaceview was a clear demonstration of the watch’s modernity [image 1095].

Fast-beat mechanical movements were also being developed to improve accuracy. The advantage of a fast-beating movement is in greatly reducing changes in balance amplitude (amplitude being the amount by which the balance rotates in either direction), both as the mainspring unwinds and as the position of the watch changes. A fast-beating balance’s oscillations are also less impacted by shocks and the motion of the wearer. In 1959 Longines produced a new calibre that was specially designed for observatory competitions. Known as the calibre 360, the movement’s balance oscillated 36,000 times per hour, twice the rate of many other calibres on the market at that time. The movement set new records for accuracy in the wristwatch category at the Neuchâtel Observatory in Switzerland. In 1967 Longines launched a commercially produced fast-beat calibre (cal. 430), which also beat 36,000 times per hour and which was incorporated into a new collection of models named the Ultra-Chron [image 1096]. Intended as a competitor to the pioneering electronic wristwatches, Longines billed

BELOW Bulova Accutron Spaceview, made in the early 1960s.
An 18 ct yellow gold electronic wristwatch (cal. 214)
Diameter 34 mm



BELOW Longines Ultra-Chron Ref. 8301, c. 1968.
A stainless steel automatic fast-beat wristwatch (cal. 431)
XXXXXXX

their own watch as the most accurate in the world, with timekeeping guaranteed to within a minute per month, or an average deviation of two seconds per day – in other words, exactly the same claim as Bulova had made for their electronic Accutron model. Longines’ claim was an extraordinary one for a series-produced mechanical wristwatch. Indeed, Longines’ marketing left the public in no doubt that this was a rival to the electronic watch – even the dials of the watches incorporated a symbol shaped like an electric coil. Similar coil symbols were used on the dials of watches by manufacturers of pioneering electronic watches, including models by Hamilton and Lip. The Ultra-Chrons were automatic watches, and it is worth remembering that batteries in early electronic watches did not have long-lasting power and needed replacing at least once per year; a perpetual automatic watch that was of similar accuracy to an electronic watch therefore had much to recommend it. Fast-beat movements were also introduced by Girard-Perregaux, who released their Gyromatic HF model in

1965. This model also had a balance that oscillated 36,000 times per hour, and, in common with Longines, Girard-Perregaux also won a prize at the Neuchâtel Observatory for their fast-beat movement, the latter in 1966. Despite the advances that these new movements brought, however, the fast beat ultimately led to excessive wear of parts, and while examples continued to be made into the 1970s, the 36,000-series calibres would soon be abandoned in favour of rates between the traditional 18,000 and 28,800 beats per hour.



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1970-1979

THE 1970s

During the 1960s, Swiss watch exports had continued their seemingly inexorable rise, increasing by some 70 per cent during the decade. However, the Swiss industry was about to face its biggest crisis since the early 1930s. The two major threats came from the US and Japan, where production of low-priced mechanical and – more worryingly for the Swiss – electronic watches had soared. With the oil crisis of 1973 and the world economy entering a period of turbulence, the combination of challenges faced by the traditional watchmakers of Switzerland was verging on the cataclysmic. Over the second half of the decade, exports of Swiss watches and finished movements contracted dramatically: in 1974, 84 million units had been exported, yet the figure for 1979 would be just 49 million.¹

It is easy to forget quite how dramatic, indeed shocking, the arrival of the quartz watch was for the traditional watchmaking industry. Indeed, for years many had dismissed the very viability of a quartz watch. In an article published in 1970, the horological writer, historian

and designer Richard Good FBHI stated: ‘When I wrote about the first commercially available electric watch in 1957, I little dreamt that I would be writing about quartz crystal controlled wrist watches in 1970, not just research playthings ... but production items that may be purchased by anyone with sufficient money ... I would imagine that this fact must at the moment be causing many experts to blush in private. According to what they wrote so rashly some years ago the quartz crystal wrist watch was an impossibility and they produced copious scientific arguments to prove it.’²

On 6 May 1970, in the same month as Good’s article was published, the US watchmaker Hamilton announced to the press the development of a new, electronic quartz watch which they described as a ‘wrist computer’. Developed jointly by the Lancaster, Pennsylvania-based Hamilton Watch Company and Electro/Data Inc. of Garland, Texas, the prototypes of the model were claimed to have deviated by no more than three seconds per month.³ What had been developed was a truly

BELOW, LEFT Pulsar Digital Time Computer, c. 1972.
A yellow-gold-plated LED quartz wristwatch
Width 40 mm

BELOW, RIGHT Girard-Perregaux Ref. 9444, early 1970s.
A gold-plated and stainless steel quartz wristwatch with centre seconds and date (cal. 351-513)
Width 39 mm



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CUT OUT



CUT OUT/ REDUCE SHADOW, REFLECTION

antiquarian horologist might well have taken issue with the latter claim, the mechanical musical watch having its own long history).

Although Omega had been heavily involved in the creation of the Beta 21, the watchmaker continued to develop other electro-quartz movements. In collaboration with the Battelle Institute of Geneva, Omega developed their Megaquartz f2.4Mhz (cal. 1510) movement. In 1972, an updated version of the movement (cal. 1511) was tested over a 63-day period at the Neuchâtel Observatory, recording a mean daily variation of less than two thousandths of a second, or 0.73 seconds a year.⁵ Indeed, so precise was the movement that the observatory awarded the movement the elevated status of ‘Marine Chronometer’. To mark this achievement, in 1974 Omega launched a series of 1,000 examples of the Constellation Marine Chronometer Megaquartz [image 1000]. The styling of the watch was unmistakably maritime, with a box-like case, screwed-down bezel and utilitarian-designed dial.

Other Swiss watchmakers, some of whom had declined an invitation to be involved in the CEH (Centre Electronique Horloger) project to build the Beta 21 [see page XXX], had embarked on the development of their own quartz calibres. Girard-Perregaux, for example, hired the electronics engineer Georges Vuffray and designed their first quartz wristwatch, which was presented at the Basel Watch Fair of 1970.⁶ Although the development of the Beta 21 had been an important exercise, there were several drawbacks to the calibre. The size of the movement greatly limited the appeal of the finished watches to a wider audience and the batteries drained relatively quickly, requiring replacement within a year. Furthermore, these watches were the antithesis of the slim dress watches of the 1960s, and the participants in the Beta 21 project quickly realised that the future of the electronic watch lay in smaller and slimmer quartz movements. As a consequence, many of the major brands retreated once again to concentrate on developing their own movements. In 1975 Piaget introduced their calibre 7P quartz movement. Just 3.1 mm in thickness, it was the smallest quartz movement upon release and enabled the brand to further broaden their range of slim dress watches with new battery-operated models. As the decade closed, Ebauches SA and Ebauches-Fabrik ETA launched an extraordinarily slim quartz movement (cal. 999.001) named the Delirium. Integrating the movement into the actual plate of the case back, so that the movement and case back were one and the same, its designers created a watch with a thickness of just 1.98 mm [image 1002]. This was an astonishing advance: in less than a decade, the Swiss quartz watch had been

BELOW Concord Delirium 1, made in 1979. Two 18 ct yellow gold ultra-thin wristwatches with Delirium 1 quartz movements (cal. ETA Delirium) 1: Length 34 mm; 2: Length 28 mm



BELOW, LEFT Vacheron Constantin Ref. 222, c. 1977. A stainless steel automatic wristwatch with date and integrated bracelet (VC cal.1120) Diameter 37 mm

BELOW RIGHT, Le Phare, c. 1970–75. A steel and chrome manually wound wristwatch with sector indication time dial and date aperture Width 39.5 mm

reduced from the massive case forms required by the Beta 21 movement to the slimmest form imaginable.

All this innovation and change meant that to garner attention, manufacturers of mechanical watches had to offer a range of bold and edgy styles. The electronic watches of the early 1970s were hefty pieces, and to get noticed – to be the one with the latest wrist gadgetry – often demanded big and colourful designs. This was, as we shall see, most visible in the chronograph watches of the period (p. XXX). There was certainly no wholesale move to replace the mechanical watch with the quartz, at least among traditional watchmakers. Even Bulova, the firm that had been so successful with the sale of their electronic ‘tuning fork’ watch throughout the 1960s, released a new mechanical, automatic model in 1970, prominently citing in the product’s advertisement that: ‘70 % of men prefer self-winding watches.’⁷ Indeed, mechanical automatic movements were chosen for a new, modern style of wristwatch that was introduced during the 1970s, one that bridged a gap in the market between the dress-style wristwatch and the sports watch. Gerald Genta would be largely responsible for this trend, designing iconic models

for Audemars Piguet, Patek Philippe and IWC – respectively the Royal Oak, Nautilus and Ingenieur SL (see p. XXX). Meanwhile, Vacheron Constantin turned to the designer Jörg Hysek to produce their own hybrid sports/dress-style bracelet watch [image 1148]. Named the 222, the model was launched in 1977 to celebrate Vacheron’s 222nd anniversary. Ergonomically designed, the watch had a sleek integrated bracelet, and the tonneau-shaped case was made from a single block of steel with separate, screw-down, crenelated bezel. The dial featured baton hour indexes and hands, as well as an aperture for date. Made in two sizes, the larger version measured 37 mm in width, and although substantially proportioned the model retained a slim profile, in part achieved by the use of LeCoultre’s calibre 920 (the same base calibre as that used in the Royal Oak and Nautilus), which Vacheron finished in-house and designated the VC1120.

Tonneau-, cushion- and elliptically shaped cases were all popular styles for mechanical watches of the period. Though dial designs varied wildly, the classic watches of the period tended to favour slim baton hour indexes and hands. Colour was also important, and dials were



produced in a range of differing shades, predominantly greys, golds, blues and black but also browns, burgundies, greens, yellows and reds. For the classically styled watch, these colours were usually metallic in finish with a satin-finished ground, while the sportier models tended to be finished with matt surfaces. Stone dials were also used to bring colour and contrast (see page XXX). Experimentation in dial design was also important to manufacturers keen to compete with the space-age designs of the new breed of electronic watches, leading to some novel time indications, including retrograde sector displays [image 1021].

As in the 1960s, Rolex again made updates to their signature line of models. The majority of changes were relatively nuanced, and apart from the release of the Rolex Quartz with Beta 21 movement in 1970 (see p. XXX) and the introduction of quartz versions of the Day-Date and Datejust models in 1977, there were few dramatic changes in the Rolex catalogues. The 1977 quartz models used Rolex’s traditional Oyster designs but were more angular in style, with a tonneau-shaped case

and flat link (rather than rounded link) bracelet [image 1017]. Otherwise the bezels and dials largely followed established Rolex patterns, with satin finishes and baton indexes and hands. However, one watch that did embrace an entirely new form of styling was the 1971-issued Rolex Explorer II [image 1018]. This model had a modernist design with a matt black dial and block-form luminescent markers at each 2 minute increment around the dial’s circumference. The bezel was fixed and calibrated for 24 hours and an additional central orange hour hand indicated to it. Coloured hands were occasionally used across a range of models during the decade to clearly demarcate additional central hands, such as that of the Explorer II or for chronographs with multiple, centrally set hands. However, they were also used to provide jarring contrast between minute and hour hands. In 1970 Omega released a deep-sea diving model that was massive in size, highly legible and included contrasting white and orange hands [image 1019]. Measuring 54 mm in width, the watch was designed to be waterproof to 600 m. The bezel was fully graduated for 60 minutes and, for

BELOW, LEFT Rolex Oysterquartz Day-Date Ref. 19018, c. 1978. An 18 ct yellow gold centre seconds quartz wristwatch with day and date indication and integrated 18 ct yellow gold bracelet (cal. 5055) Width 36 mm

BELOW, RIGHT Rolex Oyster Explorer II Ref. 1655, c. 1972. A stainless steel automatic centre seconds wristwatch with date, 24-hour indication and bracelet (cal. 1570) Diameter 37.5 mm

OPPOSITE, TOP Omega Seamaster 600 Ploprof Ref.166.077, c. 1970. An oversized stainless steel automatic centre seconds wristwatch with date and bracelet (cal. 1002) Width: 55 mm

OPPOSITE, BOTTOM Corum for Rolls-Royce, late 1970s. An 18 ct white gold manually wound wristwatch in the form of a Rolls-Royce radiator grille (cal. 9”) Width 40 mm



extra protection, the bezel was locked and could only be rotated while the large red pusher to the right-hand side was depressed. This system prevented accidental movement of the bezel, and as the calibrations to the bezel were used for timing dives, this helped to ensure that the user could be confident of the displayed duration of their dive – important when calculating the amount of air left in one’s tanks. A large orange minute hand contrasted with the white hour hand, the focus on the former designed to ensure that time elapsed could be easily read by the orange hand’s indication on the minute graduations of the bezel.

The 1970s had been about modernisation, experimentation and recalibration. After years of sustained growth, a massive correction to the market had taken place. While the Quartz Crisis would see the bankruptcy of many watch firms and the amalgamation of others, it forced the leading players to focus minds, and during the second half of the 1970s the groundwork for the rebirth of the mechanical watch was being laid. It would be a renaissance based both in terms of heritage and mechanical prowess. While it was clear that the electronic watch would continue to enjoy a mass-market appeal, it was the very prevalence of this genre that provided the opportunity by which the mechanical watchmakers could differentiate themselves. In 1976, Corum released a wristwatch in the form of a Rolls-Royce’s radiator grill [image 1022]. Designed and produced in partnership with the car manufacturer, the model represented the ultimate in luxury and was fitted with a traditional, mechanical, manually wound movement. Despite the eclecticism of its form, this timepiece clearly drew on watchmaking heritage – wristwatches in the style of car radiator grilles had been among the first shaped wristwatches to appear in the 1920s. During the 1980s, brands would continue to dip into the rich seam of watch design history, reinterpreting, adapting and, in some instances, re-releasing vintage forms. Just as the Corum watch was launched, a team of watchmakers at Audemars Piguet were working on one of the most innovative watches of the decade – an extremely slim, mechanically automatic perpetual calendar wristwatch with moon phases (see page XXX). Sophisticated and exceptionally refined, it was models such as this that demonstrated a path to the future for the mechanical watchmakers. At the luxury end of the market, it was already becoming clear that the quartz watch could never rival the elegance and desirability of a mechanical movement, for there was no romanticism in the mass-produced, machine-made circuit boards and batteries of the electronic watch.

THE BETA 21

The Basel Watch Fair of 1970 saw the Swiss watch manufacturers that had been involved in the development of the Beta 21 (see p. XXX) release a broad range of quartz models. The movement was an extraordinary collaborative effort by makers that were, in other circumstances, competitors. Grouped under the banner of the CEH (Centre Electronique Horloger), the collective designed the module and integrated circuit, while Ebauches SA (now known as ETA) manufactured the quartz oscillators and the movement’s mechanical parts. It was agreed by the participants that 6,000 movements would be produced commercially. Although twenty companies were involved in the movement’s development, not all the firms involved released production models.

Beta 21 was huge, and its rectangular shape meant that the overall proportions of the finished watches were necessarily large. For the watchmakers that developed series-produced models incorporating the Beta 21, their watches would seem unashamedly brash by comparison with the pared-down trends of the previous decade. Yet

these were fiercely modern watches using the latest technology and, for their owners, they were also a statement piece. It is therefore unsurprising that, despite the heft of these models, options were available in heavy 18-ct gold cases, often with integrated bracelets to yet further their aspirational appeal.

Omega, who had developed the micro-motor that drove the hands of the Beta 21, released their Electroquartz model at the Basel Watch Fair of 1970 [image 997]. The watch had a wedge-shaped case with a bulky, thick body. The dials were available with a variety of contemporary-coloured, satin finishes. One rather nuanced feature was the placement of the crown at nine o’clock. These watches were phenomenally accurate by the standards of the day, keeping time to within five seconds a month, and so would require only rare adjustment. Since this was not designed as a left-handed watch, it seems that this crown placement was therefore a discreet means of displaying the fact that adjustment was, while not entirely superfluous, at least barely required.

BELOW 997 – Omega Constellation Electroquartz Ref. 196.005, c. 1970.
A stainless steel electro-quartz wristwatch with centre seconds and date (cal. Beta 21)
Length 42 mm

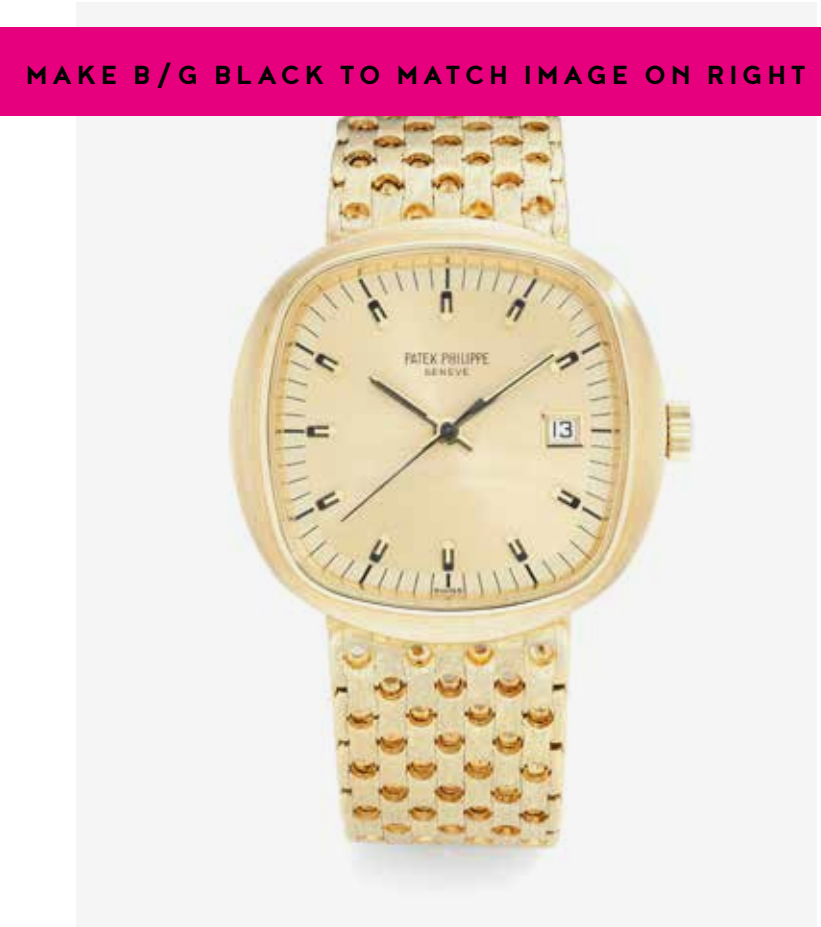


BELOW, LEFT 998 – Patek Philippe Ref. 3587/2, made in 1972.
An 18 ct yellow gold electro-quartz bracelet watch with centre seconds and date (cal. Beta 21)
Width 43 mm

BELOW, RIGHT 999 – Rolex Quartz Ref. 5100, c. 1970.
An 18 ct yellow gold electro-quartz bracelet watch with centre seconds and date (cal. Beta 21)
Diameter 38.5 mm

Patek Philippe launched their Beta 21 watch under reference number 3587 in 1970 [image 998]. Another vast watch, this had a diameter of 43 mm, at a time when most Patek Philippe watches were 32 to 34 mm wide and a 36 mm case was considered oversized. Made only in yellow or white gold, this was a heavy model, invariably with an integrated thick gold bracelet. Coloured, satin-finished dials also dominated the appearance of these watches. Rolex’s version of the Beta 21 was another hefty model. Also released in 1970, Rolex’s Quartz wristwatch was a substantial gold bracelet watch that drew its styling from the company’s Oyster dress models [image 999]. Yet this was not itself an Oyster watch, being distinctly more angular in appearance and with a snap-on rather than screw-down back. The dials were, like their competitors, available in coloured satin finishes; however, the Rolex dials took full advantage of the continually sweeping movement of the seconds hand to place enhanced calibrations at the dial’s edge. There were elongated, slim minute markers that were

interspersed with calibrations to fifths of a second. Rolex’s divisions of time gave the dials a visual feeling of precision and were more akin to the layout of a chronograph’s seconds track. The sharp chamfers of the Rolex model’s case and bracelet also spoke of modernity while retaining the brand’s by now classic fluted bezel.



DRESS/SPORTS HYBRID WATCHES

In 1970, G rald Genta was approached by Georges Golay, the managing director of Audemars Piguet, to design a new waterproof sports wristwatch. Following production of a prototype, the model, to be known as the Royal Oak, was put into production in 1972 [image 1005]. In designing the watch, Genta had been inspired by the diving helmet, with its screwed-down viewing window, and this feature was translated into the octagonal bezel of the Royal Oak. The case was seamlessly integrated with a link bracelet, giving the watch a rugged yet perfectly balanced appearance. One of the most important and influential wristwatch designs of the twentieth century, it was a remarkably visionary timepiece and, for Audemars Piguet, arrived at a critical moment, during the turbulent period of the 1970s. The Royal Oak would become Audemars Piguet's signature model and would transform the fortunes of the watchmaker for decades to come.

By the mid-1970s, Patek Philippe, no doubt impressed by the success of the Royal Oak, were keen to develop their own sports-style watch. Once again it was G rald

Genta who designed the model, his genius producing yet another iconic wristwatch. Released in 1976 and this time based on a ship's porthole, the Nautilus, as the new model was to be named, had a large yet sleek case design with an integrated bracelet [image 1006]. The bezel, rather than being screwed down from the top as in the Royal Oak, was instead secured by screws to the protruding 'ears' at the left and right sides of the case.

There was no mistaking the relationship between the Royal Oak and Nautilus, Genta's design DNA was clear to see. Each watch had a textured dial, the Royal Oak with a hobnail finish, the Nautilus with horizontal ribbing; the baton hands, numerals and date apertures were almost identically styled between the two models. For both Audemars Piguet and Patek Philippe, these new sporty watches were a departure from their traditional dress-style watches. Yet despite their large-sized cases (Royal Oak 39 mm, Nautilus 42 mm), they were surprisingly slim (each approximately 7 mm deep), especially given their rugged looks, and this enabled them to be marketed

BELOW, LEFT 1005 - Audemars Piguet Royal Oak Ref. 5402, c. 1972.
A stainless steel automatic wristwatch with date and integrated bracelet (cal. 2121)
Width 39 mm

BELOW, RIGHT 1015 - International Watch Company Ingenieur SL, c. 1976.
A stainless steel automatic anti-magnetic wristwatch with date and integrated bracelet (cal. 8541)
Width 40 mm



BELOW 1006 - Patek Philippe Nautilus Ref. 3700/1A, made in 1979.
A stainless steel automatic wristwatch with date and integrated bracelet (cal. 28-255 C)
Width 42 mm



as multipurpose watches that would be as well matched to a dinner suit as to a wetsuit. Their slender profiles were in large part achieved by the movement each incorporated. Both the early Royal Oak and Nautilus watches were fitted with Jaeger-LeCoultre's ultra-slim automatic calibre 920, with the finishing of the movements completed in-house, respectively by Audemars Piguet (cal. 2121) and Patek Philippe (cal. 28-255 C). The movement had a height of just 3.05 mm and was wound via a central rotor with a 21 ct gold rim to enhance its velocity.

One further watch to enter this particular style arena was the Ingenieur SL. By 1975 the International Watch Company had ceased production of their classic Ingenieur model; however, they made an approach to Gerald Genta to update the model and transform it into a modern, sporty bracelet watch. In 1976 the new model was launched with its unmistakable Genta design [image 1015]. Size-wise, with a case width of 40 mm, the Ingenieur SL was again a very broad watch, but it was also substantially thicker (approximately 12.5 mm deep) than the Royal Oak and Nautilus, the extra depth necessitated by the IWC's larger calibre 8541 movement. However, like the Royal Oak and Nautilus, the classic black dial with slim baton indexes and hands, combined with the angularity of the watch's case and bracelet, once again made the Ingenieur SL a multipurpose watch.

The radical new styling of these watches was perfectly suited to the period. With their modern, avant-garde looks, the Royal Oak, Nautilus and Ingenieur SL challenged the conventions of watch design at precisely the moment when the mechanical watch's future was being called into question. The legacy of the introduction of these models would ultimately last far beyond the darkest days of the quartz crisis - indeed, for Audemars Piguet, the Royal Oak would be seen as the very saviour of the brand.¹

CHRONOGRAPHS OF THE 1970s

Having invested heavily in the development of new automatic chronograph movements during the 1960s, brands such as Breitling, Heuer, Omega and Zenith released a slew of new and varied chronographs in the early years of the 1970s [image 1014]. For watchmakers, the chronograph's great advantage was that it lent itself to innovative and elaborate dial design. As electronic watches both in analogue and LED formats were taking the world by storm with their massive cases and space-age looks, the mechanical chronograph offered traditional watchmakers the opportunity to follow these trends by producing watches with equally outlandish designs. At the start of the 1970s, the mechanical watchmakers still had the advantage that their models could incorporate a range of indications that could not be replicated on the early electronic watches, though this would soon change with the introduction of the LCD wristwatch in the middle of the decade.

Heuer's Monaco wristwatch, first released in 1969, became one of the defining chronograph models of the

1970s [image 1011]. The sharp lines of the case were reflected in the horizontal, linear, raised-hour indexes to the dial. The subsidiary recording dials for hours and minutes also followed the shape of the case and were square with rounded corners. The placement of the crown at nine rather than three o'clock served to reinforce the fact that this was one of the new breed of automatic models and therefore, unlike the traditional chronograph, did not require winding. While there was certainly something of the 1960s in the Monaco's pared-down design, the colourful blue dial with its red highlights, eccentric applied hour indexes and the large cushion-shape of its case spoke of a new 1970s aesthetic.

During this period, Omega used colour and innovative dial displays to create unusual and eye-catching models. Having developed an automatic chronograph calibre together with Lemania, Omega introduced a suite of contemporary models in the early years of the 1970s, of which fig. XXX [image 1012] is a typical example. The case of the watch is both chunky and large, measuring 42

BELOW, LEFT Zenith El Primero Ref. 01-0200-415, c. 1975.
A stainless steel cushion-form automatic chronograph wristwatch with date, registers and bracelet (cal. 3019PHC)
Width 40 mm

BELOW, RIGHT Heuer Monaco Ref. 1133B, c. 1971.
A stainless steel cushion-form automatic chronograph wristwatch with blue dial, date and register (cal. 11)
Width 40 mm

BELOW, LEFT Omega Seamaster Ref. 176.005, c. 1972.
A stainless steel cushion-form automatic chronograph wristwatch with date, blue dial, central chronograph minute-recording hand and subsidiary dials for hour recording and constant seconds combined with 24-hour indicator (cal. 1040)
Width 42 mm

BELOW, RIGHT Omega Chrono-Quartz Montreal Olympics Ref. 196.0052/396.0839, c. 1976.
A stainless steel quartz wristwatch with dual LCD stopwatch display and analogue time with date (cal. 1611)
Width 47 mm

mm by 49 mm – this was a giant by comparison with the watches of the previous generation. In layout, the dial dispensed with the traditional chronograph format with its standardised subsidiary dials. Most noticeable was the use of a central minute recording hand: when at rest this winged, orange-tipped hand sat beneath the central chronograph seconds hand, and when the chronograph was running the hand would advance to count minutes at the edge of the dial. A standard hour recording dial was placed at six o'clock, and at nine o'clock a constant or subsidiary seconds dial was combined with a 24-hour indicator that was itself divided into day and night hours.

Reinterpreting the chronograph took another bold step with Omega's 1976 release of a hybrid electronic wristwatch with both an analogue and LCD display [image 1013]. A remarkable-looking and large wristwatch, the rectangular-shaped case lay horizontally on the wrist. Its size (45.3 mm wide, 12.8 mm thick) and unique displays lent the watch the feeling of a miniaturised computer. To the left, two stacked LCD screens displayed

the chronograph functions in minutes, hours and hundredths of a second. The 1976 launch of the model, which was dubbed the Seamaster Chrono-Quartz, was timed to coincide with the Olympic Games in Montreal.

All this modernity was of course tempered by more standard offerings, but the classic chronographs of yesteryear were becoming increasingly scarce. Rolex continued to offer their Daytona models, which stylistically remained little changed from those of the 1960s. Others such as Breitling and Omega kept their respective Navitimer and Speedmaster designs alive, while also offering additional variants of these models with more modernist styling [image 1125]. By contrast, however, Patek Philippe almost entirely retreated from the chronograph field, ceasing production of their last standard chronograph, the ref. 1463, in 1969 and their split-seconds chronograph ref. 1436 in 1971 (although the company continued to offer their ref. 2499 perpetual-calendar chronograph wristwatch throughout the 1970s). It is one of the great ironies of watchmaking history that



what has become one of the most coveted of all vintage chronographs, the Rolex Daytona, was, according to anecdotal evidence, a difficult model to sell during the 1970s [image 1126]. This combined with fact that Audemars Piguet, Patek Philippe and Vacheron Constantin were all drawing away from the chronograph market suggests that, by the mid-1970s, demand for the classic chronograph wristwatch was at its lowest ebb. Indeed, Patek Philippe, traditionally a leader in the classic chronograph field, would not reintroduce a standard chronograph model (without perpetual calendar) until 1998.



RIGHT Breitling Chrono-Matic
Cosmonaute Ref. 1809, c. 1970.
A stainless steel automatic chronograph
wristwatch with registers and date (cal. 14)
Diameter 48 mm



OPPOSITE Rolex Oyster Cosmograph
Daytona Ref. 6265, c. 1978.
An 18 ct yellow gold manually wound
chronograph wristwatch with registers
and gold bracelet (cal. 727)
Diameter 37 mm

AUDEMARS PIGUET PERPETUAL CALENDAR

In the midst of the quartz crisis, three watchmakers at Audemars Piguet, horrified by the damage being wrought across the mechanical watch industry, devised an audacious plan to reignite a passion for traditional watchmaking. The aim was to create an automatically wound, perpetual-calendar wristwatch that would be both sleek and refined. The watchmakers, Michel Rochat, Jean-Daniel Golay and Wilfred Berney, completed their prototype in 1977. Georges Golay, Audemars Piguet’s managing director, was convinced by the project’s merits. Quite extraordinary is the fact that Georges Golay commissioned the production of 159 examples of the watch – while this may seem a small number, the investment of time and labour in the construction of the watches was an enormous commitment. Remembering that the age of the full-calendar watch appeared to have passed by the end of the 1960s, the risks, especially during the turbulent years of the second half of the 1970s, were hard to dismiss. Indeed, to put the initial quantity commissioned into perspective, 159 perpetual-calendar watches was almost as many as the total number of calendar watches produced by Audemars Piguet since 1924.¹

Audemars Piguet presented the model, named the Ref. 5548 Quantième Perpétuel, at the Basel Watch Fair of

1978, where it claimed the title as the world’s thinnest automatic movement with perpetual calendar and moon phases [image 1016]. Comprising a total of 292 parts, the movement (cal. 2120 QP), which used a LeCoultre 920 *ébauche* as its base, had a thickness of just 3.95 mm. The external design was elegant and classic. Designed by Jacqueline Dimier, who had arrived at Audemars Piguet in 1975, the dial was white, with slim baton indexes and hands; the calendar indications were calibrated in black, while the disc for the phases of the moon was gold, heightened with blue enamel.² The case was circular with a rounded, stepped bezel and discreet lugs. With a diameter of 36 mm and total depth of just 7 mm, the watch was an assured return to the traditionally sized mechanical wristwatch and stood in stark contrast to the giant watches that the electro-quartz age had ushered in.

In the darkest days of the quartz crisis, few would have predicted the possibility of a renaissance for the mechanical watch. Yet Audemars Piguet’s Quantième Perpétuel in many ways showed a path to the future: the sophistication and refinement of the watch’s mechanical movement and the classic beauty of its styling would be a theme adopted by many makers during the following decade.

OPPOSITE Audemars Piguet Ref. 5548, introduced in 1978. An 18 ct yellow gold automatic perpetual calendar wristwatch with moon phases. Diameter 36 mm.

BELOW Audemars Piguet calibre 2120/2800, as used in the model Ref. 5548 and launched in 1978: detail of movement backplate and under-dial. Diameter of movement 28 mm (28 1/2”), thickness 3.95 mm.



CUT OUT / REDUCE SHADOW, REFLECTION

COLOURED DIALS

Watches with dials made from stone began to appear in the 1960s, but it was during the 1970s that the coloured dial found its fullest expression. Piaget led the field in this particular genre, producing an extraordinary array of watches that continued to break with traditional watch styles. In 1969, under the direction of Valentin Piaget, the watchmaker created the 21st Century Collection, a new form of avant-garde watch design that saw the release of an incredible array of timepieces, including innovative cuff watches and intricate pendant watches that played with colour, texture and asymmetry [images 1106, 1010]. At the Basel Watch Fair of 1970, Piaget displayed a kaleidoscope of coloured dials made from coral and hardstones, including jade, lapis lazuli, opal, turquoise and tiger's eye.¹ With natural inclusions and striations, the polished stone dials enhanced the feeling of the unique. Among the most captivating watches created by Piaget during this decade were a series of cuff-form watches that were made under the direction of Jean-Claude Gueit, who had trained at the Geneva School

of Decorative Arts. These large-sized watches followed both the curvature and taper of the wrist to form a comfortable, bangle-form bracelet. The stone dials of the period were perfectly matched to these designs, allowing a stark contrast between the large gold meshwork of the bracelets and the coloured dials, which were left entirely free of hour and minute calibrations [image 1009].

In 1970, Corum introduced novel coloured detailing with the release of a range of watches with dials made from birds' feathers.² These were often fitted to broad-cased models where the dial was large, allowing the feathers maximum visual impact [image 1007]. The feather dials were usually left 'blank', save for the Corum logo applied at the twelve o'clock position, although occasionally the quarter hours were also marked. The natural banding of the feathers created a look not entirely dissimilar to the stone dial, but their more muted sheen and subtle surface textures gave them their own distinctive appearance.

During the 1970s, the production of watch and jewellery sets by makers such as Piaget and Patek

BELOW, LEFT Piaget Ref. 9212, c. 1970.
An 18 ct yellow gold, lapis lazuli and nephrite cuff-form bracelet watch (cal. 9P)
Width 25 mm

BELOW, RIGHT Piaget, made in 1975.
An 18 ct yellow gold oval-form pendant watch with tiger's eye dial and gold chain
Width 25 mm

OPPOSITE Piaget Esclave Ref. 9467, c. 1974.
An 18 ct white gold cuff-form bracelet watch with malachite dial (cal. 9P)
Width 61.5 mm



Philippe enabled the brands working at the most luxurious end of the market to emphasise yet further the exclusivity and exceptional quality of their art [image 1008]. This, at a time of challenge from many newcomers to the watch market, including technology companies that had no history of watchmaking, helped to reinforce the very meaning of *haute horlogerie*. These sets often used the coloured hardstones that were being used to make dials to further decorate the bracelets, earrings and rings that formed these ensembles. Figure XXX [image 1008] shows an especially fine watch and jewellery set that dates to 1977. The pavé diamond-set dial of this watch represented a new trend that was beginning to emerge, one that would become increasingly fashionable during the 1980s.



BELOW 1007 – Corum, made in the 1970s.
An 18 ct white gold broad tonneau-form wristwatch with feather-set dial and diamond-set bezel (cal. 7001)
Width 42 mm

OPPOSITE 1008 – Patek Philippe Ref. 4363/1, made in 1977.
An 18 ct yellow gold turquoise- and diamond-set suite comprising a wristwatch, pair of earrings and a ring (cal. 16.250)
Width 32 mm



COMPOSITE MATERIALS

In 1970, Tissot had recently introduced a range of fibreglass models within their Sideral range [image 1026 A & B]. Marketed as youthful and sporty models, contemporary Tissot advertising material explained that ‘the novelty and originality of the watch results from the ultramodern design of its case.’¹ Tissot emphasised the attributes of fibreglass, explaining that the material was not susceptible to ageing, deforming or rusting and that it was impermeable and had excellent resistance against shocks. A trailblazing design, its use of fibreglass foreshadowed the use of plastics in watches that would, in tandem with the wider use of quartz movements, revolutionise watch design right into the 1980s, heralding a change that would bring down prices and open up a new ‘fashion’ watch genre. Such composite cases also avoided the use of chrome- or gold-plated finishes, which were especially susceptible to wear and damage. Other brands to experiment with composite cases included Breitling and Heuer, both of whom produced a range of mechanical chronographs with composite cases.

BELOW Tissot Sideral, c. 1970.
A fibreglass, rubber and steel automatic diver’s wristwatch with rotating calibrated bezel (cal. 784-2)
Width 40 mm

BELOW Tissot Actualis Autolub, c. 1975.
A chrome-plated, manually wound wristwatch with injection-moulded plastic movement (cal. 2270)

At the Basel Watch Fair of 1971, Tissot took the use of plastics a step further by presenting an entirely new mechanical movement in which almost all parts were made from injection-moulded plastic, including the plates, bridges, gear train and escapement [image 1023 A & B]. Under development since 1964, the movement was named the Astrolon. Designed to be cheap to manufacture and assemble, the plastics used did not require lubrication, were not susceptible to corrosion and were entirely anti-magnetic and highly shock-resistant. With many traditional steps such as oiling and tightening of screws removed from the assembly process, the production line was largely automated. It was even claimed that, with some adjustments and additional fixings, the movement could be made to run to chronometer standards.²

MATCH ALL GREY B/GS



EXTEND B/G



CUT OUT/ REDUCE SHADOW, REFLECTION



OPPOSITE George Daniels, London, made in 1970 and delivered to Edward Hornby on 1 January 1971.
An 18 ct yellow gold twin-barrel one-minute tourbillon watch with spring detent chronometer escapement and retrograde hour hand
Diameter 62 mm

GEORGE DANIELS

Despite the dark clouds of the Quartz Crisis, there were a determined few who believed in the future of the mechanical watch. While it was now pointless for traditional movement manufacturers to attempt to compete with the accuracy of the quartz watch, it was recognised that the mechanical watch could still offer an exclusivity, individuality and a quality of workmanship that could never be replicated in the circuit boards of an electronic watch. And it was among the melee of the electronic watch’s rise that one name emerged to reassert the relevance and importance of the watch, a name that would, perhaps more than any other, lead the way for the rise of a new breed of watchmaker, the so-called independents.

The English watchmaker George Daniels began his career as a trade watch repairer. It was a chance encounter with Cecil Clutton, like Daniels a fellow car enthusiast, that would change the direction of Daniels’s career. Clutton was a renowned antique watch collector and his passion for the subject captured Daniels’ imagination. During the 1960s Daniels developed a passion for the work of Abraham-Louis Breguet, and when he turned to making his own watches, it was his study and understanding of Breguet’s work that would most heavily influence his own. In 1969 Daniels created his first watch, made for Clutton. The watch was a gold and silver one-minute, pivoted-detent chronometer tourbillon. From 1970 to 1974, Daniels made and sold seven further watches based on the original watch he had made for Clutton. Figure XXX [image 1004] illustrates the fourth watch made by Daniels, which he sold to the collector Edward Hornby in January 1971. Hornby later recollected: ‘I well remember the day when he [George Daniels] said to me that he was going to start to make his own timepieces, [Daniels remarked] “you are down to have one of them.” “Just a minute” I said, “that’s fine but how much are they going to cost?” – “A great deal” he said, ‘But you’re going to have one just the same.’”¹

Aside from the exceptional quality of Daniels’s watches, the most remarkable fact about them was that he made almost every component himself. This stood in stark contrast to the rest of the watch industry, which relied on the sourcing of components from a variety of

different companies – cases and dials from specialist makers, parts or even whole movements from specialist suppliers. It was Daniels’s determination to design and make his watches almost entirely alone that immediately set him apart. From the outset, Daniels made the important decision to produce only watches of his own design that would incorporate interesting mechanical features and, notwithstanding his admiration for the work of Breguet, exude a uniquely Daniels’s aesthetic.

Each of the early series Daniels watches had a silvered dial that was engine-turned with three different decorative designs, and an eccentric, satin-finished sector displayed the hours in Roman numerals. The clarity of the design was superb: the outer minute track, which was indicated on a satin-finished ring to the edge of the dial, was clearly delineated, crossed over only by the slim ring of the subsidiary seconds calibrations at the base of the dial. An impressive retrograde action saw the hour hand ‘fly’ back to the left side of its sector as the hour reached one o’clock. The movement itself incorporated an Earnshaw-type spring-detent escapement which was mounted within a polished steel tourbillon carriage. A feature that has been long prized, the intricacy of the tourbillon’s mesmerising action and the extreme complexity of its construction excites the greatest admiration in the eyes of the watch collector. Daniels’s choice of the tourbillon was prescient, for it was the application of the tourbillon within the confines of the wristwatch case that would do much to reignite the mechanical watch’s appeal in the 1980s.

Edward Hornby, who owned the watch illustrated in fig. XXX [image 1004], was an avid collector of antique watches, but he also purchased one of the newly released quartz watches of the 1970s. George Daniels later recounted how Hornby was curious to see how his Daniels watch would perform against his recently purchased quartz watch and decided to test the two together: ‘The test lasted 8 months before the battery went flat and he cheerfully awarded the honour to the tourbillon. Its daily variation rate at room temperature averaged 0–3 seconds per day.’²

**THE NEW SWATCH. GRANITA DI FRUTTA.
THE ONLY WATCH THAT MAKES SCENTS.**



1980-1989

THE 1980s

By the early years of the 1980s, the initial excitement that had greeted the introduction of the electronic wristwatch was beginning to fade. Though it was clear that the mass-market watch would continue to be dominated by the quartz movement, the green shoots of the mechanical renaissance were beginning to appear. Two main themes would dominate the decade at entirely opposing sides of the style spectrum – one would represent the watch as an item of opulent luxury, while the other would reflect a nostalgia for watches of the past. The difficult years of the 1970s had seen many traditional watch brands swept away, and others had been amalgamated or mothballed. At the beginning of the new decade, the crisis was far from over, but enterprising watchmakers and investors who still believed in the mechanical watch’s potential would spectacularly turn around the fortunes of some of the oldest watchmaking firms.

For the traditional watchmakers, there was no better way to emphasise the quality and exclusivity of their watches than by visibly displaying their movements. One of the great ironies of the luxury mechanical watch lay in the fact that the inner workings were entirely hidden from view, despite the fact that they were beautifully finished. Skeletonised watches that allowed the wearer to see into the movement of their watch were scarce prior to the 1980s, yet with a renewed interest in the mechanical movement, several brands introduced variations of the skeleton watch to an eager clientele. At the Basel Watch Fair of 1980, the International Watch Company exhibited skeletonised pocket and wristwatches; heightened with diamond-set bezels, these pieces emphasised the exclusivity of the traditional mechanical timepiece [image 1025 A & B]. To further stress their uniqueness, the movements of these watches were engraved with the signature of the individual IWC watchmaker who had created them.¹ In 1980 Corum also launched a new skeletonised model, which they named the Golden Bridge [image 1129]. The watch had transparent crystals to the front and back of the case and the movement was arranged linearly, the spring barrel at one end and the balance directly opposite at the other. This was a highly effective design since the casing made the movement appear somewhat akin to an exhibit suspended in a museum cabinet, the movement itself allowed to become an object of wonder.



BELOW Corum Golden Bridge, introduced in 1980.
An 18 ct yellow gold skeletonised wristwatch with linear movement
Length 32 mm

OPPOSITE International Watch Company Ref. 5211, early 1980s.
An 18 ct yellow gold and diamond-set skeletonised keyless lever watch (cal. 952)
Width 42 mm



Glazed case backs that acted as a window into the movement were also extremely rare before the 1980s, being almost exclusively reserved for watches designed for exhibition purposes. However, this too was an excellent way for the watchmaker to display the quality of their workmanship and also had the potential benefit of acting as an additional selling tool for the retailer – the salesperson being able show a customer the movement of a watch by simply turning it over. There was initially some reluctance to fully exploit the glazed case back – no doubt there was concern that the feature may lessen the aesthetic refinement of the watch case or, perhaps worse, appear something of a gimmick. When Patek Philippe released new perpetual calendar and perpetual calendar chronograph models in 1986, they offered two versions of each – these were under separate reference numbers: the 3940 and 3970 were fitted with solid case backs, while the 3941 and 3971 were fitted with sapphire crystal, transparent backs [image 1134]. With opinion split on which option was the most appropriate for such

technically refined models, in 1988 the models were standardised under reference numbers 3940 and 3970, but each watch was now accompanied by two case backs: one solid and one glazed. As fascination with the mechanics of the watch gained momentum once more, display backs would become increasingly visible during the 1990s.

Part of the drive to emphasise brand heritage resulted in a range of vintage designs being reintroduced. In 1979 Jaeger-LeCoultre had reissued their famous Reverso wristwatch – the challenging era of the late 1970s being a somewhat fitting period in which to bring back this most iconic model, since the Reverso’s first appearance was during the economic depression of the 1930s. In 1985 Cartier oversaw the reintroduction of the Pasha wristwatch: a model originally designed in 1943, it was updated for a new era by the designer Gérald Genta [image 1114]. Another Cartier model that would return to prominence was the Santos, which had been relaunched in 1978, and it was this model that would be ideally

BELOW, LEFT Patek Philippe Ref. 3971, introduced in 1986. An 18 ct yellow gold perpetual calendar chronograph wristwatch with moon phases and sapphire crystal display back (cal. CH27-70 Q) Diameter 36 mm

BELOW, RIGHT Cartier Pasha, c. 1988. An 18 ct yellow gold automatic centre seconds wristwatch with date Diameter 38 mm

OPPOSITE



suitied to the popular 1980s trend for bi-metal cases and bracelets [image 1132]. While mixed-metal watches had begun to appear with increasing frequency in the catalogues of watch brands during the 1970s, it was throughout the 1980s that the trend for steel and gold wristwatches reached its height [image 1155]. Some firms also used combinations of precious metals as a means to further enhance the prestige of models. In 1985 Rolex launched their Tridor bracelet; as the name suggested, three colours of gold were used in the design [image 1133]. The outlying links were made in a grey tone of white gold, while the central links were composed of bands of yellow, pink and white gold. Experimentation was also made with other materials, such as ceramic, titanium and aluminium. The International Watch Company worked with the designer Ferdinand Alexander Porsche to create a new, modern line of wristwatches, producing a blackened aluminium wristwatch with compass in 1978, followed by a range of models including, in 1984, the first all-titanium diver's wristwatch [image

1116]. By the end of the 1980s IWC were using zirconium oxide ceramic for a special version of their Da Vinci perpetual calendar wristwatch (see p. XXXX). In keeping with the traditional wristwatch, classically styled models of the period invariably had rounded bezels and short lugs. Sizes were, for the most part, modest, with the large, chunky sports watches of the 1970s largely phased out. Coloured dials were still to be found, but pure white dials were an increasingly common option and the dial maker's palette was largely devoted to silvers, champagnes, blacks and deep blues. Satin finishes were common for silver, champagne and blue dials. White dials were occasionally matt in finish, although they were frequently found with a high sheen or gloss finish in imitation of the traditional enamel dial. Black dials could be found with gloss, matt or, occasionally, satin finishes. Numerals remained largely slim, with baton and Roman numerals especially popular.

Gold bracelet watches were a common offering during the decade, with popular models of the decade including

BELOW, LEFT Cartier Santos, late 1980s. A ladies' steel and gold automatic centre seconds wristwatch Width 23.5 mm

BELOW, RIGHT International Watch Co. Ocean, c. 1984. A titanium automatic centre seconds wristwatch with date (cal. 375) Diameter 43 mm

OPPOSITE, TOP Rolex Oyster Perpetual GMT Ref. 16753 (so-called 'Root Beer'), c. 1984. A stainless steel and gold automatic dual-time wristwatch with date and bracelet (cal. 3075) Diameter 40 mm

OPPOSITE, BOTTOM



CUT OUT/ REDUCE SHADOW, REFLECTION

Cartier's Panthère [image 1151] and the heavy models of Rolex's Day-Date and Piaget's Polo [image 1117]. The Polo seamlessly combined the watch's dial with an integrated bracelet. Panels alternately set with satin and polished finishes formed the bracelet's links and continued across the case and dial surface. These models were often embellished with pavé diamond settings. It was models such as these that served, for many owners, as an outward expression of wealth and success.

Complication watches made a return to the fore. A significant part of the industry recognised the marketing appeal of the calendar watch, especially those models that carried indication for the phases of the moon. The 1980s would see a stream of releases within this genre, many with traditional styling. In 1987, the famous watch house of Breguet was purchased by Investcorp. The Breguet brand, which had been reinvigorated by its previous owners, the brothers Jacques and Pierre Chaumet, was poised to make a renewed and spectacular rise to prominence. The distinctive style of Breguet watches had

been admired for generations, and the classic nature of their design meant that they were ideally suited to the renaissance period of the mechanical wristwatch. The firm's watches featured distinctive cases with rounded bezels, milled case sides and straight, screw-set lugs. It was the firm's calendar dials, however, with their elegant yet sophisticated engine-turned patterns, that were especially well suited to the classic luxury dress watch [image 1141]. Although Breguet wristwatches had been produced throughout much of the twentieth century, a new commercialisation of the marque dramatically increased the brand's visibility and availability. Furthermore, the Breguet style had a history of influencing other watchmakers, and this would be particularly in evidence during the 1980s and '90s.

The battle to draw attention also resulted in some daring and innovative designs within the complication watch genre. In 1982 the Swiss businessman Rolf Schnyder acquired a majority shareholding in the watchmaking firm Ulysse Nardin. By the early 1980s, the

BELOW, LEFT Cartier Panthère, c. 1985.
An 18 ct yellow gold bracelet wristwatch
with quartz movement
Width 27 mm

BELOW, RIGHT Piaget Polo, c. 1985.
An 18 ct yellow gold quartz bracelet
watch
Diameter 35 mm

OPPOSITE Breguet Ref. 3330, c. 1988.
An 18 ct yellow gold automatic wristwatch
with day, date and moon phases
Diameter 36 mm



CUT OUT/ REDUCE SHADOW, REFLECTION



CUT OUT/ REDUCE SHADOW, REFLECTION

mechanical Marine Chronometer, on which so much of Ulysse Nardin’s business had depended, had been surpassed by modern navigational equipment. Schnyder was determined to reinvigorate the firm and sought to produce an entirely new form of wristwatch that would reaffirm Nardin’s position as a maker of exceptional mechanical timepieces. The new model, a wristwatch, was named the Astrolabium Galileo Galilei and was released to the public in 1985 [image 1118]. A remarkable model, in addition to standard time the watch showed the position of the sun, moon and stars as viewed from earth. The watch’s complex dial also displayed a perpetual calendar, the phases of the moon, moonrise and moonset, sunrise and sunset, dawn and dusk, the signs of the zodiac and solar and lunar eclipses. Indeed, so complex was the display that the instruction manual for the watch had to be rewritten three times in an attempt to make it intelligible to the user.² The model was housed in a typically 1980s-style case with rounded bezel and case sides and was available on a leather strap or with an integrated bracelet.

In 1986 Audemars Piguet released the world’s thinnest automatic tourbillon wristwatch under reference number 25643 [image 1119]. Wristwatches with tourbillons were exceptionally rare before the 1980s, with only a very small number of pieces made during the preceding decades by watchmakers such as Omega, Patek Philippe and Lip. Audemars Piguet’s tourbillon wristwatch was designed by Maurice Grimm and André Beyner, the same pair responsible for the design of the Delirium, the world’s thinnest watch at the end of the 1970s (see p. XXX). Although this new tourbillon wristwatch was a far cry from the circuitry of the Delirium’s quartz movement, Grimm and Beyner were able to adapt some of the principles of the former’s design. Like the Delirium, the movement for the new tourbillon watch was integrated into the back of the watch’s case, and much of the mechanical watch’s traditional bridgework was removed. Rather than incorporate a rotor to wind the watch, a heavy swinging weight made of a platinum-iridium alloy was used instead (a full rotor would have compromised the watch’s super-slim design, yet if the swinging mass was not appropriately weighted – given the limited space available – it would have failed to engage the automatic winding system effectively). Following production of a prototype, Audemars Piguet purchased the rights to the design. The watch had a radical look, the dial featuring gold sunrays rippling across the surface and appearing to emanate from the tourbillon carriage, which was visible to an aperture at the top left of the dial. A further aperture to



OPPOSITE Audemars Piguet Ref. 25643, c. 1986.
An 18 ct yellow gold automatic ultra-slim tourbillon wristwatch (cal. 2870)
Length 32.5 mm, width 28.5 mm

BELOW Ulysse Nardin Galileo Galilei, c. 1989.
An 18 ct yellow gold automatic astronomical bracelet watch (cal. UN-97)
Diameter 40 mm

the base of the dial revealed part of the automatic weight within: this was emblazoned with the firm’s initials and, when viewed through its aperture, had the appearance of a mock pendulum. Like many watches of the period, this Audemars Piguet model had a rounded bezel and short lugs. Ultra-thin, the watch had a depth of just 4.8 mm. During the early years of the 1980s, a management consultant, Nicholas Hayek, was approached by a group of Swiss bankers to organise the liquidation of the SSIH³ (which included the brands of Omega and Tissot) and ASUAG (the world’s largest producer of watch parts and movements).⁴ In 1983, SSIH and ASUAG were merged into a holding company, and this was subsequently taken private by Hayek in 1985 with the support of a group of Swiss private investors. The business was renamed the SMH⁵ before taking on its new title, the Swatch Group, in 1998. Hayek’s exceptional ability to reorganise, streamline and modernise the companies which had formed the ASUAG & SSIH helped to transform the industry, and by the end of the 1980s the newly formed

SMH was the world’s most valuable watchmaking group. A highly important part of the SMH’s transformation and success was owed to the introduction of the group’s Swatch watch in 1983. The Swatch watch gave the SMH an effective weapon with which to challenge the mass-produced electronic watches that were, at that time, flooding the marketplace, and it was the Swatch that would become an icon of the Swiss watch industry’s revival. Under Hayek’s leadership, the SMH would go on to acquire a range of historic watch brands throughout the 1990s, including Blancpain in 1992 and Breguet in 1999.

By the end of the 1980s, the future of the mechanical watch seemed assured once again. A fresh confidence was breathing new life into the traditional world of the watchmaker. While the quartz crisis had wreaked havoc across the traditional watchmaking industry, it had also enabled a spotlight to be placed on the genius of the fine mechanical timepiece, and it was through this new appreciation of the watchmaker’s art that unique opportunities were opening for skilled independent makers. In 1985 the watchmakers Svend Andersen and Vincent Calabrese launched the AHCI (Académie Horlogère des Créateurs Indépendants)). The AHCI’s mission was, and is, to promote independent watch- and clock-makers and help them to develop their own brands. The academy’s members would include such legendary figures as the exceptional watchmakers François-Paul Journe and Philippe Dufour, both of whom would rise to prominence during the 1990s.



SWATCH

Traditionally, a watch's reliability and accuracy had largely been reflected in its price point. As the 1980s opened, the quartz wristwatch was already a mass-market item that put phenomenally accurate timekeeping on the wrist of any who desired it. For the Swiss movement manufacturer ETA, the Delirium wristwatch, which had been released at the end of the 1970s, opened a pathway for the development of a new mass-market model that could be sold cheaply and on a scale hitherto unknown in Swiss watchmaking. Ernst Thomke, the CEO of ETA, led the project to develop a new type of mass-market wristwatch under the name Delirium Vulgaris [image 1027]. Initial planning was carried out in January 1980. By October 1981, Thomke's principal team consisted of Jacques Müller, designer of the motor and mechanical parts of the movement; Elmar Mock, engineer for the plastic components; Marlyse Schmid and Bernard Müller, the chief stylists; and Franz Sprecher, head of marketing.¹ Among the primary aims were that the new watch should be Swiss-made, strong, accurate,

waterproof and have a production cost of no more than 10 Swiss francs.²

The key to Swatch's success was the exploitation of the dial and the execution of the case in plastic. While there had been experimentation with fibreglass and other composite materials during the 1970s, the results had tended to be plain and muted in colour. By contrast, Swatch's case would encompass a kaleidoscope of colours, and the prototypes of 1981–82 already showed a rich variety of brightly coloured cases, from greens and blues to yellows and reds. Early dials played with colour and simulated textures, such as imitation stone dials that reflected the continued popularity of that genre at the luxury end of the market [image 1028]. Colour would play an ever more important role in defining the Swatch watch as the decade progressed. [image 1029] The sheer volume of sales and the cheap manufacturing costs meant that a huge range of models could be produced; these varied from minimalist, plain-coloured dials without calibrations to vintage-inspired designs and,

BELOW Vulgaris, c. 1980.
An early prototype for the Swatch watch

OPPOSITE



EXTEND AND MAKE B/G GREY



EXTEND B/G



OPPOSITE Swatch 'Don't Be Too Late',
made in 1984

ABOVE Swatch prototype dials with
simulated wood and stone finished dials,
c. 1981

increasingly, bright designs with brash colours that were reflective of 1980s pop culture.

The Swatch quickly became a fashion icon. Crucial to this was the fact that, although it was originally conceived as an owner's 'second watch', its designers had managed to produce a wristwatch of such variety that it could be as easily worn in the boardroom as on the playing field. The models allowed the owner to express their individuality, and the affordable price tag meant that it was possible to own a range of different styles for a multitude of occasions. A collectors' market quickly sprang up, and Swatch mania followed. Despite its mass-market availability, the Swatch still felt like an aspirational brand, and securing the rare, limited-edition pieces further enhanced the brand's desirability. The speed of the brand's growth was extraordinary: officially launched in 1983, production had already reached 1 million units in 1984, and by 1990 more than 75 million Swatch watches had been manufactured.³



OPPOSITE Movado and Andy Warhol
Times/5, released in 1988.
A blackened steel limited-edition bracelet
watch composed of five watch heads with
quartz movements, each dial depicting
different images of New York City
Length of watch heads 38 mm each

BELOW Movado and Yaacov Agam,
Rainbow Collection, released in 1989.
A collection of four timepieces with
blackened cases, quartz movements and
multicoloured discs and bezel calibrations
Diameter of wristwatches 31 mm and 32 mm
Diameter of pocket watch 46 mm

ART WATCHES

In 1983 Gedalio Grinberg, the chairman of the North American Watch Corporation, took over the watch brand Movado, which, like many watch firms, had been suffering due to the quartz crisis and the turbulent worldwide economic situation. An avid collector of modern art, part of Grinberg's plan to revitalise Movado was to produce a series of limited-edition watches designed by artists. Andy Warhol, a personal friend of Grinberg, was the first artist to be approached. Experimenting with round and square shapes, Warhol eventually settled on a rectangular case. Early on, he had the idea of joining several watch cases together, showing Grinberg a string of five watches wired together as a prototype. Rather than produce 'painted' scenes for the dials – which Warhol feared would give the watch 'a department store fashion watch feeling' – he instead settled on black-and-white photographic scenes of New York. Warhol died in 1987 before the project was completed; however, he had already selected the photographs to be used for the dials, and Vincent Fremont, who was the

executive manager of Warhol's studio, was able to report to Grinberg that the Movado watch project was 'complete and ready to go'.² [Image 1032]

Warhol was himself a collector of watches and was often to be seen wearing a Cartier Tank. Tellingly, Warhol has been quoted as saying, 'I don't wear a [Cartier] Tank to tell the time, in fact, I never wind it. I wear a Tank because it's the watch to wear.' It is therefore unsurprising that Warhol should have chosen the classic rectangular form of watch case as the basis for his design for Movado – and also unsurprising that the dials should be entirely devoid of time calibrations. Warhol's watch was to be a statement piece, first and foremost an artwork, the dials of which were to be the canvases on which to show his five black-and-white cityscapes. The bracelet was a fixed length and measured around 22 cm, meaning that it acted as a loose-fitting bangle. The cases were made from blackened steel, ensuring that the watches had an entirely monochromatic look that was only punctuated by the red hour and



minute hands. Perhaps for Warhol the hands were primarily a visible sign of the passage of time rather than a means by which to tell the hour of the day; in any event, each was fitted with a quartz movement, ensuring that the perpetual motion of the hands was of no issue.

Named the Times/5, Warhol's Movado watch was released in 1988 in a limited edition of 250 pieces, with a price tag of \$13,500. The following year, in 1989, Movado continued their Artists' series with a small collection of four timepieces by the Op and kinetic artist Yaacov Agam [images 1033 A, B & C]. These pieces included a wristwatch model with leather strap, a similar wristwatch with blackened steel bracelet, a pocket watch and a desk clock. Three collections were released by Agam for Movado, named the Rainbow, Love Star and Galaxy. The timepieces all featured blackened cases. The Rainbow collection had coloured rings mounted on glazed discs that rotated, forming a semicircle and a full circle once an hour; beneath these, a series of dots formed the hour and minute hands, which indicated to a rainbow-

coloured minute track shown on the watch's bezel. Agam took his abstracted designs further, with triangles in place of hands on the dial of his Love Star collection and swirling rings of colour to the dial of the Galaxy range.

The transformation of the watch into a work of art was not restricted to the luxury end of the market. In 1985, Swatch announced the release of a new line of 'Art' watches. The first artist to collaborate with Swatch on the project was the French designer Christian Chapiron, working under his artist name, Kiki Picasso [image 1030]. Chapiron was soon followed by Keith Haring, who produced four Swatch models in limited series that were numbered from 1 to 9999;³ at least one of Haring's models was already available in December 1985 in New York, where it was retailing for \$50.⁴ [image 1031] Haring's graffiti art has become synonymous with the 1980s, and the bold colours and youthful feel of the designs perfectly complimented Swatch's modern vision. The following years would see further artists commissioned to produce artwork for Swatch, including

BELOW Image 1030 - Swatch and Kiki Picasso.
A plastic limited-edition quartz wristwatch



BELOW Image 1031 - Swatch and Keith Haring.
A plastic limited-edition quartz wristwatch

the Belgian surrealist painter and illustrator Jean-Michel Folin in 1987 and the renowned Japanese graphic artist Tadanori Yokoo. Yokoo was commissioned to produce a limited-edition model in 1988 to celebrate both the fifth anniversary of Swatch and the production of the 50 millionth Swatch.⁵



HIGHLY GEM-SET WATCHES

In 1979, Vacheron Constantin received a commission to produce a remarkable gem-set wristwatch of extreme opulence. Named the Kallista, from the Greek *kalos*, meaning ‘beautiful’, the watch was designed by Raymond Moretti. The case was carved from a single gold ingot weighing 1 kg and had a finished weight of 140 g. One hundred and eighteen emerald-cut diamonds of identical colour and clarity were sourced, allowing the case, bracelet and dial to be entirely covered with the stones. Carrying a price tag of \$5,000,000,¹ the commission came at a critical time for Vacheron Constantin, who had seen sales collapse during the turbulent years of the 1970s. Although the Kallista was commissioned as a unique piece, a closely related series of watches was produced by Vacheron Constantin during the 1980s. These gold bracelet watches followed the same opulent format as the original Kallista, with integrated gold bracelets and every upper surface covered in diamonds. The largest and most imposing model was known as the King Kalla [image 1034].

Particularly noteworthy was the fact that the King Kalla was made to be worn by a man. While elaborate gem-set watches for ladies had been a feature of wristwatch production for much of the twentieth century, there was now, in the 1980s, an increasingly large range of jewellery watches for men. During this period, Rolex became

especially well known for the extravagant range of gem-set watches they offered, especially those produced as variants of the heavy gold bracelet watches within the Day-Date range [image 1035]. These watches have in many ways become synonymous with the 1980s, when, for some, the ability to openly express wealth and success was embodied in the dazzle of the jewellery-form bracelet watch.

Predominantly produced in yellow gold settings, the jewellery watches of the 1980s were often pavé-set, the upper surfaces of the cases and bracelets almost entirely mounted with precious stones [image 1111]. Jewellery watches for ladies continued to be produced by a wide variety of makers. The pavé-set watches by the leading manufacturers of the period were beautifully executed, usually with round-cut stones that were mounted flush with the surface of the case and/or bracelet and dial. These watches were ideally suited to the styles established during the second half of the 1960s and the 1970s, when the integrated, flexible bracelet had been brought into favour.

Chopard continued to develop their series of Happy Diamonds models [image 1110]. First introduced in 1976, the patented design, with its free-floating diamonds set between two sapphire crystals, would become a signature model of the brand, its innovative, quirky look ideally suited to the fashions of the 1980s.

OPPOSITE Vacheron Constantin King Kalla, released in the 1980s.
An 18 ct white gold manually wound bracelet watch set with 160 emerald-cut diamonds, total diamond weight 101.27 carats (cal. 1052)
Width 27.5 mm

BELOW, LEFT Rolex Oyster Day-Date Ref. 18048, c. 1985.
An 18 ct yellow gold automatic wristwatch with diamond-, ruby- and sapphire-set dial, diamond-set bezel and gold and diamond-set bracelet (cal. 3055)
Diameter 37 mm

BELOW, MIDDLE Patek Philippe Ref. 3817/4, made in 1984.
An 18 ct yellow gold and diamond-set quartz wristwatch with integrated pavé-diamond-set gold bracelet (cal. E19)
Width 25 mm, length 30 mm

BELOW, RIGHT Chopard Happy Diamonds, c. 1980.
An 18 ct white gold manually wound bracelet watch, the black outer dial with free-floating diamonds (cal. 2446)
Width 32 mm



CHRONOGRAPHS OF THE 1980s

Between 1980 and 1993, Audemars Piguet produced a small number of manually wound chronograph wristwatches that followed in the footsteps of the firm’s vintage production [image 1040]. However, these new chronographs featured skeletonised dials, allowing the viewer to see right through the movement. Even the spring barrel’s cover was cut away to show the coils of the spring beneath. Such delicate openwork designs, with beautifully finished bridgework, emphasised the skill of the watchmaker’s art and was a perfect means by which to further the mechanical watch’s renaissance. In 1986 Audemars Piguet launched their first automatic chronograph model, which had subsidiary dials for thirty-minute and twelve-hour registers [image 1130]. The case was typical of the period: circular in shape with a rounded bezel and short lugs. The dial was asymmetrically arranged with the three subsidiary dials at six, nine and twelve o’clock, while the three o’clock position was taken by an aperture for the date. Dial colour was of a single tone which carried through to the

subsidiary dials, these bordered with slim, metallic rings. In 1987 Jaeger-LeCoultre developed a new ‘Mecha-quartz’ calibre (cal. 630), which combined traditional watchmaking with quartz technology. Although comprising 233 parts, the movement was one-third the size of a normal mechanical chronograph movement and, when launched, was 40 per cent smaller than the smallest quartz chronograph available on the market.¹ Powered by a battery and with a quartz oscillator, the chronograph was otherwise a relatively traditional mechanical module. The movement was used by Jaeger-LeCoultre in their ultra-slim Odysseus chronograph, launched in 1988 with the additional functions of date display and moon phases [image 1039]. Rolex introduced their first major chronograph update since the 1960s with the launch of a new automatic Cosmograph Daytona model in 1988 [image 1038]. Measuring 39 mm in diameter, the watch was slightly larger than its predecessors (Refs. 6263 and 6265), which Rolex had introduced at the end of the 1960s and

BELOW, LEFT 1040 – Audemars Piguet Ref. 25563, first released in 1981. An 18 ct pink gold skeletonised chronograph wristwatch with register (cal. 5030) Diameter 36 mm

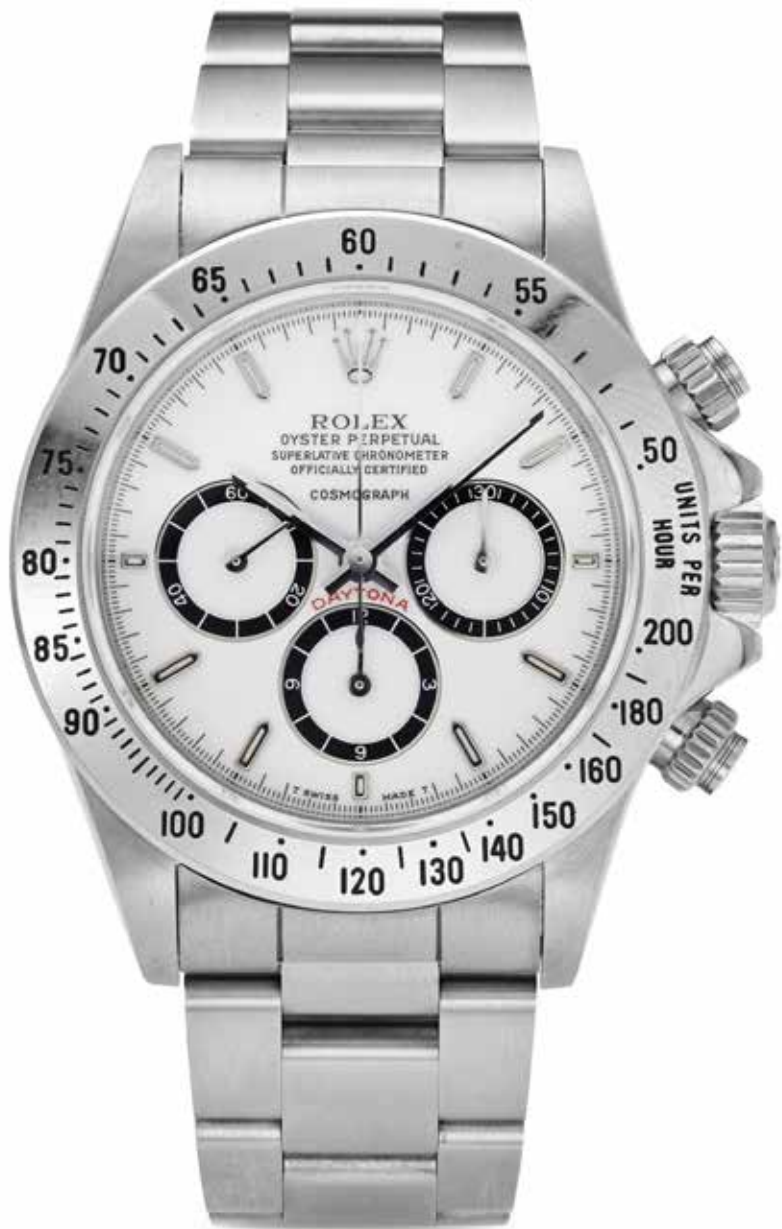
BELOW, RIGHT Jaeger-LeCoultre Odysseus, first introduced in 1988. An 18 ct yellow gold quartz/mechanical hybrid chronograph wristwatch with registers, date and moon phases (cal. 630) Diameter 35 mm

BELOW 1130 – Audemars Piguet Huitième Ref. 25644, introduced in 1986. An 18 ct yellow gold automatic chronograph wristwatch with registers and date (cal. 2126) Diameter 40.5 mm

which were still available until the introduction of the 1988 model. The new Cosmograph Daytonas were given a completely fresh look, with dials of white or black gloss for the stainless steel and stainless steel and gold versions, while the all-gold version was available with a satin-finished champagne dial. A major change was the layout of the dial itself, which now featured a single tone across the full surface of the dial. Rather than subsidiary dials of starkly contrasting colour to the main dial surface as had been found in the previous generation of Daytona watches, only the calibrated chapter rings of the subsidiary dials were now differently toned. The crown was ‘protected’ with shoulders, or guards, an inheritance from Rolex’s other tool watches such as the Submariners and GMTs, and the new Daytonas were fitted with a sapphire crystal. However, another significant change was in the type of movement used. Somewhat surprisingly given the popularity of the automatic chronograph in the 1970s, Rolex waited until the introduction of their 1988 Daytona before releasing an automatic chronograph. The movement was based on Zenith’s calibre 400, the El Primero calibre that was generally recognised as the finest series-produced automatic chronograph calibre available. Rolex made some 200 modifications to the movement, including reducing the beats per hour from 36,000 to 28,800, the incorporation of a Rolex balance with Breguet hairspring and Microstella regulation system, and the removal of the date indication.² The movement was refined to such a degree that all new models of the Daytona were able to achieve chronometer-rated standards. During the 1980s, Blancpain held an enviable position from which to develop a new series of complication watches using the expertise of the owners, former Omega director Jean-Claude Biver and the watchmaker Jacques Piguet. The latter came from the famous calendar and chronograph movement-making dynasty of Frédéric



Piguet (formerly Louis-Elysée Piguet), and it was using Jacques Piguet’s expertise that Blancpain were able to develop a range of completely new chronograph models. At the end of the decade, in 1989, Blancpain announced the production of the first split-seconds chronograph wristwatch with automatic winding (cal. 1186) [image 1037]. This was an extraordinary achievement, since the extra depth usually required to incorporate the split-seconds mechanism had previously hampered efforts to automate this extremely complex variant of the chronograph genre. In addition to the split-seconds complication and automatic winding, a date aperture was also added, yet the depth of the movement was still only 6.75 mm and its diameter just 27 mm. Once again, following the classic circular-cased aesthetic, the model was released with a rounded bezel and plain white dial which, in place of slim baton hour indexes, was calibrated with discreet Roman numerals. In keeping with the classic style of the vintage mechanical wristwatch that Biver and Piguet both so admired, the case of the watch was traditional in its proportions, with a diameter of 33.5 mm.



RIGHT Rolex Oyster Perpetual Cosmograph Daytona Ref. 16520, introduced in 1988. A stainless steel automatic chronograph wristwatch with registers and bracelet (cal. 4030) Diameter: 39 mm

OPPOSITE Blancpain, calibre 1186 model, first released in 1989. An 18 ct yellow gold automatic split-seconds chronograph wristwatch with registers and date (cal. 1186) Diameter 33.5 mm



CUT OUT/ REDUCE SHADOW, REFLECTION

CALENDAR WRISTWATCHES OF THE 1980s

While the LCD watch had ensured the cheap and easy availability of the self-adjusting calendar wristwatch, the mechanical perpetual calendar wristwatch had long been a means to demonstrate the skill of the watchmaker. The complex and attractive display of the perpetual calendar, with moon phases, was the perfect genre by which to reinvigorate the public’s desire for the mechanical timepiece.

Audemars Piguet’s release of their slim automatic perpetual calendar wristwatch in 1978 would be followed by a great variety of mechanically powered calendar watches during the 1980s, including their own Royal Oak perpetual calendar, which was officially launched in 1984 [image 1066]. Patek Philippe, the traditional leaders in this field, released a new perpetual calendar wristwatch in 1981 [image 1131]. Named the Ref. 3450, this was the firm’s first new perpetual calendar model for almost twenty years. Although the new Ref. 3450 was little changed aesthetically from its predecessor, the model had one crucial addition that would become a feature to

be found on many perpetual calendar watches of the 1980s and beyond: the leap year indicator. A circular aperture between three and four o’clock on the dial of the 3450 displayed the leap year cycle – this showed numerals for years one, two and three within the cycle and finally a red dot during the leap year itself (later versions of the model showed all four years of the cycle in Roman numerals). As has been seen, while the perpetual calendar pocket watch was often calibrated for leap year indication, the leap year was seldom displayed on the smaller surface of a wristwatch dial. The potential inconvenience for the user was in there being no visible way of telling which year of the leap year cycle the perpetual calendar wristwatch was currently in – perfectly fine if the watch was in daily use and had been set up to the correct cycle by the watchmaker, but not if the watch had been stored for a long period of time. Considering part of the thrill of owning a perpetual calendar is in witnessing the watch’s self-adjustment once every four years, when the calendar work accounts

BELOW 1066 – Audemars Piguet Royal Oak Ref. 25554ST, introduced in 1984.
A stainless steel automatic wristwatch with perpetual calendar and moon phases (cal. 2120QP)
Width 39 mm

BELOW 1131 – Patek Philippe Ref. 3450, made in 1981.
An 18 ct yellow gold automatic wristwatch with perpetual calendar, moon phases and leap year indication (cal. 27-460Q)
Diameter 38 mm

BELOW 1113 – Patek Philippe Ref. 3940, made in 1986 and retailed by Beyer.
An 18 ct yellow gold automatic wristwatch with perpetual calendar, moon phases and leap year indication (cal. 240Q)
Diameter 36 mm

BELOW 1115 – International Watch Co. Da Vinci, c. 1989.
A black zircon oxide cased automatic wristwatch with perpetual calendar, year indicator, moon phases, chronograph and registers (cal. 7906)
Diameter 39 mm

for the extra day of 29 February, it would seem natural for the owner to wish to have the full cycle indicated. Indeed, when Patek Philippe again updated their perpetual calendar wristwatch in 1986, the leap year cycle was displayed in full within a subsidiary dial [image 1113].

In 1985 the International Watch Company took the leap year indicator one stage further with the launch a new model named the Da Vinci [image 1115]. An automatic perpetual calendar watch, this was the first wristwatch to mechanically indicate the complete year on the watch’s dial. Indeed, the model was designed to continue telling the correct date until 2499. As part of the accessories supplied with the watch, a vial sealed with wax contained spare century indicators for the 22nd, 23rd and 24th centuries. Although of course somewhat tongue in cheek, such a feature allowed the IWC to capitalise on the quality and projected longevity of the fine mechanical wristwatch. In addition to the calendar and moon phase indications, the Da Vinci also incorporated a chronograph with register for periods of thirty minutes

and twelve hours. The model’s case had distinctive rounded sides and hinged, hooded lugs.

By the 1980s, Gérald Genta, already well known for producing iconic watch designs for other brands, was creating his own distinctive wristwatches. Largely focusing on watches with complications and unusual displays, Genta produced a range of perpetual calendar watches that also indicated the leap year cycle to the dial. To the centre of Genta’s subsidiary month dial, a smaller dial had four wedge-shaped apertures, and a coloured disc beneath would fill the aperture to display the current year within the leap year cycle. Another notable feature was the distinctive blue disc set to the top of the dial, with an off-set aperture to its base through which the phases of the moon were displayed. These models were housed in distinctive cases, predominantly octagonal or round in shape. [image 1135]

Audemars Piguet dramatically increased production of their perpetual calendar watches during the 1980s. In the fifteen-year period following the launch of the company’s

GIVE GREY B/G



CUT OUT / REDUCE SHADOW, REFLECTION AND JURGENSEN 289

1978 automatic perpetual calendar Ref. 5548, Audemars Piguet made over 7,000 perpetual calendar watches, comprising more than 70 different models.¹ During the 1980s, the watchmaker also introduced their new Grande Complication; an open-faced pocket watch, the model combined perpetual calendar with moon phases, a split-seconds chronograph and minute repetition [image 1036]. At the time of its launch it was reportedly the most expensive series-produced watch in the world, with just one example made each year.² The model had a dress-style case and traditional dial layout, and the slim baton numerals, fonts and calibrations followed the general 1980s aesthetic.

By the end of the decade, the growing popularity of the skeletonised wristwatch saw the release of ‘transparent’ perpetual calendar wristwatches, the dials reduced to slim chapter rings for calendar indications and minimal calibrations for the hours and minutes. Such a treatment was ideally suited to a watch of such complexity, allowing the exceptional finishing of the movement and the

astounding intricacy of the operating system to be clearly viewed by the owner and, of course, the admiring spectator. Both Audemars Piguet and Vacheron Constantin released skeletonised versions of their perpetual calendar models before the close of the decade [image 1037].

BELOW 1135 – Gérald Genta, late 1980s.
An 18 ct yellow gold automatic wristwatch with perpetual calendar, moon phases and leap year indicator
Diameter 31 mm

BELOW 1036 – Audemars Piguet Grande Complication, c. 1985.
An 18 ct yellow gold manually wound pocket watch with perpetual calendar, moon phases, split-seconds chronograph and minute repetition
Diameter 52 mm

BELOW 1107 – Vacheron Constantin Ref. 43032 c. 1988.
An 18 ct yellow gold automatic skeletonised wristwatch with perpetual calendar and moon phases (cal. 1120QP)
Diameter 36 mm



DANIELS AND JURGENSEN

Throughout the 1970s, George Daniels had continued to produce a remarkable series of watches. These had included the first Daniels watch to include an escapement of the maker’s own invention – the Daniels independent double-wheel escapement – which was incorporated into a gold open-faced pocket watch and sold to the collector Seth Atwood in 1976. In 1982, Daniels completed the first of his Space Travellers’ watches. Two years later, in 1984, a second, more complex watch, the Space Traveller II, was finished by Daniels, this time with the addition of a chronograph function [image 10.46]. The exceptionally complex movement was captivating in appearance, with its symmetrical trains, twin escape wheels and exposed chronograph bridges. Designed to show both mean solar and sidereal time, the handmade silver dial had multiple engine-turned finishes and displayed sidereal time to the left dial and mean solar time to the right, each with their own subsidiary seconds immediately below. A sector for the equation of time appeared at the top of the main dial, and an aperture for moon phases was placed within the sidereal

time dial. The watch had a chronograph function that could be switched to either the mean solar or sidereal time trains to measure time elapsed. This was an extraordinarily complex watch and Daniels’s most sophisticated to date. The Space Traveller II was retained by George Daniels until his death in 2011 and during his lifetime was invariably his dress watch of choice. Significantly, the case back was glazed. Enthusiasts were, unsurprisingly, always keen to see what watch Dr Daniels was wearing – the design of this watch meant that not only could the viewer marvel at the beauty of its dial, but they could be equally mesmerised by the complexity and wonder of the movement, clearly visible through the ‘exhibition’ back. One of George Daniels’s closest horological friends was the English watchmaker Derek Pratt. In 1965 Pratt had relocated to Switzerland, where he worked as a freelance watchmaker and watch restorer. It was here that Pratt met Peter Baumberger, and the pair would go on to collaborate together on the production of an exceptional collection of pocket and wristwatches at the

OPPOSITE 1046 – George Daniels Space Traveller II, made between 1982 and 1984. An 18 ct yellow gold chronograph watch with Daniels independent double-wheel escapement, mean solar and sidereal time, age and phases of the moon and equation of time indication. Diameter 63 mm

BELOW



watchmaking firm of Urban Jürgensen & Sønner throughout the 1980s and beyond. In fact, Baumberger would himself acquire the firm of Urban Jürgensen in 1985. Prior to this, during the second half of the 1970s, Pratt and Baumberger had embarked on a project to produce a small series of tourbillon pocket watches. In 1979 Gerhard Scheufens, then owner of Urban Jürgensen & Sønner, gave permission for these new tourbillon watches to be signed with the full company name. Figure XXX [image 1047] illustrates one of the first of these tourbillon pocket watches, completed around 1982. The watch employs Derek Pratt's one-minute tourbillon carriage with one-second remontoire mounted within the tourbillon carriage – this design marked a first in tourbillon production and achieved Pratt's goal of providing greater accuracy. The design of the dial and case of the tourbillon watch shared stylistic similarities with pocket watches of the 1920s and '30s.

Like George Daniels, the aesthetic style that Baumberger and Pratt developed together was heavily influenced by the work of Abraham-Louis Breguet, and

their watches would increasingly feature exceptional engine-turned dials with multiple, contrasting finishes. Such dials were made for a small range of highly complex but unfinished movements which Baumberger acquired with his purchase of the Urban Jürgensen firm. These watches were completed and regulated by Pratt during the 1980s [image 1048]. Baumberger recognised that, in order to increase sales, it would also be necessary to manufacture a range of wristwatches. At the end of the 1970s, just as mechanical movements were falling out of favour, Baumberger had purchased a batch of Zenith El Primero chronograph movements. With these, he would introduce a new wristwatch model. Named the Reference 1, the watch was an automatic triple-calendar chronograph wristwatch with moon phases and was produced between 1982 and 1986 in 186 examples.² The dial of the Reference 1 was made of silver and was engine turned by hand [image 1076]. Stylistically the dial was, once again, heavily influenced by the Breguet aesthetic. A mid-century design was used for the case, with teardrop lugs, rectangular chronograph pushers and rounded case sides.

BELOW, LEFT 1048 – Urban Jürgensen & Sønner/Derek Pratt c. 1985.
An 18 ct yellow gold open-faced minute-repeating perpetual calendar watch with split-seconds chronograph, 30-minute register and moon phases (ébauche by Louis-Elysée Piguet)
Diameter 60.5 mm

BELOW, RIGHT 1076 – Urban Jürgensen Ref. 1, introduced in 1982.
An 18 ct yellow gold automatic chronograph wristwatch with registers, triple calendar and moon phases (Zenith El Primero cal. 3019PHF)
Diameter 40 mm

OPPOSITE



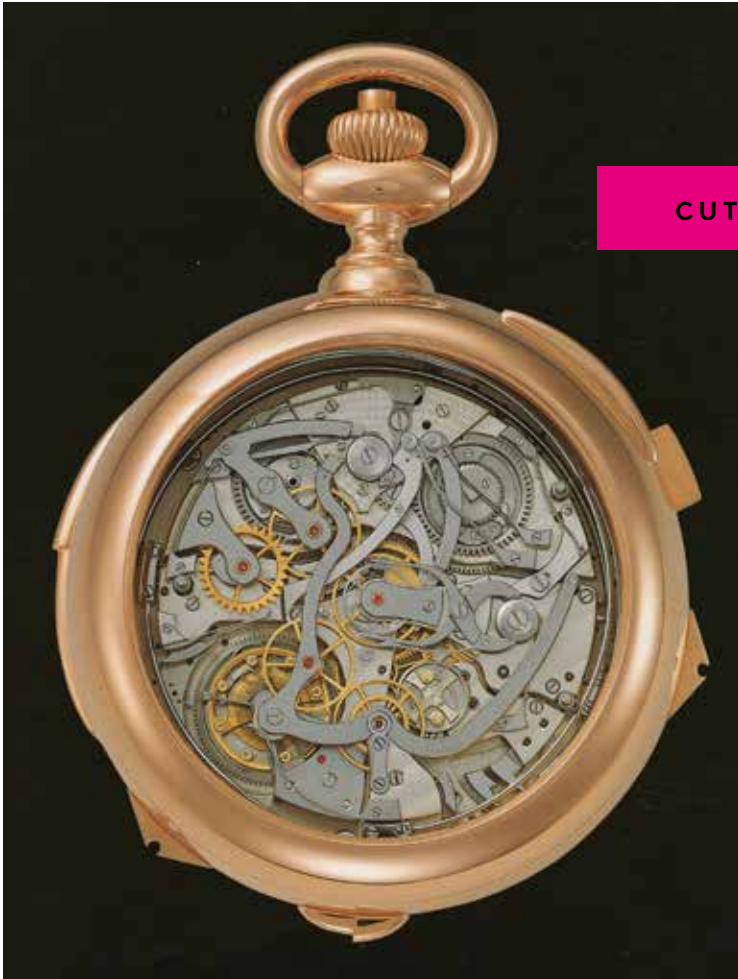


OPPOSITE AND BELOW Patek Philippe Calibre 89, made between 1980 and 1989. A yellow gold double-dialled and double open-faced minute-repeating grande and petite sonnerie clockwatch with Westminster chimes, split-seconds chronograph, registers for 60 minutes and 12 hours, perpetual calendar, retrograde date, indications for century, leap year cycle, seasons, second time zone, date of Easter, astrological indications, moon phases, equation of time, dual power reserve for striking and going trains, mean and sidereal time, alarm, temperature, indications for times of sunrise and sunset, and celestial chart for the night-time sky over Geneva, Switzerland, at latitude 46° 11' 59" North. Diameter 88.2 mm

PATEK PHILIPPE'S 1989 ANNIVERSARY

In 1979, at the end of a decade of turbulence both for the world economy and the watchmaking community, Philippe Stern, honorary president of Patek Philippe, had an eye on the future. In ten years' time the company would be celebrating its 150th anniversary, and Stern wished to ensure that Patek Philippe was well prepared for the occasion. Stern discussed with Patek Philippe's technical director, Max Studer, the possibility of re-creating the Henry Graves Supercomplication' (see p. XXXX). This must have seemed an appropriate project in so many ways, for the Supercomplication was born in similarly challenging times, completed as it was in 1933 during the Great Depression. However, Studer was keen to take the project further, suggesting that Patek Philippe aim to create an even more complex watch, the most intricate the world had ever seen. This was an extraordinary project to conceive – the requirements in terms of designers, watchmakers and artisans would mean committing a significant proportion of the company's resources for the next few years. However,

Stern was adamant, and with Paul Buclin appointed as the lead watchmaker, the project was silently but officially launched. [image 1041] Completed in 1989 and appropriately named the Calibre 89, the watch weighed 1.1 kg, and it had required 1,728 components to produce the watch's 33 mechanical complications (nine more complications than incorporated in the Henry Graves Supercomplication). The functions included a star chart, a perpetual calendar, times of sunrise and sunset, split-seconds chronograph, minute repetition, *grande* and *petite sonnerie* and alarm functions, and even an indicator for the date of Easter. It was an astonishing achievement and cemented the watchmaker's position at the pinnacle of high horology. The watch's external design echoed that of the Henry Graves Supercomplication: the case was of similar *bassine* form, with open-faced dials to both sides of the watch. However, the calibrations to the dial with their fonts and styling were, while traditional, clearly influenced by the 1980s aesthetic.



CUT OUT X2





GREY B/G X2

OPPOSITE Patek Philippe Ref. 3979, first released in 1989.

An 18 ct yellow gold automatic minute-repeating wristwatch (cal. R27PS)
Diameter 33 mm

ABOVE, LEFT Patek Philippe Ref. 3974, first released in 1989.

An 18 ct yellow gold automatic perpetual calendar minute-repeating wristwatch with moon phases (cal. R27Q)
Diameter 36 mm

The parallels drawn between the Henry Graves Supercomplication and the Calibre 89 were intended to rekindle the market's appreciation and desire for the classic mechanical watch. Just four examples of the Calibre 89 were made – the watch was of course a statement of mechanical prowess and never intended for series production. However, alongside the Calibre 89, Patek Philippe also released a selection of wristwatches that were designed to further highlight the watchmaker's heritage as well as their continuing commitment to fine watchmaking. Chief among these models were two minute-repeating wristwatches. The first of these was the Ref. 3979, a minute-repeating wristwatch with automatic movement and a porcelain white dial with Roman numerals [image 1043]. The epitome of the classic wristwatch, it was a wonderfully understated model that housed one of the most intricate forms of movement in watchmaking. From the front, the only guide to the watch's immense complexity was a slide to the left case side that would, when activated, chime the hours, the quarters and minutes past each hour. This model was joined by an even more complex minute-repeating wristwatch, the Ref. 3974, which also incorporated a

perpetual calendar and moon phases [image 1042].

Patek Philippe also released commemorative, limited-edition models to celebrate their 1989 anniversary. These included two significant models based on two of the earliest wristwatch styles to have emerged. The first was the so-called 'Officer's' watch (ref. 3960) [image 1044], which was closely based on early wristwatches from the 1910s, and the second a tonneau-shaped wristwatch with jump hours (ref. 3969) that was a clear descendant of the Art Deco originals [image 1045]. These pieces were especially significant for they channelled the very essence of Patek Philippe, at once emphasizing the watchmaker's long history and simultaneously creating a desire for the collector's watch. Drawing on, updating and reissuing vintage models would become an increasingly large and important part of the mechanical watchmaker's oeuvre in the years and decades ahead.

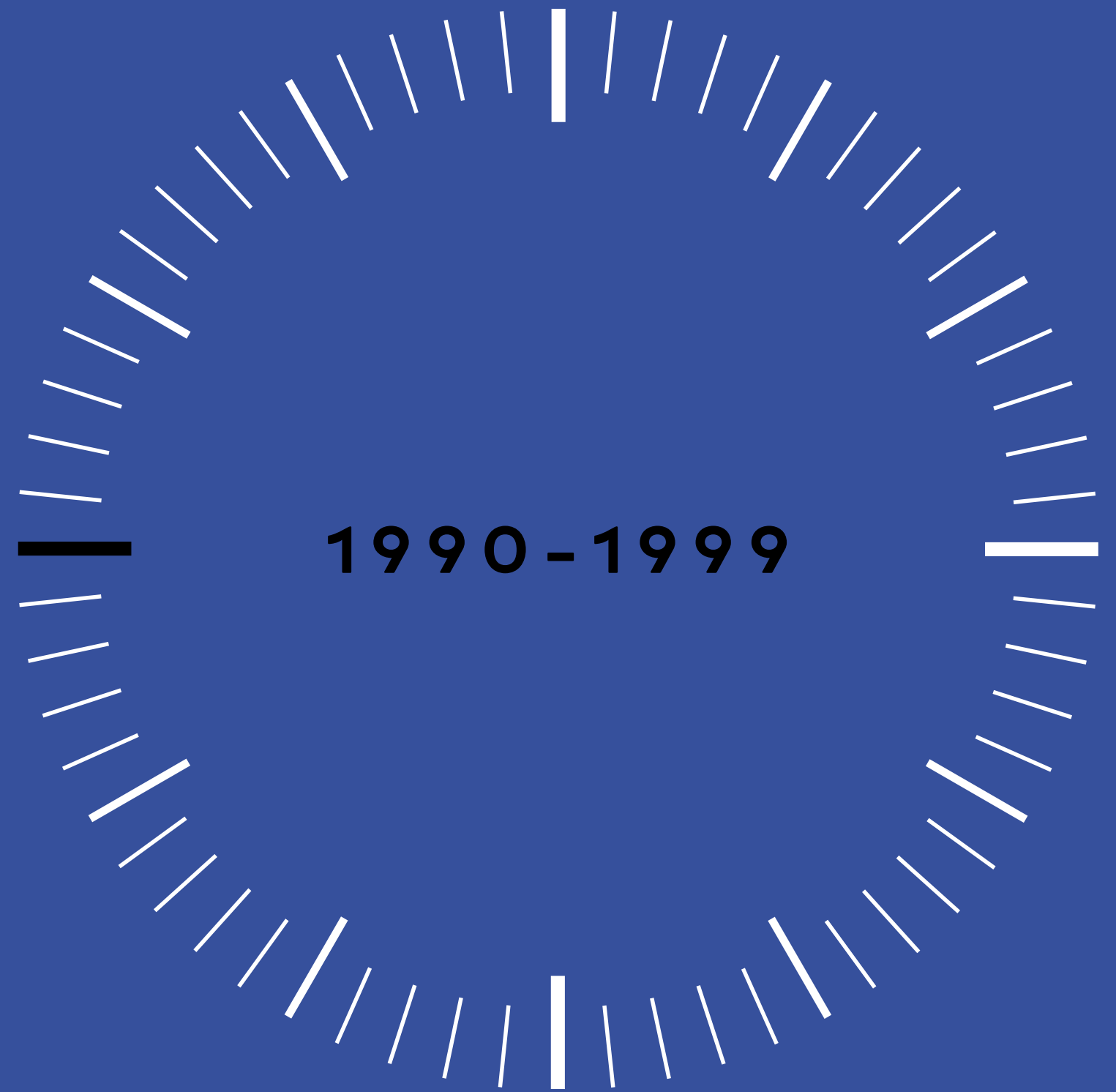
BELOW Patek Philippe Officier, Ref. 3960, first released in 1989.
An 18 ct yellow gold wristwatch with hinged case back revealing cuvette with engraved commemorative dedication (cal. 215)
Diameter 33 mm



OPPOSITE Patek Philippe Ref. 3969, first released in 1989.
An 18 ct pink gold tonneau-form jump-hour wristwatch (cal. 215HG)
Length 38 mm



FRANCK MULLER
GENEVE



1990-1999

THE 1990s

The hunger for mechanically complex watches that had been fed by a resurgent watch market in the second half of the 1980s continued to be dominant throughout the 1990s. Indeed, while the economic turbulence of the early 1990s would impact the industry, the ability of watchmakers to create new and innovative timepieces ensured the decade was supplied with a huge variety of watches.

In December 1990, following the reunification of Germany, the historical watchmaking firm of A. Lange & Söhne was re-established by Walter Lange, great-grandson of the firm’s founder. Financed by the Mannesmann group and with technical support from the International Watch Company, A. Lange & Söhne presented their first series of modern watches in October 1994. The firm entered the market with a unique offering that combined outstanding workmanship with innovative yet fundamentally classic design. Every detail of the watches was thoroughly considered and their exceptional quality was clear to see, from the precision and clarity of the dials to the highly engineered

movements and cases. Among the first models released was the Lange 1 [image 1120], and this immediately became an iconic watch in its own right. The design of the dial was highly original, with separate sections for time, seconds and power reserve, designed so that there was no interference or overlapping between one display and another. An oversized date was also created for clarity and ease of use, with a single pusher to the case side above the ten o’clock position allowing the date to be quickly adjusted when required. The watch had an impressive weight to it, and the movement, which was made from German silver, was highly distinctive – the three-quarter plate design put one in mind of an English movement from the nineteenth century. The jewels were set within screwed rings, while the back plate itself was beautifully finished with Geneva stripes to the surface. The exceptional movement finishing could be viewed through the sapphire crystal display back.

For the watchmakers that had survived the ravages of the quartz crisis, an increasing emphasis was placed on

BELOW, LEFT A. Lange & Söhne Lange 1, introduced in 1994.
An 18 ct yellow gold wristwatch with power reserve and oversized date (cal. 901.0)
Diameter 39 mm

BELOW, RIGHT Jaeger-LeCoultre Reverso 60ème Ref. 270.2.64, introduced in 1991.
An 18 ct pink gold reversible wristwatch with power reserve indication and date (cal. 824)
Length 34 mm, width 25 mm

BELOW, LEFT Alain Silberstein Krono 2, c. 1995.
A blackened steel automatic triple calendar chronograph wristwatch with registers, moon phases and 24-hour indication (cal. ETA-Valjoux 7751)
Diameter 38 mm

BELOW, RIGHT Patek Philippe Ref. 5015, made in 1996.
An 18 ct yellow gold automatic wristwatch with sector for power reserve and aperture for moon phases (cal. 240/154)
Diameter 35 mm

brand heritage. Many firms would dip into their archives to draw inspiration from designs of the past. For Jaeger-LeCoultre, 1991 saw the sixtieth anniversary of their signature model, the Reverso, and the watchmaker produced a special limited-edition model to celebrate the occasion [image 1074]. Named the 60ème (‘60th’), the anniversary Reverso had a guilloché dial with indications for date and a fan-form sector for power reserve. The watch ‘reversed’ to a sapphire crystal display back that revealed the manually wound movement, the plates and bridges of which were made from solid 14 ct gold, finished with decorative Geneva stripes. The watch’s casing itself was made from 18 ct pink gold. Produced in 500 examples, the 60ème quickly sold out, and Jaeger-LeCoultre followed this model with further limited-edition Reverso wristwatches, these incorporating popular complications such as the tourbillon and minute repeater.

One of the most distinctive brands of the 1990s was that of Alain Silberstein. Silberstein, a French artist and designer, was a marketing consultant for French fashion

watches during the 1980s. Having experimented and successfully designed a chronograph wristwatch using a Valjoux calibre 7750, Silberstein, together with his wife, launched their own watch brand, Alain Silberstein Creations, in 1989.¹ Using movements supplied by ETA, Silberstein designed a range of highly unusual and eccentric mechanical wristwatches, concentrating especially on models with chronographs, calendars and tourbillons. Silberstein’s watches drew on his artistic flair and reinterpreted the fashion watch genre for the high-end, luxury wristwatch market. Influenced by the work of the artist Joan Miró, Silberstein’s watches challenged the accepted perception of the luxury watch as an item of understated, clean design, a theme that had dominated much of 1980s mechanical watchmaking. The success of the Swatch watch and its appeal to a wide demographic had created a gap in the market for a higher priced, luxury wristwatch that mixed playful and colourful designs with high-grade materials and quality finishing. The majority of Silberstein’s watches were circular with



CUT OUT / REDUCE SHADOW, REFLECTION

slim bezels and relatively thick cases, giving the watches a somewhat cylindrical appearance. [image 1065]

As watchmakers vied with one another to create captivating dial designs, many developed unusual forms of time display, among which the jump hour and wandering hour watches featured prominently [see p. XXX]. Watches with sector displays for functions such as power reserve or date were popular throughout the 1990s [image 1153]. However, sectors were also used for time telling itself. The year 1994 marked the 400th year anniversary since the death of Gerardus Mercator (1512–1594), the Dutch cartographer famous for introducing a world map using his projection system. Vacheron Constantin marked this anniversary by releasing a new model named the Mercator in his honour [image 1075]. The case of the watch was inspired by vintage designs of the late 1940s and 1950s, but the dials were modern and vibrant. Two sectors indicated hours to the left and minutes to the right, each of retrograde format; and the two hands were in the form of mapping callipers – the minute hand

would spring back to 0 at the end of each hour, while the hour would jump back to one o'clock at the end of each twelve-hour period. The dials were decorated with maps either in gold or silver; however, a small number of polychrome enamel painted dials were also produced for Vacheron Constantin by the artists Lucie and Jean Genbrugge, using Mercator's maps as inspiration.

Franck Muller, the self-styled 'Master of Complications', launched his own brand in 1991 and throughout the decade introduced an extraordinary number of complication wristwatches that posed a direct challenge to the established watch houses. His models were highly innovative, and through inspired styling he managed to capture the elegance of the Art Deco period while successfully modernising his designs for the contemporary market. Muller had spent the 1980s working as both a restorer and maker of watches, and his passion for and understanding of the complication watch formed the basis of his company. One of this maker's most enduring designs was the Cintrée Curvex, a tonneau-shaped

BELOW, LEFT Vacheron Constantin Mercator Ref. 43050, introduced in 1994. An 18 ct yellow gold automatic wristwatch with two retrograde sectors indicating hours and minutes, the dial decorated with a polychrome enamel map painted by Jean and Lucie Genbrugge depicting the South China Sea/Taiwan and the east coast of China (cal. 1120) Diameter 36 mm

BELOW, RIGHT Franck Muller Curvex Cintrée Ref. 2850, first introduced c. 1992. An 18 ct white gold automatic perpetual calendar wristwatch with curved tonneau-form case (cal. 2800) Length 45 mm, width 31 mm

OPPOSITE Ulysse Nardin San Marco 'Répétition Minutes Jacquemart Forgerons' Ref. 701-22, introduced in 1989, this example c. 1991. An 18 ct yellow gold automatic wristwatch with minute repetition and jacquemart automaton (cal. 11) Diameter 39 mm

CUT OUT/ REDUCE SHADOW, REFLECTION



wristwatch with a gently curved case back, directly influenced by similarly styled watches of the 1910s and '20s, and this model also invariably featured the stretched Arabic numerals that epitomised the Art Deco era [image 1055]. Muller deployed the minute-repeating function in many of his models, and he was by no means alone. Throughout the 1990s, the leading makers of complication watches increasingly incorporated the minute-repeating function within their premier models, often in combination with additional complications. While the minute repeating mechanism is among the most complex of mechanical complications, an activation slide to the side of a case is usually the only indication that a watch contains this particular function. Ulysse Nardin used a historical design to produce a very visible version of the minute-repeating watch. Nardin created a series of minute-repeating wristwatches that harked back to the striking *jaquemart* figures that were found on some repeating pocket watches in the nineteenth century, themselves influenced by the striking figures found on some early

European clocks. Two figures were fitted to the dial of Ulysse Nardin's model, and when the slide to the case side was moved to activate the repeating work, the automated *jaquemart* figures would appear to strike the bell at the same time as hammers within the movement struck their gongs [image 1146]. The dials were invariably finished with translucent enamel over an engine-turned ground, again a style of decoration popular during the nineteenth century.

The range of sports-style watches increased throughout the decade. While Rolex retained their standard sports models such as the Submariner, Daytona and Explorer, in 1992 they introduced a new rugged model named the Yacht Master [image 1147]. Launched in 18 ct gold, this was a large and heavy wristwatch measuring 40 mm in diameter. With robust styling, the model had a broad rotating bezel with a matt, stippled finish. Vacheron Constantin introduced their own new sports model in the mid-1990s: named the Overseas, it drew inspiration from the firm's Hysek-designed Ref. 222 of the 1970s

BELOW Rolex Oyster Perpetual Yacht Master Ref. 16628, c. 1992.
An 18 ct yellow gold automatic centre seconds wristwatch with date and 18 ct gold bracelet (cal. 3135)
Diameter 40 mm

BELOW 1152 – Vacheron Constantin Overseas Ref. 49140, late 1990s.
A stainless steel automatic chronograph bracelet watch with registers and oversized date (cal. 1137)
Width 40 mm



BELOW 1121 – Omega Co-Axial Chronometer, made in 1999.
An 18 ct yellow gold limited-edition automatic centre seconds wristwatch with date and co-axial escapement. This example presented to George Daniels on 30 April 1999 to commemorate Omega's launch of the co-axial escapement at the 1999 Basel Watch Fair (cal. 2500)
Diameter 38 mm



(see p. XXX) and the more recently introduced Phidias model of the early 1990s. The model was made in three sizes, but its largest, chronograph version, with a width of just over 40 mm, was a reflection of the growing demand for oversized cases [image 1152]. Indeed, at its extreme, the trend for larger watches resulted in such outsized models such as Audemars Piguet's Offshore and Panerai's Luminor (see p. XXX).

As the 1990s progressed, the traditional default of the luxury wristwatch being predominantly produced in yellow gold began to change. In large part this reflected the influence of the vintage watch market, where pieces in yellow gold were generally more widely available than those in pink or the precious metals of white gold and platinum. The consequent disparity in pricing within the vintage market between examples of the same model in yellow gold and those in the rarer metals resulted in a perception that yellow gold was the least desirable of the precious metals. As a consequence, a greater proportion of watch models were manufactured in pink gold and the monochromatic metals of white gold and platinum. Mixed-metal watches were still in demand during the 1990s, but the market increasingly favoured watches made in a single metal tone.

At the Basel Watch Fair of 1999, Omega announced the release of their first wristwatch model to incorporate the co-axial escapement [image 1121]. Invented by George Daniels, the co-axial escapement was developed over a number of years, with designs completed by 1974 and a patent acquired in 1980. Its genius lay in the reduction of friction, which almost entirely removed the need for lubrication, thereby improving efficiency and extending servicing intervals. To place this event in context, Omega's use of the co-axial marked the first successful commercialisation of a new escapement since the introduction of the lever escapement, the latter invented by the English watchmaker Thomas Mudge in 1754. Stephen Urquhart, president of Omega at the time of the co-axial's launch, later wrote: 'There's no question that the industrialisation of the Co-Axial escapement marked a true turning point for the brand and laid the foundation for Omega's return to its rightful role as producer of fine mechanical watches.'² Daniels's contract with Omega's parent company, the Swatch Group, ensured that he could continue to use the escapement in his own watches. It was also agreed that a small number of *ébauches* made for the co-axial and manufactured by the Swatch Group's movement manufacturer ETA, would be supplied to Daniels for his own use. These movements were refinished in the English style, with gilded plates and blued steel screws by Daniels and his exceptional

apprentice, the watchmaker Roger Smith [image 1122]. The movements were given handmade, engine-turned dials and the circular cases had rounded, stepped bezels and an eccentrically placed crown to the lower-left case side; a sapphire crystal display back revealed the movement and its decoratively engine-turned gold rotor.

The impact of Daniels was also to be found on another stand at the Basel Watch Fair of 1999, that stand belonging to the rising watch star François-Paul Journe. In a tribute to George Daniels following his death in 2011, Journe wrote, ‘Without you [George Daniels] I would most certainly never have started to make my first watch ... [You] showed us the path back to authentic watchmaking with innovation.’³ Journe’s exhibit at the Basel fair included his Tourbillon Souverain [image 1145]. Journe had been exposed at a young age to the work of Abraham-Louis Breguet and Antide Janvier while working for his uncle, Michel Journe, an antique clock restorer from Paris. François-Paul’s extraordinary creativity, infused with the influence of Daniels and the work of makers such as Breguet and Janvier, led to the creation of his own highly individual style. Journe’s Tourbillon Souverain was the first wristwatch to incorporate a constant-force remontoire in a wristwatch – this feature ensured the even distribution of power to the watch escapement as the mainspring unwound. The watch’s dial had an eccentric layout, with equal space devoted to the time dial and aperture for tourbillon. A sector for power reserve indication was incorporated at the top of the dial, and to its base a further aperture revealed the remontoire’s fly regulator. Journe’s highly individual style, exceptional skill and quality of production ensured that his brand quickly established a loyal fan base.

By the end of the twentieth century, the design of the watch appeared to have come full circle. Stylistic elements from the 1920s to the 1970s formed the basis for many models, and vintage designs that were either reinterpreted or reissued played an important part in the offerings of the major watch brands. However, the quartz crisis and its aftermath had forced the industry to innovate in order to survive, and a new wave of talent had introduced a fresh dynamic that often challenged the established traditions. Although a tremendous number of watch brands had disappeared during the difficult years of the 1970s and early 1980s, a new generation of watchmakers had been responsible for launching new brands, while the successful consolidation of many historic marques by the Swatch and Richemont groups had led to a regeneration of the market. At the dawn of the new millennium, demand for luxury watches continued to gain momentum and a new air of confidence pervaded – the mechanical watch’s renaissance seemed all but complete.

BELOW 1122 A – George Daniels
Millennium, made in 1999.
An 18 ct yellow gold automatic centre seconds wristwatch with Daniels’s slim co-axial escapement
Diameter 37 mm

OPPOSITE 1145 – F. P. Journe Tourbillon
Souverain d’Égalité, introduced in 1999.
A platinum tourbillon wristwatch with constant-force remontoire and power reserve indication (cal. 1498)
Diameter 38 mm



JUMP HOUR WATCHES OF THE 1990s

The 1990s witnessed a renewed interest in the development of watches with unusual time displays. In 1990 the watchmaker Breguet launched a limited-edition jump hour wristwatch [image 1053]. This watch was classically styled with a white enamel dial and a blued steel hand to indicate the minutes. An aperture above ‘60’ displayed the hour in red Arabic numerals. The disc that carried the numerals revolved once every twenty-four hours and was calibrated for each hour, from 1 to 24.

Audemars Piguet launched an entirely novel wandering hour wristwatch in 1991 [image 1052]. Named the Star Wheel, the watch had a central three-armed wheel on which three transparent discs were calibrated with the hours from one to twelve o’clock. A sector at the top of the dial was calibrated for minutes. Only one disc at a time would follow the minute track – each hour index had a triangular indicator above it that pointed to the minute track as the current hour travelled across the minute sector. A highly unusual arrangement, it was a design that would be incorporated across a range of

different Audemars Piguet models, occasionally in combination with the additional complication of minute repetition.

In 1996 Cartier reintroduced a limited-edition Tank à Guichet model, a jump hour version of their Tank wristwatch which had originally been designed in 1928. The reissued model was initially made in nine examples (three in pink gold, three in yellow gold, three in platinum) for the ‘Magical Art of Cartier’ auction held at Antiquorum in Geneva in November 1996. In 1997, to celebrate the 150th anniversary of Cartier, a larger limited-edition series of Tank à Guichet watches was released [image 1054]. These were all closely styled on jump hour watches of the Art Deco period; the 1996 series featured their winding crowns between the lugs above the twelve o’clock position, while those from 1997 could be found with their winding crown at three o’clock. This placement also followed the original Tank à Guichets, which were produced with crowns in either position.

BELOW, LEFT Breguet Ref. 3420, introduced in 1990. An 18 ct yellow gold automatic jump hour wristwatch (cal. 562) Diameter 36 mm

BELOW, RIGHT Audemars Piguet Star Wheel, introduced in 1991. An 18 ct yellow gold automatic wandering hour wristwatch (cal. 2124) Diameter 36 mm

BELOW, LEFT Cartier Tank à Guichet, made in 1997. A platinum manually wound limited-edition jump hour wristwatch (cal. 007) Length 37.5 mm, width 26 mm

BELOW, RIGHT Vacheron Constantin Saltarello, made in 1998. An 18 ct yellow gold automatic wristwatch with retrograde minutes and aperture for jump hours (cal. 1120/2) Width 36 mm

A further variation on the jump hour theme was introduced in 1998 by Vacheron Constantin [image 1051]. Named the Saltarello, this cushion-form wristwatch combined vintage inspiration with modern design. There was a retrograde minute display, which formed an arc above which a conventional aperture displayed the jumping hours. As the minute hand reached ‘60’ it would fly back to the start of the new hour. Although contemporary in design, the watch had a distinctive Art Deco inspired look, with stepped lugs and a bold, engine-turned dial with prominent sunray pattern.



CUT OUT/ REDUCE SHADOW, REFLECTION



OPPOSITE AND BELOW Breguet Ref. 3350, introduced in 1990.
An 18 ct yellow gold tourbillon wristwatch (cal. 558)
Diameter 36 mm

1990s TOURBILLONS

The 1990s witnessed a dramatic increase in the range and availability of the tourbillon wristwatch. Long seen as one of the most desirable complications to be found in a watch, the tourbillon was invented by Abraham-Louis Breguet in 1801. Fittingly, the Breguet firm themselves began the new decade by introducing, in 1990, a tourbillon wristwatch model (Ref. 3350) [image 1068 A & B]. With traditional Breguet styling, the watch had an engine-turned dial with a relatively small display for the minutes and hours, thereby allowing for a large aperture beneath, through which the tourbillon carriage was displayed. Tourbillons are mesmerising to see in action – a tourbillon watch has its escapement together with its balance mounted onto a tourbillon carriage, and this carriage rotates (in a wristwatch the carriage is usually designed to make one revolution per minute) while the balance continually oscillates and the escape wheel turns. Designed to eliminate the errors that occur when a watch is in a vertical position, the tourbillon complication is in fact more suited to the pocket than the wristwatch, but its

dramatic motion is undeniably captivating and has ensured its enduring popularity in the wristwatch.

In 1991 Girard-Perregaux chose to mark their bicentenary with the introduction of a wristwatch version of their Three Bridge tourbillon. Ten years earlier, in 1981, Girard-Perregaux had begun to design and build a small series of twenty tourbillon pocket watches. These were based on an original Three Bridge tourbillon made by Constant Girard that had won first prize at the 1867 Universal Exhibition in Paris. Development of a wristwatch version was begun in 1986 to ensure completion in time for the 1991 anniversary.' The linear design of the movement, with its prominent three bridges, appears beautifully simple, yet this masks its remarkable mechanical complexity. The partially skeletonised design was well suited to the period of the early 1990s, when the popularity of the visibly displayed movement was rapidly growing.

One of the most impressive tourbillon watches of the 1990s was a model by A. Lange & Söhne named Pour Le

MAKE B/G GREY



REMOVE



OPPOSITE Girard-Perregaux Three Bridge Tourbillon, introduced in 1991.
An 18 ct pink gold tourbillon wristwatch (cal. 9600S)
Diameter 39 mm

BELOW A. Lange & Söhne Pour Le Mérite, first released in 1994, this example c. 1996.
An 18 ct pink gold tourbillon wristwatch with power reserve indication (cal. 902.0)
Diameter 38.5 mm



Mérite [image 1073]. As one of the first watches released by the recently re-established German watchmaker, Lange's tourbillon not only asserted the firm's ambitions but enabled it to showcase its technical prowess. The dial of the watch was perfectly balanced, with two subsidiary dials indicating seconds and power reserve, and a larger aperture beneath revealing the tourbillon carriage. Remarkably, the movement's going train was via a fusée and chain transmission, a feature that was otherwise largely consigned to the history books – this was almost certainly the first time such a feature had been designed for use in a wristwatch. The fusée and chain equalized the power of the mainspring to ensure even power distribution as the spring unwound. Fitted with a sapphire crystal display back, the back plate of the movement was partly cut away in order to show the fusée and its chain.



CHRONOGRAPHS OF THE 1990s

Chronograph models continued to be released in a wide range of styles during the 1990s. Although the chronograph function was incorporated into many of the period’s most complex watches, such as those with perpetual calendars, models that were primarily devoted to the watch’s timing abilities remained a popular genre during the decade.

In 1992, following three years of development, the International Watch Company launched a new split-seconds chronograph wristwatch named the Doppelchronograph [image 1072]. Styled in the manner of the firm’s military watches, such as their famous Mark XI (see p. XXX), the watch had a black dial with Arabic numerals, a triangular index at twelve o’clock and squares at the quarter hours. A large-sized model, the case measured 42 mm in diameter. The matt black dial included apertures for day and date indication, and three subsidiary dials displayed the constant seconds and registers for recording minutes and hours elapsed. An extra pusher to control the split seconds was incorporated to the left case side above the ten o’clock position.

A new quartz chronograph ‘dress’ model was released by Cartier in 1996 as part of their recently introduced Tank Française line of watches [image 1071]. Although based on the original Tank designs, the Française had a broader bezel to each side of the dial, with a curved upper case and flat back. The model was available with a specially designed bracelet that had satin-finished central links and polished side links. The dial was styled in a classic Cartier fashion with Roman numerals that stretched around its edge. Subsidiary dials displayed the date at twelve o’clock, and there were two further dials for registering minutes and hours while the chronograph was running.

BELOW International Watch Company
Ref. 3711 Doppelchronograph,
introduced in 1992.
A stainless steel automatic split-seconds
chronograph wristwatch with registers
and day and date indication (cal. 79030)
Diameter 42 mm



BELOW Cartier Tank Française, introduced
in 1996.
An 18 ct yellow gold quartz chronograph
wristwatch with registers and date (cal.
212 P)
Length 36 mm, width 28 mm



At the Basel Watch Fair of 1998, Patek Philippe launched a new chronograph model, the Ref. 5070 [image 1064]. Surprisingly, with the exception of the firm’s perpetual calendar chronograph models, this was the first chronograph wristwatch to be manufactured by the watchmaker for almost 30 years. The watch’s design was closely based on a wristwatch made between 1950 and 1952 under reference number 2512. This explains the 5070’s classic, mid-century design; the case had a chamfered bezel and pronounced, downturned lugs with stepped edges. The dial, with its applied gold Arabic numerals and leaf-shaped hands, together with the style of the subsidiary dials and calibrations, were all typical of Patek Philippe’s chronograph designs of the 1940s and ’50s. However, although the Ref. 2512 wristwatch, which provided the inspiration for the Ref. 5070, was an oversized model, the series-produced vintage chronographs of the firm had been of modest size, ranging from around 33 mm to 37 mm. The 5070 was 42 mm in diameter, and while precedents had been set for larger watches by other watchmakers earlier in the 1990s, this was an unusually large model for Patek Philippe at the time of its release.

During the second half of the 1990s Rolex began introducing a range of opulent, gem-set versions of their Daytona models [image 1070]. These colourful watches were powered by the same Zenith El Primero-derived calibre that the watchmaker had first introduced to their chronograph range in 1988. Dial combinations ranged from models with gem-set indexes to dials covered with diamonds in a pavé setting. In addition to silvered, black and champagne dials, mother-of-pearl and mineral dials were also used. Some examples were produced with calibre-cut gem-set bezels in place of the traditional calibrated chronograph bezel. Hooded lugs on some models were also embellished with diamonds or other precious stones.

BELOW Patek Philippe Ref. 5070,
introduced in 1998.
An 18 ct yellow gold manually wound
chronograph wristwatch with black dial
and register (cal. 27-70)
Diameter 42 mm

OPPOSITE Rolex Oyster Perpetual
Cosmograph Daytona Ref. 16599, c.
1999.
An 18 ct white gold automatic
chronograph wristwatch with registers,
sodalite dial, diamond-set indexes,
sapphire-set bezel and diamond-set
hooded lugs (cal. 4030)
Diameter 39 mm



CUT OUT/ REDUCE SHADOW, REFLECTION



CALENDARS OF THE 1990s

Breguet continued to expand throughout the 1990s, with new markets opening up for the brand in Asia and North America. The firm’s calendar watches proved popular, the traditional styling of their dials being especially well suited to complex displays [image 1150]. Indeed, the historical ‘Breguet’ style would continue to influence the work of other makers, including that of Franck Muller, who launched an extraordinary array of highly complicated wristwatches during the 1990s. In 1992 Muller produced what was claimed to be the most complicated wristwatch in the world, using a movement by Louis-Élysée Piguet to which Muller added further mechanical functions. The wristwatch included a perpetual calendar, moon phases, monthly retrograde equation, *grande* and *petite sonnerie*, minute repetition and temperature indication.’ This model was closely styled on the aesthetics of watches by Abraham-Louis Breguet. In 1997 Muller introduced a small series of similarly complex watches with a new calibre, the cal. 97. Figure XXX [image 1056] illustrates an example of the

cal. 97 with an Art Deco inspired case, a design period that also greatly influenced Muller’s work. Made in white gold, the case had large, hinged lugs inspired by forms from the 1930s.

At the Basel Watch Fair of 1992, Audemars Piguet presented a new, highly complex model that combined a perpetual calendar with chronograph and minute repetition [image 1136]. Aesthetically, the watch was still heavily influenced by the styles of the 1980s, with slim baton numerals and a rounded case and bezel. However, vintage design influences also showed, especially in the form of the lugs and the leaf-shaped hands, both elements of which harked back to the 1940s. Of particular note was the size of the watch’s case, which measured 42 mm in diameter, making it an especially large watch for the period.

To mark the 125th anniversary of the International Watch Company in 1993, the watchmaker introduced their most complicated wristwatch to date. Named the Destriero Scafusia, the model was also unusually large,

BELOW 1150 – Breguet Ref. 3310, c. 1995.
An 18 ct yellow gold automatic perpetual calendar wristwatch with moon phases (cal. 502)
Diameter 36 mm

OPPOSITE 1056 – Franck Muller calibre 97, c. 1997.
An 18 ct white gold perpetual calendar wristwatch with moon phases, monthly retrograde equation, minute repetition, *grande* and *petite sonnerie* (cal. 97)
Diameter 37 mm

OVERLEAF, LEFT 1136 – Audemars Piguet Triple Complication Ref. 25725, introduced in 1992.
An 18 ct yellow gold automatic perpetual calendar minute-repeating chronograph wristwatch with registers, moon phases and 52-week indication (cal. 2880)

OVERLEAF, RIGHT 1057 – International Watch Co. Destriero Scafusia, first introduced in 1993.
An 18 ct gold perpetual calendar minute-repeating tourbillon wristwatch with moon phases, split-seconds chronograph and registers (cal. 1868)
diameter 43 mm

IMAGE TO COME





OPPOSITE Audemars Piguet Triple Complication Ref. 25725, introduced in 1992.

An 18 ct yellow gold automatic perpetual calendar minute-repeating chronograph wristwatch with registers, moon phases and 52-week indication (cal. 2880)

ABOVE International Watch Co. Destriero Scafusia, first introduced in 1993.

An 18 ct gold perpetual calendar minute-repeating tourbillon wristwatch with moon phases, split-seconds chronograph and registers (cal. 1868) diameter 43 mm



with a case diameter of 42 mm and a particularly thick profile of around 17 mm [image 1057]. The watch incorporated a tourbillon, perpetual calendar, moon phases, split-seconds chronograph with registers and minute repetition. At the time of its production it was the most complicated wristwatch ever produced in series. The watch incorporated 750 individually made and hand-finished parts which allowed the movement to control the model's 21 functions and displays. Although large in size, the design was heavily influenced by mid-twentieth-century case design, with a chamfered bezel, rectangular chronograph pushers and large, downturned lugs that had chamfered outer edges. A pronounced slide to the left case side would activate the minute-repeating mechanism. The case back took full advantage of the recent trend for glazed covers, allowing the highly decorated movement to be viewed, including the impressive tourbillon carriage. The dial had a traditional silvered finish, and the shape of the hands were also influenced by styles from the 1940s and early 1950s.



Patek Philippe offered a wide range of perpetual calendar watches throughout the 1990s. One of the most complex models offered during this period was released by the watchmaker in 1993 under reference number 5016. The 5016 was a minute-repeating tourbillon wristwatch that also combined a perpetual calendar with retrograde date indication and moon phases [image 1137]. However, in 1996 the watchmaker also introduced a new form of calendar mechanism known as the 'annual calendar' [image 1069]. This new movement, while not a full perpetual calendar, self-adjusted for the differing lengths of the months with the exception of February, thereby requiring adjustment only once per year. The calendar system required a less sophisticated and consequently less expensive arrangement than that of the perpetual calendar. Launched at the Basel Watch Fair of 1996, when sales of luxury watches were easing off following the boom years of the late 1980s and early 1990s, the model was offered at one-third of the price of Patek's standard perpetual calendar model.²



ABOVE Patek Philippe Ref. 5016, introduced in 1993.
An 18 ct pink gold perpetual calendar tourbillon wristwatch with minute repetition and retrograde date (cal. R TO 27PS QR)
Diameter 36 mm

OPPOSITE Patek Philippe Ref. 5035, introduced in 1996.
An 18 ct pink gold automatic annual calendar wristwatch with centre seconds (cal. 315 S QA)
Diameter 37 mm



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WORLD TIME WATCHES OF THE 1990s

During the 1990s there was a renewed interest in the world time wristwatch, with examples introduced by a number of different manufacturers. In 1990, Svend Andersen launched a model that was heavily influenced by the world time wristwatches that Patek Philippe had made from the late 1930s to the 1950s and which had incorporated the world time mechanism invented by Louis Cottier (see p. XXX). Andersen, who had previously worked at Patek Philippe before setting up his own watchmaking business, knew the world time model well, having serviced examples himself while working in Patek’s Atelier des Grandes Complications during the 1970s.¹ [image 1139] Named the Communication, Andersen’s world time wristwatch worked in a similar manner to Cottier’s original designs: the user simply rotated the bezel until the current location/zone was shown at the twelve o’clock position, and with the hands then set to local time, the dial’s outer 24-hour ring would continually indicate the hour in all major zones around the world.

Vacheron Constantin, who had used Cottier’s world time system during the 1930s, also launched a world time wristwatch based on the principles of the original models. Vacheron’s new wristwatch was, however, contemporarily styled and was introduced as part of the brand’s Phidias line. The case of the Phidias seamlessly merged with an integrated bracelet that was both bold and sleek. To the dial of the watch, a representation of the globe was marked with the lines of longitude and latitude. Vacheron’s model also used a rotating bezel calibrated for locations around the world, each representing the different time zones. Once again, by moving the city/location representing the current time zone to the twelve o’clock position, the hour in all other zones was indicated to the 24-hour ring beneath.

A novel system of world time indication was introduced by Jaeger-LeCoultre to the dial of a new model named the Géographique [image 1049]. A long aperture above twelve o’clock allowed the user to select from a list of cities that represented the world’s time zones – the

BELOW, LEFT Svend Andersen Communication, introduced in 1990.
An 18 ct yellow gold automatic wristwatch with world time indication (cal. 9")
Diameter 32 mm

BELOW, RIGHT Vacheron Constantin Phidias, introduced in the early 1990s.
An 18 ct yellow gold automatic wristwatch with world time indication (cal. 1180)
Diameter 34.5 mm

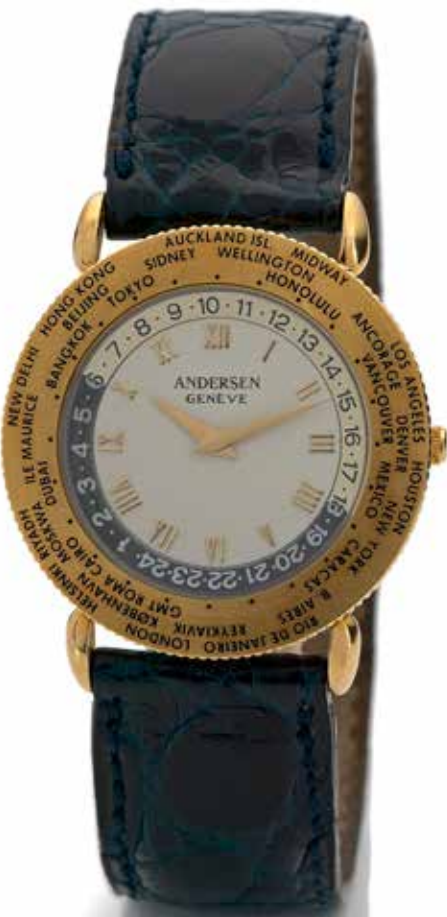
BELOW, LEFT Jaeger-LeCoultre Géographique, introduced in 1990.
An 18 ct yellow gold automatic centre-seconds wristwatch with dual/world time indication (cal. 929)
Diameter 35 mm

BELOW, RIGHT Cartier Tank Cintrée, made in the 1990s.
An 18 ct yellow gold rectangular wristwatch with dual time indication (2 × cal. 8")
Length 45.5 mm, width 23.5 mm

selection was made by turning the crown at the left case side above the ten o’clock position. At the base of the dial, a secondary time zone dial indicated the time in the city currently shown in the aperture, the hour hand moving automatically as the city disc was turned. A smaller 24-hour subsidiary dial, to the left side of the secondary time zone dial, indicated whether the hour shown in the second time zone was a.m. or p.m. Local time continued to be shown by the standard hour and minute hands to the centre of the main dial. The watch also had a fan-form sector for power reserve and a further subsidiary dial for date. This system was designed to enable the user to view the current time in any zone across the world quickly and easily. Shown at the Basel Watch Fair of 1990,² the aesthetic styling of the model retained the rounded bezel and case sides and discreet lugs favoured during the previous decade.

Another form of time zone indication continued to be available in the form of the twin-dial watch. During the 1990s, Cartier offered a dual-time version of their classic

Tank Cintrée [image 1140]. Dividing the dial in half, the upper and lower time zones were powered by separate, manually wound movements. The use of twin dials was a form that had appeared in previous decades, and the rectangular case of the Cintrée lent itself especially well to the concept, allowing two square dials of equal size to be used to fill the entire surface area of the dial.



CUT OUT / REDUCE SHADOW, REFLECTION

GRANDE SONNERIE

During the 1990s, as complication wristwatches became more and more popular, watchmakers vied with one another to produce ever more complex models. However, not all the complication watches of the period were immediately visible as such. Although repeating watches that chimed the time on demand were often incorporated with a host of other mechanical functions, a number of firms continued to offer the minute-repeating wristwatch without additional mechanical complications, the only sign of their complexity being a discreet slide to the side of the case.

Although remaining rare, one form of complication that became more visible during the 1990s was the minute-repeating watch with *grande* and *petite sonnerie* – the so-called ‘clock-watch’. Such watches may be set to chime the time in passing. Grande sonnerie watches will strike the hour automatically at the start of each new hour, then, on passing each quarter, the watch will strike first the quarters (usually a single chime on a high-pitched gong), followed by the hours (a single strike for each hour on a lower-pitched gong). *Petite sonnerie* will normally strike each hour as it is reached and may additionally chime the quarters (although without the hour) as the minute hand reaches each quarter. Clock-watches will also repeat on demand, although unlike a standard minute repeater, the repetition is activated via a pusher rather than a slide – the pusher will release a

pre-wound train, which then allows the watch to strike the time; this is in place of the slide used in a standard repeating watch, where the action of moving the slide winds the repeating work each time it is used.

In 1992 Philippe Dufour, an independent watchmaker based in the Vallée de Joux, Switzerland, presented an exceptional *grande sonnerie* wristwatch. The watch, which had taken two years to complete, was styled in the manner of a traditional pocket watch, with a white enamel dial, Roman numerals and blued steel hands. Slides or ‘switches’ within the case sides allowed the user to select whether or not the watch would be in striking mode and, if striking, whether the hours and/or quarters would sound. Although Dufour placed a glazed cuvette (cover) over the movement, the case had a solid hinged back, the maker preferring to conceal the movement from view, thereby making its reveal all the more special. Indeed, the movement was exquisitely finished with beautifully chamfered bridges bearing decorative Geneva stripes to their surfaces. The execution of the watch was an astonishing achievement – the experience that Dufour had obtained from restoring pocket watches in the 1980s, especially those with repeating work, had proved invaluable. Philippe Dufour was one of a small number of highly talented ‘independents’ whose watches would become increasingly sought after as the mechanical watch’s renaissance continued throughout the 1990s.

OPPOSITE 1058 – Philippe Dufour, introduced in 1992.
An 18 ct pink gold two-train wristwatch with *grande* and *petite sonnerie* trip minute repetition (cal. 12)
Diameter 41 mm



PANERAI AND OFFSHORE

During the 1980s, the size of wristwatches had remained relatively modest, with circular-cased watches for men generally measuring between 34 and 36 mm. Trends for extremely large watches would develop in the years ahead, but most especially after the turn of the millennium. However, the early years of the 1990s began to see the introduction of some models with larger case sizes. In 1993, two brands released models that would challenge the sizing of watches and open the door to a new breed of outsized models.

In 1989 Emmanuel Gueit, a young designer working at Audemars Piguet, produced conceptual designs for an entirely new form of the brand's flagship model, the Royal Oak.¹ This new Royal Oak scaled up the original format dramatically and gave it a decidedly rugged look, helped by the fact that it was also a chronograph model. A thick and pronounced black gasket was visible between the screwed-down bezel and the main body of the case [image 1063], while the crown and chronograph pushers, which were protected by silicon caps, were surrounded by substantial guards that protruded from the case. The dial had a hobnail finish across the surface, adding texture and further emphasizing the watch's robust design. Most significant was the watch's size: measuring 42 mm in width and with a thick body, this was a vast wristwatch by the standards of the period. Named the Royal Oak Offshore, upon its release at the Basel Watch Fair of 1993 the watch had already earned the nickname 'The Beast'.²



RIGHT Audemars Piguet Royal Oak Offshore Ref. 25721ST, introduced in 1993.
A stainless steel automatic chronograph wristwatch with registers and date (cal. 2126/2840)
Width 42 mm

OPPOSITE Officine Panerai Mare Nostrum Ref. 5218-301/A, introduced in 1993.
A stainless steel chronograph wristwatch with register (cal. 3127)
Diameter 42 mm





OPPOSITE Officine Panerai Luminor Marina Ref. OP6519, made c. 1999. A PVD-coated cushion-form wristwatch (cal. OP11)
Width 44 mm

On board an Italian Navy cruiser, in September 1993, the watch brand Panerai presented a series of three limited-edition watches. Based on models created by Panerai during the Second World War, these were extremely large models, the originals of which were designed for use by military divers and were intended to be worn on the outside of a diving suit. The models released were the Luminor, Luminor Marina and Mare Nostrum and were sized between 42 mm and 44 mm [images 1061 & 1062]. The Mare Nostrum was a chronograph wristwatch with a broad, flat bezel and distinctive black dial that had bold luminescent numerals. However, it was the large cushion-form case of the Luminor watches that would become the signature style for future editions of the Panerai models. These watches had massive cushion-form cases and substantial guards that entirely covered the crown; the crown itself was locked in place by a lever within the guard. Both the Luminor and Luminor Marina had distinctive black dials with large Arabic and baton numerals, which were usually luminescent (although occasionally with luminescent accents above). Being of cushion shape and with a hefty

crown guard, the 44 mm width of the Luminor watch case was even more pronounced. At the time of Panerai's relaunch in 1993, the Italian watch market was highly influential, and, despite a challenging economic situation during that year, the time was ripe for reinvigorating an Italian watch brand. Indeed, following their launch, the models were enthusiastically greeted by the collectors' market, and in 1997 the Vendôme Group (now known as the Richemont Group) purchased the Panerai brand. The following year, Panerai was formally launched on the world stage and would begin a dramatic rise to prominence within the first few years of its new ownership.

Both the Offshore and Panerai models would prove highly influential in the coming years. With their success, a new market for very large wristwatches was established. While the effects were not immediate, a trend for enlarging watches slowly began. Two decades after the introduction of the Offshore and Panerai models, the outsized watch case would come to dominate the market, with case widths of 40 mm and above being commonplace.

GLOSSARY

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BIBLIOGRAPHY

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NOTES

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INDEX

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INDEX

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Text indent

INDEX

Text
Text indent

IMPRINT

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